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The Relationship between ESG and the Cost of Capital in the Luxury Goods Industry

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DECLARATION OF USE OF ARTIFICIAL INTELLIGENCE TOOLS

I, Alessandro Corsatto, declare that I used generative artificial intelligence tools, specifically ChatGPT by OpenAI, as a support tool during some phases of the preparation of this thesis.

In particular, ChatGPT was used to support the linguistic revision and improvement of the English text. It was also used to support the creation, revision and organization of the R codes employed for the empirical analysis.

The use of artificial intelligence was limited to linguistic support and technical assistance in the development of the statistical code. The research design, selection of sources, data interpretation discussion of the results and final conclusions were independently developed, checked and revised by me.

I further declare that all AI-assisted material was carefully reviewed, verified and integrated into this thesis under my own responsibility. Therefore, I take full responsibility for the accuracy, quality and academic integrity of the final work.

INTRODUCTION

Sustainability has evolved into one of the most crucial factors influencing corporate decision-making processes across various sectors globally. Initially, Environmental, Social, and Governance (ESG) metrics were seen as voluntary, often marginal elements of business strategies. However, over the past decade, ESG factors have transitioned into core components of corporate governance, investment analysis, and regulatory frameworks. This transition reflects a fundamental shift in how businesses operate and how they are assessed by investors, regulators, and other stakeholders.

In the past, sustainability was largely confined to niche markets or luxury-focused products. Today, ESG performance plays an essential role in determining not only the strategic direction of companies, but also in shaping their financial performance and access to capital. As ESG considerations become more mainstream, their implications extend well beyond just consumer goods and services. In fact, ESG has now become central to how companies are evaluated in financial markets, influencing their cost of capital, risk profiles, and long-term success.

In recent years, sustainable and responsible investment has transitioned from a niche preference to a dominant framework within global capital markets. The adoption of non-financial criteria in asset management has experienced exponential growth, reflecting a fundamental shift in how institutional and private investors evaluate long-term risk and corporate value creation. Rather than being treated as a secondary ethical consideration, environmental, social, and governance (ESG) strategies are increasingly integrated into core investment decisions, now commanding a substantial and rapidly expanding portion of global assets under management (AUM).

Looking ahead, market consensus and global forecasts uniformly point toward a sustained acceleration of this trend over the coming decade. This projected trajectory suggests that ESG-linked capital is on track to become a foundational, structural standard for international finance rather than a temporary market anomaly. Such a massive reallocation of resources is increasingly visible across various investment vehicles—ranging from specialized sustainable funds to broader exchange-traded instruments—underscoring the profound and permanent influence of sustainability metrics on global capital flows, resource allocation, and modern portfolio construction.

The surge in ESG-oriented assets under management is especially relevant for discussions about the cost of capital, as it reflects how sustainability considerations are increasingly integrated into investor valuation models and risk assessments. Investors now more frequently tend to favor companies with strong ESG performance, recognizing that firms capable of managing material environmental and social risks are likely to produce more stable long-term cash flows and face lower risk premia in both equity and debt markets. As a result, firms with robust ESG profiles may benefit from lower costs of equity, improved access to sustainable debt instruments, and more favorable borrowing terms,

further reinforcing the financial relevance of ESG integration in corporate strategy and investment analysis.

The growing focus on ESG reflects broader trends in capital markets, where investors and lenders are increasingly integrating non-financial factors into their decision-making processes. ESG performance is believed to influence firm value through various channels, each of which plays a critical role in shaping a company's cost of capital

- First, it can affect revenues by aligning products and services with consumer preferences for sustainability. Research consistently shows that consumers, particularly those in younger generations, are willing to pay a premium for products that reflect sustainable values. As a result, firms that align their brand with sustainability can command higher prices and strengthen customer loyalty, driving revenue growth.
- Second, ESG practices can reduce costs through resource efficiency and better risk management. Companies that integrate sustainability into their operations are more likely to manage resources effectively, reduce waste, and optimize supply chains. These practices not only contribute to long-term cost savings but also reduce exposure to environmental risks, regulatory fines, and operational disruptions. Such improvements can directly enhance profitability, thus lowering financial risk and, by extension, the cost of capital.
- Third, ESG practices have the potential to significantly alter a company's risk profile. By mitigating environmental and social risks, such as climate change, regulatory changes, labor disputes, and supply chain disruptions, firms reduce the uncertainty that investors face, leading to a lower required rate of return. This is particularly relevant in sectors like luxury, where firms often rely on intangible assets such as brand reputation and consumer loyalty, both of which are highly susceptible to ESG-related risks.

For example, a well-managed ESG strategy can enhance a company's ability to secure favorable financing terms, such as lower interest rates or reduced equity risk premia, as investors increasingly seek companies with lower exposure to long-term environmental and social risks. Companies with strong ESG performance can signal to investors that they are better equipped to handle regulatory changes, consumer trends, and environmental shocks, all of which contribute to a more stable cash flow outlook and lower financing costs.

The luxury industry, in particular, presents a fascinating case in the context of ESG. Traditionally, luxury firms have been associated with exclusivity, high margins, and intangible value, driven by the power of brand equity, heritage, and craftsmanship. Unlike many other industries, where competition is often centered around product differentiation and price sensitivity, luxury firms thrive on their ability to create strong emotional connections with consumers. In this specific industry, firms sell not just products, but also experiences, lifestyles, and aspirations, with their brand stories being an integral part of their value proposition.

However, in recent years, the landscape of luxury has been changing rapidly, as external forces such as globalization, technological innovation, and shifting consumer expectations have begun to reshape the industry. These factors are pushing luxury firms to reassess their operations and integrate sustainability into their business models. In particular, the luxury sector is increasingly vulnerable to environmental and social risks due to its reliance on global supply chains that use precious materials like leather, gemstones, and metals, all of which are susceptible to issues such as climate change, labor rights violations, and natural resource depletion.

Despite these risks, the luxury industry also presents substantial opportunities for ESG to have a positive impact. When properly integrated into their brand narrative, sustainability practices can bolster consumer loyalty, enhance brand equity, and allow luxury firms to command premium prices. As consumers become more conscious of the environmental and social implications of their purchases, luxury firms that proactively adopt and communicate sustainability practices are likely to enjoy a competitive advantage.

However, despite these clear links between ESG performance and financial outcomes, empirical research examining the effect of ESG on the cost of capital in the luxury industry remains sparse and inconclusive. Most studies have focused on broader sectors or more traditional industries, with limited attention paid to how ESG affects firms in the luxury market specifically. The luxury sector, with its unique reliance on intangible assets and long-term brand value, requires a more nuanced exploration of how ESG factors influence both equity and debt financing. Furthermore, while the positive effects of ESG on equity risk premia and cost of debt have been widely acknowledged in broader financial markets, similar studies in the luxury sector are still in their infancy.

This research gap underscores the importance of exploring how ESG performance in luxury firms impacts their cost of capital, both in terms of equity and debt. As sustainability becomes a central pillar of corporate strategy, understanding the financial implications of ESG in luxury is critical for investors, managers, and policymakers who seek to navigate the changing dynamics of capital markets.

Evolution of sustainability in the luxury industry

One of the most significant developments in the luxury sector over the past decade has been the increasing emphasis on sustainability. Traditionally, luxury firms were less concerned with environmental and social issues, as their market positioning was primarily built on exclusivity and high quality. However, the luxury industry has come under increasing pressure over time, from both consumers and regulators to adopt more sustainable practices and to demonstrate corporate social responsibility (CSR). In fact, sustainability in luxury has evolved from being seen as a niche interest to a mainstream expectation, with consumers increasingly making purchasing decisions based on a brand's environmental and social credentials.

In the early 2000s, luxury brands were hesitant to embrace sustainability, primarily because it was perceived as a challenge to their exclusivity and luxury status. Sustainability was often seen as incompatible with the core values of the luxury market, which prioritized rarity, craftsmanship, and traditional manufacturing practices. However, key events and developments in the 2010s marked a significant shift in this perception. For example, in 2013, Gucci became one of the first major luxury brands to commit to a comprehensive sustainability strategy, incorporating environmentally friendly materials, ethical sourcing, and carbon footprint reduction into its operations. This commitment set a precedent for other luxury brands to follow and signaled a broader trend toward embracing sustainability in the luxury sector.

In the following years, the growing influence of millennials and Gen-Z consumers, who are more socially and environmentally conscious, pushed sustainability to the forefront. According to recent surveys, nearly 60% of Gen-Z luxury buyers actively research a brand's sustainability credentials before making a purchase, demonstrating that younger cohorts now prioritize sustainability alongside traditional luxury values (The Wise Marketer, 2025). The increasing consumer preference for sustainable products has been accompanied by growing regulatory pressure, especially in Europe, where initiatives like the EU Green Deal and the Corporate Sustainability Reporting Directive (CSRD) have become key drivers of corporate sustainability. The CSRD, which came into effect in 2024, mandates that large companies disclose detailed ESG information, further reinforcing the need for luxury firms to integrate sustainability into their business models. In addition, the EY Luxury Client Index (2025) shows that 31% of global luxury consumers consider sustainability a key factor in their purchasing decisions, with an increasing share of the market linking environmental and social responsibility to brand value and long-term trust.

As these shifts have unfolded, several luxury firms have started to align their corporate strategies with sustainability goals. In 2020, LVMH announced its goal of achieving carbon neutrality by 2030 and implemented a "Life 360" environmental strategy that includes reducing emissions, using renewable energy, and ensuring supply chain traceability. Similarly, Kering, the parent company of brands such as Gucci and Saint Laurent, has been a leader in sustainability, committing to reducing its carbon footprint by 50% by 2025 and focusing on circular fashion practices. Another key example is within Richemont luxury group and its maison Chloé, which in 2021 was the first luxury maison to achieve B-Corp Certification.

Apart from carbon footprint reduction, new sustainable trends are born in order to face the greener demand and needs of the market:

- Circular economy & resale: luxury brands like Gucci and Burberry are adopting "second-life" initiatives, including in-house pre-owned platforms and repair services to maintain product value and reduce waste
- Innovative & sustainable materials: brands are shifting away from conventional, high-impact materials towards regenerative, organic, and lab-grown alternatives

- Radical transparency & traceability: using technologies like blockchain, brands are now mapping supply chains to ensure ethical labor practices and environmental compliance, specifically for raw materials like gold and diamonds
- “Green” craftsmanship: high-end, durable production is replacing fast-fashion mentalities, emphasizing that longevity and quality of products are inherent to sustainable luxury
- Sustainable packaging: redefining luxury by eliminating plastic and excess packaging, moving towards recycled and sustainable materials

All these new trends are having a big impact on accounting and finance as well. For instance, an impactful initiative is Kering’s Environmental Profit & Loss accounting system, which quantifies environmental impacts in financial terms. This helps enhance transparency of operations and accountability as well.

LITERATURE REVIEW

The relationship between Environmental, Social, and Governance (ESG) performance and the cost of capital is grounded in traditional corporate finance theory, which emphasizes the balance between risk and return in the determination of a firm's value. The value of a firm is typically calculated as the present value of its expected future cash flows, discounted at an appropriate rate that reflects the risk profile of the company. The cost of capital, which represents the discount rate, is a critical component in determining the present value of future cash flows and is influenced by several factors, including systematic risk ⁽¹⁾, liquidity, and investor demand.

ESG performance plays a significant role in both components of this equation. On the one hand, strong ESG performance can affect cash flows by driving revenue growth through increased demand for sustainable products or services and by lowering operating costs through more efficient resource usage, better risk management, and improved stakeholder relationships. On the other hand, ESG performance influences the cost of capital by altering a firm's perceived risk. Investors are willing to accept a lower return (lower required rate of return) for companies with strong ESG practices, as these companies are perceived as being better equipped to handle long-term environmental, social, and governance risks. Consequently, firms that efficiently manage ESG risks reduce their exposure to disruptions, regulatory penalties, and reputational damage, which lowers their risk profile and subsequently reduces their cost of capital.

Recent developments in the theoretical framework have refined our understanding of these mechanisms. For instance, Pástor et al. (2021) introduce a model where the integration of sustainability preferences into investor behavior leads to lower expected returns for firms with strong ESG performance. The model emphasizes that, as investors grow more focused on sustainability and climate-related risks, firms with robust ESG strategies become more attractive, resulting in a lower cost of capital.

Other contributions, such as those by Bolton and Kacperczyk (2021), further support this notion by linking sustainability concerns to broader macroeconomic trends, demonstrating that industries and firms exposed to climate transition risks can expect a higher cost of capital, especially if they fail to align with emerging regulatory frameworks.

Furthermore, ESG-related risks are no longer considered isolated events but are increasingly viewed as systemic risks that affect the overall market. This shift towards considering ESG as a fundamental element of market-wide risks is supported by the

⁽¹⁾ Systematic risk, also known as market risk or non-diversifiable risk, refers to the risk inherent to the entire market or a specific sector that cannot be eliminated through diversification. It is caused by factors such as economic recessions, interest rate changes, inflation, and political instability, which affect all firms within the market to some degree. Systematic risk is typically measured using beta in financial models like the Capital Asset Pricing Model (CAPM).

growing interest in measuring ESG risk at the portfolio level. This includes studying the relationship between ESG performance and measures of systematic risk, such as firm beta. Research indicates that firms with stronger ESG performance tend to have lower beta values (the measure of systematic risk), implying that these firms are less sensitive to broader market fluctuations (Krüger, 2015). This is particularly relevant for firms operating in industries characterised by high presence of intangible assets, such as luxury goods, where the cost of capital may be influenced by long-term reputational risks associated with environmental or social issues.

The 2025 Bain & Company and Altagamma Report on Luxury ESG & Market Trends offers insights into the growing importance of ESG factors within the luxury industry. This report shows that while luxury brands have traditionally been less focused on ESG compared to other industries, changing consumer expectations and regulatory pressures are pushing the sector towards more sustainable practices. The report provides a comprehensive analysis of the luxury market, highlighting that over 60% of consumers in key luxury markets, such as Europe and the U.S., now prioritize sustainability when making purchasing decisions. This shift is also influencing how investors evaluate luxury brands, with a clear preference for firms that demonstrate a commitment to environmental sustainability, labor standards, and governance practices. Bain & Company and Altagamma (2025) highlight that luxury firms that embrace sustainability in their business models and brand narratives are not only able to enhance customer loyalty but also lower their cost of capital. By aligning with consumer preferences for ethical and sustainable production, luxury firms can secure favorable financing terms, attract ESG-focused investors, and enhance their long-term brand value. The report also discusses the rise of green bonds and sustainability-linked loans as important financing tools in the luxury industry, enabling firms to access capital at lower costs. This report is essential for understanding the macro trends affecting the luxury industry and the rising importance of ESG in determining capital costs. It also provides empirical support for the argument that strong ESG performance in the luxury sector is now closely tied to long-term market success and reduced financial risk.

ESG and financial performance: evolution of the empirical literature

The empirical literature on ESG and financial performance has undergone significant evolution, with early studies focusing on the direct impact of ESG on firm value and profitability, while more recent studies explore the nuanced channels through which ESG influences financial performance. Meta-analyses, such as those conducted by Friede et al. (2015), show that the relationship between ESG performance and financial outcomes is generally positive or neutral, though the strength of this relationship varies depending on the industry and the specific sustainability issues at play.

Khan et al. (2016) highlighted the importance of distinguishing between financially material and immaterial ESG issues. Their study suggests that performance on material

ESG issues is positively associated with superior financial performance, while non-material issues tend to have no meaningful financial impact. For example, environmental performance, such as energy efficiency and emissions reduction, is often considered material for industrial firms but less so for service-oriented firms. In contrast, social and governance issues, such as labor practices and board diversity, may have a more substantial impact on industries like retail and luxury, where brand reputation and consumer loyalty are critical.

In the luxury industry, ESG factors related to supply chain traceability, labor conditions in manufacturing, and the environmental impacts of raw material sourcing have gained increasing attention from investors, regulators, and consumers over the past decade. Unlike many mass-market industries, luxury firms rely heavily on complex and geographically dispersed supply chains that involve environmentally and socially sensitive inputs, such as leather, precious metals, gemstones, and specialty agricultural products. A significant share of the environmental footprint and social risk exposure of luxury firms is therefore concentrated upstream, often outside the firm's direct operational boundaries, making ESG management particularly challenging but also economically consequential.

Recent literature emphasizes that supply chain transparency has become a critical dimension of ESG performance in luxury. Traceability systems that allow firms to monitor the origin, processing, and environmental impact of raw materials are increasingly viewed as essential risk-management tools rather than purely ethical initiatives. The use of conflict-free minerals, certified sourcing standards, and blockchain-based tracking technologies has been shown to reduce exposure to regulatory sanctions, activist pressure, and reputational shocks (Christensen et al., 2021). In industries where brand narratives and authenticity are central to value creation, failures in supply chain oversight can lead to severe and persistent damage to brand equity, with long-lasting financial consequences.

Labor conditions and social standards in manufacturing represent a second core ESG dimension for luxury firms. Craftsmanship, artisanal skills, and human capital are fundamental inputs in luxury production, particularly in fashion, leather goods, watches, and jewelry. Poor labor practices, unsafe working conditions, or violations of human rights not only create legal and ethical risks but can directly undermine product quality, brand storytelling, and consumer trust. Recent studies suggest that strong social performance in luxury supply chains is associated with lower operational disruption risk and greater organizational resilience, especially in periods of supply chain stress (Lins et al., 2024). These effects are economically relevant because disruptions in luxury production can be costly, slow to reverse, and highly visible to consumers and investors.

Environmental impacts of raw material sourcing have also become increasingly salient. Luxury firms face growing scrutiny regarding deforestation, biodiversity loss, water usage, and carbon emissions associated with leather, textiles, and agricultural inputs. In response, many leading luxury groups have adopted circular economy practices, including

recycled materials, product repair and resale platforms, and closed-loop production systems. While such initiatives may involve upfront investment costs, recent evidence suggests that they can generate long-term economic benefits by improving resource efficiency, stabilizing input costs, and reducing exposure to environmental regulation and climate-related risks (McKinsey & Company, 2022). In this sense, environmental ESG initiatives in luxury function not only as reputational safeguards but also as mechanisms for long-run cost control and risk mitigation.

Importantly, the literature increasingly recognizes that these ESG practices can influence financial outcomes through channels that extend beyond revenues and operating margins. By reducing the likelihood of severe reputational events, regulatory penalties, and supply chain disruptions, ESG performance in luxury can lower perceived firm risk and, consequently, the cost of capital. Investors and lenders may view firms with credible traceability systems, strong labor standards, and proactive environmental management as less exposed to downside tail risks, particularly in a context of tightening sustainability regulation and rising stakeholder scrutiny. This risk-based interpretation is especially relevant for luxury firms, whose valuations are highly sensitive to discount rates due to the long-lived nature of brand-driven cash flows.

Overall, the emerging literature suggests that ESG factors in the luxury sector operate as strategic risk-management tools that protect intangible assets and stabilize long-term value creation. However, despite growing qualitative and case-based evidence, there remains limited empirical research directly linking these luxury-specific ESG dimensions to observable financing outcomes such as the cost of equity, the cost of debt, and the weighted average cost of capital. This gap motivates a more systematic, data-driven analysis of whether and how sustainability performance in luxury supply chains and production processes is priced by capital markets.

One of the newest research projects on the topic is the one by Wong, Nguyen, and Kwansa (2024) which provides an empirical analysis of the relationship between ESG performance and the cost of capital in the U.S. market. The study explores whether firms with stronger ESG ratings are able to secure lower equity risk premiums, considering the growing interest in sustainable investing. The researchers employ a large sample of U.S. public companies across multiple industries, using data spanning from 2010 to 2023. The study finds a significant negative relationship between ESG performance and the cost of equity, particularly for firms that actively engage in climate-related practices and demonstrate high levels of transparency in their environmental impact disclosures. Wong et al. (2024) argue that investors view strong ESG performance as an indicator of long-term resilience, reducing perceived risk and thus lowering the required return on equity. This is especially true for firms that integrate sustainability into their business models and maintain high standards of corporate governance and social responsibility. The authors also emphasize that ESG practices related to climate change and resource efficiency have a particularly strong influence on financial performance, as they align with evolving regulatory frameworks and market trends. This study is critical for understanding how

ESG can influence the cost of capital, particularly in the context of the U.S. market, where sustainability concerns are becoming increasingly material to investors. The findings support the notion that higher ESG performance can reduce both firm-specific and systematic risk, thereby lowering the overall cost of equity.

Moreover, Neokleous (2026) investigates how sustainability reporting and impression management strategies influence firm value and the cost of capital. The study focuses on the luxury and fashion sectors, specifically looking at how luxury firms frame their ESG disclosures to appeal to investors and consumers. Neokleous employs content analysis of sustainability reports from major luxury brands over the last five years, linking these disclosures to stock price performance, investor sentiment, and borrowing costs. The key finding is that firms in the luxury sector that use strategic sustainability reporting, rather than purely compliance-driven reporting, tend to experience higher brand value and lower cost of capital. Impression management, the deliberate use of ESG reporting to shape perceptions, has a direct financial impact, as investors interpret these reports as a signal of long-term stability and corporate foresight. Luxury firms that promote their sustainability achievements and demonstrate clear commitment to ethical sourcing, carbon-neutral production, and labor rights are able to secure favorable financing terms and reduced equity risk premia. This work is particularly useful for understanding the interplay between brand equity and sustainability reporting in the luxury industry. It reinforces the idea that transparency and credibility in ESG disclosures can significantly lower perceived risk, leading to lower capital costs.

ESG and risk: volatility, downside risk, and resilience

While ESG is often associated with the reduction of operational costs and the enhancement of long-term brand equity, a crucial aspect of its financial impact lies in its ability to manage risk. Recent studies emphasize the role of ESG performance in reducing various types of risk, particularly downside and event risk. Firms that invest in sustainability practices are often less exposed to catastrophic events such as environmental disasters, regulatory penalties, or labor strikes, all of which can have severe financial consequences.

Albuquerque et al. (2020) provide empirical evidence that firms with stronger ESG profiles are more resilient during periods of crisis, such as the COVID-19 market downturn. This resilience is attributed to the firms' better risk management frameworks, stronger stakeholder relationships, and more robust supply chains, which allow them to weather external shocks more effectively. Similarly, Lins et al. (2024) show that companies with higher ESG scores have lower exposure to price volatility and large negative returns during market downturns.

Luxury firms, in particular, benefit from improved risk management due to their reliance on intangible assets like reputation and brand equity. As consumer preferences increasingly align with sustainability values, luxury brands that proactively adopt ESG

principles are likely to experience less volatility in stock prices and brand value compared to their peers who lag in sustainability initiatives.

ESG and the cost of equity

The relationship between ESG performance and the cost of equity has garnered increasing attention in finance literature over the past two decades, as scholars aim to understand how sustainability practices influence the financial performance of firms. A key insight across various studies is that firms with superior ESG performance tend to face lower costs of equity capital. This finding is primarily attributed to the role of ESG in reducing perceived firm risk and enhancing investor confidence. ESG performance influences both systematic risk and idiosyncratic risk ⁽²⁾, which collectively determine the cost of equity, the rate at which investors expect returns on their investments.

One of the key theories linking strong ESG performance to lower equity costs is the reduction in systematic risk. Companies with high ESG scores are generally perceived as less vulnerable to external shocks such as regulatory changes, environmental disasters, or social unrest. These firms are viewed as more resilient, with cash flows considered less volatile in the face of such disruptions. For example, strong environmental performance helps companies mitigate the risks associated with increasing climate regulations, while good social performance helps avoid the risks of reputational damage and consumer backlash. Additionally, solid governance practices are seen as indicators of better risk management and lower agency costs. Together, these factors reduce a company's overall risk exposure, leading investors to view these firms as safer investments, which in turn results in a lower equity risk premium.

Research by El Ghouli et al. (2011) provides empirical evidence supporting this view, demonstrating that firms with superior corporate social responsibility (CSR) performance benefit from lower equity risk premia. Their study suggests that investors are willing to accept lower returns on investments in firms that exhibit strong CSR practices because these companies are perceived as less risky. The argument is that good ESG performance signals to investors that a firm is well-managed, future-proof, and better positioned to navigate social, environmental, and regulatory risks. As a result, investors perceive these firms as lower risk and are therefore willing to accept a lower return for holding their equity, which directly translates into a lower cost of equity.

In the last decade, research has expanded on this foundational understanding by incorporating more granular and disaggregated ESG data, allowing for a deeper exploration of how specific dimensions of ESG contribute to the cost of equity. While early studies primarily used aggregate ESG scores, recent studies have focused on

⁽²⁾ Idiosyncratic risk, also known as specific risk or unsystematic risk, refers to the risk that is unique to an individual company or industry. It arises from factors like management decisions, company performance, and industry-specific events. Unlike systematic risk, idiosyncratic risk can be reduced or eliminated through diversification, as its impact is limited to individual securities rather than the broader market.

disaggregating these scores into their individual pillars to assess their unique impacts. Bauer et al. (2010), for instance, argue that the effect of ESG on equity costs is particularly pronounced when firms adopt credible sustainability practices that can be verified by third parties. Transparency in ESG reporting, the use of certified environmental practices, and adherence to recognized standards such as the Global Reporting Initiative (GRI) or SASB (Sustainability Accounting Standards Board) framework significantly enhance the credibility of a firm's sustainability efforts. These certifications provide investors with reliable, comparable, and consistent information, which helps to reduce information asymmetry and lowers the perceived risk associated with the firm.

Moreover, studies have shown that investors increasingly demand high-quality ESG disclosures, recognizing the importance of standardized and externally assured data to assess the long-term sustainability of firms. When companies provide high-quality ESG reports that are transparent, consistent over time, and aligned with global best practices, they demonstrate commitment to their sustainability goals. This, in turn, boosts investor confidence and reduces the uncertainty surrounding future cash flows and corporate performance. As ESG disclosure quality improves, so does the firm's liquidity, as investors are more willing to trade in stocks of companies that provide credible, clear, and reliable sustainability data. The result is a lower perceived risk, which translates into a reduced cost of equity. Bauer et al. (2010) emphasize that companies with credible ESG disclosures, in line with global standards, build trust among investors, thereby enhancing their financial standing and lowering capital costs. Additionally, the social and governance pillars have also shown a significant relationship with equity costs. Companies with strong social metrics, such as diversity and inclusion policies, responsible sourcing, and commitment to human rights, are often viewed as more resilient to reputational risks and regulatory scrutiny. These social initiatives contribute to long-term brand loyalty and consumer goodwill, which in turn supports more stable cash flows. Governance also plays a crucial role in this relationship, with strong corporate governance practices serving as a signal of low agency costs and effective risk management. Investors tend to favor firms with independent boards, transparent executive compensation, and clear shareholder rights, as these characteristics reduce the likelihood of managerial malfeasance and increase the firm's stability.

The positive relationship between ESG and lower equity costs also aligns with growing trends in sustainable investing, where investors are actively seeking to align their portfolios with firms that exhibit strong environmental and social performance (Bauer et al., 2010). The rise of ESG funds, green bonds, and sustainability-linked loans has further fueled this trend, as financial products now explicitly tie investment returns to ESG performance. As these investment vehicles gain in popularity, firms that are leaders in ESG performance are likely to attract more capital, further reducing their cost of equity.

In summary, a growing body of literature confirms that firms with stronger ESG performance are perceived as lower risk by investors, leading to a lower cost of equity. This relationship is driven by several factors: ESG improves transparency, reduces

systematic risk, mitigates reputational risks, and enhances investor confidence. Furthermore, firms that engage in credible sustainability practices, provide high-quality ESG disclosures, and adhere to third-party certifications are particularly likely to benefit from lower equity risk premia. As investor demand for sustainable investments continues to rise, the importance of ESG in determining a firm's cost of equity is likely to increase, making it a central component of modern financial analysis.

ESG and the cost of debt

The relationship between ESG performance and the cost of debt has become a central topic in sustainable finance, with bond investors and lenders increasingly integrating ESG factors into their credit analysis. Firms with strong ESG performance typically face lower credit spreads, as lenders perceive them as less risky and more likely to fulfill their debt obligations. This trend reflects the growing recognition that environmental, social, and governance issues can significantly affect a firm's ability to generate stable cash flows, leading to higher borrowing costs if left unaddressed.

Studies by Chava (2014) and Goss and Roberts (2011) provide empirical evidence that firms with robust CSR and environmental practices benefit from lower borrowing costs. These firms are seen as more resilient, and their financial stability is less likely to be disrupted by ESG-related issues, making them more attractive to lenders. As a result, they can secure favorable loan terms and reduce their credit risk premium. Conversely, companies with weak ESG performance face higher credit spreads, reflecting their greater exposure to environmental or social risks. These findings are confirmed by recent studies, such as Fiorillo et al. (2025), which analyze over 25,000 corporate bonds and demonstrate that higher ESG ratings correlate with lower credit spreads, particularly for firms with strong environmental and social practices.

Moreover, the luxury sector presents a unique context for examining this relationship. Debt financing is essential for luxury firms to fund their expansion, brand development, and global supply chains. As these firms are highly dependent on their reputation and intangible assets, any ESG-related failure can severely damage their brand value and lead to higher capital costs. For example, luxury brands that rely on high-quality raw materials, like leather and precious metals, must also manage ESG risks in their supply chains, as poor sustainability practices could lead to reputational damage. Therefore, luxury firms that implement strong sustainability practices are better positioned to access capital at more favorable terms, as they are perceived as less risky by lenders.

In addition to environmental practices, transparency in ESG reporting has become a critical factor in determining the cost of debt. Firms that provide clear, reliable, and standardized ESG disclosures signal their commitment to sustainability and are less likely to face unexpected risks. These disclosures not only reduce information asymmetry but also enhance investor confidence, which can lead to lower borrowing costs. As Bauer et al. (2010) demonstrate, companies that align their ESG practices with recognized global

standards, such as the Global Reporting Initiative (GRI) or the Task Force on Climate-related Financial Disclosures (TCFD), are more likely to secure favorable financing terms, as investors and creditors view them as more transparent and better prepared for long-term sustainability challenges.

The increasing importance of sustainable finance products, such as green bonds and sustainability-linked loans, further emphasizes the growing link between ESG performance and the cost of debt. These products explicitly tie borrowing terms to sustainability targets, incentivizing firms to improve their ESG metrics in exchange for more favorable financing conditions. Fiorillo et al. (2025) and Zanotto (2024) underscore this growing trend, with the former noting that firms with robust ESG performance experience lower borrowing costs across both bond issuance and credit facilities. This dynamic is particularly evident in the luxury sector, where firms that embrace sustainability in their operations are well-positioned to benefit from these financing opportunities.

In conclusion, for luxury firms, strong ESG performance plays a crucial role in securing debt financing at favorable terms. The integration of ESG factors into debt pricing reflects lenders' growing sensitivity to non-financial risks and their recognition that sustainability is essential for long-term financial stability. As ESG becomes increasingly important in the capital markets, luxury firms that align their practices with sustainability standards will enjoy a competitive advantage, benefiting from lower borrowing costs and improved access to capital. As shown by Bain & Company and Altagamma (2025), firms that lead in ESG integration can access capital at preferential rates, which enables them to maintain growth trajectories and invest in sustainable initiatives without the burden of high financing costs.

ESG performance and firm-specific characteristics

The relationship between ESG performance and the cost of capital may vary significantly across firms due to differences in firm-specific characteristics. Contemporary research increasingly shows that attributes such as firm size, leverage, profitability, and governance practices can influence how ESG is priced by financial markets. For instance, larger firms often benefit more from ESG adoption because they typically have greater access to resources, stronger brand recognition, more sophisticated stakeholder management processes, and wider capital market visibility. These advantages enable them to invest in comprehensive and impactful sustainability initiatives, which can translate into reductions in perceived risk and improvements in financing conditions. Conversely, smaller firms with limited financial and human resources may struggle to implement broad ESG strategies, which can constrain their ability to reduce risk exposure and secure favorable financing terms.

Leverage is another key factor shaping the ESG-cost of capital relationship. Firms with high leverage are more sensitive to changes in the cost of debt due to their greater reliance

on borrowed capital and higher default risk. In these cases, strong ESG performance can play a risk-mitigating role by reducing credit risk, enhancing liquidity profiles, and improving relationships with lenders. As ESG performance strengthens, lenders may perceive lower default probabilities, allowing firms to benefit from narrower credit spreads and lower debt costs. Evidence from the luxury sector suggests that firms with lower leverage and higher ESG scores tend to face more favorable financing conditions, as they are viewed as financially stable and better equipped to withstand economic downturns (Zerbib, 2024).

Recent empirical research supports these dynamics. For example, Gressier, Jeanjean, and Paugam (2025) examine how firm characteristics condition the effect of ESG on financing costs across a large sample of European and North American companies. They find that large firms with higher ESG ratings experience significantly lower costs of both equity and debt, whereas the effect is weaker or statistically insignificant for smaller, low-profitability firms. According to their results, size and profitability enhance the risk-mitigating value of ESG, suggesting that firms with strong financial fundamentals are better positioned to translate ESG investments into reduced capital costs. They also show that the ESG-cost of capital relationship is more pronounced in industries with higher intangible intensity and reputational sensitivity, which aligns with the characteristics of luxury firms, where brand value and consumer trust are crucial drivers of financial performance.

These insights emphasize that ESG is not a uniform determinant of capital costs across all firms; rather, its influence interacts with firm-level economic characteristics. In the luxury industry, where brands are highly dependent on intangible assets and reputation, the combination of size, low leverage, solid profitability, and high ESG performance appears particularly effective in reducing financing costs and enhancing access to capital.

The role of ESG disclosure quality

While ESG performance is critical in determining the cost of capital, the quality of ESG disclosure has become an increasingly important factor in this relationship. High-quality ESG disclosure not only reduces information asymmetry but also enhances the credibility of a firm's sustainability commitments. Firms that provide detailed, standardized, and externally verified ESG data are perceived as more trustworthy by investors, lenders, and other stakeholders, which in turn can reduce their cost of capital.

In recent years, regulatory frameworks such as the European Union's Corporate Sustainability Reporting Directive and the Task Force on Climate-related Financial Disclosures have pushed firms toward improving their ESG reporting practices. The CSRD, which came into effect in 2024, mandates companies to disclose more comprehensive and standardized ESG information, particularly related to climate change and supply chain management. Studies indicate that such transparency leads to better access to capital markets and lower financing costs, as investors can more easily assess the long-term risks associated with a firm's ESG performance.

However, the quality of ESG disclosure is not uniform across firms. While some luxury companies have made significant strides in providing reliable and detailed ESG reports, others still provide vague or incomplete information. For example, Kering has been praised for its transparency in its environmental impact reporting, while other firms have been criticized for lacking clear targets and verifiable metrics (Sustainability Accounting Standards Board [SASB], 2023).

ESG in the luxury sector: unique challenges and opportunities

The luxury sector presents unique challenges and opportunities when it comes to integrating ESG into business strategies and assessing its impact on the cost of capital. Luxury firms often operate in a globalized market with diverse consumer bases, which means that their sustainability efforts must appeal to a broad range of stakeholders, including investors, regulators, and customers. Furthermore, luxury brands are often built on long-term narratives of craftsmanship, heritage, and exclusivity, which makes them particularly sensitive to reputation risks. Negative publicity related to environmental or social issues can erode a brand's value and affect consumer willingness to pay, thereby increasing the cost of equity.

At the same time, luxury firms can capitalize on the increasing consumer demand for sustainability, as this shifts broader market expectations and affects purchasing behaviour. While earlier research such as McKinsey & Company (2022) indicated that more than 60% of consumers were willing to pay a premium for sustainably produced products, more recent data confirm that sustainability considerations remain highly relevant for consumers globally. According to PwC's *Voice of the Consumer Survey (2024)*, consumers are willing to pay an average of 9.7% more for products that are sustainably produced or sourced, even amid cost-of-living pressures, reflecting ongoing prioritization of environmental and social values in purchase decisions. Additionally, Euromonitor's *Voice of the Consumer: Sustainability 2025* survey finds that 61% of consumers globally still care about climate change and expect brands to lead with credible sustainability action, underscoring the continuing importance of sustainability in shaping consumer expectations.

Within the luxury context specifically, recent industry reports point to evolving consumer preferences. The *KPMG Luxury Report 2025* highlights that many consumers increasingly seek sustainable and circular purchasing habits, and industry professionals identify sustainability goals as a key motivation for embracing second-hand or more sustainable luxury options. This trend suggests that although the willingness to pay a premium for sustainability may vary across segments and generational groups, sustainability is progressively becoming a salient dimension of luxury consumption, especially when integrated meaningfully with product quality, brand narrative, and craftsmanship.

The luxury industry's reliance on intangible assets, such as brand equity, heritage, and customer loyalty, provides a substantial opportunity for firms to use ESG practices as a

tool to enhance these assets and differentiate themselves from competitors. As consumers' expectations for credible action on sustainability and social responsibility grow, luxury firms that effectively integrate ESG into their value proposition can strengthen their brand positioning, foster greater consumer trust, and justify premium pricing. These factors not only enhance sales performance but also contribute to long-term financial success. ESG issues in the luxury sector include supply chain transparency, labor rights, and the environmental impacts of raw material sourcing. For instance, luxury brands like LVMH and Gucci have committed to sourcing sustainable materials and reducing their carbon footprint through innovative practices such as circular production and zero-waste initiatives (Christensen et al., 2021). These efforts not only help mitigate environmental risks but also position luxury brands as leaders in sustainability, enhancing their appeal to both consumers and investors.

ESG and the link between brand equity and cost of capital

In the luxury industry, brand equity plays a crucial role in determining a firm's value and financial performance. Brand equity is built over time through consistent quality, innovation, and customer loyalty, and it is highly vulnerable to reputational risks related to ESG issues. Research by Aaker (1991) demonstrates that brand equity is positively correlated with a company's ability to command premium pricing and secure favorable financing terms. Luxury brands with a strong commitment to ESG principles, such as ethical sourcing, sustainable production, and social responsibility, are likely to see their brand equity strengthen, thereby lowering their cost of capital.

Moreover, the increasing importance of brand equity in the cost of capital calculations suggests that ESG performance may have a more pronounced effect on the luxury sector than on other industries. This is because luxury firms rely on intangible assets that are deeply connected to consumer perceptions and emotional loyalty, which can be directly influenced by ESG factors (Bauer et al., 2010). As a result, luxury firms that are perceived as responsible and sustainable may enjoy lower costs of equity and debt, as they are viewed as less risky by investors and lenders.

The future of ESG in luxury and implications for cost of capital

Looking ahead, the role of ESG in shaping the cost of capital is likely to increase, especially as regulatory pressures continue to mount and consumer demand for sustainable products grows. In the luxury sector, this trend presents both challenges and opportunities. On one hand, luxury firms will need to ensure that their ESG strategies align with evolving regulatory requirements, such as the European Union's Green Deal and the CSRD, which demand stricter environmental and social disclosures. On the other hand, firms that successfully integrate ESG principles into their operations and communicate

their efforts transparently can reduce their financing costs and strengthen their long-term financial position.

As the link between ESG and the cost of capital becomes more pronounced, future research will likely continue to explore the specific mechanisms through which ESG influences firm value. This includes investigating how different dimensions of ESG (environmental, social, and governance) contribute to risk reduction, improved liquidity, and investor demand, as well as exploring the impact of ESG on firm performance across various industries, including luxury.

Research gap

While extensive research has explored the relationship between ESG performance and the cost of capital, limited attention has been paid to the luxury sector, where intangible assets, such as brand equity, heritage, and reputation, are uniquely sensitive to environmental, social, and governance risks. Existing empirical literature has primarily focused on capital-intensive industries like energy, utilities, and heavy manufacturing, where ESG risks are directly tied to operational disruptions and environmental liabilities. However, the unique structural characteristics of luxury firms, including their reliance on artisanal craftsmanship, emotional brand storytelling, and highly fragmented global supply chains, present a fundamentally different risk-return profile that traditional corporate finance models fail to fully capture.

This literature gap becomes even more pronounced when examining the specific channels of financing. While the impact of ESG on the cost of equity has received growing academic coverage, research addressing the cost of debt within highly intangible industries remains underdeveloped. Recent studies in general corporate markets (e.g., Zanotto, 2024; Fiorillo et al., 2025) provide compelling evidence that robust ESG profiles mitigate systemic risk, leading to lower borrowing costs. Yet, how debt providers, such as commercial banks and bondholders, evaluate these non-financial metrics for firms whose primary value resides in brand prestige rather than collateralizable physical assets is still underexplored. Furthermore, as highlighted by Bauer et al. (2010) and Neokleous (2026), the credibility and transparency of ESG disclosures are paramount in reducing asymmetric information and perceived risk premia. In the luxury context, where brand value and stakeholder trust are tightly interwoven, the financial verification of such disclosures represents a critical, yet unexamined, determinant of market valuation.

This thesis aims to fill these distinct gaps by providing comprehensive empirical evidence on how ESG disclosure in luxury firms influences both equity and debt costs. Rather than focusing on operational ESG performance metrics, this study specifically investigates the financial transmission channels of sustainability reporting and transparency. By isolating luxury brands and accounting for their specific market dynamics, this research demonstrates how capital providers evaluate the quality and credibility of non-financial disclosures as a critical signaling mechanism. In an industry driven by intangible equity,

where brand value is highly vulnerable to information asymmetry and reputational shocks, such disclosure strategies play a decisive role in mitigating perceived risk and redefining how long-term value creation is assessed by both lenders and investors.

To achieve this objective, the remainder of this thesis is organized as follows: Chapter 1 deepens the theoretical relationship between ESG performance and corporate value creation. Chapter 2 conceptualizes both the cost of equity capital and the cost of debt capital, developing their analytical links with ESG performance. Chapter 3 outlines the defining features and operational challenges of the luxury sector, specifically under an ESG-oriented lens. Chapter 4 presents the data, sample selection, and the methodology of the empirical analysis, while the comprehensive results and discussions are detailed in Chapter 5. Finally, the concluding section synthesizes the empirical findings, highlights managerial and policy implications, and offers recommendations for future research.

CHAPTER I

ESG AND CORPORATE VALUE CREATION

Sustainability has emerged as one of the most transformative forces shaping corporate strategy in the 21st century. Over the past two decades, businesses have been increasingly required to reconsider how they operate, allocate resources, and interact with stakeholders in response to growing environmental concerns, social expectations, and governance challenges. As global economic activity expands and societies become more aware of the environmental and social consequences of production and consumption, firms are facing mounting pressure to align their business models with broader sustainability goals. In this evolving context, Environmental, Social, and Governance (ESG) factors have gradually moved from the margins of corporate strategy to the very center of business decision-making.

Historically, corporate performance was evaluated almost exclusively through financial indicators such as profitability, revenue growth, and shareholder returns. Non-financial considerations, including environmental responsibility, labor standards, and governance structures, were often regarded as secondary concerns or reputational issues rather than fundamental determinants of firm value. However, this perspective has changed dramatically in recent years. ESG considerations are now widely recognized as critical elements of long-term corporate resilience and value creation. Rather than representing a purely ethical or reputational concern, ESG performance has become a key indicator of how effectively a company manages risks, identifies opportunities, and adapts to structural changes in the economic environment.

As stated in the Global Sustainable Investment Review 2024 by the Global Sustainable Investment Alliance (GSIA), the total value of global sustainable investment assets reached approximately USD 16.7 trillion in 2024, marking a 49% increase over the previous two years. The shift toward sustainable investment is accelerating: the market for ESG-linked assets is projected to grow by nearly 19% per year, with estimates indicating it could surpass USD 180.8 trillion by 2034. This growth demonstrates the increasing demand for investments that prioritize sustainability, indicating a substantial reorientation of capital markets toward responsible and sustainable investments.

Several factors have contributed to the rapid rise of ESG in corporate and financial decision-making. First, the increasing urgency of global challenges such as climate change, resource scarcity, and social inequality has prompted governments, regulators, and international organizations to implement new frameworks that encourage sustainable business practices. Regulatory initiatives such as climate disclosure requirements, sustainable finance taxonomies, and corporate sustainability reporting standards have significantly increased the transparency and accountability expected from corporations. For example, the European Union Green Deal, the Task Force on Climate-related Financial Disclosures (TCFD), and the EU Corporate Sustainability Reporting Directive (CSRD),

which mandates that companies disclose comprehensive ESG information starting in 2024, represent significant shifts in global regulation. As a result, firms are now required not only to generate financial value but also to demonstrate their capacity to operate responsibly within environmental and social boundaries. In particular, companies are under increasing scrutiny to address environmental concerns, such as their carbon footprints and waste management practices, as well as social issues like labor rights, supply chain transparency, and consumer health.

Second, financial markets themselves have played a major role in accelerating the integration of ESG factors into corporate strategy. Institutional investors, asset managers, pension funds, and sovereign wealth funds have increasingly incorporated sustainability considerations into their investment processes. Nowadays, investors recognize that companies capable of managing environmental and social risks are more likely to generate stable cash flows and sustain competitive advantages over the long term. Consequently, ESG metrics have become an essential component of investment analysis, portfolio allocation, and risk management practices across global capital markets. For instance, Fortune Business Insights (2026) predicts that the global ESG investing market will be valued at approximately USD 39.1 trillion in 2025. This expansion is evidence of the growing integration of sustainability into financial markets, with ESG factors influencing investment decisions, portfolio construction, and risk assessments.

The growing influence of sustainable investing has fundamentally reshaped the relationship between corporate sustainability and financial performance. Investors are increasingly allocating capital toward firms that demonstrate strong ESG performance, while companies with weak sustainability profiles may face higher scrutiny, reputational risk, and restricted access to financing. This shift reflects a broader recognition that environmental and social risks can have material financial consequences, affecting not only a firm's operational performance but also its market valuation and financing conditions.

Importantly, this shift in capital allocation reflects an evolving understanding of the relationship between sustainability and corporate value creation. Companies that adopt robust ESG practices are better positioned to mitigate the risks posed by environmental degradation, social inequality, and governance failures. These firms are more likely to secure stable revenue streams, enhance their brand reputation, and strengthen customer loyalty, ultimately driving long-term profitability.

The relevance of ESG for corporate value creation is particularly evident in industries where intangible assets, such as brand equity, reputation, and consumer trust play a critical role in determining firm value. Among these industries, the luxury sector presents a particularly compelling case. Luxury firms rely heavily on intangible assets such as heritage, brand image, and emotional connections with consumers, all of which are highly sensitive to environmental and social perceptions. Unlike industries where competition is driven primarily by price or functional product differentiation, luxury companies derive

much of their value from symbolic attributes and the emotional connection they foster with consumers.

As a result, sustainability and ethical practices have become increasingly important components of luxury brand narratives. Consumers, especially younger generations, such as Millennials and Gen-Z, are increasingly placing value on brands that reflect their environmental and social values. According to Bain & Company's 2025 Report on luxury and ESG trends, 60% of consumers in key luxury markets, such as Europe and the U.S., now prioritize sustainability when making purchasing decisions. These generations are driving demand for transparency and responsibility from the brands they support, encouraging luxury firms to integrate ESG practices into their core operations.

This trend reflects a broader transformation in consumer behavior, where social responsibility and ethical consumption are increasingly seen as vital factors in purchasing decisions. In this context, luxury firms that embrace sustainability in their supply chains, production processes, and product offerings are not only improving their brand image but also enhancing their financial stability and long-term market position.

The growing importance of ESG is creating new opportunities for luxury firms to differentiate themselves in a competitive marketplace. By aligning their corporate strategies with sustainable practices, these firms can leverage their commitment to environmental sustainability, social justice, and ethical governance as core drivers of value creation. In this way, ESG practices have become strategic tools for managing risks, creating long-term value, and sustaining a competitive advantage in the luxury sector.

1.1. Definition of ESG

The concept of Environmental, Social, and Governance (ESG) has evolved significantly over the past few decades, from being a niche focus on social responsibility and environmental awareness to becoming a critical and integrated component of corporate strategy and financial decision-making. Initially, ESG was primarily associated with corporate social responsibility (CSR), which involved companies engaging in philanthropic activities or meeting minimum legal standards to mitigate environmental damage or social harm. However, this early form of CSR often operated as a voluntary and somewhat disconnected initiative that was separate from a company's core operations.

Over time, the focus of ESG broadened to encompass sustainability in a more comprehensive sense, encompassing both environmental stewardship and the broader social and governance dimensions of corporate behavior. Today, ESG has emerged as a powerful force that influences not only a company's operations but also its market valuation, investment attractiveness, and long-term viability. ESG factors are now considered fundamental indicators of a company's risk management capabilities, resilience to external shocks, and its ability to adapt to global trends in consumer demand, regulation, and technological innovation.

As businesses face increasing pressure to contribute to solving global challenges such as climate change, inequality, and social justice, ESG performance is seen as a way for companies to align their business models with the broader societal values and expectations of their stakeholders. This growing emphasis on ESG reflects a shift from traditional models of corporate governance that prioritized short-term financial gains toward a more long-term, value-oriented approach, where social and environmental factors are integral to business success.

1.1.1. Environmental (E)

The Environmental component of ESG focuses on how companies manage their environmental impact and the risks associated with their operations. As awareness grows around the global environmental crisis, including climate change, resource depletion, deforestation, and pollution, the pressure on companies to integrate environmental considerations into their business strategies has intensified. These environmental concerns are no longer seen as peripheral issues but are central to corporate sustainability and resilience in the long term (Bolton & Kacperczyk, 2021).

This shift is largely driven by the increasingly visible effects of environmental degradation. According to the Intergovernmental Panel on Climate Change (IPCC), the world is facing urgent challenges related to rising temperatures, extreme weather events, and diminishing natural resources. In response to these crises, businesses are under increasing scrutiny not only from governments but also from consumers and investors, all of whom demand more sustainable practices. As such, the environmental aspect of ESG has become a critical focus area for companies aiming to mitigate risks, comply with evolving regulations, and build long-term resilience.

Climate change

The first area within the environmental dimension is climate change. Climate change has become one of the most significant environmental challenges of our time, and its consequences are deeply intertwined with corporate strategies. The environmental impact of a company's operations, especially in terms of carbon emissions, energy consumption, and pollution, has attracted increasing attention. Companies across industries are being held accountable for their contribution to global warming, with governments and environmental groups calling for action.

The Paris Agreement (2015) is one of the most important international frameworks that addresses climate change, setting a goal to limit global warming to below 2°C compared to pre-industrial levels, with efforts to limit the rise to 1.5°C. This treaty has significantly influenced corporate behavior by encouraging businesses to set science-based targets for reducing their greenhouse gas emissions. Many firms are now aligning their operations

with the Paris Agreement by committing to carbon neutrality and adopting practices aimed at reducing their carbon footprint.

Apple, for instance, announced in 2020 that it aims to achieve carbon neutrality across its entire global supply chain by 2030. This ambitious commitment involves reducing carbon emissions, increasing energy efficiency, and investing in renewable energy projects worldwide. Similarly, Microsoft has committed to becoming carbon negative by 2030, removing more carbon from the atmosphere than it emits. These bold goals align with growing expectations from both stakeholders and regulators that businesses take active roles in tackling climate change.

Studies indicate that companies with strong environmental performance are not only helping to mitigate climate risks but are also better positioned to attract capital from sustainable investors (Krueger et al., 2020). According to a 2020 report by BlackRock, businesses that proactively manage climate-related risks and integrate climate resilience into their operations are seen as more stable and less likely to face disruptions due to extreme weather events or regulatory penalties.

Resource use and efficiency

Another key environmental concern is how efficiently companies use natural resources, such as water, energy, and raw materials, and the extent to which they reduce waste and adopt circular economy principles. Resource efficiency has become a central part of corporate environmental strategy because it not only minimizes environmental impact but also helps reduce operating costs and improve supply chain resilience.

Tesla, for example, has built its business model around electric vehicles, which reduce reliance on fossil fuels and decrease carbon emissions. By focusing on sustainable energy solutions, Tesla has established itself as a leader in both clean technology and the automotive industry, capitalizing on growing consumer demand for environmentally friendly alternatives to traditional gasoline-powered vehicles.

Moreover, companies that invest in energy efficiency, for example, by implementing energy-saving technologies or improving manufacturing processes, can reduce operating costs, protect against rising energy prices, and improve their competitiveness. In a study by McKinsey & Company (2020), firms that invested in energy-efficient technologies saw a significant reduction in energy consumption and operational costs, while also enhancing their brand reputation among consumers who prioritize sustainability, as further confirmed by more recent studies (International Energy Agency, 2022).

The growing interest in renewable energy sources is another critical trend in the move toward resource efficiency. Companies like Google have made large investments in renewable energy projects, powering their data centers with 100% renewable energy. As of 2020, Google became the first major company to offset all its operational carbon emissions. Similarly, IKEA has committed to using renewable energy in its operations and

has invested in renewable energy infrastructure, including wind and solar power projects, to reduce reliance on fossil fuels and lower overall environmental impact.

Sustainable sourcing

Sustainable sourcing refers to how companies obtain raw materials and resources used in their production processes. Given the rising importance of supply chain sustainability, businesses are increasingly expected to source materials responsibly, especially in industries that rely on non-renewable or environmentally sensitive resources. Apple, for instance, has committed to using 100% recycled materials for its products and is actively working to improve the sustainability of its supply chain.

This growing focus on sustainable sourcing is driven not only by consumer demand for ethically produced goods but also by increasing regulatory requirements related to supply chain transparency. For instance, in 2020, the UK Modern Slavery Act came into force, requiring businesses to report on their efforts to prevent slavery and human trafficking within their supply chains. In addition, initiatives like the Fair-Trade certification and Forest Stewardship Council (FSC) certification for sustainable timber are becoming more widespread in industries ranging from fashion to food production.

As stated before, over 60% of global luxury consumers now expect brands to source materials ethically and sustainably, reflecting a shift in consumer expectations toward greater environmental and social responsibility (Bain & Company, 2025). Companies that integrate ethical sourcing into their business models not only reduce the risk of reputational damage but also improve their long-term profitability by ensuring that their supply chains are resilient and aligned with consumer values.

Regulation of environmental practices

As the global environmental crisis intensifies, the regulatory environment around corporate environmental practices is becoming more stringent. Governments and international bodies are increasingly implementing policies aimed at reducing the ecological impact of industries, especially with regard to carbon emissions and resource depletion.

In the European Union, the EU Green Deal aims to make Europe the first climate-neutral continent by 2050. This ambitious policy agenda includes measures to reduce carbon emissions, improve energy efficiency, and promote sustainable energy use across all sectors. Companies that fail to comply with these regulations risk penalties, reputational damage, and losing access to certain markets. A study by EY (2024) found that 40% of firms in the EU have already adopted climate action strategies to meet the EU Green Deal targets, with significant investments being made in clean technologies and renewable energy.

Additionally, global environmental regulations, such as the Paris Agreement and climate risk disclosure initiatives, are pushing companies to implement stricter environmental controls. This regulatory pressure is accelerating the adoption of ESG practices across industries, as firms realize that meeting regulatory requirements and aligning with sustainability goals is essential for maintaining market access and investor confidence.

Overall, the Environmental component of ESG has moved from being a supplementary concern to a strategic priority for businesses. Companies that proactively manage their environmental impact, through practices such as reducing carbon emissions, improving resource efficiency, and ensuring sustainable sourcing, are better positioned to thrive in an increasingly regulated and sustainability-focused market. As the global environmental crisis continues to escalate, businesses that fail to adapt risk facing financial, reputational, and operational challenges. On the other hand, companies that embrace environmental responsibility will likely find new opportunities for growth, reduced costs, and improved resilience, positioning themselves as leaders in the rapidly evolving landscape of sustainable business practices (Eccles et al., 2014).

1.1.2. Social (S)

The Social aspect of ESG focuses on how companies manage their relationships with key stakeholders, including employees, suppliers, customers, and the communities in which they operate. As businesses increasingly recognize the importance of sustainability in their operations, the social dimension has emerged as a crucial area of focus, as it directly influences a firm's ability to build long-term value and trust. Unlike the environmental and governance pillars, which often focus on risk mitigation and regulatory compliance, the social component is centered on human capital and community relations, emphasizing how companies treat people inside and outside the organization (Lins et al., 2017).

Effective social practices foster stronger relationships with stakeholders, enhance a company's reputation, and improve financial performance by creating more loyal customers, dedicated employees, and supportive communities. Today, social performance is recognized as an integral part of corporate sustainability, as companies are increasingly expected to contribute positively to the social fabric of the communities they serve. Social sustainability, understood as the fair and ethical treatment of employees, consumers, and suppliers, has moved beyond mere corporate philanthropy to become a critical measure of long-term corporate resilience.

Labor rights and fair treatment

One of the key considerations under the social aspect of ESG is labor rights and fair treatment. This includes a company's responsibility to ensure that its workforce is treated with dignity, that their rights are respected, and that working conditions meet or exceed international standards. Labor rights encompass various issues such as fair wages, health

and safety, working hours, and the right to organize and collectively bargain. International labor standards, such as those established by the International Labour Organization (ILO), provide frameworks for companies to measure and improve their labor practices.

In recent decades, companies have faced increased scrutiny for their labor practices, particularly in the context of global supply chains where the risk of exploitation is high. Nike, for instance, faced significant backlash in the 1990s over poor working conditions in its supply chain, especially in factories located in Asia. The company was criticized for using sweatshop labor, with reports of long working hours, unsafe conditions, and low wages. As a result, Nike made concerted efforts to improve its labor practices, including strengthening supply chain audits, improving transparency, and implementing better worker welfare programs. Nike's response has been a case study in corporate turnaround, showcasing how companies can leverage social responsibility to repair and enhance their brand image. Today, Nike is seen as a leader in promoting fair labor standards across its global supply chain and is committed to ensuring sustainability in its workforce management.

According to Human Rights Watch (2022), firms that ensure fair treatment of workers not only comply with legal requirements but also benefit from improved employee productivity, retention rates, and brand loyalty. Customers and investors increasingly expect companies to adhere to high ethical standards, and firms that fail to meet these expectations can suffer from reputational damage and loss of market share.

Diversity and inclusion

Another critical aspect of the Social dimension is a company's commitment to diversity and inclusion (D&I). Social criteria in ESG increasingly encompass how companies create a diverse workforce, promote gender equality, and ensure that individuals from different backgrounds have equal opportunities to thrive. A company's workforce diversity is not limited to gender or race; it also involves aspects such as age, disability, ethnic background, and sexual orientation. Inclusive organizations actively foster environments where diverse talents are not only accepted but celebrated.

Research has shown that diverse teams are more innovative and perform better than their homogeneous counterparts. A study by McKinsey & Company (2020) found that companies with more ethnically diverse and gender-diverse executive teams were 33% more likely to outperform their competitors in terms of profitability and value creation. Furthermore, companies with diverse leadership are better equipped to navigate complex global markets, as they bring a variety of perspectives and ideas to decision-making processes. As a result, diversity and inclusion have become significant focus areas for investors, who now recognize that D&I is a key factor in a company's long-term performance and resilience.

Accenture, for example, has long been a proponent of diversity in the workplace, focusing on gender parity and creating opportunities for underrepresented groups in leadership roles. The company's commitment to inclusion not only has led to a stronger and more engaged workforce, but has also positioned Accenture as a forward-thinking employer, attracting talent from diverse backgrounds. This commitment to diversity has translated into improved financial performance and stronger relationships with clients who value inclusion.

Community engagement

Community engagement is another important aspect of the social dimension of ESG. This involves how companies engage with local communities, contribute to their development, and build positive relationships with external stakeholders. Community engagement can take many forms, including philanthropy, volunteering, education initiatives, and fostering local employment.

Companies are increasingly being evaluated on how they contribute to society beyond generating profits. Ben & Jerry's, for example, has long been recognized not just for its ice cream but for its strong commitment to social justice and activism. The company integrates social causes into its branding, using its platform to advocate for environmental sustainability, racial equality, and climate change action. Through its campaigns and initiatives, Ben & Jerry's has created a loyal customer base that identifies with the company's values, allowing it to command a premium price for its products. In addition, Ben & Jerry's has committed to sourcing Fairtrade-certified ingredients, ensuring that its business practices align with its ethical standards.

The growing importance of corporate social responsibility (CSR) reflects broader social trends. According to a 2020 PwC report, 81% of consumers are more likely to purchase from companies that demonstrate a commitment to social responsibility, and 76% of millennials report that they are willing to pay more for products from socially responsible companies. More recent evidence confirms this trend, showing that younger generations increasingly prioritize sustainability and social impact in their purchasing decisions (Deloitte, 2024). This data highlights that modern consumers expect companies to be proactive in addressing social issues and contributing to the well-being of society.

Regulatory landscape and emerging trends

The regulation of social practices is becoming increasingly stringent, with governments around the world introducing new legislation to ensure companies are held accountable for their social impacts. For instance, the EU's Corporate Social Responsibility Directive (CSRD) was expanded in 2020 to require large companies to disclose not only their environmental impact but also their social practices, including labor conditions and community engagement efforts. Companies that fail to meet these requirements face

penalties and may risk damaging their reputation and losing their social license to operate.

One of the key drivers of this regulatory shift is the growing emphasis on corporate transparency. In particular, investors and regulators are now demanding that companies disclose more detailed and standardized information on their social and environmental practices. The Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB) have developed frameworks to help companies disclose their social and environmental impact in a consistent and transparent manner. These frameworks have become critical tools for investors looking to evaluate companies on their social performance and make informed decisions.

All these things combined make the Social component of ESG increasingly recognized as a central pillar of corporate sustainability nowadays. Companies that effectively manage their relationships with employees, customers, suppliers, and local communities not only contribute positively to society but also create long-term value for their shareholders. The social aspect of ESG encompasses a wide range of issues, from labor rights and diversity to community engagement and ethical business practices. As reported by Lins et al. (2017), consumer expectations and regulatory requirements evolve, firms must integrate these social considerations into their operations to maintain competitive advantage, reduce risks, and build stronger relationships with their stakeholders.

In an increasingly interconnected world, the social impact of businesses is becoming a key determinant of corporate resilience, financial performance, and long-term success. Whether through improving workplace conditions, fostering diversity, or engaging in community development, social practices are now integral to the value creation process and play a critical role in shaping the future of sustainable business (Friede et al., 2015).

1.1.3. Governance (G)

The Governance aspect of ESG refers to the systems, structures, and processes by which a company is directed and controlled. At its core, governance is about ensuring that a company operates transparently, ethically, and responsibly, aligning its actions with the best interests of all stakeholders. Governance practices define how decisions are made at the highest levels of an organization and how those decisions impact the company's operations, strategy, and long-term viability (La Porta et al., 2000).

In recent years, good governance has gained increasing attention as one of the primary determinants of a company's financial performance and resilience. As businesses face heightened scrutiny from investors, regulators, and the public, the demand for strong, ethical governance practices has never been greater. Companies with poor governance structures or unethical leadership are more likely to face legal issues, regulatory fines, reputational damage, and, in the worst cases, financial collapse. In fact, lack of

transparency, poor oversight, and weak governance can lead to the downfall of even the largest and most well-known corporations.

Board composition and leadership

One of the most crucial elements of corporate governance is the composition of the Board of Directors. The Board plays a central role in overseeing company operations, setting strategic direction, and ensuring that the organization acts in the best interests of its stakeholders. To be effective, boards must be composed of diverse, independent individuals who bring varied perspectives, skills, and experiences to the table. This diversity helps ensure that decision-making processes are well-rounded, inclusive, and free from undue influence by any one group or individual (Bebchuk et al., 2013).

Board diversity has become increasingly important in recent years, with research indicating that diverse boards lead to better decision-making and stronger financial performance. According to McKinsey & Company (2020), companies with greater gender and ethnic diversity on their boards are more likely to outperform their peers in terms of profitability and financial value creation. For example, Microsoft has received widespread recognition for its diverse and effective Board leadership. By fostering an inclusive environment and appointing leaders from diverse backgrounds, Microsoft has been able to navigate market changes and global expansion successfully, demonstrating the positive impact of strong, diverse leadership on business performance.

A well-structured board is also independent, meaning that it is not dominated by executives or major shareholders. This independence is essential for providing unbiased oversight of the company's management and ensuring that executive decisions align with the long-term interests of the organization rather than short-term personal or financial gains.

Executives' compensation

Another central aspect of governance is executives' compensation. How a company compensates its executives can have a profound impact on its performance, culture, and ethical practices. Ideally, compensation structures should be designed to align the interests of executives with those of shareholders, encouraging long-term value creation rather than short-term gains (Jensen & Murphy, 1990). Performance-based pay that ties compensation to the company's financial success and sustainability goals is increasingly seen as a best practice.

However, poor governance in this area can lead to agency problems, where executives pursue personal interests that conflict with the long-term interests of the company. For instance, excessive executive bonuses or stock options tied to short-term profits can incentivize executives to focus on immediate financial returns instead of looking at long-

term strategic objectives, such as sustainability, innovation, or ethical practices. The 2010 BP oil spill, for example, was partly attributed to the company's short-term profit maximization culture, which led to risky operational decisions without adequate regard for environmental safety.

Companies are increasingly adopting pay-for-performance models that link executive compensation to ESG targets. For example, BlackRock, the world's largest asset manager, advocates for integrating sustainability targets into executive compensation packages, encouraging firms to focus on long-term value creation rather than purely financial performance. As institutional investors recognize the link between good governance and long-term profitability, companies with strong governance practices are better positioned to attract capital and maintain investor confidence.

Ethics and transparency

Ethical behavior and transparency are foundational elements of good governance. Companies are expected to operate with integrity, adhere to laws and regulations, and communicate openly with their stakeholders. This includes the disclosure of financial information, the reporting of governance practices, and the transparency of business operations. The lack of transparency and unethical practices have been at the heart of some of the most infamous corporate scandals in history.

The collapse of Enron in the early 2000s, driven by accounting fraud and governance failures, serves as a powerful example of how poor governance and a lack of transparency can result in disastrous consequences. Enron's failure not only caused massive financial losses but also led to a wider crisis of confidence in corporate governance, prompting the introduction of stricter regulations, such as the Sarbanes-Oxley Act in the United States.

Good governance practices involve regular, clear, and truthful reporting on both financial and non-financial matters. This includes anti-corruption policies, ethical sourcing, and clear communication on executive pay. For instance, companies like Nestlé and Unilever have been recognized for their commitment to transparent governance and ethical business practices. These companies have established clear anti-corruption measures, promoted transparency in their supply chains, and adhered to internationally recognized anti-bribery standards. As a result, they have earned trust from consumers, investors, and regulators.

Increasingly, investors and regulators are demanding more comprehensive and detailed disclosures regarding governance practices. In the U.S., the Securities and Exchange Commission (SEC) has introduced new rules that require companies to disclose more information about their governance structures, including the independence of boards and the compensation of executives. Similarly, the OECD Principles of Corporate Governance provide a comprehensive framework for ensuring that companies operate in a manner that promotes fairness, accountability, and transparency.

Regulatory landscape for governance

Governance frameworks are continuously evolving in response to changing regulatory and market demands. Governments and international organizations are introducing new regulations designed to improve corporate transparency, accountability, and ethical conduct. These regulations aim to protect shareholders, ensure fair treatment of employees, and hold companies accountable for their social and environmental impacts.

In the United States, the SEC has taken significant steps to improve governance transparency by requiring more detailed disclosure of executive compensation and board independence. Similarly, in Europe, the EU has introduced various corporate governance initiatives aimed at improving accountability and transparency. The EU Shareholder Rights Directive mandates that companies provide shareholders with the information necessary to make informed decisions about executive compensation, board elections, and other key governance issues.

As the regulatory landscape around governance continues to evolve, companies must ensure that their governance structures meet these new standards. Firms that embrace strong governance practices and demonstrate a commitment to transparency will be better positioned to maintain investor confidence, avoid regulatory penalties, and enhance their long-term value creation.

Nowadays, the Governance aspect of ESG is a cornerstone of corporate strategy, driving long-term value creation through ethical leadership, transparent decision-making, and responsible management. Effective governance ensures that companies act in the best interests of their stakeholders, mitigate risks, and adapt to evolving market demands. As businesses face increasing scrutiny from investors, regulators, and consumers, those with strong governance practices are more likely to achieve sustained success and maintain a competitive edge in their respective industries (Gompers et al., 2003). As ESG continues to shape corporate behavior, the role of governance in fostering accountability, transparency, and ethical conduct will be critical in defining the future of business.

1.1.4. Regulatory landscape and emerging trends

The regulatory landscape surrounding ESG practices is rapidly evolving, reflecting the growing global demand for sustainability and responsible business conduct. Governments, regulatory bodies, and international organizations are increasingly recognizing the need for clear frameworks that hold companies accountable for their environmental and social impacts, as well as their governance practices. As a result, regulations on ESG have become more comprehensive, aiming to ensure that companies not only report on their sustainability efforts but also take meaningful action toward achieving long-term goals.

One of the most significant developments in ESG regulation has come from the European Union, which has positioned itself as a leader in environmental and social regulation. The

EU Green Deal, announced in 2019, is an ambitious roadmap that seeks to make Europe the first climate-neutral continent by 2050. This strategy outlines numerous measures to reduce carbon emissions, promote sustainable energy, and ensure environmental protection across industries. In addition, the Corporate Sustainability Reporting Directive, which came into effect in 2024, mandates that large companies provide comprehensive and standardized reports on their environmental and social impacts. This includes data on climate change, resource usage, supply chain practices, and the treatment of workers, with the goal of enhancing transparency and providing investors with reliable information for decision-making.

In parallel, the United States has made significant strides in developing ESG regulations, particularly through the Securities and Exchange Commission (SEC). The SEC has started requiring companies to disclose their climate-related risks, with a proposal in 2022 that aims to standardize these disclosures, ensuring that they are consistent, comparable, and reliable. These efforts are designed to provide investors with a clearer understanding of how companies are addressing the risks and opportunities presented by climate change. The SEC's push for consistent climate disclosures marks an important step in aligning U.S. regulations with those of other global markets, particularly Europe, where such disclosures have become a legal requirement.

Another significant trend in ESG regulation is the increasing use of sustainable finance instruments, such as green bonds and sustainability-linked loans. These financial products are designed to support projects that directly contribute to sustainability goals, such as renewable energy initiatives, resource-efficient technologies, and environmental protection. By linking financing terms to a company's performance on ESG metrics, these instruments incentivize companies to take meaningful steps toward reducing their environmental footprint and improving their social impact. Green bonds, for example, offer businesses a cost-effective way to raise capital while ensuring that the funds are directed toward projects that align with sustainability objectives.

The future of ESG is intrinsically tied to the increasing demand for sustainable investing. Investors, driven by a growing recognition of the financial materiality of ESG factors, are directing an ever-increasing amount of capital toward companies that prioritize sustainability. According to a report by Morningstar (2023), sustainable funds now represent more than 40% of global assets under management, and this share is expected to grow substantially in the coming years. This shift is not only driven by ethical considerations but by the financial performance potential that comes with aligning business practices with sustainability goals.

For companies, this growing demand for sustainable investing translates into a need to embed ESG factors into their core strategies. Firms that fail to integrate sustainability into their operations will increasingly find themselves at a competitive disadvantage, facing both reputational risks and challenges in accessing capital. Conversely, companies that can demonstrate robust ESG practices are likely to see increased investor interest, improved financial performance, and greater resilience to market shocks. This is particularly true

for industries like luxury, where brand equity, consumer loyalty, and intangible assets are central to a firm's value proposition.

In the luxury sector, ESG considerations are becoming an essential factor for both consumers and investors. As consumers become more concerned about the environmental and social impact of their purchases, they are demanding more transparency and ethical practices from luxury brands. According to Bain & Company's 2025 Luxury Report, 60% of luxury consumers now prioritize sustainability in their purchasing decisions, especially among younger generations such as Gen-Z and Millennials, who are more socially and environmentally conscious. This trend is shaping the way luxury brands develop their products, manage their supply chains, and communicate their sustainability initiatives.

Similarly, investors are increasingly focused on the ESG performance of luxury firms, recognizing that sustainability can directly influence financial outcomes. Sustainable investing has grown rapidly, with major institutional investors and asset managers prioritizing companies with strong ESG practices, as noted by BlackRock and other large investors: firms that align with sustainability goals tend to offer more stable returns and are better positioned to navigate long-term risks, such as climate change and regulatory changes. For this reason, the luxury industry is likely to face increasing pressure to adopt ESG practices in order to maintain investor confidence and secure financing on favorable terms.

In conclusion, ESG has moved from being a peripheral issue to a central driver of business strategy and financial performance. The regulatory landscape surrounding ESG is evolving rapidly, with both governments and investors demanding greater transparency, accountability, and action from companies. As the EU Green Deal and the SEC's climate risk disclosures demonstrate, there is a global shift towards making ESG practices not only a moral imperative but a legal and financial one. Companies that can successfully integrate ESG into their core operations will be better positioned to thrive in a competitive, sustainable, and ethical global economy. Luxury firms, in particular, will face increasing demands from consumers and investors alike to incorporate ESG principles into their business models, not only to protect their brand reputation but to enhance their long-term financial viability.

As the demand for sustainable investing continues to grow, businesses that prioritize environmental responsibility, social equity, and strong governance will have a competitive edge in the marketplace, accessing capital more easily, reducing risks, and securing their position in an evolving and sustainability-driven global economy.

1.2. ESG and Financial Performance

The relationship between ESG factors and financial performance has evolved into one of the most significant areas of interest for researchers, investors, and corporate leaders in

the 21st century. Historically, financial performance, which is measured primarily by metrics such as profitability, revenue growth, and shareholder returns, was viewed as the sole and most important indicator of a company's success. In contrast, non-financial metrics, such as environmental stewardship, social impact, and governance practices, were often considered secondary or even peripheral to core business objectives. Companies that focused on ESG factors were often seen as engaging in corporate social responsibility, a concept that was viewed by some as little more than a public relations exercise or a compliance obligation, rather than a key element of business strategy.

However, over the past two decades, this traditional perspective has undergone a dramatic transformation. As evidence accumulated showing that companies with strong ESG performance tend to outperform their peers on various financial metrics, it became increasingly clear that ESG factors should not be dismissed as mere ethical considerations or reputational risks. Instead, they have emerged as powerful drivers of financial performance, with a growing body of empirical research indicating that companies committed to managing environmental, social, and governance risks are not only more resilient in the face of market volatility, but also more likely to deliver consistent profits, stable returns, and long-term value (Friede et al., 2015).

The shift in perspective has been influenced by several key developments, including the growing recognition of the material financial risks posed by environmental and social issues. Climate change, resource depletion, social inequality, and corporate governance failures are no longer seen as isolated challenges, but as fundamental issues that directly affect a company's operational efficiency, brand value, market position, and profitability. As such, ESG is increasingly seen not merely as a risk mitigation tool, but as a strategic approach that can create value by helping companies anticipate market shifts, capitalize on emerging opportunities, and build strong, sustainable relationships with their stakeholders.

1.2.1. ESG as a driver of Profitability

One of the strongest arguments for integrating ESG factors into corporate strategy is their potential to drive improved profitability. Companies that effectively manage their environmental footprint, ensure fair labor practices, and maintain robust governance structures are not only better equipped to address risks but also to capitalize on new opportunities. This proactive approach allows companies to operate more efficiently, respond to shifting consumer and investor expectations, and gain a competitive advantage in their respective markets.

A significant body of research has consistently supported the notion that strong ESG performance is positively correlated with improved financial outcomes. A comprehensive meta-analysis by Friede et al. (2015), which examined over 2,000 studies on the connection between ESG factors and financial performance, revealed that approximately 90% of the studies identified a non-negative relationship between ESG practices and

financial returns. Furthermore, 60% of these studies found a positive correlation. This supports the growing consensus that companies engaging in ESG initiatives are likely to experience higher profitability, greater operational efficiency, and enhanced risk management practices, all of which contribute to superior financial performance over time.

The environmental component of ESG plays a particularly crucial role in driving profitability. Companies that focus on reducing their energy consumption, improving resource efficiency, and lowering carbon emissions can significantly reduce operational costs. This not only leads to direct cost savings but also positions firms to meet increasingly stringent regulations while satisfying the growing demand for environmentally responsible practices. For example, General Electric has made substantial investments in energy-efficient technologies and sustainable manufacturing processes, resulting in significant cost reductions. The company's commitment to green technologies has not only reduced its environmental impact, but has also opened new revenue streams, especially in emerging markets, where demand for clean energy and sustainable products is increasing. This dual benefit, reducing costs while creating new market opportunities, demonstrates how focusing on environmental sustainability can enhance both profitability and long-term competitiveness.

Similarly, the social and governance aspects of ESG are equally important drivers of long-term financial performance. Companies that prioritize employee well-being, foster diversity and inclusion, and maintain ethical business practices tend to have more satisfied employees, loyal customers, and strong reputations, all of which contribute to improved financial outcomes.

Recent empirical research continues to reinforce the link between workforce diversity, inclusive practices, and superior financial performance. Updated findings from McKinsey's Diversity Matters Even More report (2023) show that companies in the top quartile for gender and ethnic diversity on boards have a materially higher likelihood of outperforming their peers financially, compared to those in the bottom quartile. In some cases, firms in the highest quartile of ethnic diversity on boards exhibit up to a 36% greater probability of financial outperformance, while enhanced gender diversity in leadership correlates with comparable improvements in performance outcomes. These results suggest that diverse leadership teams contribute not only to broader societal benefits but also to more robust financial results, reinforcing the business case for ESG integration. Furthermore, other studies highlight that inclusive companies, which cultivate diversity across multiple dimensions, often achieve higher innovation revenue and demonstrate stronger employee engagement, factors that, in turn, support long term profitability and competitive positioning. Strong corporate governance practices, which include transparent decision-making, board independence, and ethical leadership, are crucial for ensuring that companies are well-managed and make decisions in the best interests of their stakeholders. Effective governance structures enable companies to avoid the risks associated with corporate scandals, mismanagement, and regulatory violations.

By aligning executive compensation with long-term shareholder value and adopting clear policies on corporate ethics, companies can avoid the pitfalls of short-term profit-seeking behaviors and instead focus on sustainable value creation.

Long-term value creation through ESG integration

One of the most compelling reasons for companies to embrace ESG factors is their potential to drive long-term value creation. Rather than being limited to short-term reputational benefits or compliance requirements, ESG integration increasingly represents a strategic approach to sustainable corporate growth. Companies that embed environmental, social, and governance considerations into their business models are generally better positioned to manage future risks and uncertainties, particularly in a global context characterized by climate change, resource scarcity, geopolitical instability, and growing social expectations toward corporate responsibility. By proactively addressing these structural challenges, firms can strengthen their resilience and build more robust foundations for long-term financial performance.

From an environmental perspective, firms that invest in resource efficiency, emissions reduction, and sustainable production processes can benefit from both operational improvements and strategic positioning in an economy that is progressively transitioning toward low-carbon and circular business models. For example, companies that reduce energy consumption or adopt renewable energy sources often experience lower operating costs over time, while also reducing their exposure to future regulatory constraints such as carbon taxes or stricter environmental standards. Moreover, proactive environmental strategies can foster innovation by encouraging firms to develop new technologies, products, and processes that respond to the increasing demand for sustainable solutions. In this sense, environmental ESG initiatives are not merely defensive measures but can become drivers of innovation and long-term competitiveness.

The social dimension of ESG also plays a critical role in sustaining long-term corporate performance. Firms that prioritize ethical labor practices, diversity and inclusion, employee well-being, and responsible supply chain management tend to cultivate stronger relationships with key stakeholders, including employees, customers, and local communities. These relationships translate into tangible economic benefits. Companies with strong social practices often experience higher employee engagement, lower turnover rates, and greater productivity, all of which contribute to improved operational performance. In addition, responsible social practices strengthen brand reputation and consumer trust, which are increasingly important determinants of firm success in markets where customers are paying closer attention to the ethical and social implications of their purchasing decisions.

Governance practices represent the third pillar of long-term value creation through ESG integration. Strong corporate governance frameworks, characterized by transparent decision-making processes, independent boards, effective risk oversight, and ethical

leadership, are fundamental for ensuring that firms operate in the best interests of their stakeholders. Good governance reduces the likelihood of corporate scandals, financial mismanagement, and regulatory violations, all of which can severely damage firm value. At the same time, governance structures that align executive compensation with long term strategic objectives encourage managers to prioritize sustainable growth rather than short-term profit maximization. As a result, firms with strong governance systems are generally better positioned to implement forward-looking strategies and navigate complex business environments.

Importantly, the integration of ESG factors also enhances a firm's ability to anticipate and adapt to structural market changes. Companies that proactively address sustainability challenges are often more agile in responding to evolving regulatory frameworks, shifting investor expectations, and changing consumer preferences. This adaptability allows firms to maintain strategic flexibility and remain competitive in industries undergoing rapid transformation. For instance, as governments introduce stricter environmental regulations and sustainability reporting requirements, companies that have already incorporated ESG principles into their operations are better prepared to comply with these changes without facing significant disruption.

In addition, ESG integration contributes to strengthening intangible assets, which are increasingly recognized as key drivers of firm value. Brand reputation, stakeholder trust, and organizational culture all benefit from credible sustainability commitments. Companies that are perceived as responsible and forward-looking tend to build stronger reputational capital, which can translate into higher customer loyalty, stronger brand equity, and greater stakeholder support. These intangible advantages are particularly important in industries where brand perception and trust play a central role in shaping consumer behavior. In fact, research indicates that firms with strong reputations for social responsibility enjoy increased customer retention and can even command premium prices for their products or services, as per Fombrun (1996).

The importance of intangible assets in value creation has been widely documented. Lins et al. (2017) show that firms with high levels of social capital, such as those that prioritize corporate social responsibility, achieved way better performances during the global financial crisis, suggesting that reputational capital can mitigate times of economic stress. This finding aligns with broader research on corporate reputation, such as Luo et al. (2009) or Fombrun (1996), which demonstrates that companies that proactively manage their social and environmental impact tend to build trust with both consumers and investors, resulting in stronger competitive advantages and financial performance over the long term.

Moreover, MSCI (2021) reports that firms with strong ESG profiles are increasingly attracting long-term institutional investors, who place a high premium on firms with sustainable business practices and resilient brands. These investors are looking for companies that can weather market volatility, meet evolving consumer expectations, and

demonstrate a commitment to long-term value creation. This growing interest underscores the link between sustainable branding and financial resilience.

Finally, Porter & Kramer (2011) highlight that companies with strong ESG commitments can create shared value, simultaneously improving their financial outcomes and making a positive societal impact. This alignment between social responsibility and business success not only reinforces brand reputation but also increases a firm's ability to attract and retain loyal customers, employees, and investors, all of which contribute to building a more sustainable and profitable business model.

Overall, ESG integration can be understood as a holistic framework for long-term value creation, enabling companies to balance economic performance with environmental and social responsibility. By improving operational efficiency, strengthening stakeholder relationships, and enhancing governance structures, ESG practices contribute to building more resilient and sustainable business models. As a result, firms that successfully integrate ESG considerations into their strategies are better equipped to generate stable financial performance and sustain competitive advantages over time.

Lower costs of capital and enhanced financial resilience

An increasing body of academic and practitioner-oriented research suggests that companies with strong ESG performance tend to benefit from lower financing costs and greater financial resilience. Investors are progressively recognizing that firms with robust environmental, social, and governance practices are generally less exposed to regulatory risks, operational disruptions, reputational crises, and governance failures (Giese et al., 2019). As a result, these companies are often perceived as more stable and reliable in terms of their future cash flow generation. This perception directly influences how investors evaluate corporate risk, which in turn affects the financial conditions under which firms can access capital.

As ESG considerations become increasingly embedded in investment decision-making processes, firms that demonstrate strong sustainability performance are often able to attract capital under more favorable conditions. Institutional investors, pension funds, and asset managers are integrating ESG metrics into their risk assessment frameworks, portfolio allocation strategies, and valuation models. Consequently, companies with strong ESG profiles may experience reduced risk premiums, which can translate into both lower costs of equity and narrower credit spreads in debt markets.

Recent empirical evidence reinforces this relationship. For example, Giese et al. (2019) show that companies with stronger ESG characteristics tend to exhibit lower downside risk and reduced volatility, factors that contribute to improved risk-adjusted returns. Similarly, Albuquerque et al. (2020) find that firms with higher ESG scores demonstrated greater resilience during the COVID-19 crisis, experiencing smaller declines in stock prices compared to firms with weaker ESG profiles. Their findings suggest that ESG

investments can help firms build stronger stakeholder relationships, which may serve as a shield during periods of economic stress.

Evidence from financial markets during the COVID-19 pandemic further illustrates the role of ESG in supporting financial resilience. A study by Morningstar (2020) reported that sustainable investment funds outperformed traditional funds during the market turbulence caused by the pandemic, highlighting the defensive characteristics often associated with ESG-oriented investments. Many ESG funds showed lower downside risk and greater stability compared to conventional funds, suggesting that firms with strong sustainability practices may be better positioned to withstand economic shocks.

More recent analyses confirm that this trend has continued beyond the pandemic period. According to the Global Sustainable Investment Review (GSIA, 2024), sustainable investment assets have grown significantly in recent years, reaching approximately USD 16.7 trillion globally, reflecting the rapid integration of ESG considerations into global capital markets. This expansion demonstrates that investors increasingly view ESG performance as a relevant indicator of corporate risk management quality and long-term financial sustainability.

Large institutional investors have also played a key role in reinforcing the importance of ESG for financial stability. In several annual letters to CEOs, BlackRock's CEO Larry Fink emphasized that sustainability is becoming a defining factor in investment decisions and that companies capable of managing environmental and social risks effectively are more likely to achieve durable long-term performance. Similarly, Morgan Stanley (2023) reports that companies with stronger ESG profiles often display lower volatility and stronger downside protection, making them attractive to investors seeking stable long-term returns.

The growing emphasis on ESG in capital markets reflects a broader shift in how investors evaluate corporate value and risk. Rather than focusing exclusively on short-term financial metrics, investors are increasingly considering a firm's ability to manage long-term environmental and social challenges, maintain responsible governance practices, and operate sustainably in a rapidly changing global economy. Companies that successfully integrate ESG considerations into their business models are therefore more likely to build financial resilience, maintain investor confidence, and secure access to capital under favorable conditions.

Overall, the relationship between ESG performance and financing conditions highlights an important mechanism through which sustainability initiatives can contribute to corporate value creation. By reducing perceived risk, strengthening stakeholder trust, and improving long-term financial stability, ESG integration can enhance a firm's ability to attract investment and navigate periods of economic uncertainty. These dynamics underscore the growing recognition that sustainability practices are not merely ethical considerations but also strategic tools for strengthening financial resilience and supporting long-term corporate success.

1.2.2. Risk reduction and financial stability

One of the most important mechanisms through which ESG practices contribute to corporate value creation is risk reduction and enhanced financial stability. Firms that effectively manage environmental, social, and governance risks are generally less exposed to regulatory penalties, operational disruptions, reputational damage, and governance failures. By proactively addressing these potential sources of risk, companies can reduce uncertainty surrounding their future performance and improve the predictability of cash flows, thereby strengthening their overall financial stability.

As financial markets increasingly incorporate ESG information into investment analysis, sustainability practices are progressively interpreted as indicators of corporate resilience and risk management quality. Investors increasingly recognize that firms with strong ESG profiles tend to be better equipped to navigate structural challenges such as environmental regulation, stakeholder scrutiny, and economic volatility. In this context, ESG integration can be understood as a strategic framework that supports both risk mitigation and long-term financial sustainability.

Academic literature increasingly supports this view. For example, Eccles, Ioannou, and Serafeim (2014) show that firms that adopt high sustainability standards significantly outperform their peers over the long term in terms of both stock market performance and accounting metrics. Their findings suggest that sustainability-oriented firms develop stronger governance mechanisms and stakeholder engagement practices that enhance corporate stability and reduce long-term risks. Similarly, Khan et al. (2016) demonstrate that companies investing in financially material sustainability issues achieve superior financial performance compared to firms that neglect such issues, indicating that ESG integration can improve corporate resilience and value creation.

Environmental risk management and regulatory exposure

Environmental risks represent one of the most significant long-term challenges facing modern corporations. Climate change, resource scarcity, pollution, and the transition toward a low-carbon economy are increasingly shaping the regulatory and economic landscape in which firms operate. Companies that fail to address these environmental challenges may face substantial financial consequences, including regulatory penalties, compliance costs, supply chain disruptions, and stranded assets.

Firms that adopt proactive environmental strategies, such as reducing carbon emissions, improving energy efficiency, and investing in sustainable production technologies, are generally better prepared to adapt to evolving environmental regulations and market expectations. By anticipating regulatory changes and integrating sustainability into their operations, these companies can reduce their exposure to environmental liabilities and transition risks associated with climate policies.

Empirical research provides strong evidence that environmental performance can influence firm risk. Bolton and Kacperczyk (2021) show that firms with higher carbon emissions tend to face higher exposure to climate-related financial risks, which can affect investor perceptions and corporate risk profiles. Their findings suggest that environmental performance is increasingly incorporated into financial markets' risk assessments. Similarly, Krueger et al. (2020) find that institutional investors view climate change as a financially material risk factor and expect firms to actively manage these risks through improved environmental disclosure and sustainability strategies.

Furthermore, Giese et al. (2019) demonstrate that firms with stronger ESG characteristics tend to exhibit lower downside risk and reduced volatility, which contributes to improved risk-adjusted returns. According to their analysis, ESG factors influence firm risk through multiple channels, including improved operational efficiency, stronger regulatory compliance, and reduced exposure to extreme downside events.

Social responsibility and operational stability

The social dimension of ESG also plays a crucial role in reducing operational and reputational risks. Firms that prioritize responsible labor practices, transparent supply chains, employee well-being, and community engagement are less likely to experience disruptions related to labor disputes, human rights controversies, or reputational crises. Such events can have severe financial consequences, including production interruptions, legal liabilities, consumer boycotts, and damage to brand reputation.

By fostering strong relationships with employees, customers, and communities, socially responsible firms build stakeholder trust, which can act as a buffer during periods of economic stress or public scrutiny. Stakeholder theory suggests that companies that maintain strong relationships with key stakeholders are better able to secure critical resources and maintain stable operations over time (Freeman, 1984). Empirical studies support the importance of stakeholder relationships for corporate resilience. Albuquerque et al. (2020) find that firms with higher ESG ratings experienced smaller stock price declines during the COVID-19 pandemic, suggesting that ESG performance can mitigate the effects of market-stress periods. The authors argue that ESG investments strengthen relationships with customers and employees, which helps firms maintain stable revenue streams and operational continuity during crises.

Similarly, Lins et al. (2017) show that firms with high levels of social capital and corporate responsibility significantly outperformed other firms during the global financial crisis of 2008–2009. Their study suggests that trust between firms and stakeholders plays a crucial role in maintaining financial stability during periods of economic uncertainty.

Governance quality and financial risk control

Corporate governance represents the third pillar through which ESG contributes to risk reduction and financial stability. Strong governance structures, characterized by independent boards, transparent reporting practices, effective risk oversight, and ethical leadership, play a critical role in ensuring that companies operate responsibly and make decisions aligned with long-term value creation.

Weak governance has historically been associated with major corporate failures, financial misreporting, and managerial opportunism. Effective governance systems help mitigate these risks by improving oversight of managerial behavior and strengthening accountability mechanisms (Jensen & Meckling, 1976). By aligning executive compensation with long-term performance objectives and implementing robust internal controls, firms can reduce agency problems and discourage short-term decision-making that may undermine corporate stability.

The importance of governance for financial stability has been widely documented in the literature. For instance, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000) emphasize that strong governance frameworks are essential for protecting investors and ensuring efficient capital allocation. More recent research by Bebchuk, Cohen, and Wang (2013) also finds that firms with stronger governance structures tend to achieve better long-term stock market performance, reinforcing the idea that governance quality plays a key role in reducing corporate risk.

ESG and financial resilience in periods of market stress

Evidence from financial markets further highlights the role of ESG in supporting corporate resilience during periods of economic uncertainty. Studies analyzing the performance of companies and investment funds during market crises consistently find that firms with strong ESG characteristics tend to exhibit lower downside risk and greater stability during market downturns (Morningstar, 2020).

The increasing relevance of ESG for financial stability has also been emphasized by major institutional investors: according to BlackRock, companies that effectively manage environmental and social risks are better positioned to generate durable long-term returns, as they are less exposed to systemic risks and structural economic disruptions.

Overall, ESG integration contributes to corporate value creation by strengthening a firm's risk management capabilities and financial stability. By reducing exposure to regulatory, operational, reputational, and governance risks, companies can improve the predictability of their financial performance and build greater resilience to economic shocks. These characteristics make firms with strong ESG profiles more attractive to investors seeking stable long-term returns and reinforce the growing recognition of ESG as an important component of corporate risk management and financial sustainability.

1.2.3. ESG performance and Stock Market returns

In addition to driving profitability and reducing risk exposure, a growing body of evidence suggests that strong ESG performance can have a significant and positive impact on a company's stock market performance over the long term (Eccles et al., 2014). This relationship has become more apparent as investors increasingly recognize that companies with strong ESG practices are better equipped to navigate long-term challenges, adapt to evolving regulations, and align their business strategies with broader societal expectations. Firms that embrace sustainability, therefore, tend to enjoy stable returns, with less volatility and stronger growth potential than their peers.

Historically, financial markets largely focused on traditional performance metrics such as earnings growth, profit margins, and capital returns. However, as ESG factors have become more integrated into the investment process, companies with strong ESG profiles are now being recognized as more resilient and less risky, capable of generating sustainable returns even during periods of economic volatility. As a result, ESG integration has emerged as a key driver of long-term investor confidence and market valuation.

ESG integration and long-term capital attraction

One of the key reasons for the growing importance of ESG is the increasing demand for long-term capital from institutional investors, asset managers, and pension funds that prioritize sustainability in their investment strategies. Firms with strong ESG practices are better positioned to attract these investors, as sustainability is no longer seen as a “nice-to-have” attribute but rather a core business strategy that mitigates risks and improves the likelihood of long-term financial success.

The increasing allocation of capital to sustainable companies is reshaping the investment landscape. Sustainable equity funds outperformed their traditional counterparts during the market turbulence caused by the COVID-19 pandemic (Morningstar (2020)). Sustainable funds experienced lower downside risk and higher recovery rates, indicating that firms with high ESG ratings are better positioned to withstand economic shocks and market disruptions.

This trend is corroborated by a 2021 report by MSCI, which demonstrated that sustainable funds not only delivered higher returns than conventional funds, but also exhibited lower volatility over time. Specifically, firms with strong ESG ratings experienced higher resilience to both market downturns and geopolitical risks, underlining the importance of sustainability practices in achieving financial stability. These funds are seen as safer and more stable investments, and this perception is reflected in their better performance during market crises.

ESG and stock returns

Several empirical studies have confirmed that companies with high ESG ratings tend to outperform their peers in the stock market over the long term. A growing body of literature supports the idea that strong ESG practices can significantly enhance financial performance by improving operational efficiency, risk management, and market positioning. For instance, McKinsey & Company (2020) found that companies with diverse and inclusive leadership, environmentally responsible practices, and effective governance structures consistently outperformed their peers in terms of stock returns and profitability. Their report showed that firms that integrate ESG factors into their operations are not only better able to manage risks but also benefit from increased consumer loyalty, brand reputation, and operational cost savings, which in turn translate into superior financial performance. According to McKinsey, these companies are more resilient in the face of external shocks, particularly as consumers and investors increasingly demand sustainability in the products and services they purchase or finance.

Furthermore, Eccles et al. (2014) conducted a longitudinal study that examined the financial performance of firms with high sustainability practices over an 18-year period. The study found that companies that prioritize ESG practices delivered higher stock market returns and greater profitability compared to those that did not emphasize sustainability. Specifically, firms that maintained high sustainability practices not only achieved superior financial performance but also demonstrated a better ability to manage external shocks, such as economic downturns, regulatory changes, and competitive pressures. This was particularly evident during the 2008 financial crisis, where high-sustainability firms showed greater resilience and faster recovery compared to their peers, further underlining the link between ESG and financial stability. Their findings suggest that high-sustainability firms are better equipped to navigate volatile and uncertain market conditions, making them more attractive to long-term investors.

In addition to these studies, Khan et al. (2016) provided further evidence that financially material ESG factors, such as addressing climate risks, improving labor practices, and promoting diversity, have a direct impact on firm performance. Their study found that companies that focus on material ESG issues, which are directly relevant to their business operations, significantly outperform those that prioritize less material issues. For example, firms that excel in managing carbon emissions or worker welfare tend to achieve stronger stock returns and more stable financial outcomes. This evidence reinforces the importance of aligning business strategies with material sustainability issues, as companies that fail to do so risk being left behind in a world where sustainability is increasingly seen as a core business requirement.

Further supporting this view, Friede et al. (2015) conducted a meta-analysis of over 2,000 studies on ESG and financial performance, which confirmed that companies with high ESG ratings tend to exhibit superior risk-adjusted returns. The analysis found that around 90% of the studies reviewed showed a non-negative relationship between ESG performance and financial outcomes, with 60% of the studies indicating a positive correlation. This

meta-analysis underscores the broader financial advantages of high ESG performance, including improved access to capital, lower costs of capital, and increased market valuation over the long term. The growing evidence from these studies supports the idea that ESG performance is a key driver of long-term value creation, particularly in a rapidly evolving business environment where sustainability considerations are becoming central to investment and consumer decisions.

In summary, strong ESG performance is not only linked to better financial performance in terms of profitability, stock returns, and operational efficiency, but it also plays a key role in long-term value creation. Companies that integrate material ESG issues into their strategies are better positioned to manage risks, attract sustainable investment, and adapt to changing market conditions. As ESG continues to move from a secondary consideration to a central pillar of corporate strategy, firms that fail to embrace it may face increasing challenges in maintaining competitive advantages and securing long-term success.

Resilience during market stress: ESG as a buffer

The resilience of companies with strong ESG frameworks becomes particularly evident during periods of market stress. As global financial markets become increasingly volatile due to factors such as economic recessions, political instability, or pandemics, ESG practices help firms weather these challenges by reducing operational risks and strengthening relationships with stakeholders.

For instance, Albuquerque et al. (2020) found that firms with higher ESG ratings experienced smaller stock price declines during the COVID-19 pandemic compared to companies with lower ESG ratings. The study concluded that companies with strong ESG profiles were better able to maintain investor confidence and consumer loyalty during a period of unprecedented global disruption. This stability, driven by robust ESG practices, provided these companies with the ability to recover more quickly and adapt to new market conditions.

A similar study by Giese et al. (2019) found that companies with high ESG scores tend to exhibit lower downside risk and greater stock price stability, especially in volatile market conditions. They concluded that the implementation of strong ESG practices serves as an important risk mitigation strategy, providing firms with a buffer against economic downturns and market disruptions.

The growing demand for sustainable investments

The growing demand for sustainable investments is a major driver behind the improved stock performance of ESG-focused companies. According to Morningstar (2020), the inflow of capital into ESG funds has surged in recent years, with assets in sustainable investment funds increasing by over 30% since 2018. This shift reflects a broader change

in investor preferences, with more capital being directed toward companies that prioritize sustainability and corporate responsibility.

Institutional investors are increasingly integrating ESG factors into their investment processes because they view companies with strong ESG practices as less risky and better positioned for long-term success. Various asset managers have emphasized that sustainability is no longer just about addressing ethical concerns, but it is also linked to better risk management and superior long-term performance. As investors place more emphasis on ESG criteria, companies with strong ESG ratings can expect to attract more investment, which in turn boosts their stock price and market valuation.

One of the main reasons for this need is that the most significant of ESG practices on financial performance is seen in long-term value creation: by embedding ESG factors into their business strategies, companies not only mitigate risks and enhance profitability but also create sustainable value that benefits all stakeholders. Long-term value creation is particularly important in industries with significant environmental and social risks, such as energy, manufacturing, and consumer goods. In these industries, adopting sustainable practices and fostering a culture of corporate responsibility can help companies build strong reputations, secure customer loyalty, and attract long-term investors. By aligning their operations with sustainability goals, these companies are able to future-proof their business models, ensuring their competitiveness and profitability in an increasingly sustainability-conscious world.

In conclusion, the relationship between ESG and financial performance is inherently multi-dimensional, encompassing risk reduction, improved operational efficiency, enhanced profitability, and superior stock market performance, all of which contribute to long-term value creation. The growing body of empirical evidence suggests that firms with strong ESG performance are better equipped to navigate an increasingly complex and uncertain business environment, characterized by evolving regulations, shifting consumer preferences, and heightened stakeholder expectations.

By integrating ESG factors into their core business strategies, firms can strengthen their risk management capabilities, improve the stability and predictability of financial outcomes, and build more resilient and adaptive business models. At the same time, ESG practices support the development of critical intangible assets, such as brand reputation, stakeholder trust, and organizational culture, which play a key role in sustaining competitive advantage over time.

As the demand for sustainable investments continues to expand and financial markets increasingly incorporate ESG considerations into valuation and decision-making processes, sustainability is no longer merely an ethical or reputational concern. Instead, it has become a strategic driver of corporate performance and long-term success. Firms that effectively embed ESG principles into their operations are therefore more likely to achieve stable growth, stronger market positioning, and enduring value creation,

reinforcing the central role of sustainability in shaping modern corporate finance and strategy.

1.3. ESG and Firm Risk

The relationship between ESG factors and firm risk has become a central topic in both academic research and financial practice. As discussed in the previous sections, ESG integration contributes to corporate value creation through improved operational efficiency, enhanced financial performance, and stronger stakeholder relationships. However, one of the most critical mechanisms through which ESG affects firm value lies in its ability to reduce both systematic and firm-specific risk, thereby improving the stability and predictability of financial outcomes.

This perspective reflects a broader evolution in corporate finance, where risk is no longer viewed solely through traditional financial metrics but increasingly incorporates non-financial dimensions that can materially affect firm performance. In modern financial theory, risk represents a key determinant of firm value, as it directly influences expected returns, capital allocation decisions, and overall financial stability. Within this framework, ESG can be interpreted as a comprehensive risk management tool, enabling firms to identify, anticipate, and mitigate risks that are often not fully captured by conventional financial indicators.

In particular, ESG factors allow firms to address long-term and forward-looking risks, which are becoming increasingly relevant in today's economic environment. Environmental risks, such as climate change, carbon regulation, and resource scarcity, can affect production costs, asset values, and business continuity. Social risks, related to labor practices, human rights issues, and stakeholder relations, can lead to operational disruptions, reputational damage, and loss of consumer trust. Governance risks, including weak oversight, lack of transparency, and misaligned incentives, can result in managerial opportunism, financial misreporting, and corporate scandals. Together, these risks represent critical sources of uncertainty that can significantly impact firm performance and valuation.

Unlike traditional risk management approaches, which often focus on short-term financial volatility, ESG integration emphasizes a long-term, holistic view of risk. This approach recognizes that many ESG-related risks are systemic, cumulative, and difficult to diversify, making them particularly relevant for long-term investors. For example, climate-related risks can simultaneously affect entire industries and regions, while social controversies can rapidly spread through global supply chains and digital media, amplifying their impact on firm value.

From this perspective, ESG practices enhance a firm's ability to anticipate and adapt to structural changes in the business environment. Companies that actively monitor and manage ESG risks are more likely to identify emerging threats early, implement preventive

measures, and respond effectively to unexpected events. This proactive approach reduces the likelihood of extreme negative outcomes and contributes to greater financial resilience.

Moreover, ESG integration can improve the predictability of cash flows, which is a fundamental determinant of firm valuation. Firms that effectively manage environmental, social, and governance risks are less likely to experience sudden disruptions, legal liabilities, or reputational crises that could negatively affect revenues and costs. As a result, these firms tend to exhibit more stable financial performance over time, making them more attractive to investors seeking long-term stability.

Another important dimension of the ESG–risk relationship is its impact on stakeholder trust and legitimacy. Firms that demonstrate responsible environmental practices, fair social policies, and transparent governance structures are more likely to build strong relationships with key stakeholders, including customers, employees, regulators, and investors. These relationships can reduce the severity of negative shocks and facilitating faster recovery. In this sense, ESG can be seen not only as a tool for risk mitigation but also as a mechanism for enhancing organizational resilience.

Finally, ESG integration contributes to improving the quality of risk assessment and disclosure, reducing information asymmetry between firms and investors. Companies that provide transparent and consistent ESG information enable investors to better evaluate their risk exposure and long-term sustainability. This increased transparency enhances market confidence and supports more accurate pricing of risk, further reinforcing the link between ESG performance and firm value.

Overall, the integration of ESG factors into corporate strategy represents a shift toward a more comprehensive and forward-looking approach to risk management. By addressing a broad spectrum of ESG risks, firms can reduce uncertainty, enhance financial stability, and strengthen their ability to create sustainable value in an increasingly complex and rapidly evolving global economy.

1.3.1. ESG as a multi-dimensional Risk Management framework

One of the defining characteristics of ESG factors is their ability to capture non-financial sources of risk that are increasingly material in today's business environment. Traditional risk assessment models have historically focused on financial variables such as leverage, earnings volatility, and market exposure, implicitly assuming that most relevant risks are reflected in accounting data or market-based indicators. However, this approach has proven to be incomplete in a context where many of the most significant threats to firm value originate from structural, non-financial dynamics that unfold over longer time horizons (Khan et al., 2016).

In recent years, both academic research and financial practice have increasingly recognized that ESG factors represent systematic and persistent sources of risk that are

not only difficult to quantify using traditional models, but also potentially more impactful due to their cumulative and forward-looking nature. Unlike short-term financial volatility, ESG-related risks often develop gradually but can lead to significant value destruction when they materialize, particularly in the form of regulatory shocks, reputational crises, or technological disruptions linked to sustainability transitions.

From this perspective, ESG can be understood as a multi-dimensional framework for identifying and managing long-term risks, complementing traditional financial analysis by incorporating dimensions that are otherwise underrepresented. Importantly, ESG-risks dimensions are not isolated but often interconnected, amplifying their potential impact on firm performance. For example, environmental controversies can quickly evolve into reputational issues, while governance failures can exacerbate both environmental and social risks.

The increasing relevance of ESG factors is closely linked to broader transformations in the global economic environment. The transition toward a more sustainable economy, the tightening of regulatory frameworks, and the growing expectations of stakeholders have all contributed to making ESG-related risks more financially material and immediate. As a result, firms are no longer evaluated solely on their ability to generate short-term financial returns, but also on their ability to anticipate and manage long-term structural challenges.

Recent empirical evidence supports this shift in perspective. Krueger et al. (2020) show that institutional investors increasingly consider climate risk as a financially material factor, integrating it into portfolio allocation and risk assessment processes. This suggests that ESG factors are progressively incorporated into mainstream financial decision-making rather than being treated as peripheral considerations. Similarly, Bolton et al. (2021) demonstrate that firms with higher carbon emissions are associated with higher systematic risk, indicating that environmental performance has direct implications for a firm's exposure to broader market risks.

Taken together, these findings reinforce the idea that ESG is not merely a qualitative or ethical consideration, but a quantifiable and economically relevant determinant of financial risk. By capturing dimensions of risk that extend beyond traditional financial metrics, ESG provides a more comprehensive understanding of the factors that can influence firm performance, thereby supporting more informed decision-making by both managers and investors.

ESG and systematic risk

One of the primary channels through which ESG influences firm risk is its impact on systematic risk, typically proxied by a firm's beta. Systematic risk captures the sensitivity of a firm's returns to broader market movements and macroeconomic conditions, and, by definition, cannot be eliminated through diversification (Sharpe, 1964). For this reason, it

plays a central role in asset pricing frameworks and corporate finance, as it directly affects the required rate of return demanded by investors and, consequently, firm valuation.

Within this context, ESG performance can shape systematic risk by influencing how firms are exposed and able to respond to economy-wide shocks and structural transformations. Unlike firm-specific risks, systematic risk is driven by factors such as economic cycles, regulatory shifts, technological change, and large-scale transitions (e.g., the decarbonization of the economy). ESG practices affect how firms position themselves relative to these forces, thereby influencing their overall sensitivity to market dynamics.

Firms with strong ESG profiles tend to adopt more forward-looking and adaptive strategic approaches, which enhance their ability to anticipate and respond to changes in the external environment. For instance, companies that proactively align with environmental regulations or invest in sustainable technologies may be less exposed to policy shocks associated with the transition to a low-carbon economy. Similarly, firms with strong governance and stakeholder engagement mechanisms are often better equipped to maintain operational continuity during periods of macroeconomic uncertainty. These characteristics contribute to a more stable interaction with market-wide factors, potentially reducing the firm's exposure to systematic risk.

Importantly, ESG performance may influence systematic risk through its effect on the cyclicity and stability of the firms' cash flows. Firms that maintain strong relationships with customers, employees, and suppliers, often as a result of robust social and governance practices, may experience less pronounced fluctuations in demand and operational performance during economic downturns. This relative stability can translate into lower sensitivity to aggregate market shocks, thereby reducing beta.

Empirical evidence supports this interpretation. Albuquerque et al. (2020) find that firms with higher ESG scores exhibited lower systematic risk and greater resilience during the COVID-19 crisis, suggesting that ESG characteristics can mitigate exposure to market-wide shocks. Their findings indicate that ESG investments contribute to reducing firms' vulnerability to adverse macroeconomic conditions. Similarly, Luo et al. (2009) show that corporate social performance enhances customer satisfaction and loyalty, which in turn stabilizes revenues and reduces firms' exposure to economic cycles.

From a theoretical standpoint, ESG can be seen as a mechanism that enhances a firm's ability to adapt to long-term structural changes in the economy. The ongoing transitions toward sustainability, digitalization, and stricter regulatory environments are reshaping competitive dynamics across industries. Firms that fail to align with these structural trends may face declining competitiveness, increased regulatory burdens, and higher exposure to macroeconomic risks. In contrast, companies that integrate ESG considerations into their strategic planning are better positioned to internalize these transitions, thereby reducing their sensitivity to external shocks.

Overall, ESG performance influences systematic risk by shaping how firms interact with broader economic forces. By improving adaptability, strengthening stakeholder

relationships, and stabilizing cash flows, ESG practices can reduce a firm's exposure to market-wide volatility, contributing to lower beta and enhanced financial stability.

ESG and idiosyncratic risk

In addition to its impact on systematic risk, ESG plays a crucial role in shaping idiosyncratic risk, which refers to firm-specific risks that are independent of broader market movements and can, at least in theory, be diversified away by investors (Giese et al., 2019). Despite its diversifiable nature, idiosyncratic risk remains highly relevant at the firm level, as it directly affects operational stability, earnings volatility, and the likelihood of extreme negative events that can impair firm value (Campbell et al., 2001). These risks often arise from internal inefficiencies or unexpected events such as operational breakdowns, legal disputes, reputational crises, or governance failures, and are therefore closely linked to how firms are managed. ESG practices can be understood as a set of mechanisms that improve the quality of internal risk controls, thereby reducing the frequency and severity of such firm-specific shocks.

In particular, ESG integration contributes to lowering idiosyncratic risk by strengthening organizational processes and oversight mechanisms. Firms that systematically incorporate ESG considerations into their operations tend to adopt more structured and disciplined approaches to risk management, including better monitoring systems, more comprehensive compliance procedures, and clearer accountability frameworks. These improvements reduce the likelihood of unexpected disruptions and enhance the firm's ability to respond effectively when adverse events occur.

Another important channel relates to reputational risk management. Firm-specific negative events, such as environmental accidents, labor controversies, or governance scandals, can rapidly erode stakeholder trust and lead to significant financial losses. Companies with strong ESG practices are generally better positioned to prevent such events through proactive policies and internal controls. Moreover, even when adverse situations arise, firms with established ESG credibility may be better able to contain reputational damage, as stakeholders are more likely to attribute the event to an isolated issue rather than systemic mismanagement.

From an operational perspective, ESG practices also contribute to reducing supply chain and execution risks. Firms that implement responsible sourcing standards, monitor supplier behavior, and enforce ethical guidelines are less exposed to disruptions caused by supplier misconduct or regulatory intervention. Similarly, attention to employee well-being and workplace conditions can reduce the likelihood of internal disruptions, such as strikes or high turnover, which may otherwise affect productivity and operational continuity.

Empirical evidence supports the relationship between ESG performance and lower idiosyncratic risk. Giese et al. (2019) find that firms with higher ESG ratings tend to exhibit

lower firm-specific volatility, suggesting that ESG integration contributes to stabilizing firm-level performance. Their analysis indicates that ESG factors influence risk not only through market-related channels but also by improving internal efficiency and reducing exposure to adverse firm-specific events. Similarly, Jo and Na (2012) show that corporate social responsibility is associated with lower firm risk, particularly in industries characterized by high exposure to environmental and social controversies, where firm-specific shocks are more likely to occur.

Beyond these empirical findings, the reduction in idiosyncratic risk can also be linked to improvements in decision-making quality and organizational discipline. Firms with strong governance structures and clearly defined ESG policies are more likely to adopt long-term perspectives in their strategic decisions, avoiding behaviors that could generate short-term gains at the expense of long-term stability. This contributes to a more consistent performance trajectory and reduces the likelihood of abrupt value destruction.

Ultimately, the reduction in idiosyncratic risk enhances the predictability and stability of firm-level cash flows, which is a key factor in valuation models and investment decisions. Firms that are able to minimize unexpected disruptions and maintain operational continuity are generally perceived as more reliable and better managed. This not only strengthens their financial position but also supports their ability to pursue sustainable long-term growth in increasingly complex and uncertain business environments.

Downside risk and tail risk protection

An additional and particularly relevant dimension of the relationship between ESG and firm risk concerns its impact on downside risk and tail risk, that is, the probability and magnitude of extreme negative outcomes. While traditional risk measures often focus on average volatility, downside and tail risks capture the asymmetric nature of financial losses, which are especially important for investors concerned with capital preservation and long-term stability.

In this context, ESG practices can be interpreted as a form of risk protection mechanism, reducing both the likelihood and the severity of adverse events. Firms with strong ESG profiles are generally less exposed to extreme negative shocks because they tend to operate with more robust internal controls, stronger stakeholder relationships, and more resilient business models. As a result, they are better equipped not only to prevent crises but also to absorb and manage their consequences when they occur.

The notion of ESG as a form of “risk insurance” has gained increasing attention in the academic literature. Lins et al. (2017) show that firms with higher levels of social capital significantly outperformed their peers during the global financial crisis, suggesting that strong relationships with stakeholders can provide a stabilizing effect in times of systemic stress.

The mechanisms underlying this protective effect are closely related to the role of ESG in fostering stakeholder trust and organizational resilience. Firms that have established credible commitments to environmental responsibility, social engagement, and ethical governance are more likely to benefit from continued support by key stakeholders during periods of uncertainty. For example, customers may remain loyal despite adverse conditions, employees may show greater commitment and flexibility, and suppliers may be more willing to maintain stable relationships. At the same time, regulators and local communities may adopt a more cooperative stance toward firms perceived as responsible and trustworthy.

These dynamics contribute to reducing the amplification of negative shocks, limiting the extent to which adverse events translate into severe financial losses. In other words, ESG does not necessarily eliminate risk, but it can significantly attenuate its impact, particularly in extreme scenarios. This is especially relevant in industries exposed to high reputational sensitivity or complex supply chains, where negative events can rapidly escalate if not properly managed.

From a financial perspective, lower exposure to downside and tail risks enhances the asymmetry of return distributions, reducing the probability of large negative deviations and contributing to more stable performance over time. This characteristic is particularly valued by investors with long-term horizons, as it supports capital preservation and reduces vulnerability to market crises.

Overall, ESG practices strengthen a firm's ability to withstand extreme adverse conditions by combining preventive risk management with adaptive resilience. By limiting the likelihood and severity of tail events, ESG integration contributes to a more stable risk profile, reinforcing its role as a key component of modern corporate risk management.

1.3.2. ESG, information transparency, and risk perception

Another important perspective in the ESG-risk relationship concerns the role of ESG in enhancing information transparency and reducing information asymmetry between firms and investors. In traditional financial markets, one of the key challenges faced by investors is the limited availability of information regarding a firm's true risk exposure, particularly with respect to long-term, non-financial, and forward-looking risks. While financial statements provide a backward-looking view of performance, they often fail to capture risks related to environmental transition, social controversies, or governance weaknesses. In this context, ESG disclosure has emerged as a critical tool for addressing this informational gap, enabling firms to communicate more effectively their exposure to ESG-related risks and the strategies adopted to manage them.

Companies with strong ESG practices tend to provide more comprehensive, structured, and forward-looking disclosures, covering areas such as environmental impact, climate related risks, supply chain practices, governance structures, and internal control

mechanisms. These disclosures extend beyond traditional financial reporting and provide insights into aspects of firm performance that are otherwise difficult to observe or quantify. As a result, ESG reporting contributes to a more holistic and dynamic representation of firm risk, allowing investors to better assess not only current performance but also the firm's ability to sustain value over time.

From a theoretical standpoint, improved ESG disclosure plays a central role in reducing information asymmetry, which is a key source of inefficiency in financial markets. According to classic financial theory, when investors face uncertainty due to limited or imperfect information, they tend to demand higher risk premiums as compensation for that uncertainty (Akerlof, 1970). This can lead to mispricing of securities, higher cost of capital, and inefficient allocation of resources. By contrast, greater transparency allows investors to form more accurate expectations regarding future performance, risk exposure, and managerial quality, thereby reducing uncertainty and improving market efficiency.

In addition, ESG disclosure can be interpreted through the lens of signaling theory. Firms that voluntarily provide detailed and credible ESG information signal to the market that they possess strong internal risk management capabilities and are confident in their long-term sustainability. This signaling effect is particularly relevant in contexts where ESG risks are difficult to observe directly. High-quality disclosure can therefore differentiate firms with robust governance and risk management systems from those with weaker structures, contributing to a more accurate assessment of firm quality.

Empirical evidence supports these mechanisms. Dhaliwal et al. (2011) show that firms engaging in voluntary ESG disclosure experience lower information asymmetry, higher analyst coverage, and improved forecast accuracy, suggesting that transparency enhances both the availability and reliability of information in the market. Their findings indicate that firms disclosing ESG information benefit from increased investor confidence and improved visibility, which can positively influence how risk is perceived and priced.

More recent studies further highlight the importance of ESG disclosure in shaping market outcomes. Christensen et al. (2021) argue that mandatory ESG reporting can improve the comparability, consistency, and reliability of non-financial information, thereby enhancing overall market efficiency. Similarly, Grewal et al. (2019) find that firms with higher-quality ESG disclosure are associated with more accurate analyst forecasts, indicating that improved transparency reduces uncertainty in valuation and supports more informed investment decisions.

Importantly, ESG disclosure affects not only the quantity of information available to investors but also its credibility and decision-usefulness. The development of standardized reporting frameworks, such as those promoted by the Task Force on Climate-related Financial Disclosures (TCFD) and regulatory initiatives like the CSRD in the EU, has significantly improved the consistency and comparability of ESG information across firms. This standardization reduces ambiguity, limits selective disclosure, and

allows investors to integrate ESG factors more systematically into valuation models and risk assessments.

Improved transparency also plays a crucial role in shaping risk perception, which may diverge from actual underlying risk. Even when firms face similar objective risk exposures, differences in disclosure quality can lead to significantly different investor perceptions. Firms that provide clear, credible, and consistent ESG information are more likely to be perceived as less risky, as investors have greater confidence in their ability to identify and manage long-term challenges. Conversely, a lack of transparency or inconsistent disclosure may increase perceived risk, even in the absence of significant underlying vulnerabilities, as uncertainty itself becomes a source of risk.

In this sense, ESG disclosure contributes to reducing both uncertainty and ambiguity in financial markets. By providing insights into how firms identify, monitor, and mitigate ESG-related risks, transparency allows investors to distinguish between well-managed and poorly managed companies. This differentiation improves the efficiency of risk pricing, as capital is more accurately allocated based on firms' true risk profiles and managerial quality.

Overall, the analysis presented in this section highlights how ESG factors play a central role in shaping firm risk through multiple and complementary channels. By integrating environmental, social, and governance considerations into their strategies, firms can not only mitigate firm-specific and market-related risks, but also enhance their ability to withstand adverse conditions and adapt to structural changes in the economic environment.

ESG influences risk at different levels:

- it contributes to reducing systematic risk by improving firms' resilience to macroeconomic shocks and long-term transitions.
- it lowers idiosyncratic risk by strengthening internal processes, governance mechanisms, and stakeholder relationships.
- and it limits downside and tail risks by acting as a buffer during periods of crisis.

In parallel, ESG disclosure improves information transparency, reducing information asymmetry and allowing investors to more accurately assess firms' risk profiles and long-term sustainability.

Taken together, these dimensions suggest that ESG should be interpreted not simply as a set of ethical or reputational considerations, but as a comprehensive risk management framework that enhances the stability, predictability, and overall quality of corporate performance. Firms that effectively manage ESG-related risks are better positioned to build resilient business models, maintain investor confidence, and navigate an increasingly complex and uncertain global environment.

This multi-faceted impact on risk represents a crucial link between ESG and corporate finance. By shaping both the actual level of risk and its perception in financial markets,

ESG practices ultimately influence how firms are evaluated by investors and how their risk is priced. This connection provides the conceptual foundation for the next chapter, which examines how ESG performance affects one of the key variables in corporate finance: the cost of capital.

CHAPTER II

COST OF CAPITAL AND SUSTAINABILITY

Building on the theoretical foundations established in Chapter 1, this chapter advances the analysis by examining how ESG performance is translated into firms' financing conditions through its impact on the cost of capital. While the previous chapter has demonstrated that ESG contributes to value creation primarily by enhancing financial performance and reducing multiple dimensions of corporate risk, this chapter focuses on how such risk-related effects are incorporated into the required returns of capital providers. In corporate finance, the cost of capital represents the price a firm must pay to access financial resources, reflecting the compensation demanded by investors and creditors for bearing risk. Therefore, if ESG performance systematically alters a firm's risk profile, it should also influence the cost at which the firm can raise both equity and debt.

At a conceptual level, the relationship between ESG and the cost of capital is rooted in the fundamental risk–return trade-off that governs financial markets. Investors require higher expected returns to compensate for higher perceived risk and conversely accept lower returns for assets considered safer or more stable. ESG can affect this equilibrium by acting as a multidimensional risk management framework that influences both the magnitude and the perception of risk. As highlighted in Chapter 1, firms with stronger ESG profiles tend to exhibit lower exposure to regulatory shocks, reputational damage, operational disruptions, and governance failures. Moreover, enhanced disclosure and transparency associated with ESG practices reduce information asymmetry between firms and capital providers, thereby lowering uncertainty. These elements are critical because the pricing of capital is not determined solely by objective risk measures, but also by how risk is perceived and interpreted in financial markets.

In the context of equity financing, the implications of ESG can be analyzed through established asset pricing models. Under the Capital Asset Pricing Model (CAPM), the cost of equity depends on the risk-free rate, the market risk premium, and the firm's exposure to systematic risk, captured by beta. ESG performance may influence this framework through multiple, interconnected channels that affect both the measurement and the pricing of risk in equity markets (Pastor et al., 2021).

First, by enhancing the firm's resilience to external shocks, ESG can contribute to a reduction in its exposure to market-wide risks. Firms that effectively manage ESG issues are generally better equipped to anticipate and respond to adverse events, such as regulatory changes, supply chain disruptions, or reputational crises. This increased resilience tends to stabilize operating performance and reduce the volatility of cash flows over time. From an asset pricing perspective, more stable and predictable cash flows imply a lower co-movement with aggregate economic fluctuations, which can translate into a reduction in beta, and therefore a lower cost of equity (Lins et al, 2017).

Second, ESG may influence the risk premium required by investors through channels that are not fully captured by traditional asset pricing models. Standard frameworks such as the CAPM focus primarily on market risk, but may overlook emerging sources of systematic risk that are increasingly relevant in modern economies. Examples include climate transition risk, related to regulatory and technological changes in the transition to a low-carbon economy, or social and reputational risks, arising from controversies that can have significant financial consequences. These risks are often difficult to diversify and may be priced by investors as additional sources of uncertainty. Firms with weaker ESG performance may therefore be perceived as more exposed to these risks, leading investors to demand a higher risk premium. Conversely, strong ESG performance can mitigate these exposures, contributing to a reduction in required returns (El Ghouli et al., 2011).

Third, ESG plays an important role in shaping investor preferences and capital allocation decisions. The increasing integration of sustainability criteria into investment strategies, particularly among institutional investors, has led to a structural shift in the demand for equities. A growing share of capital is now allocated based on ESG considerations, either through dedicated sustainable investment funds or through broader integration within traditional portfolios. As a result, firms with stronger ESG profiles may benefit from a “demand effect”, attracting a larger and more stable investor base. This demand-side dynamic has direct implications for the cost of equity. Increased demand for a firm’s shares tends to support higher valuations, which, in equilibrium, corresponds to a lower expected return required by investors. In addition, a more stable and long-term oriented investor base can reduce stock price volatility and limit the impact of short-term market fluctuations, further contributing to a lower perceived risk. Conversely, firms with weaker ESG performance may face exclusion from certain investment universes or reduced demand from ESG-sensitive investors, which can increase their cost of equity (Pastor et al., 2021).

Taken together, these channels illustrate that ESG affects not only the firm’s exposure to risk, but also how that risk is interpreted and priced in financial markets. By influencing beta, risk premia, and investor demand, ESG performance can play a significant role in shaping the cost of equity within the broader asset pricing framework.

The impact of ESG on debt financing follows a parallel but distinct logic. Creditors are primarily concerned with downside risk, particularly the probability of default and the recovery rate in adverse scenarios. ESG performance can influence both dimensions. For example, environmental risks such as regulatory penalties or stranded assets can increase default probability, while weak governance structures may exacerbate agency problems and financial mismanagement. Conversely, strong ESG practices can signal prudent risk management, long-term strategic orientation, and operational robustness, all of which are valued by lenders. These signals can translate into tighter credit spreads, improved credit ratings, and greater access to capital markets. Additionally, the growing development of sustainable finance instruments, such as green bonds and sustainability-linked loans,

suggests that ESG is becoming increasingly embedded in the contractual and pricing mechanisms of debt financing itself.

The effect of ESG on the cost of capital has direct and economically significant implications for both firm valuation and strategic decision-making. In corporate finance, firm value is typically derived by discounting expected future cash flows at a rate that reflects the riskiness of those cash flows. When the weighted average cost of capital (WACC) is used as the relevant discount rate, the present value of the firm can be expressed as:

$$PV = \sum \frac{FCF_t}{(1 + WACC)^t}$$

where FCF_t denotes the expected free cash flow in period t and the $WACC$ represents the overall required return demanded by capital providers (Modigliani and Miller, 1958; Damodaran, 2012).

This formulation makes explicit the central role of the cost of capital in valuation. The WACC directly determines the rate at which future cash flows are discounted, thereby governing how much weight is assigned to future economic benefits. A reduction in the WACC increases the present value of all future cash flows, even when their expected magnitude remains unchanged (Copeland et al., 2000). This effect is particularly pronounced in valuation contexts characterized by long investment horizons, where the compounding effect of discounting amplifies even small variations in the discount rate. As a result, ESG-driven changes in the cost of capital can generate substantial differences in estimated firm value.

From a financial perspective, this highlights a crucial channel through which ESG affects valuation: not only by influencing expected cash flows, but also by altering the discount rate applied to those cash flows. These two effects interact multiplicatively. Firms that improve their ESG performance may simultaneously benefit from more stable and potentially higher expected cash flows, as well as from a lower discount rate reflecting reduced perceived risk. This dual mechanism can produce a compounding valuation effect over time (Eccles et al., 2014). Moreover, the sensitivity of valuation to the cost of capital implies that ESG can disproportionately affect firms with specific financial profiles. In particular, firms characterized by long-duration cash flows, such as growth firms or those investing heavily in intangible assets, are especially sensitive to changes in the discount rate (Bansal and Yaron, 2004). For these firms, a reduction in the WACC can significantly increase the present value of distant cash flows, thereby enhancing valuation to a greater extent than for firms with shorter-term cash flow profiles.

Beyond valuation, the cost of capital plays a central role in shaping investment decisions. Within capital budgeting frameworks, the WACC serves as the benchmark rate against which project returns are evaluated. A lower cost of capital reduces the minimum required return for value creation, thereby expanding the set of projects with positive net present value (NPV) (Brealey et al., 2020). This allows firms to undertake investments that may

have been previously excluded due to higher financing costs, including projects characterized by longer horizons, greater uncertainty, or strategic importance.

In this context, ESG can indirectly influence the firm's investment horizon and strategic orientation. By lowering the cost of capital, it relaxes financial constraints and enables firms to allocate resources toward long-term initiatives, such as innovation, sustainability transitions, or organizational transformation. Conversely, a higher cost of capital imposes stricter discipline on capital allocation, favoring short-term and lower-risk projects (Stein, 1989). This interaction highlights that financing conditions and strategic decisions are deeply interconnected.

This chapter develops a comprehensive and theoretically grounded analysis of these mechanisms by integrating ESG considerations into the core frameworks of corporate finance. It proceeds in three main steps. First, it examines the relationship between ESG performance and the cost of equity, focusing on asset pricing implications, risk decomposition, and investor behavior. Second, it analyzes the impact on the cost of debt, emphasizing credit risk, lender perception, and the evolving role of sustainable finance instruments. Third, it considers the combined effect on the overall cost of capital, highlighting how ESG can shape firms' financing conditions and influence valuation outcomes. Through this structured approach, the chapter aims to provide a clear and rigorous understanding of how sustainability is increasingly reflected in the pricing of corporate risk and in the allocation of capital in modern financial markets.

2.1. Cost of Equity Capital

The cost of equity represents the return required by shareholders to compensate for the risk of investing in a firm's equity. It reflects both the time value of money and the uncertainty associated with future cash flows, which are inherently residual and therefore more volatile than contractual payments to creditors (Brealey et al., 2020). Unlike debt holders, equity investors are entitled only to the portion of cash flows that remains after all operating expenses, taxes, and debt obligations have been satisfied. This residual nature of equity claims makes them particularly sensitive to fluctuations in firm performance, amplifying both upside potential and downside risk.

From a financial perspective, the cost of equity can be interpreted as the opportunity cost of capital for shareholders (Modigliani and Miller, 1958). It represents the return that investors could earn by allocating their capital to alternative investments with comparable risk. Consequently, the cost of equity is not determined by the firm itself, but by capital market conditions and investor expectations. Firms must therefore generate returns at least equal to this required rate in order to create value for shareholders. If expected returns fall below the cost of equity, value is destroyed, as investors would be better off reallocating their capital elsewhere (Brealey et al., 2020).

In corporate finance, the cost of equity is a fundamental component of the firm's overall cost of capital and a key determinant of valuation. It directly enters discounted cash flow (DCF) models, where it is used to discount expected future cash flows to equity holders (Damodaran, 2012). Given the long-term nature of most valuation exercises, even small variations in the cost of equity can lead to significant differences in firm value. This sensitivity underscores the importance of accurately estimating the cost of equity and understanding the factors that influence it.

From a theoretical standpoint, the cost of equity embodies the compensation investors require for bearing risk in a context of uncertainty. Financial markets operate under conditions where future outcomes are not known with certainty, and investors must form expectations about the distribution of possible returns (Markowitz, 1952). Equity holders, in particular, are exposed to a wide range of risks, including fluctuations in revenues, cost structures, competitive dynamics, and macroeconomic conditions. As a result, their required return reflects not only the expected level of cash flows but also the risk associated with their variability.

A key distinction in modern asset pricing theory is between systematic risk and idiosyncratic risk. Systematic risk refers to the component of risk that is correlated with broader market movements and cannot be eliminated through diversification. Idiosyncratic risk, by contrast, is firm-specific and can be diversified away by holding a sufficiently large and well-diversified portfolio. Under standard assumptions of efficient markets and rational investors, only systematic risk is priced in equilibrium, as investors do not require compensation for risks that can be costlessly diversified (Sharpe, 1964; Lintner, 1965). Consequently, the cost of equity is primarily determined by the firm's exposure to systematic risk, rather than by its total risk.

Within this theoretical framework, the cost of equity is typically derived using asset pricing models that formalize the relationship between risk and expected return. These models provide a structured way to translate abstract notions of risk into quantifiable required returns. Among them, the Capital Asset Pricing Model (CAPM) remains the most widely used benchmark due to its simplicity and intuitive appeal (Sharpe, 1964). The CAPM framework establishes a linear relationship between expected return and systematic risk, offering a clear interpretation of how market risk is priced.

The enduring relevance of CAPM lies in its ability to provide a parsimonious yet powerful representation of the risk–return trade-off. By focusing on a single risk factor, the market portfolio, it captures the essential idea that investors are compensated for bearing exposure to aggregate economic risk. At the same time, its simplicity facilitates practical implementation in valuation and financial analysis, making it a standard tool in both academic research and professional practice (Fama et al., 2004).

Overall, the cost of equity should be understood as a market-determined rate that reflects the compensation required for bearing non-diversifiable risk. It plays a central role in

linking financial theory with corporate decision-making, as it governs valuation, investment appraisal, and ultimately the creation of shareholder value.

The CAPM framework

According to the CAPM, the expected return on equity is determined as:

$$R_e = R_f + \beta(R_m - R_f)$$

where R_e is the cost of equity, R_f is the risk-free rate, $R_m - R_f$ is the market risk premium, and β measures the sensitivity of the firm's returns to movements in the overall market (Sharpe, 1964; Lintner, 1965).

This formulation captures in a concise way the fundamental intuition of modern asset pricing theory: the required return on an asset is equal to the compensation for the time value of money plus a premium for bearing systematic risk. Each component of the equation has a clear economic interpretation and reflects a distinct source of return required by investors.

The intuition behind CAPM is grounded in the principle that investors should only be compensated for bearing non-diversifiable risk. In well-functioning capital markets, investors can construct diversified portfolios that eliminate firm-specific risk at relatively low cost. As a result, idiosyncratic risk does not command a risk premium in equilibrium. Instead, the relevant measure of risk is systematic risk, which cannot be diversified away because it arises from economy-wide factors such as business cycles, interest rate changes, and macroeconomic shocks.

Systematic risk is captured by beta (β), which measures the degree to which a firm's returns co-move with the returns of the market portfolio. More formally, beta represents the covariance between the firm's returns and the market returns, scaled by the variance of the market. It therefore provides a standardized measure of how sensitive a firm is to aggregate economic fluctuations. Within this framework, the cost of equity increases with beta. Firms with a beta greater than one are more volatile than the market and tend to amplify market movements: they perform better than average in expansions but worse in downturns. This higher exposure to systematic risk makes them less attractive to risk-averse investors, who therefore require a higher expected return as compensation. Conversely, firms with a beta lower than one are less sensitive to market fluctuations and are perceived as relatively safer, leading to a lower required return.

The second key component of the model is the market risk premium ($R_m - R_f$), which represents the additional return investors demand for investing in the market portfolio rather than in a risk-free asset. This premium reflects the aggregate level of risk aversion in the economy and the overall uncertainty in financial markets. In periods of heightened uncertainty or economic instability, investors typically demand a higher market risk premium, which increases the cost of equity for all firms, regardless of their individual

characteristics. Conversely, in stable economic environments, the market risk premium tends to decrease, lowering required returns.

The risk-free rate (R_f) represents the baseline return for an investment with no risk of default and no uncertainty about future cash flows. In practice, it is commonly proxied by yields on government securities of highly rated countries, such as long-term sovereign bonds. The risk-free rate is determined by macroeconomic factors, including inflation expectations, monetary policy, and overall economic conditions. As such, it is exogenous to the firm and affects all assets in the economy uniformly. Changes in the risk-free rate shift the entire cost of equity upward or downward, independently of firm-specific risk.

Taken together, these components illustrate that the cost of equity is driven by a combination of macroeconomic conditions, through the risk-free rate, market-wide risk attitudes, through the market risk premium, and firm-specific exposure to systematic risk, through beta. CAPM thus provides a clear and operational framework for linking risk to expected return, allowing practitioners and researchers to estimate the cost of equity in a consistent and theoretically grounded manner.

Despite its simplifying assumptions, the model remains widely used because of its intuitive appeal and its ability to isolate the key driver of priced risk, which is the systematic exposure to the market. It therefore serves as a foundational benchmark for understanding how required returns are determined in capital markets and as a starting point for more advanced asset pricing approaches.

Systematic risk and beta

Systematic risk plays a central role in determining the cost of equity, as it represents the component of risk that cannot be eliminated through diversification. In asset pricing theory, investors are compensated only for bearing this type of risk, since firm-specific fluctuations can be diversified away within a well-constructed portfolio (Sharpe, 1964; Lintner, 1965). Within the CAPM framework, systematic risk is captured by beta, which reflects the sensitivity of a firm's returns to movements in the market portfolio.

Beyond its formal definition, beta can be interpreted as a measure of the firm's exposure to aggregate economic conditions. It captures how strongly a firm's performance reacts to macroeconomic forces. Firms whose operations are closely linked to the business cycle tend to exhibit higher betas, as their revenues and profitability expand significantly during economic upturns and contract during downturns. In contrast, firms operating in more stable sectors, where demand remains relatively constant regardless of economic conditions, tend to display lower betas (Brealey et al., 2020). In this sense, beta reflects not only a statistical relationship with the market, but also the underlying economic structure of the firm. It embodies how the firm's cash flows respond to systemic shocks and therefore how its value co-moves with the broader economy. As a result, differences

in beta across firms can be understood as differences in their fundamental exposure to macroeconomic risk.

From an interpretative perspective, the magnitude of beta provides a clear indication of the firm's relative riskiness. Firms with a beta greater than one are more sensitive to market fluctuations, meaning that their returns tend to vary more than proportionally with the market. This higher responsiveness implies greater vulnerability to adverse economic conditions, which leads investors to require a higher expected return. Conversely, firms with a beta lower than one exhibit more stable performance, as their returns are less affected by market-wide shocks. These firms are therefore perceived as less risky and command a lower cost of equity. A beta equal to one indicates that the firm mirrors the overall market risk, implying that its required return aligns with the average level of systematic risk in the economy (Fama and French, 2004).

The level of beta is not an intrinsic constant, but rather the outcome of several underlying economic and financial characteristics of the firm. These characteristics determine how the firm's cash flows respond to external shocks and, ultimately, how its equity returns co-move with the market. Among the most important determinants are business risk, operating leverage, financial leverage, and industry-specific factors (Hamada, 1972).

Building on the interpretation of beta as a measure of a firm's exposure to macroeconomic conditions, it is important to understand that this sensitivity is not exogenous. Rather, it is the outcome of a set of underlying economic and financial characteristics that determine how the firm's performance reacts to external shocks. In this sense, beta can be seen as a synthetic indicator that translates these structural features into a market-relevant measure of systematic risk.

A first key determinant is business risk, which reflects the inherent volatility of a firm's operating cash flows. This volatility depends on the nature of the firm's activities, the stability of demand, and the degree to which revenues are affected by economic conditions. Firms operating in highly cyclical industries, such as automotive, construction, or luxury goods, typically experience significant fluctuations in revenues and margins over the business cycle. As a result, their performance is more closely tied to aggregate economic dynamics, leading to higher betas. In contrast, firms providing essential goods or services, such as utilities or consumer staples, benefit from more stable demand patterns, which reduces the variability of cash flows and results in lower exposure to systematic risk (Brealey et al., 2020).

A second important factor is operating leverage, which captures the structure of the firm's cost base. When a firm relies heavily on fixed costs, small changes in revenues can generate disproportionately large variations in operating income. This amplification mechanism increases the sensitivity of earnings to economic fluctuations, thereby strengthening the co-movement between the firm's performance and market conditions (Lev, 1974). Firms with lower operating leverage, on the other hand, can adjust their cost

structures more flexibly in response to demand changes, which dampens earnings volatility and reduces systematic risk.

In addition to operating characteristics, financial leverage plays a crucial role in shaping beta. The use of debt introduces fixed financial obligations that must be met regardless of the firm's operating performance. This creates a leverage effect whereby fluctuations in operating income are magnified at the level of equity returns. As financial leverage increases, the variability of returns to shareholders becomes more pronounced, leading to a higher equity beta (Hamada, 1972). This highlights that systematic risk is not solely determined by the nature of the firm's business, but also by its capital structure.

Finally, industry characteristics provide an important contextual dimension. Different sectors are inherently exposed to varying degrees of macroeconomic risk, depending on factors such as cyclicity, regulatory environment, and technological dynamics. Industries that are highly sensitive to economic cycles or external shocks tend to exhibit higher average betas, while sectors characterized by stable demand, regulated pricing, or long-term contractual arrangements typically display lower systematic risk (Fama and French, 1997). These industry-level patterns offer a benchmark for interpreting firm-specific betas, as companies operating within the same sector often share similar risk exposures.

Through these channels, beta aggregates multiple dimensions of risk into a single parameter that captures the firm's overall exposure to systematic factors. It translates firm-specific economic and financial characteristics into a metric that is directly relevant for investors and is ultimately priced in capital markets. Within the CAPM framework, beta therefore represents the key link between the firm's underlying risk profile and its cost of equity, determining the return required by shareholders for bearing non-diversifiable risk.

Beyond CAPM: limitations and extensions

While the CAPM provides a clear and intuitive benchmark for linking risk to expected return, its analytical simplicity is based on a set of restrictive assumptions that may not fully reflect the functioning of real-world financial markets. In particular, the model assumes that investors hold perfectly diversified portfolios, that markets are frictionless, and that a single source of systematic risk, the market portfolio, is sufficient to explain differences in expected returns across assets. These assumptions are useful for theoretical tractability, but they limit the model's ability to capture the full range of factors that influence asset pricing in practice.

Empirical evidence has consistently shown that variations in returns cannot be fully explained by market beta alone. In response to these limitations, a range of multi-factor models has been developed to provide a more comprehensive representation of the risk-return relationship. Among these, the Fama-French framework represents one of the most influential extensions. By incorporating additional factors related to firm size and value

characteristics, the model captures systematic patterns in returns that are not accounted for by CAPM. The size factor reflects the empirical observation that smaller firms tend to generate higher average returns, while the value factor captures differences between firms with high and low book-to-market ratios.

The introduction of these factors reflects a broader conceptual shift: expected returns may be driven by multiple sources of systematic risk, each associated with different economic mechanisms. For example, smaller firms may be more vulnerable to financing constraints or economic downturns, while high book-to-market firms may be exposed to distress risk or structural challenges. More recent extensions have further expanded this framework by including factors related to profitability and investment patterns, suggesting that asset pricing is influenced by a richer set of firm characteristics than originally assumed.

Beyond formal factor models, the determination of the cost of equity in practice is also shaped by elements that are not easily captured within standard quantitative frameworks. One such element is information asymmetry, which affects how investors perceive and price risk. When information about a firm is incomplete or difficult to interpret, investors face greater uncertainty regarding future cash flows, leading to higher required returns. Conversely, greater transparency and clearer communication can reduce uncertainty and lower the cost of equity, even if the underlying risk profile remains unchanged.

In addition, investor expectations and beliefs play a crucial role. Asset prices, and therefore expected returns, depend not only on objective measures of risk but also on how investors interpret available information and form expectations about the future. Differences in expectations can lead to variations in required returns that are not directly linked to observable risk factors. This highlights the forward-looking nature of the cost of equity, which reflects anticipated rather than realized risk.

Finally, market sentiment and behavioral dynamics can influence the pricing of equity. In practice, financial markets are not always fully efficient, and investor behavior may deviate from the rational benchmark assumed in traditional models. Periods of optimism or pessimism can affect asset prices and required returns independently of fundamentals, introducing an additional layer of complexity in the estimation of the cost of equity.

Overall, these considerations suggest that while CAPM provides a useful starting point, a comprehensive understanding of the cost of equity requires a broader perspective. Expected returns are shaped not only by measurable exposure to market risk, but also by multiple systematic factors, informational frictions, and behavioral elements. Recognizing these limitations is essential for interpreting the cost of equity as a dynamic and multifaceted concept, rather than as the output of a single theoretical model.

The cost of equity in valuation

The cost of equity plays a central role in firm valuation, as it determines how future economic benefits accruing to shareholders are translated into present value terms. In

DCF methodologies, it is used to discount expected cash flows to equity holders, thereby directly influencing the estimated intrinsic value of the firm (Damodaran, 2012). Given that valuation models typically rely on long-term projections, the discount rate becomes a critical parameter: even marginal adjustments in the cost of equity can produce substantial changes in valuation outcomes due to the compounding effect over time.

Beyond its mechanical role in discounting, the cost of equity also shapes the relative importance of short-term versus long-term cash flows. A higher cost of equity places greater weight on near-term performance, as distant cash flows are more heavily discounted. Conversely, a lower cost of equity increases the relevance of long-term expectations, making future growth opportunities more valuable in present terms (Brealey et al., 2020). This dynamic is particularly important for firms whose value is largely driven by long-term strategic investments, as their valuation becomes highly sensitive to assumptions about the discount rate.

The cost of equity further interacts with valuation through the concept of value creation. In financial terms, value is generated when the return on invested capital exceeds the required return demanded by investors (Stewart, 1991). The cost of equity therefore acts as a benchmark against which performance is assessed. Firms that consistently generate returns above this threshold create economic value for shareholders, while those that fail to meet it effectively destroy value. This relationship highlights that valuation is not only about projecting cash flows, but also about evaluating their adequacy relative to the risk-adjusted expectations of investors.

In addition, the cost of equity influences how markets assess growth opportunities and reinvestment strategies. Firms with a lower required return can justify a wider range of investment projects, including those with longer payback periods or greater uncertainty, as the threshold for value creation is less demanding. This allows for more aggressive growth strategies and supports investments in innovation, expansion, or intangible assets. In contrast, a higher cost of equity imposes stricter discipline on capital allocation, favoring projects with faster and more certain returns (Damodaran, 2012).

Another important dimension concerns the relationship between the cost of equity and market valuation multiples. Since valuation multiples implicitly embed expectations about growth and risk, changes in the cost of equity can affect how the market prices earnings, cash flows, or book value. A lower cost of equity is typically associated with higher valuation multiples, reflecting the higher present value of future cash flows, while a higher cost of equity leads to more compressed valuations (Penman, 2013). This connection provides an additional channel through which the cost of equity influences how firms are valued in financial markets.

Finally, the cost of equity has broader implications for corporate strategy and financial policy. It affects not only which projects are undertaken, but also how firms prioritize investments, manage risk, and communicate with investors. By shaping the minimum acceptable return on capital, it indirectly guides managerial decisions regarding resource

allocation, growth trajectories, and long-term positioning. In this sense, the cost of equity is not merely an input in valuation models, but a fundamental parameter that links financial markets to corporate decision-making and strategic planning (Brealey et al., 2020).

2.2. Cost of Debt Capital

The cost of debt represents the effective rate that a firm pays to borrow funds and reflects the compensation required by creditors for bearing credit risk. Unlike equity investors, whose returns depend on the residual performance of the firm and therefore incorporate both upside and downside potential, debt holders are contractually entitled to predetermined payments in the form of interest and principal (Brealey et al., 2020). This asymmetry in payoff structure fundamentally shapes the nature of risk from the creditor's perspective. Rather than focusing on return variability, lenders are primarily concerned with the downside risk of default, that is, the possibility that the firm will be unable to meet its financial obligations in full and on time (Merton, 1974).

This distinction has important implications for how debt is priced. Since the upside potential for creditors is limited to the contractual interest rate, while losses in the event of default can be substantial, the pricing of debt is inherently asymmetric and risk-averse. Creditors require compensation not only for the time value of money, but also for the expected losses associated with default and the uncertainty surrounding those losses. As a result, the cost of debt incorporates a risk premium that reflects both the likelihood of default and the potential severity of financial distress (Elton et al., 2001).

From a financial perspective, the cost of debt can therefore be interpreted as the yield required by lenders to compensate for expected losses and for the uncertainty associated with repayment. This required yield is determined by a combination of firm-specific characteristics, such as profitability, leverage, liquidity, and asset structure, and broader market conditions, including interest rate levels, macroeconomic expectations, and overall risk appetite in financial markets (Collin-Dufresne et al., 2001). In this sense, the cost of debt is both a firm-level indicator of creditworthiness and a market-driven price of risk, reflecting the interaction between borrower fundamentals and external financial conditions.

An important feature of the cost of debt is its observability. Unlike the cost of equity, which must be estimated using asset pricing models, the cost of debt can often be directly inferred from market data. Interest rates on bank loans, yields on corporate bonds, and credit spreads over risk-free benchmarks provide tangible measures of the cost at which firms can access external financing (Fabozzi, 2013). In particular, credit spreads, defined as the difference between the yield on a corporate bond and that on a comparable risk-free security, offer a clear and continuous signal of how markets price credit risk.

However, while observable, the cost of debt is not static. It evolves over time in response to changes in both firm-specific conditions and the broader financial environment. Improvements or deteriorations in a firm's financial position, shifts in market liquidity, or changes in investor sentiment can all lead to adjustments in borrowing costs (Longstaff et al., 2005). This dynamic nature underscores that the cost of debt is not merely a contractual parameter, but a forward-looking measure of perceived risk, continuously updated by financial markets.

Overall, the cost of debt reflects a structured assessment of credit risk, combining expected losses, uncertainty, and market conditions into a single pricing metric. It plays a central role in corporate finance, influencing financing decisions, capital structure choices, and ultimately the firm's overall cost of capital (Brealey et al., 2020).

Credit risk and the pricing of debt

At its core, the cost of debt is determined by credit risk, which can be decomposed into two fundamental components: the probability of default (PD) and the loss given default (LGD). Together, these elements define the expected loss faced by creditors, typically approximated as:

$$\text{Expected Loss} = PD \times LGD$$

This formulation provides a useful starting point for understanding how lenders price risk. However, the interest rate charged on debt instruments reflects more than just expected losses. Creditors also require compensation for the uncertainty surrounding these losses, the timing of potential default, and the broader risks associated with holding risky debt. This additional compensation is captured by the credit risk premium, which is embedded in borrowing costs alongside the risk-free rate (Elton et al., 2001; Longstaff et al., 2005).

The probability of default (PD) represents the likelihood that a firm will be unable to meet its contractual debt obligations. It is fundamentally linked to the firm's ability to generate sufficient and timely cash flows to cover interest and principal payments. Several financial and operational characteristics influence this probability. Firms with strong profitability, stable revenue streams, and robust operating margins are generally perceived as more capable of servicing their debt, resulting in a lower PD . Similarly, firms with high liquidity and ample cash reserves are better positioned to absorb short-term shocks, further reducing default risk.

Conversely, high levels of financial leverage increase the burden of fixed obligations, making firms more vulnerable to adverse changes in operating conditions. Cash flow volatility also plays a critical role: firms with unpredictable or highly cyclical earnings are more exposed to periods of financial distress, which increases the likelihood of default. As a result, lenders closely monitor indicators such as interest coverage ratios, debt-to-equity levels, and cash flow stability when assessing PD .

The loss given default (*LGD*) captures the severity of losses that creditors expect to incur if a default event occurs. It represents the proportion of the exposure that is not recoverable after accounting for collateral, asset liquidation, or restructuring processes. Unlike *PD*, which is primarily driven by the firm's ability to generate cash flows, *LGD* depends on the structure and quality of the firm's assets and liabilities.

A key determinant of *LGD* is asset tangibility. Firms with substantial tangible assets, such as property, equipment, or inventory, can provide collateral that retains value in distress scenarios, thereby improving recovery rates for creditors. In contrast, firms whose value is largely based on intangible assets, such as intellectual property or brand value, may offer limited collateral, leading to higher expected losses in default.

The seniority of debt claims is another crucial factor. Senior debt holders have priority over subordinated creditors in the event of liquidation, which generally results in higher recovery rates and lower *LGD*. This hierarchical structure of claims is directly reflected in the pricing of different debt instruments, with subordinated debt commanding higher yields due to greater expected losses.

In addition, institutional and legal frameworks play a significant role in determining *LGD*. Jurisdictions with strong creditor rights, efficient bankruptcy procedures, and well-developed legal systems tend to facilitate higher recovery rates, reducing expected losses. Conversely, weak enforcement mechanisms or lengthy restructuring processes can increase uncertainty and lead to higher *LGD*.

In financial markets, the combined effect of *PD* and *LGD* is incorporated into credit spreads, defined as the difference between the yield on a corporate bond and the yield on a comparable risk-free security of similar maturity. Credit spreads serve as a direct measure of how markets price credit risk, reflecting both the expected loss component and an additional premium for uncertainty, liquidity risk, and risk aversion.

Importantly, credit spreads are forward-looking and continuously adjusted based on new information about the firm and the broader economic environment. Changes in macroeconomic conditions, firm-specific developments, or shifts in investor sentiment can all lead to rapid repricing of credit risk. As such, credit spreads provide a dynamic and market-based indicator of the cost of debt, linking theoretical measures of credit risk to observable borrowing costs.

Determinants of the cost of debt

Beyond the fundamental components of credit risk, the cost of debt is influenced by a broader set of firm-specific and market-wide factors that shape lenders' required return. These determinants affect both the perceived likelihood of default and the compensation creditors demand for bearing uncertainty, thereby influencing the pricing of debt instruments in a systematic way (Collin-Dufresne et al., 2001).

A primary determinant is the firm's capital structure, and in particular its level of financial leverage. As leverage increases, the firm's fixed financial obligations, such as interest and principal repayments, become more burdensome relative to its operating cash flows. This reduces the financial flexibility of the firm and limits its ability to absorb adverse shocks. From the perspective of creditors, higher leverage increases the probability of financial distress and amplifies downside risk, leading to higher required yields (Merton, 1974; Titman and Wessels, 1988). This relationship reflects the well-known trade-off in corporate finance: while debt financing can generate tax advantages and enhance returns to equity holders, it simultaneously increases credit risk and the cost of borrowing (Modigliani and Miller, 1963).

Closely related to leverage is the firm's cash flow generation and debt servicing capacity. Creditors place significant emphasis on the firm's ability to meet its financial obligations through internally generated cash flows. This is typically assessed through coverage ratios, such as the interest coverage ratio or debt service coverage ratio, which measure the extent to which operating income can cover interest payments. Firms with strong, stable, and predictable cash flows are perceived as more reliable borrowers, as they are better able to service debt even under adverse conditions. In contrast, firms with volatile or insufficient cash flows face greater uncertainty regarding repayment capacity, which leads creditors to demand higher compensation in the form of increased borrowing costs (Altman, 1968; Duffie and Singleton, 2003).

Another critical factor is the firm's asset structure, particularly the degree of asset tangibility. Tangible assets can be used as collateral, providing creditors with a source of recovery in the event of default. This reduces the expected loss associated with lending and, consequently, lowers the cost of debt. By contrast, firms whose value is largely derived from intangible assets, such as intellectual property, brand equity, or human capital, may offer limited collateral value. This increases the potential severity of losses in distress scenarios and results in higher borrowing costs (Rajan and Zingales, 1995). The availability and quality of collateral therefore play a key role in shaping lenders' risk assessments.

In addition to firm-specific characteristics, market conditions and the broader financial environment exert a significant influence on the cost of debt. Changes in monetary policy, inflation expectations, and overall liquidity conditions affect the baseline level of interest rates and the availability of credit. During periods of economic uncertainty or financial stress, investors typically become more risk-averse, leading to a widening of credit spreads as they demand higher compensation for bearing credit risk. Conversely, in environments characterized by low interest rates and abundant liquidity, borrowing costs tend to decline, as capital is more readily available and competition among lenders intensifies (Longstaff et al., 2005).

Finally, the contractual features of debt instruments play an important role in determining pricing. The maturity of the debt affects the level of risk borne by creditors, as longer maturities expose lenders to greater uncertainty regarding the firm's future financial

condition and macroeconomic developments. As a result, longer-term debt instruments generally carry higher yields (Fabozzi, 2013). The seniority structure of debt also influences pricing, with senior debt benefiting from priority in repayment and therefore commanding lower yields compared to subordinated or junior debt. In addition, contractual clauses that restrict borrower behavior can mitigate agency problems and limit risk-taking by the firm. By imposing financial discipline and enhancing creditor protection, covenants reduce uncertainty and can contribute to lower borrowing costs (Smith and Warner, 1979).

Overall, the cost of debt emerges from the interaction between the firm's financial structure, its ability to generate and sustain cash flows, the nature of its assets, and prevailing market conditions. These factors collectively shape creditors' perception of risk and determine the compensation required for providing capital.

Information, monitoring and market perception

Beyond quantitative indicators of credit risk, the cost of debt is also shaped by how information is produced, transmitted, and interpreted within financial markets. Creditors do not base their decisions solely on observed financial ratios; rather, they rely on a broader informational environment that influences both the precision of risk assessment and the degree of confidence in that assessment (Stiglitz and Weiss, 1981; Diamond, 1984).

A key aspect in this context is the quality and credibility of information. Even when financial data are available, their usefulness depends on how reliable, consistent, and comparable they are over time. When information is perceived as credible and internally consistent, lenders can form more precise expectations about future cash flows and repayment capacity. This reduces the dispersion of beliefs among market participants and limits the need for precautionary risk premia. Conversely, when financial information is ambiguous, subject to frequent revisions, or difficult to interpret, creditors may adopt more conservative assumptions, leading to higher required returns (Bushman and Smith, 2001).

Another important dimension concerns the timeliness of information. In credit markets, delays in the dissemination of relevant information can increase uncertainty, particularly in environments characterized by rapid changes in firm performance or market conditions. Firms that provide frequent and timely updates enable lenders to adjust their expectations more efficiently, reducing uncertainty about future developments. In contrast, infrequent or delayed reporting can lead to a widening gap between perceived and actual risk, which is typically reflected in higher borrowing costs (Ball et al., 2008).

The structure of the firm also affects how easily information can be processed by creditors. Organizations with complex ownership structures, multiple business segments, or extensive geographic diversification may be more difficult to evaluate, as risk exposures

are less transparent and harder to disentangle. This complexity premium can increase the cost of debt, as lenders require additional compensation for the difficulty of assessing and monitoring the firm's activities (Berger and Udell, 2006). Simpler and more focused firms, by contrast, are generally easier to analyze, which can facilitate more favorable financing conditions.

In addition to firm-level characteristics, the cost of debt is influenced by the interaction between borrowers and financial intermediaries. In relationship-based lending systems, such as bank financing, repeated interactions between the firm and its lenders can reduce informational frictions over time. As lenders accumulate private information through ongoing relationships, they develop a more accurate understanding of the borrower's risk profile, which can lead to more favorable pricing and greater flexibility in financing terms (Petersen and Rajan, 1994). In contrast, arm's-length financing, such as public bond markets, relies more heavily on standardized and publicly available information, making external assessments more central to pricing.

In this context, credit ratings play a pivotal role as a coordination mechanism in financial markets. By providing a standardized signal of credit quality, ratings reduce the need for each individual investor to independently assess borrower risk. They facilitate market participation by lowering information processing costs and enhancing comparability across issuers (Boot et al., 2006). Changes in credit ratings often trigger significant adjustments in borrowing costs, not only because they reflect updated assessments of default risk, but also because they influence the set of investors eligible to hold a given security. For instance, a downgrade below investment grade can lead to a contraction in the investor base, increasing financing costs through reduced demand.

Finally, the cost of debt is also shaped by broader market perceptions and expectations, which may evolve independently of observable fundamentals. Credit markets are forward-looking, and lenders continuously update their views based on new information, macroeconomic developments, and shifts in risk appetite. As a result, borrowing costs may change even in the absence of immediate variations in firm-level financial indicators, reflecting the dynamic nature of risk assessment in financial markets (Longstaff et al., 2005).

Taken together, these elements highlight that the cost of debt is not solely a function of measurable financial risk, but also of how information is generated, interpreted, and incorporated into market expectations. The informational environment surrounding the firm plays a crucial role in shaping creditors' required return, influencing both the level and the variability of borrowing costs.

2.3. ESG and Cost of Capital

Having examined the cost of equity and the cost of debt separately, it is now possible to integrate these components in order to analyze how ESG performance influences the

firm's overall cost of capital. In corporate finance, the weighted average cost of capital (WACC) represents the average rate of return required by all providers of capital, weighted according to the firm's financing structure (Copeland et al., 2000; Damodaran, 2012). The WACC can be determined as:

$$\text{WACC} = \frac{E}{D + E} \times R_e + \frac{D}{D + E} \times R_d \times (1 - T_c)$$

The terms E and D represent the market value of equity and the market value of debt, respectively. These values are used to determine the relative weights of each financing source in the firm's capital structure. The use of market values, rather than book values, is essential because the WACC is intended to reflect current market expectations and the opportunity cost of capital (Copeland et al., 2000; Damodaran, 2012).

The ratio $\frac{E}{D+E}$ therefore captures the proportion of the firm financed through equity, while $\frac{D}{D+E}$ represents the proportion financed through debt. These weights ensure that each component of the WACC reflects its relative importance in the firm's overall financing mix.

The term R_e denotes the cost of equity, that is, the return required by shareholders to compensate for the risk of investing in the firm. As discussed previously, this is typically estimated using asset pricing models such as the CAPM and reflects the firm's exposure to systematic risk as perceived by equity investors.

The term R_d represents the cost of debt, which corresponds to the effective rate that the firm pays on its borrowed funds. This is usually observable through interest rates on loans or yields on corporate bonds and reflects the credit risk associated with the firm.

A distinctive feature of the WACC formula is the presence of the term $(1-T_c)$, where T_c is the corporate tax rate. This adjustment reflects the tax deductibility of interest payments: since interest expenses reduce taxable income, the effective cost of debt is lower than its nominal rate. As a result, debt financing provides a tax advantage, often referred to as the "tax shield," which reduces the overall cost of capital.

By combining the required returns of both equity holders and debt holders into a single metric, the WACC provides a comprehensive measure of the firm's financing cost and serves as the central discount rate in valuation and investment decisions. The relevance of the WACC lies in its role as a synthetic indicator of the firm's overall risk as perceived by financial markets. It reflects how investors and creditors collectively assess the firm's ability to generate future cash flows under uncertainty, incorporating both the pricing of equity risk and the evaluation of credit risk. As such, it represents the key link between market perceptions of risk and corporate financial outcomes, directly affecting firm valuation, capital allocation, and strategic decision-making.

In this framework, any factor capable of influencing either the cost of equity, the cost of debt, or the broader perception of risk will ultimately be reflected in the WACC. This includes not only traditional financial variables, but also a wider set of elements that affect

how risk is understood, communicated, and priced in capital markets. ESG performance can therefore be interpreted as a cross-cutting determinant of the cost of capital, operating simultaneously across different dimensions of risk and influencing both components of financing costs.

Importantly, the effect of ESG on the cost of capital is not limited to isolated adjustments in individual parameters. Rather, it emerges from the interaction of multiple channels, including changes in risk exposure, improvements in information transparency, and shifts in investor and creditor behavior. These mechanisms jointly contribute to shaping how financial markets evaluate the firm's risk profile and determine the return required for providing capital.

This integrated perspective allows for a more comprehensive understanding of the relationship between sustainability and corporate finance. By focusing on the WACC as the point of convergence between equity and debt, the analysis highlights how ESG performance can influence the overall pricing of capital and, consequently, the firm's financial attractiveness and value.

ESG as a driver of the firm's overall risk profile

From a theoretical perspective, the relationship between ESG and the cost of capital can be understood as a natural extension of the risk-based mechanisms that underpin both asset pricing and credit risk models. In financial theory, required returns are fundamentally linked to the level of risk perceived by capital providers (Sharpe, 1964; Merton, 1974). Since both shareholders and creditors demand compensation for bearing uncertainty, any factor that reduces the firm's overall risk profile, either by lowering its magnitude or by reducing the perceived likelihood of adverse outcomes, should translate into a lower required return and, consequently, a lower cost of capital.

Within this framework, ESG can be interpreted as a broad and integrated risk management system, capable of influencing multiple dimensions of risk simultaneously (Eccles et al., 2014). Unlike traditional approaches that tend to isolate specific categories, such as financial, operational, or regulatory risk, ESG captures a set of interrelated factors that jointly determine the firm's exposure to uncertainty. Environmental risks, including regulatory tightening and resource constraints, social risks related to stakeholder relations and operational continuity, and governance risks linked to managerial incentives and control structures all contribute to shaping the firm's vulnerability to adverse events.

A key element of this perspective is that ESG does not simply reduce isolated risks, but rather modifies the structure of risk itself. By addressing the interdependencies between different sources of uncertainty, ESG can mitigate the propagation of shocks across the firm's operations (Godfrey et al., 2009). For example, governance weaknesses may amplify the impact of environmental or social issues, while strong governance can act as a

stabilizing mechanism that contains their effects. In this sense, ESG contributes to reducing systemic vulnerabilities within the firm, enhancing its overall robustness.

What further distinguishes ESG from more conventional risk management tools is its systemic and forward-looking nature. Many of the risks embedded in ESG are characterized by long time horizons, gradual accumulation, and potentially non-linear impacts. These risks often fall outside the scope of traditional financial metrics, which tend to focus on short-term performance and historical data (Khan et al., 2016). As a result, firms that do not explicitly account for these dimensions may underestimate their true exposure to risk.

By integrating ESG considerations into corporate decision-making, firms are able to internalize these longer-term risk factors and incorporate them into strategic planning. This forward-looking approach enhances the firm's capacity to manage uncertainty in a proactive rather than reactive manner, shifting the focus from ex-post risk mitigation to ex-ante risk prevention. In financial terms, this can be interpreted as a reduction in unexpected cash flow volatility, which is a key driver of required returns (Lins et al., 2017).

From a risk perspective, this translates into a reduction in both the frequency and severity of adverse events. On the one hand, effective management of ESG factors can prevent the occurrence of negative shocks, such as regulatory sanctions, operational disruptions, or reputational crises. On the other hand, even when such events occur, firms with stronger ESG practices are typically better equipped to absorb their impact, limiting the resulting financial losses. This dual effect improves the overall resilience of the firm and contributes to a more stable and predictable pattern of cash flows over time (Albuquerque et al., 2020).

Importantly, the implications of ESG extend beyond the objective level of risk to the way in which risk is perceived and evaluated in financial markets. Investors and creditors do not assess risks in isolation; rather, they form a holistic judgment about the firm's ability to generate sustainable and predictable returns. ESG performance acts as a signal of how effectively the firm identifies, manages, and adapts to complex and evolving sources of uncertainty (Dhaliwal et al., 2011). In this sense, it contributes to shaping the narrative surrounding the firm's risk profile, influencing market expectations and confidence.

This signaling effect has direct implications for the distribution of beliefs among market participants. In environments characterized by uncertainty, differences in expectations can lead to higher required returns, as investors demand compensation for ambiguity (Pastor et al., 2021). When ESG performance is strong and credible, it reduces ambiguity about the firm's future prospects, leading to a more aligned set of expectations among investors and creditors. Lower dispersion in expectations translates into lower perceived uncertainty, which reduces the risk premium embedded in required returns. Conversely, weak or inconsistent ESG performance may increase ambiguity, widening the range of possible outcomes considered by the market and leading to higher required returns.

Furthermore, ESG can influence the time horizon over which risk is evaluated. By emphasizing long-term sustainability and resilience, ESG shifts the focus of capital providers toward longer-term performance metrics. This can reduce the weight placed on short-term volatility and increase the importance of long-term stability, further contributing to a lower perceived risk profile (Bansal and Yaron, 2004).

As a result, improvements in ESG performance can lead to a systematic downward adjustment in the firm's risk-adjusted discount rate, affecting both the cost of equity and the cost of debt. At the aggregate level, this effect is reflected in a reduction of the WACC, which captures the overall compensation required by capital providers. In this way, ESG operates as a mechanism that reshapes the firm's risk profile in a comprehensive and multidimensional manner, influencing not only the underlying exposure to risk but also how that risk is interpreted, evaluated, and ultimately priced in financial markets.

ESG, capital allocation and market pricing

Beyond its direct impact on risk, ESG also influences the cost of capital through its effect on capital allocation and market pricing mechanisms. In modern financial markets, the allocation of capital is not neutral, but instead reflects a combination of regulatory frameworks, institutional constraints, and evolving investor preferences (Pastor et al., 2021). As ESG considerations become increasingly embedded in investment mandates, portfolio construction processes, and lending criteria, they play a growing role in determining how capital is distributed across firms and sectors.

This transformation is particularly evident on the demand side of financial markets, where ESG has become a key dimension in investment decision-making. Institutional investors, such as pension funds, asset managers, and sovereign wealth funds, are progressively integrating ESG factors into their risk assessment and portfolio allocation strategies (Gibson Brandon et al., 2021). This integration is driven not only by ethical considerations, but also by the recognition that ESG factors may affect long-term risk and return profiles. As a consequence, firms with stronger ESG characteristics tend to attract a broader and more stable investor base, including capital that is explicitly allocated according to sustainability criteria.

The expansion of the investor base has important financial implications. Greater demand for a firm's securities can improve market liquidity, reduce transaction costs, and support higher asset valuations. From a pricing perspective, this translates into a lower required return, as investors are willing to accept lower yields in exchange for exposure to firms perceived as more aligned with their investment criteria (Pastor et al., 2021). At the same time, ESG considerations are increasingly integrated into lending decisions, influencing how credit is allocated and priced. Financial institutions incorporate ESG-related assessments into their credit evaluation processes, which can affect both the availability of financing and the terms under which it is provided (Friede et al., 2015).

As a result, ESG contributes to a segmentation of capital markets, where firms are differentiated not only by their financial fundamentals but also by their sustainability profiles. This segmentation introduces a structural component into capital allocation: firms that meet certain ESG standards may benefit from preferential access to capital, while those that do not may face implicit or explicit constraints. For example, some institutional investors are restricted from investing in firms that fail to meet specific ESG thresholds, reducing the pool of available capital for these firms and potentially increasing their cost of financing (Hong and Kacperczyk, 2009).

Importantly, this mechanism extends beyond observable financial metrics and operates through expectations and forward-looking assessments. Financial markets are inherently anticipatory, and asset prices reflect beliefs about future risks and opportunities rather than solely current conditions (Fama, 1970). ESG performance can therefore influence how investors and creditors evaluate the firm's long-term positioning, particularly in relation to structural transformations such as regulatory transitions, technological innovation, and evolving consumer preferences.

Firms that are perceived as better prepared to adapt to these changes are likely to be viewed as less exposed to future risks and more capable of sustaining long-term performance. This perception can lead to a reduction in risk premia, even in the absence of immediate improvements in financial indicators (Pastor et al., 2021). Conversely, firms that are perceived as lagging in adapting to these structural dynamics may be assigned higher risk premia, reflecting concerns about their future competitiveness and resilience.

In this sense, ESG plays a crucial role in shaping not only the pricing of risk, but also the availability of capital. Capital flows are increasingly directed toward firms that are perceived as sustainable and resilient, while firms considered more exposed to long-term risks may experience reduced access to financing or higher required returns (Krüger, 2015). This dual effect reinforces the impact of ESG on the cost of capital, as both the cost and the supply of capital are jointly determined in equilibrium.

Furthermore, ESG can influence the stability of capital flows. Firms with strong ESG profiles are more likely to attract long-term investors, which can reduce the volatility of capital inflows and enhance financial stability. In contrast, firms with weaker ESG performance may be more exposed to abrupt shifts in investor sentiment, leading to greater volatility in financing conditions (Baker et al., 2022). This difference in the stability of capital access represents an additional dimension through which ESG affects the firm's financial environment.

Overall, ESG can be understood as a factor that operates at the intersection of market structure, investor behavior, and capital allocation. By influencing how investors and lenders allocate resources, how expectations about the future are formed, and how risk is priced, ESG contributes to shaping the broader financial conditions under which firms operate. In doing so, it reinforces its role as a determinant of the cost of capital, extending its impact beyond risk fundamentals to the very functioning of capital markets.

Implications for valuation, investment and heterogeneity across firms

The effect of ESG on the cost of capital has direct and economically significant implications for both firm valuation and strategic decision-making. As the WACC represents the discount rate applied to future cash flows, any reduction in this rate leads mechanically to an increase in the present value of expected earnings (Damodaran, 2012). This effect is particularly pronounced in valuation contexts characterized by long investment horizons, where the discounting process amplifies even small variations in the cost of capital. In such settings, a marginal decrease in the discount rate can generate disproportionately large increases in firm value, especially for firms whose cash flows are expected to materialize in the distant future (Copeland et al., 2000). Consequently, ESG-driven changes in financing conditions can translate into substantial differences in valuation outcomes, even when underlying cash flow projections remain unchanged.

From a financial perspective, this highlights an important channel through which ESG affects firm value: not only by influencing expected cash flows, but also by altering the rate at which these cash flows are discounted. This dual impact reinforces the relevance of ESG within valuation frameworks, as both components, cash flows and discount rates, jointly determine firm value (Penman, 2013). In particular, firms characterized by strong ESG performance may benefit from a compounding effect, where improvements in perceived stability and risk translate into more favorable discounting conditions over extended time horizons.

Beyond its impact on valuation levels, the cost of capital plays a central role in shaping investment decisions and capital budgeting processes. Within standard corporate finance frameworks, the WACC represents the minimum return that investment projects must generate in order to create value (Brealey et al., 2020). A lower cost of capital reduces this threshold, thereby increasing the number of projects that satisfy the NPV criterion. This expansion of the feasible investment set enables firms to undertake projects that may have been previously excluded due to higher financing costs, including those characterized by longer payback periods or higher initial uncertainty.

This mechanism has important implications for the firm's investment horizon and strategic orientation. When the cost of capital decreases, firms are better positioned to allocate resources toward long-term initiatives, such as innovation, capacity expansion, or organizational transformation. These types of investments are often associated with delayed returns but can generate substantial value over time. By contrast, a higher cost of capital tends to favor short-term, lower-risk projects, potentially constraining the firm's ability to invest in long-term growth opportunities (Stein, 1989).

In this sense, ESG performance influences not only the pricing of capital but also the allocation of capital within the firm. By lowering the cost of capital, it can shift managerial incentives toward strategies that prioritize long-term value creation over short-term financial performance. This interaction between financing conditions and investment

policy underscores the broader strategic relevance of ESG, as it contributes to shaping how firms evaluate, select, and implement investment opportunities (Eccles et al., 2014).

At the same time, it is important to recognize that the impact of ESG on the cost of capital is heterogeneous across firms and industries. The magnitude of this effect depends on the materiality of sustainability-related risks for the firm's specific business model, as well as on the credibility, consistency, and comparability of its disclosures (Khan et al., 2016). In industries with significant exposure to environmental regulation, resource constraints, or social scrutiny, ESG factors are more likely to be directly incorporated into risk assessments and capital pricing. In such contexts, ESG performance can have a pronounced effect on financing conditions, as it directly influences the firm's exposure to material risks.

In contrast, in sectors where sustainability-related risks are less directly embedded in core operations, the impact of ESG may be more indirect. In these cases, ESG can influence financing conditions through channels such as reputation, brand value, and stakeholder relationships, which affect long-term expectations rather than immediate risk metrics (Godfrey et al., 2009). This distinction highlights that the financial relevance of ESG is not uniform, but rather depends on the specific economic and institutional context in which firms operate.

This heterogeneity implies that ESG should be understood as a context-dependent determinant of the cost of capital, whose effects vary according to firm characteristics, industry dynamics, and market conditions. However, despite these differences, the underlying mechanism remains consistent: ESG influences how risk is perceived, how capital is allocated, and how required returns are determined in financial markets (Pastor et al., 2021).

Overall, this section has demonstrated that ESG performance affects the cost of capital through multiple and interconnected channels, with direct implications for firm valuation, investment decisions, and strategic orientation. By shaping both the level and the structure of financing costs, ESG contributes to redefining the financial conditions under which firms operate. This integrated perspective provides the foundation for the subsequent analysis, which will move beyond the theoretical framework to examine how these mechanisms manifest empirically, with a specific focus on the luxury sector.

CHAPTER III

LUXURY INDUSTRY AS A RESEARCH SETTING

The analysis developed in the previous chapters has established that ESG performance influences firms' cost of capital through its effect on both actual and perceived risk. By shaping exposure to risk factors, improving the information environment, and affecting investor preferences, ESG characteristics ultimately enter the pricing of financial assets and the determination of required returns. However, the strength and nature of these mechanisms are not uniform across industries, as they depend critically on sector-specific economic features that determine how ESG factors translate into financially material risks.

In this context, the luxury industry represents a particularly relevant setting for examining the relationship between ESG performance and cost of capital. Unlike more traditional sectors, luxury firms operate in an environment where value creation is largely driven by intangible assets, such as brand equity, reputation, and consumer perception. These elements are inherently sensitive to stakeholder expectations, making firm value more exposed to non-financial factors. As a result, ESG performance directly affects key risk drivers, including demand stability, pricing power, and exposure to reputational shocks.

The reliance on symbolic value implies that ESG-related events can have disproportionate effects on firm performance. Environmental controversies, labor issues, or governance failures may lead not only to immediate reputational damage but also to a more persistent erosion of customer trust and willingness to pay. This translates into increased volatility and a higher likelihood of adverse outcomes, particularly in the form of downside risk. Conversely, strong ESG performance can reinforce brand credibility and support more stable and predictable cash flows.

These dynamics are further reinforced by the global and operational structure of the industry. Luxury firms rely on complex international supply chains and the sourcing of high-quality inputs, often from environmentally and socially sensitive regions. This exposes them to regulatory changes, operational disruptions, and compliance risks that are closely linked to ESG factors. At the same time, their global footprint implies exposure to heterogeneous regulatory frameworks and increasing disclosure requirements, making effective ESG management an important tool for reducing uncertainty.

On the demand side, the growing importance of sustainability among consumers introduces an additional channel through which ESG affects firm risk. Luxury consumption is closely tied to identity and values, implying that alignment with ESG principles can influence purchasing decisions and long-term brand loyalty. This strengthens the link between ESG performance and revenue stability, as firms that meet these expectations are more likely to sustain demand over time.

Capital market dynamics further amplify these effects. As institutional investors increasingly integrate ESG criteria into their allocation decisions, firms with stronger ESG

profiles may benefit from broader investor demand and more stable ownership structures. Similarly, creditors are progressively incorporating ESG considerations into credit risk assessments, affecting borrowing conditions and credit spreads. As a result, differences in ESG performance translate into differences in how risk is perceived and priced in both equity and debt markets.

Taken together, these elements suggest that the luxury sector exhibits an amplified transmission mechanism between ESG performance and cost of capital. The central role of intangible assets and the importance of perception-driven demand increase the sensitivity of firm value to ESG-related risks, making this industry particularly suitable for analyzing how sustainability considerations are incorporated into financial decision-making and asset pricing.

Building on the theoretical framework established in the previous chapters, this chapter provides a sector-specific application focused on the luxury industry. It first examines the key economic characteristics that define the sector and shape firm risk and value creation. It then analyzes the main ESG issues affecting luxury firms, highlighting both common pressures and differences across sub-sectors. Finally, it investigates how these factors translate into differences in the cost of capital, linking sector-specific risk drivers to the financial mechanisms through which ESG performance influences required returns.

3.1. Economic characteristics of the Luxury Industry

The luxury industry is characterized by a set of structural economic features that distinguish it markedly from traditional sectors and that carry direct implications for firm risk, cash flow dynamics, and ultimately the cost of capital. Unlike industries where value creation is primarily driven by scale efficiencies, tangible assets, or cost optimization, luxury firms operate within a framework in which value is largely embedded in intangible, perception-based elements. As emphasized by Kapferer and Bastien (2012), the essence of luxury lies in the construction of symbolic value, brand identity, and exclusivity, rather than in functional product attributes. This fundamental difference alters the nature of risk exposure, making it more sensitive to factors that are not immediately observable in financial statements but that nonetheless play a critical role in shaping expectations about future performance.

From a financial perspective, these structural characteristics influence both the level and the distribution of cash flows. In particular, the reliance on intangible assets such as brand equity and reputation implies that expected cash flows are closely tied to stakeholder perceptions, which are inherently volatile and subject to sudden shifts. As noted by Koller et al. (2020), firms with a high share of intangible assets tend to exhibit greater sensitivity to changes in expectations, as their valuation depends more heavily on forward-looking assumptions. In the luxury sector, this translates into heightened exposure to reputational and perception-based risks, including low-probability but high-impact events that can significantly affect revenues and margins.

At the same time, the industry is characterized by a demand structure that is strongly perception-driven rather than purely income-driven. Consumption of luxury goods is closely linked to symbolic value, social signaling, and alignment with consumer identity (Han et al., 2010). While demand remains partially influenced by macroeconomic conditions, particularly through wealth effects and consumer confidence (Aït-Sahalia et al., 2013), it is also highly sensitive to evolving social norms and preferences. This implies that factors such as environmental responsibility, ethical conduct, and corporate transparency can directly affect demand stability and long-term growth prospects. In line with this, Amatulli et al. (2017) show that sustainability considerations are increasingly integrated into luxury consumption, particularly among younger and high-income consumers.

In addition, the luxury sector operates within a highly globalized and operationally complex environment, characterized by geographically dispersed markets and intricate supply chains. Leading luxury firms generate a significant share of their revenues from international markets, with Asia playing a particularly important role in driving growth (D'Arpizio et al., 2023). This global exposure introduces multiple layers of risk, including exchange rate volatility, geopolitical uncertainty, and heterogeneous regulatory frameworks. Moreover, the sourcing of high-quality raw materials and the reliance on specialized craftsmanship often increase exposure to environmental and social risks, particularly in upstream activities. As highlighted by the OECD (2020), global supply chains are a key channel through which ESG-related risks, such as labor practices and environmental impact, materialize and affect firm performance.

Taken together, the combination of high intangible asset intensity, perception-driven demand, and global operational complexity creates an environment in which the transmission from non-financial factors to financial outcomes is particularly strong. In such a context, ESG performance is not an external or peripheral consideration, but a factor that directly shapes the firm's risk profile. Consistent with the findings of Eccles et al. (2014), firms with stronger sustainability practices tend to exhibit more stable performance and lower risk exposure. In the luxury industry, this relationship is amplified, as ESG factors influence not only operational and regulatory risks, but also the core drivers of value, such as brand perception and consumer trust. As a result, ESG performance affects how risks are perceived by investors and creditors, how resilient cash flows are expected to be, and ultimately how required returns are determined. This makes the relationship between ESG and cost of capital particularly pronounced in the luxury sector, providing a compelling setting for the analysis developed in this thesis.

Intangible assets, brand value and pricing power

A defining characteristic of the luxury sector is the predominance of intangible assets as the primary source of firm value. Brand equity, heritage, craftsmanship, and exclusivity constitute the core drivers of competitive advantage and underpin the economic logic of

the industry. Unlike capital-intensive sectors, where value creation is largely tied to physical assets, production efficiency, or scale economies, luxury firms derive a substantial portion of their valuation from symbolic and reputational capital. As emphasized by Kapferer and Bastien (2012), luxury brands are built through long-term investments in identity, storytelling, and perceived uniqueness, which generate value by shaping consumer perceptions rather than by optimizing functional attributes.

From a financial perspective, the predominance of intangible assets has important implications for both valuation and risk. Firms whose value is largely driven by intangibles tend to be more dependent on forward-looking expectations, as their ability to generate future cash flows relies on the persistence of brand desirability and stakeholder trust (Koller et al., 2020). In the luxury sector, this translates into a heightened sensitivity of firm value to changes in perception. Even in the absence of immediate operational deterioration, negative shifts in brand image can lead to downward revisions in expected growth, profitability, and long-term competitive positioning. As noted by Kapferer and Bastien (2012), luxury brands operate within a fragile equilibrium between exclusivity, authenticity, and desirability, which can be rapidly disrupted by reputational shocks. Consequently, a significant share of firm value is exposed to perception-based risks, making non-financial factors, such as ESG performance, directly relevant for financial outcomes.

In this context, ESG performance plays a critical role as a determinant of trust, legitimacy, and brand credibility. As documented by Eccles et al. (2014), firms with strong sustainability practices tend to develop more resilient intangible assets, benefiting from enhanced stakeholder trust and lower exposure to reputational risk. In the luxury industry, where brand perception is the primary driver of demand, this relationship is particularly pronounced. ESG controversies can undermine brand authenticity and erode the social legitimacy upon which luxury value is built. This strengthens the link between ESG and firm risk, as reputational damage can directly translate into financial underperformance through reduced demand and increased volatility of cash flows.

Closely linked to intangible asset intensity is the presence of strong pricing power, which allows luxury firms to sustain high margins and premium positioning. Prices in the luxury segment are largely determined by perceived value rather than production costs, resulting in structurally high profitability and strong margin resilience (D'Arpizio et al., 2023). From a corporate finance perspective, this pricing power contributes to relatively stable operating performance under normal conditions and may reduce perceived risk by supporting predictable cash flows. It also provides a buffer against cost shocks, as firms are often able to pass increases in input costs onto consumers without significantly affecting demand.

However, this apparent stability is inherently conditional. The ability to maintain premium pricing depends critically on the continued strength of brand perception and consumer trust. As argued by Chevalier and Mazzalovo (2012), luxury pricing is sustainable only as long as the brand continues to signal exclusivity, status, and social

value. ESG-related controversies can disrupt this mechanism by altering consumer perceptions and reducing willingness to pay. For instance, environmental misconduct or social backlash may create a misalignment between brand image and consumer values, particularly among younger and more sustainability-conscious segments (Amatulli et al., 2017).

This introduces a form of asymmetric risk in the financial profile of luxury firms. While revenue growth and margins tend to be relatively stable in the absence of shocks, downside risk can be substantial in the event of reputational damage. Negative ESG events may trigger rapid demand adjustments, margin compression, and increased earnings volatility, even if underlying operational capabilities remain unchanged. From an asset pricing perspective, this type of downside and tail risk is particularly relevant, as it affects investors' required returns and contributes to a higher cost of capital for firms perceived as more vulnerable.

In this framework, ESG performance becomes a key determinant of the sustainability of pricing power. Firms with strong ESG profiles are more likely to preserve brand credibility, maintain consumer trust, and sustain their ability to command premium prices over time. Conversely, firms with weak ESG practices face a higher risk of reputational shocks and erosion of pricing power, leading to greater uncertainty in future cash flows. This reinforces the idea that, in the luxury sector, ESG is not merely an ethical or regulatory consideration, but a central factor in shaping both risk and firm value.

Demand dynamics and perception-driven consumption

Demand in the luxury industry exhibits distinctive characteristics that play a central role in shaping firms' risk profiles and, consequently, their cost of capital. While luxury goods are often associated with affluent consumers and may appear relatively insulated from economic downturns, empirical evidence suggests that demand remains partially cyclical, particularly through wealth effects and fluctuations in consumer confidence. Aït-Sahalia et al. (2013) show that the performance of luxury firms is significantly linked to stock market conditions and aggregate wealth dynamics, indicating that even high-end consumption is sensitive to broader macroeconomic factors. This implies that luxury firms are not fully shielded from systematic risk, as downturns in financial markets or declines in consumer sentiment can translate into reduced demand and revenue volatility.

Beyond macroeconomic sensitivity, a defining feature of the sector is that luxury consumption is inherently perception-driven rather than purely income-driven. As emphasized by Han et al. (2010), luxury goods function as instruments of social signaling, allowing consumers to convey status, identity, and group affiliation. In this framework, purchasing decisions depend not only on purchasing power but also on how brands are perceived within a given social and cultural context. This makes demand highly sensitive to brand image, symbolic value, and evolving social norms. As a result, even subtle shifts

in perception, whether driven by media coverage, societal trends, or corporate actions, can lead to disproportionate changes in consumer behavior.

This perception-driven nature of demand introduces an additional layer of demand-side volatility, which is distinct from traditional cyclical risk. While macroeconomic factors affect demand gradually, perception-based changes can occur rapidly and generate abrupt adjustments in consumption patterns. As noted by Kapferer and Bastien (2012), maintaining desirability and exclusivity is essential for sustaining demand in the luxury sector, and any disruption to this equilibrium can have immediate consequences for sales performance.

In recent years, ESG considerations have become increasingly embedded within these perception dynamics. Consumers, particularly younger generations such as Millennials and Gen-Z, as well as high-net-worth individuals, are placing growing emphasis on sustainability, ethical sourcing, and corporate responsibility in their purchasing decisions (Amatulli et al., 2017; Deloitte, 2023). This shift reflects a broader transformation in consumption patterns, where products are evaluated not only for their intrinsic qualities but also for the values they represent. In the luxury context, where symbolic meaning is paramount, alignment with ESG principles can significantly enhance or undermine brand attractiveness.

As a result, ESG performance has become a key determinant of demand stability and long-term brand loyalty. Firms perceived as responsible and aligned with stakeholder values are more likely to build durable relationships with consumers, reducing sensitivity to short-term shocks and strengthening revenue resilience. Conversely, firms with weak ESG profiles are more exposed to reputational backlash, consumer boycotts, or gradual erosion of brand relevance, all of which can negatively affect demand (Eccles et al., 2014).

From a financial perspective, these dynamics reinforce the link between ESG and revenue risk, which is a fundamental component of overall firm risk. Greater demand volatility translates into higher uncertainty in future cash flows, increasing both the variability and the downside risk of earnings. This, in turn, affects investors' required returns and contributes to a higher cost of equity. Similarly, increased uncertainty in cash flow generation may raise concerns about debt servicing capacity, potentially leading to higher credit spreads and cost of debt.

Conversely, firms with strong ESG performance may benefit from more stable and predictable demand patterns, as well as stronger customer loyalty and brand resilience. This reduces cash flow volatility and downside risk, contributing to a lower perceived risk profile. In this sense, ESG acts as a risk-mitigating factor on the demand side, reinforcing its role as a determinant of both expected returns and risk. Within the luxury sector, as demand is deeply intertwined with perception and values, this mechanism is particularly pronounced, further strengthening the transmission from ESG performance to the cost of capital.

Global exposure, supply chain complexity, and operational risk

The luxury industry is highly globalized, with leading firms operating across multiple regions and relying on complex international supply chains. This global footprint provides significant growth opportunities and diversification benefits, but it also introduces additional layers of risk that are directly relevant from a corporate finance perspective. In particular, global integration exposes firms to a combination of macroeconomic, operational, and regulatory risks, many of which are closely linked to ESG factors.

On the demand side, luxury firms are heavily dependent on a limited number of key geographic markets, with Asia, particularly China, playing a central role in driving industry growth. A substantial share of global luxury demand originates from Asian consumers (D'Arpizio et al., 2023), making firms highly sensitive to regional economic conditions, fluctuations in consumer confidence, and policy developments. This concentration increases exposure to systematic risk factors, such as economic slowdowns or financial market volatility in key regions. In addition, exchange rate movements can significantly affect both reported revenues and pricing strategies, further contributing to cash flow variability. Geopolitical developments also represent an important source of uncertainty. Trade tensions, regulatory interventions, or shifts in international relations can directly affect market access, consumer behavior, and cross-border operations. In this context, global diversification does not necessarily eliminate risk, but rather transforms it into a more complex and interconnected set of exposures that must be actively managed.

On the supply side, the production of luxury goods depends on high-quality raw materials and specialized craftsmanship, often sourced from geographically concentrated or environmentally sensitive areas. For example, the sourcing of leather, precious metals, or rare textiles frequently involves regions that are subject to environmental constraints, regulatory scrutiny, or social challenges. At the same time, the preservation of artisanal know-how, often embedded in specific local clusters, limits the flexibility of production and increases dependence on particular suppliers or regions.

This results in complex and potentially fragile supply chains, where disruptions can have significant operational and financial consequences. As highlighted by the OECD (2020), global value chains are a key channel through which environmental and social risks materialize, particularly in industries that rely on high-value inputs and specialized production processes. In the luxury sector, these risks are further amplified by increasing stakeholder expectations regarding transparency, traceability, and ethical sourcing. Amatulli et al. (2017) show that consumers increasingly expect luxury brands to ensure responsible practices throughout their supply chains, making ESG performance in upstream activities directly relevant for brand perception. In this context, ESG-related risks become central to operational stability. Firms that fail to adequately manage these dimensions may face regulatory penalties, supply disruptions, or reputational damage, all of which can affect production capacity and cost structures.

From a financial perspective, these factors contribute to both operational risk and uncertainty in cash flow generation. Supply chain disruptions can lead to production delays, increased input costs, or loss of sales, while regulatory changes may require costly adjustments to processes and sourcing strategies. ESG controversies linked to suppliers can also have indirect but significant financial effects, particularly through reputational channels that impact demand.

Consequently, firms with more robust ESG practices, are better positioned to anticipate and mitigate these risks, leading to lower operational volatility and more stable cash flows (Eccles et al. (2014)). Conversely, firms with weaker ESG controls may face higher uncertainty and increased perceived risk, which can be reflected in higher required returns by both equity investors and creditors.

Overall, the global and complex nature of the luxury industry reinforces the role of ESG as a key determinant of firm risk. By affecting both demand exposure and supply chain stability, ESG performance becomes directly linked to the predictability of cash flows and, ultimately, to the cost of capital.

Ownership structure, governance, and investor perception

Finally, the ownership and governance structures of luxury firms represent an additional dimension that is directly relevant for financial analysis and, more specifically, for understanding how ESG factors influence the cost of capital. A distinctive feature of the sector is the prevalence of concentrated ownership, often involving founding families or long-term controlling shareholders, as observed in major groups such as LVMH or Kering. This ownership model contrasts with the more dispersed structures typically found in other publicly listed firms and has important implications for both firm behavior and investor perception.

On the one hand, concentrated ownership can support a long-term strategic orientation, which is particularly valuable in the luxury industry. As highlighted by Anderson and Reeb (2003), family-controlled firms often exhibit longer investment horizons and stronger incentives to preserve firm value across generations. In the context of luxury companies, this can translate into sustained investments in brand equity, craftsmanship, and heritage, key intangible assets that require consistency and patience to develop. Moreover, controlling shareholders may play a crucial role in safeguarding brand identity and ensuring strategic coherence, which are essential for maintaining exclusivity and market positioning (Kapferer and Bastien, 2012).

On the other hand, such ownership structures may also give rise to governance-related concerns, particularly with respect to minority shareholder protection, transparency, and potential agency conflicts. As noted by La Porta et al. (1999), concentrated ownership can create situations in which controlling shareholders have the ability and incentives to extract private benefits at the expense of minority investors. In addition, lower levels of

disclosure or board independence may increase information asymmetry, making it more difficult for external investors to accurately assess firm risk and performance.

In this context, governance quality becomes a critical factor in shaping investor confidence and, ultimately, the firm's cost of capital. Gompers et al. (2003) show that firms with stronger governance structures, characterized by better shareholder rights and lower agency costs, tend to exhibit higher valuations and superior stock performance. Similarly, Ashbaugh-Skaife et al. (2006) find that weaker governance is associated with higher cost of equity, as investors demand a premium to compensate for increased agency risk and uncertainty.

The importance of governance is further amplified in the luxury sector due to the central role of intangible assets and reputation. As discussed in the previous sections, firm value in this industry depends heavily on credibility, trust, and consistent strategic management. Weak governance can undermine these elements by increasing the risk of opportunistic behavior, strategic inconsistency, or inadequate risk oversight. Conversely, strong governance frameworks, encompassing board independence, transparency, and effective control mechanisms, can enhance credibility and reduce perceived risk.

From a cost of capital perspective, these dynamics are particularly relevant. Poor governance may increase both information asymmetry and agency risk, leading investors to require higher returns on equity and creditors to demand higher risk premia. In contrast, strong governance practices, an integral component of the "G" pillar of ESG, can mitigate these risks by improving transparency, aligning incentives, and strengthening oversight. This contributes to lower perceived risk and, consequently, a lower cost of capital (El Ghoul et al., 2011).

Overall, the economic characteristics of the luxury industry point to a sector in which firm value is highly sensitive to perception, reputation, and the stability of demand. The central role of intangible assets, combined with strong pricing power and complex global operations, creates a risk profile in which non-financial factors play a crucial role. These features amplify the financial materiality of ESG performance, as ESG-related factors directly affect key determinants of risk, including cash flow volatility, downside exposure, and investor perception. As a result, the transmission mechanism from ESG to the cost of capital is likely to be particularly strong in this sector, making the luxury industry an especially suitable setting for the analysis developed in this thesis.

3.2. ESG issues in the Luxury Sector

Building on the economic characteristics outlined in the previous section, the luxury industry emerges as a context in which ESG factors are not only relevant, but structurally embedded in the core drivers of firm value. The central role of intangible assets, the importance of perception-driven demand, and the complexity of global operations all contribute to amplifying the financial materiality of ESG-related issues. As a result, ESG

considerations in the luxury sector cannot be treated as peripheral or compliance-driven elements, but rather as fundamental determinants of firm risk and long-term performance.

In particular, ESG issues in this sector tend to be closely linked to reputation, brand legitimacy, and stakeholder trust, which are themselves key inputs in the value creation process. As highlighted by Kapferer and Bastien (2012), the success of luxury brands depends on their ability to maintain a consistent and credible identity over time. Any misalignment between a firm's actions and stakeholder expectations, whether related to environmental practices, labor conditions, or governance standards, can therefore have immediate and significant consequences for brand perception. This reinforces the idea that ESG factors operate as risk multipliers, capable of affecting both the level and the volatility of cash flows.

From an environmental perspective, luxury firms face increasing scrutiny regarding the sourcing of raw materials, carbon emissions, and the sustainability of production processes. The use of high-quality inputs such as leather, precious metals, and exotic materials exposes firms to risks related to biodiversity loss, resource depletion, and regulatory intervention (OECD, 2020). At the same time, growing regulatory pressure and evolving disclosure standards require firms to adopt more transparent and accountable environmental practices, increasing both compliance costs and operational complexity.

Social issues are equally central, particularly in relation to supply chain practices, labor conditions, and cultural sensitivity. The reliance on global and often fragmented supply chains exposes firms to risks associated with human rights violations, unsafe working conditions, and lack of traceability. As noted by Amatulli et al. (2017), consumers increasingly expect luxury brands to ensure ethical sourcing and responsible production, making social performance a key determinant of brand credibility. In addition, the global visibility of luxury firms makes them particularly vulnerable to public scrutiny, amplifying the reputational impact of any social controversy.

Governance considerations further contribute to shaping the ESG profile of luxury firms. As discussed in the previous section, ownership structures in the industry are often characterized by concentrated control, which may raise concerns regarding transparency, accountability, and minority shareholder protection (La Porta et al., 1999). At the same time, governance quality plays a crucial role in ensuring effective oversight of ESG risks, aligning managerial incentives with long-term value creation, and maintaining investor confidence.

Importantly, the intensity and nature of these ESG issues are not uniform across the sector. Different luxury segments, such as fashion, jewelry, watches, cosmetics, and hospitality, exhibit varying degrees of exposure to environmental, social, and governance risks, depending on their specific business models, supply chains, and customer bases (D'Arpizio et al., 2023). This heterogeneity implies that the financial impact of ESG factors, including their effect on the cost of capital, may differ significantly across sub-sectors.

In this context, the analysis of ESG issues in the luxury industry requires a sector-specific and granular approach, capable of capturing both common pressures and structural differences. The following sections therefore examine, first, the main ESG pressures that are particularly relevant for luxury firms, and second, the key distinctions across sub-sectors that shape the transmission of ESG factors into firm risk and financial outcomes.

3.2.1. Sector-specific ESG pressures

The luxury industry is exposed to a set of ESG pressures that are both structurally embedded in its business model and amplified by its reliance on reputation, brand value, and complex global supply chains. As discussed in the previous section, the sector's dependence on intangible assets and perception-driven demand implies that firm value is highly sensitive to factors that shape stakeholder expectations. In this context, ESG-related issues can have a direct and immediate impact on firm risk, influencing not only the level of expected cash flows but also their volatility and credibility from an investor perspective. As highlighted by Eccles et al. (2014), firms with stronger sustainability profiles tend to exhibit more stable performance, suggesting that ESG factors play a key role in shaping risk perceptions in capital markets.

Unlike more standardized industries, where ESG risks are often confined to operational inefficiencies or regulatory compliance, in the luxury sector these pressures extend to the core drivers of value creation, particularly brand legitimacy, exclusivity, and consumer trust. As emphasized by Kapferer and Bastien (2012), the value of luxury brands is intrinsically linked to their ability to maintain a consistent and credible identity over time. This implies that any ESG-related misalignment can directly affect brand perception and, consequently, demand. In this sense, ESG risks operate not only through traditional cost or compliance channels, but also through reputational and demand-side mechanisms, which are central to the financial performance of luxury firms.

Moreover, the global nature of the industry further amplifies the relevance of ESG pressures. Luxury firms operate across multiple jurisdictions, each characterized by different regulatory standards, cultural expectations, and stakeholder priorities. At the same time, increasing transparency and digitalization have intensified public scrutiny, making firms more vulnerable to rapid dissemination of negative information. As a result, ESG-related issues can escalate quickly and generate disproportionate financial consequences, particularly in terms of reputational damage and loss of consumer trust (D'Arpizio et al., 2023).

Importantly, ESG dimensions are not independent sources of risk, but rather interconnected and mutually reinforcing factors. Environmental or social controversies can rapidly evolve into reputational crises, while weak governance structures may exacerbate their impact by limiting the firm's ability to respond effectively. This interconnectedness increases the complexity of ESG risk management and strengthens the overall transmission from ESG performance to firm risk and financial outcomes.

To better capture their financial relevance, ESG pressures in the luxury sector can therefore be analyzed along the three traditional ESG pillars while recognizing that their effects are deeply intertwined. This framework allows for a structured examination of how ESG factors influence key determinants of risk, including operational stability, demand dynamics, and investor perception, ultimately shaping the cost of capital in the luxury industry.

Environmental pressures

Environmental issues represent a critical source of risk in the luxury industry, primarily due to the sector's reliance on resource-intensive raw materials and environmentally sensitive production processes. Luxury goods frequently depend on inputs such as leather, exotic skins, precious metals, and rare textiles, whose extraction and transformation are associated with significant environmental externalities, including greenhouse gas emissions, water consumption, biodiversity loss, and land degradation (OECD, 2020). For instance, the leather supply chain is closely linked to livestock production, a major contributor to global emissions and deforestation, while the mining of gold and precious stones often involves substantial ecological disruption and pollution. These characteristics make environmental exposure structurally embedded in the business model of many luxury firms.

Importantly, environmental risks are no longer confined to operational considerations, but are increasingly subject to intensifying regulatory pressure and stakeholder scrutiny. Governments across major markets are introducing stricter environmental standards, including carbon reduction targets, waste management requirements, and mandatory disclosure frameworks. At the same time, investors and consumers are demanding greater transparency, traceability, and measurable progress in sustainability initiatives. According to D'Arpizio et al. (2023), sustainability has become a strategic priority in the luxury sector, with firms increasingly investing in circular economy models, sustainable material innovation, and supply chain traceability systems. These developments reflect a broader shift in which environmental performance is progressively integrated into competitive positioning and long-term value creation.

From a financial perspective, environmental exposure affects both cost structures and risk perception, thereby influencing the cost of capital through multiple channels. On the cost side, compliance with evolving environmental regulation often requires significant capital expenditures, such as investments in cleaner technologies, sustainable sourcing practices, and emissions reduction initiatives. These adjustments may increase short-term costs and compress margins, particularly for firms that are lagging in their environmental transition.

At the same time, environmental risks have important implications for downside risk and cash flow volatility. Failure to meet environmental expectations can result in regulatory penalties, operational disruptions, or exclusion from certain markets. More critically in

the luxury context, environmental controversies can lead to substantial reputational damage, undermining brand credibility and reducing consumer willingness to pay. As environmental awareness becomes increasingly embedded in consumer preferences, particularly among younger and high-income segments, such risks directly affect demand stability and revenue generation (Amatulli et al., 2017).

Moreover, environmental performance is increasingly incorporated into investor decision-making and capital allocation processes. Institutional investors are progressively integrating ESG criteria into portfolio selection, while lenders and rating agencies are incorporating environmental risk into credit assessments. As documented by El Ghouli et al. (2011), firms with stronger ESG profiles tend to benefit from a lower cost of equity, reflecting reduced perceived risk and a broader investor base. Conversely, firms perceived as lagging in environmental performance may face higher required returns, both in equity markets and in debt financing, due to increased exposure to regulatory, operational, and reputational risks.

In this framework, environmental issues represent a central channel through which ESG performance affects firm risk. Their impact operates through multiple dimensions, including operating costs, regulatory exposure, supply chain stability, and brand credibility. In the luxury industry, where long-term value depends heavily on reputation and consumer trust, environmental performance can therefore influence not only current profitability but also the stability and predictability of future cash flows.

Social pressures

Social issues are particularly salient in the luxury industry due to the combination of complex global supply chains and the exceptionally high visibility of brands. Production processes in this sector typically involve multiple tiers of suppliers distributed across different countries, often characterized by heterogeneous regulatory frameworks and labor standards. This fragmentation increases exposure to risks related to working conditions, human rights violations, and lack of traceability, particularly in upstream activities. As highlighted by the OECD (2020), global value chains represent a key channel through which social risks materialize, especially in industries that rely on specialized inputs and geographically dispersed production networks.

In the luxury context, these risks are amplified by the central role of brand reputation. As emphasized by Amatulli et al. (2017), consumers increasingly expect luxury firms to ensure ethical sourcing and responsible production practices, making social performance an integral component of brand credibility. Unlike in mass-market industries, where production processes may remain relatively opaque to final consumers, luxury brands are expected to embody a set of values that extend beyond product quality to include ethical integrity and social responsibility. This expectation strengthens the link between supply chain practices and consumer perception.

As a result, even indirect exposure to unethical practices, such as poor working conditions, labor exploitation, or inadequate health and safety standards at the supplier level, can generate significant reputational damage. Given the visibility of luxury brands and the intensity of media scrutiny, such issues can quickly escalate into public controversies, affecting consumer trust and brand equity. This dynamic reflects a broader shift in stakeholder expectations, where firms are increasingly held accountable not only for their direct operations but also for the behavior of their entire supply chain.

Beyond supply chain considerations, social pressures also extend to diversity, inclusion, and cultural sensitivity, particularly in relation to branding, marketing, and communication strategies. Luxury firms operate in a global and culturally diverse environment, where brand messaging must resonate with heterogeneous audiences. Misalignment with social norms, such as lack of diversity in representation, culturally insensitive campaigns, or perceived exclusionary practices, can trigger immediate backlash from consumers and the media. As noted by Kapferer and Bastien (2012), maintaining brand desirability requires careful alignment with evolving societal values, which are increasingly shaped by social and ethical considerations.

From a financial standpoint, social risks primarily affect demand stability and revenue volatility, making them a key component of overall firm risk. Negative social events can lead to consumer boycotts, erosion of brand loyalty, and rapid declines in sales, particularly in markets where ethical consumption plays a growing role. This is especially relevant for younger consumer segments, who tend to integrate social responsibility into their purchasing decisions. As documented by Eccles et al. (2014), firms with stronger social performance benefit from more stable stakeholder relationships, which translates into lower volatility in financial performance and reduced risk exposure. Conversely, firms with weak social practices face greater uncertainty regarding future cash flows. Reputational damage linked to social issues can have persistent effects, not only reducing short-term demand but also undermining long-term brand positioning. This increased uncertainty is reflected in higher perceived and actual risk, as investors anticipate greater volatility and downside exposure.

These dynamics are financially relevant because they affect both the stability of revenues and the perception of firm risk. Greater demand uncertainty and reputational vulnerability may lead equity investors to require higher returns, while concerns about cash flow resilience can also influence creditors' assessment of default risk. In this sense, social performance becomes an important determinant of risk in the luxury sector, particularly through its effects on brand trust, customer loyalty, and revenue predictability.

Governance pressures

Governance issues represent a third critical dimension of ESG pressures in the luxury sector, particularly in light of the ownership structures and strategic characteristics

discussed in the previous section. The prevalence of concentrated ownership, often involving founding families or long-term controlling shareholders, can support strategic continuity and long-term value creation. However, as highlighted by La Porta et al. (1999), such structures may also give rise to concerns regarding transparency, accountability, and minority shareholder protection, especially when control rights exceed cash flow rights. These potential governance frictions are particularly relevant in publicly listed luxury firms, where external investors rely on credible oversight mechanisms to assess risk and performance.

Beyond ownership structures, the increasing complexity of ESG-related challenges requires the implementation of robust governance frameworks capable of ensuring effective risk oversight, strategic alignment, and high-quality disclosure. Luxury firms operate in a global environment characterized by regulatory heterogeneity, reputational exposure, and supply chain complexity, all of which demand coordinated and forward-looking governance practices. As a result, firms are increasingly expected to integrate ESG considerations into core decision-making processes, establish dedicated board-level oversight (e.g., sustainability committees), and implement comprehensive monitoring systems across their operations. In addition, transparent and consistent ESG disclosure has become essential for maintaining credibility with investors and other stakeholders.

From a corporate finance perspective, governance quality plays a central role in reducing information asymmetry and agency risk, both of which are key determinants of the cost of capital. Gompers et al. (2003) provide evidence that firms with stronger governance structures, characterized by greater shareholder rights and more effective monitoring, tend to exhibit higher valuations and superior stock performance. This is consistent with the idea that better governance reduces the risk of opportunistic behavior and improves the alignment between management and investors. Similarly, Ashbaugh-Skaife et al. (2006) find that weaker governance is associated with a higher cost of equity, as investors demand a premium to compensate for increased uncertainty and reduced transparency.

In the luxury sector, the importance of governance is further amplified by the central role of intangible assets and reputation. As discussed in Section 3.1, firm value in this industry depends heavily on brand credibility, stakeholder trust, and the consistency of long-term strategic positioning. Weak governance can undermine these elements by increasing the likelihood of strategic misalignment, inadequate risk management, or delayed responses to ESG-related controversies. In particular, insufficient oversight may exacerbate the impact of environmental or social issues by allowing risks to accumulate or by failing to address them in a timely and credible manner.

Conversely, strong governance structures can enhance organizational resilience and investor confidence. Effective boards, transparent reporting, and well-designed incentive systems contribute to better risk management and more credible commitment to ESG objectives. As documented by Eccles et al. (2014), firms that integrate sustainability into their governance frameworks tend to exhibit more stable performance and lower overall

risk exposure. In turn, this can translate into more favorable financing conditions, as both equity investors and creditors perceive lower uncertainty and downside risk.

From a cost of capital perspective, these dynamics are particularly relevant. Weak governance increases perceived risk through higher information asymmetry and agency costs, leading to higher required returns on equity and potentially higher borrowing costs. In contrast, strong governance, an essential component of the “G” pillar of ESG, contributes to reducing these frictions, thereby lowering the firm’s overall cost of capital.

Overall, ESG pressures in the luxury sector are characterized by their high financial materiality and strong interdependence. Environmental, social, and governance issues do not operate in isolation but interact in shaping firm risk, affecting operational stability, demand dynamics, and investor perception. Governance, in particular, plays a coordinating role, influencing the firm’s ability to manage environmental and social risks effectively.

This reinforces the idea that ESG performance affects the main channels through which risk is assessed in the luxury industry, including cash flow volatility, downside exposure, and information asymmetry. Firms that manage ESG pressures effectively are likely to be perceived as more resilient by investors and creditors, as they appear better positioned to preserve stable cash flows and respond to adverse events. Conversely, weaker ESG profiles may increase uncertainty around future performance and lead capital providers to require higher risk premia.

3.2.2. Differences across Luxury Subsectors

While ESG pressures represent a common and structurally relevant dimension across the luxury industry, their intensity, nature, and financial implications vary significantly across subsectors. The luxury market is not homogeneous, but rather composed of distinct segments, such as fashion and leather goods, jewelry and watches, cosmetics and fragrances, and luxury hospitality, each characterized by different business models, production processes, supply chain configurations, and patterns of consumer interaction. As highlighted by D’Arpizio et al. (2023), these segments exhibit heterogeneous growth drivers and risk exposures, reflecting their differing degrees of reliance on raw materials, manufacturing complexity, and experiential versus product-based value creation.

This structural heterogeneity translates into diverse ESG risk profiles. For instance, segments that rely heavily on physical inputs and extraction activities, such as fashion or jewelry, tend to be more exposed to environmental and supply chain-related risks, including resource scarcity, emissions, and labor conditions (OECD, 2020). In contrast, segments such as cosmetics or luxury hospitality may face relatively greater exposure to consumer-facing ESG issues, including product safety, ethical consumption, and local social impact. Similarly, the degree of supply chain fragmentation, vertical integration, and

geographic concentration varies across subsectors, influencing the extent to which firms are exposed to traceability challenges and regulatory pressures.

These differences are further reinforced by variation in consumer behavior and demand dynamics. As noted by Amatulli et al. (2017), consumer sensitivity to sustainability and ethical considerations differs across product categories, with some segments, such as cosmetics, being more directly influenced by ESG-related attributes in purchasing decisions. In other segments, such as high-end watches or jewelry, ESG considerations may operate more indirectly through brand reputation and long-term trust. This implies that the transmission of ESG performance into demand stability and revenue generation is not uniform, but depends on the relative importance of functional versus symbolic attributes within each subsector.

From a corporate finance perspective, this heterogeneity is particularly relevant because it affects the way ESG factors translate into firm risk and cost of capital. Differences in ESG exposure influence key determinants of risk, including cash flow volatility, downside risk, and the degree of information asymmetry faced by investors. For example, subsectors with higher exposure to regulatory and operational ESG risks may exhibit greater uncertainty in cost structures and profitability, while those more sensitive to consumer perception may face higher demand volatility and reputational risk.

Understanding these differences is therefore essential for accurately assessing the financial implications of ESG performance. A sector-agnostic approach may obscure important variations in risk transmission mechanisms, whereas a more granular analysis allows for a precise identification of how ESG factors affect expected returns and required risk premia within each segment. In line with the findings of Eccles et al. (2014), firms that effectively manage ESG risks tend to exhibit more stable performance and lower risk, but the magnitude and channels of this effect depend critically on the specific features of the industry and subsector in which they operate.

In this context, analyzing differences across luxury segments provides a necessary step for linking ESG performance to cost of capital, as it highlights the non-uniform and context-dependent nature of ESG-related financial effects.

Fashion and leather goods

The fashion and leather goods segment is among the most exposed to ESG-related risks, particularly along the environmental and social dimensions, due to the structural characteristics of its production processes and supply chains. This segment relies heavily on resource-intensive materials as well as on highly fragmented and globally dispersed production networks. These features inherently increase exposure to both environmental externalities and social vulnerabilities, making ESG performance a central determinant of operational and reputational risk.

From an environmental standpoint, the production of fashion and leather goods is associated with significant ecological impact. The leather industry, for instance, is closely linked to livestock production, which contributes to greenhouse gas emissions, land use pressures, and deforestation. Similarly, textile production, particularly cotton and synthetic fibers, requires substantial water consumption and involves the use of chemicals that can generate pollution and environmental degradation (OECD, 2020). These factors make firms in this segment particularly sensitive to regulatory pressure, including stricter environmental standards, emissions targets, and waste management requirements.

In parallel, the growing importance of sustainability among consumers is reshaping competitive dynamics within the sector. As highlighted by D'Arpizio et al. (2023), demand for sustainable fashion is increasing, with consumers, especially younger cohorts, placing greater emphasis on environmental responsibility and transparency. This shift amplifies the financial relevance of environmental performance, as firms that fail to meet sustainability expectations may experience reduced demand and weaker brand positioning.

Social risks are equally pronounced, largely due to the industry's dependence on outsourced production and multi-tiered supply chains. Manufacturing activities are often located in regions characterized by lower labor costs but also by varying levels of regulatory enforcement and labor protection. This creates exposure to issues such as poor working conditions, low wages, lack of worker safety, and limited transparency. As emphasized by Amatulli et al. (2017), consumers increasingly expect luxury brands to ensure ethical practices throughout their supply chains, making social responsibility a key component of brand credibility. In this context, even indirect involvement in unethical practices, such as labor exploitation at the supplier level, can generate significant reputational damage. Given the visibility of luxury brands and the importance of trust, such events can quickly translate into consumer backlash, media scrutiny, and erosion of brand equity. Moreover, increasing regulatory initiatives related to due diligence and supply chain transparency further raise the stakes, requiring firms to implement more rigorous monitoring and reporting systems.

From a financial perspective, this combination of environmental and social exposure results in elevated operational and reputational risk, which directly affects the stability and predictability of cash flows. Environmental compliance may increase production costs, while social controversies can trigger sudden demand shocks and revenue declines. These dynamics contribute to higher cash flow volatility and downside risk, particularly for firms that are perceived as lagging in ESG performance.

In capital market terms, higher perceived risk is reflected in higher required returns. Investors may demand a risk premium to compensate for the uncertainty associated with ESG exposure, leading to a higher cost of equity. Similarly, concerns about operational disruptions or reputational events may affect credit risk assessments, potentially increasing the cost of debt. Conversely, firms that proactively manage environmental and social risks may benefit from more stable demand, lower volatility, and improved investor

confidence, ultimately translating into more favorable financing conditions (Eccles et al., 2014).

Overall, the fashion and leather goods segment exemplifies how ESG factors can act as core drivers of financial risk in the luxury industry, reinforcing the link between sustainability performance and cost of capital.

Jewelry and watches

The jewelry and watches segment is characterized by a distinct ESG risk profile, with a particularly strong emphasis on environmental and social issues related to raw material sourcing. Unlike other luxury segments, where ESG risks are often linked to manufacturing processes or consumer-facing activities, in this case the most critical exposures arise at the upstream level, particularly in the extraction and initial processing of precious metals and gemstones. The mining of gold, diamonds, and other valuable materials is frequently associated with environmental degradation, high energy consumption, water pollution, and biodiversity loss, as well as significant social concerns, including unsafe labor conditions, human rights violations, and, in some cases, conflict financing (OECD, 2020).

These characteristics make ESG risks in this segment highly concentrated but also potentially severe, as they are tied to specific stages of the value chain that are often geographically distant and difficult to monitor. As a result, issues such as traceability and responsible sourcing have become central to both regulatory frameworks and industry practices. Consumers, investors, and regulators increasingly expect firms to demonstrate that their materials are ethically sourced and compliant with international standards. This has led to the widespread adoption of certification schemes, such as the Kimberley Process for diamonds, and the implementation of supply chain monitoring and due diligence systems aimed at ensuring transparency and accountability.

From a reputational standpoint, these expectations are particularly important in the luxury context. As emphasized by Kapferer and Bastien (2012), the value of luxury goods is closely tied to notions of authenticity, integrity, and symbolic meaning. ESG controversies related to sourcing, such as the use of “conflict diamonds” or environmentally destructive mining practices, can directly undermine these attributes, creating a disconnect between brand image and underlying practices. This type of misalignment can have severe consequences, as it challenges the ethical and symbolic foundations upon which luxury value is built.

Compared to the fashion segment, supply chains in jewelry and watches are often more concentrated but also more opaque, particularly at the extraction stage. While fewer suppliers may be involved, the lack of visibility into upstream operations increases exposure to compliance and reputational risks. As highlighted by the OECD (2020), due diligence in mineral supply chains remains a complex challenge, requiring firms to

manage information asymmetries and ensure adherence to international standards across multiple jurisdictions.

From a financial perspective, these ESG characteristics translate into a specific risk profile dominated by low-probability, high-impact events, particularly reputational crises linked to sourcing practices. Such events can generate abrupt and significant effects on demand, as well as long-term damage to brand equity. In asset pricing terms, this corresponds to increased tail risk, which is particularly relevant for investors and is often incorporated into required returns.

Consequently, firms that fail to adequately address sourcing-related ESG risks may face higher perceived risk and greater uncertainty in future cash flows, leading to a higher cost of equity. Similarly, concerns about regulatory compliance or potential liabilities may influence credit assessments, increasing the cost of debt. Conversely, firms that invest in transparent, traceable, and responsible sourcing practices can enhance their credibility and reputational resilience, thereby reducing perceived risk. Empirical evidence supports this mechanism. As shown by Eccles et al. (2014) and El Ghouli et al. (2011), firms with stronger ESG performance tend to benefit from lower cost of capital, reflecting improved risk profiles and greater investor confidence. In the jewelry and watches segment, where ESG risks are highly visible and directly linked to the origin of value, these effects are likely to be particularly pronounced.

Overall, the segment illustrates how ESG factors, especially those related to supply chain integrity and ethical sourcing, can act as critical determinants of firm risk and financial performance, reinforcing the link between sustainability and cost of capital in the luxury industry.

Cosmetics and fragrances

The cosmetics and fragrances segment presents a distinct ESG profile, with a stronger emphasis on environmental sustainability, product safety, and consumer-facing social issues. Unlike other luxury segments that are heavily exposed to upstream risks, ESG challenges in this category are more closely linked to product composition, packaging, and direct interaction with consumers, making them particularly visible and immediately relevant for demand dynamics.

From an environmental perspective, key concerns include packaging waste, chemical usage, and carbon emissions associated with production and distribution. The cosmetics industry relies extensively on plastic packaging and complex chemical formulations, both of which raise sustainability challenges. Packaging waste, in particular, has become a major issue, as increasing regulatory pressure and public awareness are pushing firms toward circular economy solutions, such as recyclable, refillable, or biodegradable packaging (D'Arpizio et al., 2023). In parallel, the environmental impact of ingredients, ranging from synthetic compounds to natural resource extraction, has come under

scrutiny, requiring firms to invest in cleaner formulations and more sustainable sourcing practices.

Regulatory developments further reinforce these pressures. Authorities are introducing stricter standards regarding chemical safety, environmental impact, and disclosure requirements, increasing both compliance costs and operational complexity. Firms must therefore continuously adapt their product portfolios and production processes to meet evolving standards, which can have direct implications for cost structures and margins.

On the social dimension, ESG pressures are particularly salient in relation to ethical consumption and product transparency. Issues such as animal testing, ingredient safety, and sourcing practices play a central role in shaping consumer perception. As highlighted by Amatulli et al. (2017), consumers in the luxury segment increasingly expect brands to align with ethical values, and this expectation is especially strong in cosmetics, where products are directly applied to the body and closely linked to personal well-being.

In this context, cruelty-free practices, vegan formulations, and full transparency regarding ingredients have become key differentiating factors. Firms that fail to meet these expectations may face reputational damage and loss of consumer trust, while those that successfully integrate ethical considerations into their value proposition can strengthen brand loyalty and competitive positioning. Moreover, the rise of digital platforms and social media has amplified the speed at which ESG-related information spreads, increasing the potential impact of both positive and negative signals.

Compared to other luxury segments, cosmetics and fragrances are characterized by higher purchase frequency and lower switching costs, which makes demand more responsive to changes in perception. As a result, ESG performance can have a more immediate and pronounced effect on consumer behavior. This implies a higher degree of demand elasticity with respect to ESG factors, as purchasing decisions are more directly influenced by personal values, health concerns, and ethical considerations.

From a financial perspective, ESG factors play an important role in shaping revenue stability and volatility in this segment. Firms with weak ESG profiles may experience faster shifts in consumer preferences, higher customer churn, and greater exposure to reputational shocks. Conversely, firms that successfully integrate sustainability into their brand identity may benefit from stronger customer loyalty, more stable sales patterns, and enhanced resilience. These dynamics affect the cost of capital because greater demand volatility and reputational sensitivity increase perceived risk and required returns, while strong ESG positioning can reduce uncertainty and improve investor confidence (Eccles et al., 2014; El Ghoul et al., 2011).

Overall, the cosmetics and fragrances segment illustrates how ESG factors, particularly those related to product sustainability and ethical consumption, can directly influence demand dynamics and financial risk, reinforcing the importance of ESG performance as a determinant of cost of capital in the luxury industry.

Luxury hospitality and experiential luxury

The luxury hospitality segment, including high-end hotels, resorts, and experiential services, exhibits a distinct ESG profile, with a stronger emphasis on environmental footprint and local social impact. Unlike product-based luxury segments, where ESG risks are often embedded in manufacturing and sourcing processes, hospitality firms are primarily exposed through ongoing operations and direct interaction with local environments and communities. This makes ESG performance highly visible and continuously subject to stakeholder scrutiny.

From an environmental perspective, the main sources of risk are related to energy consumption, water usage, and waste management, particularly in resource-intensive operations such as luxury resorts, large-scale hotels, and remote destinations. These facilities often require significant energy inputs for heating, cooling, and transportation services, as well as substantial water resources for amenities such as pools, landscaping, and guest services. As highlighted by the OECD (2020), tourism-related activities can generate considerable environmental pressure, especially in ecologically sensitive areas.

In response, both regulators and stakeholders are increasingly demanding the adoption of sustainable tourism practices, including energy efficiency measures, renewable energy integration, waste reduction, and responsible water management. According to D'Arpizio et al. (2023), sustainability is becoming a key differentiating factor in the luxury hospitality sector, with firms investing in environmentally friendly infrastructure and certifications. However, these initiatives often require significant upfront investments, affecting cost structures and capital allocation decisions.

On the social dimension, ESG pressures are closely linked to local communities, labor practices, and cultural integration. Luxury hospitality firms operate in direct contact with local stakeholders, including employees, suppliers, and residents, making them particularly exposed to social risks. Issues such as fair wages, working conditions, and community engagement are central to maintaining a positive local presence. Moreover, the integration of cultural elements into the customer experience requires careful management to avoid perceptions of exploitation or insensitivity.

Given the high visibility of operations, any misalignment with local expectations or failure to meet social standards can quickly translate into reputational damage. As emphasized by Amatulli et al. (2017), consumers increasingly value authenticity and social responsibility in luxury experiences, making ESG performance a key determinant of brand perception. Negative events, such as labor disputes or conflicts with local communities, can therefore have immediate and tangible effects on demand.

From a financial perspective, ESG performance in this segment directly affects both operational costs and revenue generation. Environmental inefficiencies may lead to higher operating expenses, while compliance with sustainability standards may require substantial capital investments. At the same time, ESG performance plays a critical role in

brand positioning and differentiation, particularly as high-end consumers increasingly seek sustainable and responsible travel experiences.

Poor ESG performance may result in regulatory constraints, operational disruptions, or reputational damage, all of which increase uncertainty in cash flows. Conversely, strong ESG practices can enhance demand stability, customer loyalty, and pricing power, contributing to more predictable revenues and improved resilience. As suggested by Eccles et al. (2014), firms that effectively integrate sustainability into their strategy tend to exhibit lower risk and more stable financial performance. These dynamics have direct implications for the cost of capital. Higher operational and reputational risks increase perceived uncertainty, leading investors and creditors to demand higher returns. In contrast, firms with strong ESG positioning may benefit from reduced perceived risk and more favorable financing conditions, consistent with the findings of El Ghouli et al. (2011).

Overall, the analysis highlights that ESG pressures in the luxury industry are highly heterogeneous across sub-sectors, reflecting differences in production processes, supply chain structures, and consumer behavior. While all segments are exposed to ESG risks, the dominant channels of transmission vary significantly.

Environmental risks are particularly relevant in resource-intensive segments, such as fashion, jewelry, and hospitality, where production processes or operations have a direct ecological impact. Social risks are amplified in segments characterized by complex supply chains or strong consumer interaction, where issues related to labor practices, ethical sourcing, or cultural alignment can directly affect brand perception. Governance, in turn, plays a cross-cutting role across all segments, but is especially important in contexts where ownership structures are concentrated and strategic control is centralized.

From a corporate finance perspective, this heterogeneity implies that the impact of ESG on firm risk and cost of capital is not uniform, but depends critically on the specific characteristics of each sub-sector. Firms operating in segments with higher ESG exposure may face greater cash flow volatility, higher downside risk, and consequently higher required returns if these risks are not properly managed. Conversely, firms that effectively integrate ESG into their business models may benefit from lower perceived risk, improved investor confidence, and more favorable financing conditions. This reinforces the need for a sector-specific and granular approach when analyzing the relationship between ESG performance and cost of capital, as developed in the following section.

3.3. ESG and different impact on Cost of Capital in Luxury Firms

Building on the sector-specific analysis developed in the previous sections, the relationship between ESG performance and cost of capital in the luxury industry can be understood through a set of risk transmission mechanisms that are particularly relevant in this sector. While Chapters 1 and 2 established the general link between ESG, risk, and required returns, the characteristics of luxury firms suggest that this relationship may be

especially pronounced. The centrality of intangible assets, perception-driven demand, and complex global operations increases the extent to which ESG factors can affect both expected cash flows and their risk profile.

In luxury firms, value is largely embedded in expectation-based components such as brand equity, reputation, and consumer trust (Kapferer and Bastien, 2012; Koller et al., 2020). This makes firm value particularly sensitive to changes in perception. ESG-related events can therefore affect not only operational performance, but also demand stability, pricing power, and long-term growth expectations. Similarly, the global structure of luxury supply chains exposes firms to regulatory, environmental, and social risks that may increase uncertainty and affect operating margins (OECD, 2020).

These mechanisms matter because investors and creditors price risk through their expectations about the level, stability, and downside exposure of future cash flows. ESG performance can therefore influence the cost of capital in two main ways: by affecting the underlying riskiness of cash flows and by shaping how this risk is perceived by capital providers. Empirical evidence supports this logic. Eccles et al. (2014) show that firms with stronger sustainability performance tend to exhibit more stable financial outcomes, while El Ghoul et al. (2011) find that firms with higher ESG ratings are associated with a lower cost of equity.

In the luxury sector, this relationship is amplified by the fact that ESG factors interact directly with the core drivers of value creation, including brand credibility, consumer loyalty, and pricing power. Strong ESG performance can support stakeholder trust and reduce exposure to reputational shocks, while weak ESG performance can increase uncertainty around future revenues and margins. As a result, ESG becomes a relevant determinant of both perceived and actual risk, with direct implications for the required returns demanded by investors and creditors.

ESG as a driver of cash flow risk and downside exposure

A primary channel through which ESG affects the cost of capital in luxury firms is its impact on cash flow stability and downside risk, both of which are central to how investors price risk. As discussed in Sections 3.1 and 3.2, the luxury industry is characterized by a high sensitivity to perception, implying that ESG-related issues can rapidly translate into changes in demand, pricing power, and ultimately revenue generation. This creates a direct link between ESG performance and the predictability of future cash flows, which is a key input in valuation and asset pricing models.

In particular, ESG performance influences demand-side risk, which is especially relevant in a sector where consumption is closely tied to identity, values, and brand perception (Han et al., 2010). In such a context, brand credibility is not only a marketing asset but a financial one, as it underpins both demand stability and the firm's ability to sustain premium pricing. Firms with strong ESG profiles are more likely to benefit from stable

demand, stronger customer loyalty, and resilient pricing power, as they are perceived as aligned with evolving societal expectations. This alignment reinforces long-term brand equity and reduces sensitivity to short-term shocks.

Conversely, firms with weak ESG performance are more exposed to reputational shocks, which can have immediate and significant financial consequences. As emphasized by Amatulli et al. (2017), consumers in the luxury segment increasingly incorporate ethical and sustainability considerations into their purchasing decisions. Negative ESG events, such as environmental controversies, labor scandals, or governance failures, can therefore trigger rapid declines in demand, erosion of brand value, and loss of pricing power. These effects are often amplified by media coverage and digital platforms, which accelerate the diffusion of information and intensify market reactions.

From a financial perspective, these dynamics translate into differences in both the level and distribution of cash flows. ESG-related risks are typically associated with asymmetric payoffs, where the upside of good ESG performance is gradual and cumulative, while the downside of poor performance can be abrupt and severe. This creates a form of downside and tail risk, characterized by low-probability but high-impact events. As shown by Bansal et al. (2021), such risks are particularly relevant in asset pricing, as investors demand compensation for exposure to adverse states of the world. In the luxury sector, where brand perception can shift quickly, this asymmetry is especially pronounced.

In addition to demand-side effects, ESG performance also influences operational risk, particularly in segments characterized by complex supply chains and resource-intensive processes. Environmental and social risks, such as stricter regulation, supply chain disruptions, or failures in compliance, can directly affect production costs and operational continuity (OECD, 2020). For example, increased environmental regulation may require costly adjustments in sourcing or production, while social issues in supply chains may lead to delays, contract renegotiations, or loss of key suppliers.

Firms with inadequate ESG practices are therefore more likely to experience higher volatility in operating margins and greater uncertainty in cost structures, both of which contribute to increased variability in cash flows. Conversely, firms that proactively manage ESG risks, through sustainable sourcing, supply chain monitoring, and regulatory compliance, can reduce operational uncertainty and enhance resilience, leading to more stable financial performance (Eccles et al., 2014).

Overall, ESG performance shapes the riskiness of cash flows, affecting both their expected variability and their exposure to extreme negative outcomes. Since the cost of capital reflects the compensation required by investors for bearing risk, these differences are directly incorporated into required returns. Firms with higher exposure to ESG-related risks are perceived as riskier and therefore face higher cost of equity and potentially higher cost of debt, while firms with stronger ESG performance benefit from lower perceived risk and more favorable financing conditions.

ESG, investor perception, and required returns

A second key channel operates through investor perception and capital market behavior. ESG performance does not only affect the underlying risk of a firm, but also shapes how that risk is perceived, interpreted, and ultimately priced by investors. Since the cost of capital reflects required returns based on perceived risk, this channel is central to understanding how ESG translates into financial outcomes.

In this respect, ESG acts as a signal of management quality, transparency, and long-term strategic orientation. Firms with strong ESG profiles are generally perceived as better governed, more forward-looking, and more capable of anticipating and managing emerging risks. This signaling effect is particularly important in contexts characterized by uncertainty and limited observability of future performance. As shown by El Ghouli et al. (2011), firms with higher ESG scores tend to exhibit a lower cost of equity, reflecting both reduced perceived risk and increased demand from investors who explicitly incorporate sustainability considerations into their portfolio allocation.

This mechanism is especially relevant in the luxury sector, where intangible assets dominate firm value and information asymmetry is inherently higher. Unlike firms in asset-heavy industries, luxury companies derive a large portion of their value from brand equity, reputation, and long-term growth expectations, all of which are difficult to observe and quantify (Koller et al., 2020). As a result, investors must rely heavily on forward-looking assessments regarding brand strength, consumer behavior, and strategic positioning. In this context, ESG performance and disclosure provide additional information that can reduce uncertainty about the firm's ability to sustain its competitive advantage and manage long-term risks.

More specifically, high-quality ESG disclosure enhances transparency and credibility, allowing investors to better assess exposure to ESG risks. This reduces information asymmetry between firms and capital providers, which is a key determinant of required returns. As highlighted by Dhaliwal et al. (2011), firms with more comprehensive ESG disclosure tend to benefit from a lower cost of capital, as improved transparency reduces uncertainty and strengthens investor confidence.

Conversely, weak ESG performance or insufficient disclosure may increase ambiguity and perceived opacity, leading investors to apply higher risk premia. In the absence of credible information, investors may assume a worse risk profile, particularly in relation to reputational exposure, regulatory risks, or governance weaknesses. This is particularly relevant in the luxury sector, where negative information, such as ESG controversies, can have disproportionate effects on perceived firm quality and long-term value.

In addition to its signaling role, ESG performance also influences investor base composition, which in turn affects capital market dynamics. The rapid growth of sustainable investing has led to a structural shift in capital allocation, with a growing share of institutional investors incorporating ESG criteria into their investment decisions. As a

result, firms with strong ESG characteristics are more likely to attract a broader, more stable, and long-term-oriented investor base, increasing demand for their securities.

This demand effect has direct implications for the cost of capital. Greater investor demand can support higher valuations and lower expected returns, as investors are willing to accept lower risk premia for firms perceived as more sustainable and less risky. Conversely, firms with poor ESG profiles may face exclusion from ESG-focused portfolios, reduced investor demand, and lower market liquidity, all of which contribute to higher required returns.

Overall, this channel highlights that ESG performance influences not only the fundamental risk of cash flows, but also the way in which this risk is perceived and priced by capital markets. In the luxury sector, where valuation depends heavily on expectations and credibility, these perception-based effects are particularly strong. As a result, ESG acts as a key determinant of investor confidence and capital allocation, reinforcing its impact on the cost of equity and, more broadly, on the firm's overall cost of capital.

ESG and the WACC in luxury firms

The combined effect of the mechanisms discussed above ultimately materializes in the firm's overall cost of capital, through its impact on both the cost of equity and the cost of debt. In a corporate finance framework, the cost of capital reflects the compensation required by investors and creditors for bearing risk. Since ESG performance affects both the level and perception of risk, it directly enters the determination of required returns and, consequently, firm valuation.

On the equity side, ESG influences required returns through its effect on systematic risk, downside risk, and investor perception. As discussed in earlier sections, firms with stronger ESG performance tend to exhibit more stable cash flows, lower exposure to reputational shocks, and better risk management capabilities. These characteristics reduce both the volatility of returns and the likelihood of extreme negative outcomes. From an asset pricing perspective, this translates into a lower risk premium demanded by investors. Empirical evidence supports this relationship: El Ghouli et al. (2011) find that firms with higher ESG scores benefit from a lower cost of equity, while Bansal et al. (2021) highlight the importance of sustainability in reducing exposure to long-term and tail risks. Similarly, Eccles et al. (2014) show that firms with strong sustainability practices exhibit more stable performance and lower risk over time.

Conversely, firms with weaker ESG profiles or higher exposure to ESG-related risks may face higher required returns, reflecting increased uncertainty and greater sensitivity to adverse events. In the luxury sector, this effect is amplified by the importance of intangible assets and brand perception. ESG controversies can rapidly affect demand and valuation, increasing perceived risk and leading investors to incorporate higher risk premia.

On the debt side, ESG factors are increasingly incorporated into credit risk assessments by lenders, rating agencies, and other financial intermediaries. Environmental and social risks can affect a firm's ability to generate stable cash flows and meet its financial obligations, particularly in the presence of regulatory changes, operational disruptions, or reputational damage. Governance quality, in turn, influences creditor confidence, monitoring costs, and the overall reliability of financial reporting. As a result, firms with weaker ESG profiles may face higher credit spreads, lower credit ratings, and less favorable borrowing conditions, while firms with stronger ESG practices may benefit from improved access to capital and lower cost of debt. This is consistent with the findings of studies such as Goss and Roberts (2011), which document that firms with weaker social responsibility profiles tend to pay higher loan spreads.

In the luxury sector, these effects are further amplified by the sector-specific risk structure. As shown in Section 3.2, different sub-sectors exhibit varying degrees of exposure to ESG risks, implying that the impact on cost of capital is inherently heterogeneous. For example, firms in fashion and jewelry are more exposed to environmental and supply chain risks, which may affect both operational stability and compliance costs. In contrast, firms in cosmetics or hospitality may be more sensitive to demand-side and reputational channels, where ESG performance directly influences consumer behavior and revenue generation. This heterogeneity implies that ESG does not affect all firms uniformly, but rather interacts with specific business models and risk exposures.

From a valuation perspective, changes in the cost of capital have first-order effects on firm value, particularly in industries characterized by long-term growth expectations and high reliance on intangible assets. As shown by Koller et al. (2020), even small variations in the discount rate can lead to significant changes in the present value of future cash flows, especially when those cash flows are expected to materialize over long horizons. In the luxury sector, where valuation is heavily driven by brand strength and long-term growth potential, this sensitivity is particularly pronounced. As a result, ESG-induced changes in required returns can have disproportionate effects on firm valuation.

Overall, ESG performance influences the cost of capital in the luxury sector through several interconnected channels, including cash flow risk, investor perception, and capital market dynamics. The sector's reliance on intangible assets, perception-driven demand, and global operations amplifies these effects, making ESG an important determinant of both actual and perceived risk.

At the same time, this impact is not uniform, but depends on firm-specific and sub-sector-specific exposure. Firms that effectively integrate ESG into their strategy may benefit from lower perceived risk, more stable cash flows, and better financing conditions, while weaker ESG profiles may lead to higher volatility, greater downside risk, and higher required returns. This confirms that, in the luxury industry, ESG is not simply an external constraint or reputational consideration, but a core financial variable, directly influencing the cost of capital and, ultimately, firm value.

CHAPTER IV

DATA AND METHODOLOGY

This chapter presents the data and empirical methodology used to investigate the relationship between ESG disclosure and the cost of capital in the luxury sector. Building on the theoretical framework developed in the previous chapters, the analysis adopts a corporate finance perspective, focusing on the role of ESG disclosure as a potential determinant of perceived risk, information transparency, required return, and, ultimately, firms' financing costs and valuation.

The choice of the term "ESG disclosure" is fundamental to the empirical design of this study. Due to the methodology of the Bloomberg dataset, the scores used in this research do not measure direct operational sustainability performance. Instead, they reflect the volume and granularity of information that corporations publicly release regarding environmental, social, and governance dimensions. Consequently, this econometric framework does not evaluate whether luxury firms with better sustainability practices enjoy a funding advantage. Rather, it investigates how capital markets price the level of corporate non-financial transparency.

From a corporate finance standpoint, this disclosure profile is theoretically highly material. Expanded sustainability reporting can mitigate information asymmetry between corporate insiders and external capital providers, thereby improving investor confidence and signaling how a firm manages regulatory and reputational risks. Conversely, extensive disclosures may also reveal underlying structural vulnerabilities or highlight the existence of costly transition processes within the supply chain. Under this framework, ESG disclosure is treated not as an ethical construct, but as a financial signal that influences how markets evaluate corporate risk. By affecting transparency, perceived volatility, and future cash flow predictability, non-financial reporting alters the required returns demanded by investors and creditors, dynamics that are ultimately reflected in the cost of equity, the cost of debt, and the overall cost of capital.

The empirical approach is designed to test whether ESG disclosure, both in its aggregate form and across its ESG components, is systematically associated with variations in the cost of equity, the cost of debt, and the weighted average cost of capital. These variables represent the key transmission channels through which ESG-related information may affect firm value, as they determine the discount rate applied to future cash flows. From a valuation standpoint, even relatively small changes in the cost of capital can lead to significant variations in firm value, particularly in industries characterized by strong growth expectations and high reliance on intangible assets, such as the luxury sector.

A key feature of the empirical design is the distinction between aggregate ESG disclosure and its underlying components. While aggregate ESG scores provide a synthetic measure of the firm's overall ESG disclosure, they may mask important differences across

environmental, social, and governance dimensions. These dimensions may convey different types of information to financial markets and may therefore be priced differently by equity investors and debt holders. By explicitly disentangling these effects, the analysis aims to provide a more granular understanding of how ESG-related disclosure is incorporated into financial decision-making.

To address this research question, the chapter relies on a panel dataset of publicly listed luxury firms, which allows exploiting both cross-sectional and time-series variation. This structure is particularly suitable for isolating the relationship between ESG disclosure and the cost of capital, as it makes it possible to control for unobservable firm characteristics and common time effects that may otherwise bias the estimates. In particular, panel data techniques enable distinguishing between differences across firms and changes within firms over time, which is essential when analyzing variables that may be jointly determined by underlying structural factors.

The chapter is organized as follows. Section 4.1 describes the sample selection process, the data sources, and the time horizon of the analysis. Section 4.2 presents the econometric model and discusses the estimation strategy, including the use of fixed effects and the treatment of outliers. Finally, Section 4.3 introduces the variables used in the empirical models, distinguishing between dependent variables, ESG-related independent variables, and control variables. This structure provides a transparent and rigorous foundation for the empirical analysis, ensuring that the subsequent results are grounded in a well-defined methodological framework. It also ensures that the interpretation of the findings remains consistent with the nature of the available data: the analysis focuses on ESG disclosure, rather than ESG performance, and evaluates whether this disclosure-based measure is associated with firms' cost of capital in the luxury sector.

4.1. Sample selection and time horizon

The empirical analysis is based on a panel dataset of publicly listed firms operating in the luxury sector. The full list of firms included in the sample is presented in Table 4.1. The sample has been constructed using data retrieved from Bloomberg, which provides consistent and comparable information on firms' financial variables and ESG disclosure across firms and over time.

The selection of firms follows a sector-based approach, focusing on companies classified within the luxury segment. The sample includes firms operating across different subsectors. This heterogeneity represents a key feature of the dataset, as it allows exploring whether the relationship between ESG performance and cost of capital varies across segments characterized by different economic structures, production processes, and exposure to risk. The final sample consists of 49 firms observed over a time horizon of 11 fiscal years, from 2014 to 2024. The dataset is structured in panel (long) format, where each observation corresponds to a firm-year pair. After accounting for missing values, the baseline specifications include 397 observations.

Table 4.1: Sample Firms by Subsector

Company	Subsector	Country	Ticker
Beiersdorf	Cosmetics & Beauty	Germany	BEI GY Equity
Coty Inc.	Cosmetics & Beauty	United States	COTY US Equity
Estée Lauder	Cosmetics & Beauty	United States	EL US Equity
L'Oréal	Cosmetics & Beauty	France	OR FP Equity
Shiseido	Cosmetics & Beauty	Japan	4911 JP Equity
EssilorLuxottica	Eyewear & Accessories	France	EL FP Equity
Movado Group	Eyewear & Accessories	United States	MOV US Equity
Safilo Group	Eyewear & Accessories	Italy	SFL IM Equity
Brunello Cucinelli	Fashion & Leather	Italy	BC IM Equity
Burberry	Fashion & Leather	United Kingdom	BRBY LN Equity
Canada Goose	Fashion & Leather	Canada	GOOS US Equity
Capri Holdings	Fashion & Leather	United States	CPRI US Equity
Hermès	Fashion & Leather	France	RMS FP Equity
Hugo Boss	Fashion & Leather	Germany	BOSS GY Equity
Kering	Fashion & Leather	France	KER FP Equity
LVMH	Fashion & Leather	France	MC FP Equity
Moncler	Fashion & Leather	Italy	MONC IM Equity
Prada	Fashion & Leather	Hong Kong	1913 HK Equity
PVH Corp	Fashion & Leather	United States	PVH US Equity
Ralph Lauren	Fashion & Leather	United States	RL US Equity
Salvatore Ferragamo	Fashion & Leather	Italy	SFER IM Equity
Tapestry	Fashion & Leather	United States	TPR US Equity
Chow Tai Fook	Jewelry & Watches	Hong Kong	1929 HK Equity
Pandora	Jewelry & Watches	Denmark	PNDORA DC Equity
Richemont	Jewelry & Watches	Switzerland	CFR SE Equity
Signet Jewelers	Jewelry & Watches	United States	SIG US Equity
Swatch Group	Jewelry & Watches	Switzerland	UHR SE Equity
Aston Martin Lagonda	Luxury Automotive	United Kingdom	AML LN Equity
BMW	Luxury Automotive	Germany	BMW GY Equity
Ferrari	Luxury Automotive	Italy	RACE IM Equity
Mercedes-Benz Group	Luxury Automotive	Germany	MBG GY Equity
Porsche AG	Luxury Automotive	Germany	P911 GY Equity
Hilton Worldwide	Luxury Hospitality	United States	HLT US Equity
Hyatt Hotels	Luxury Hospitality	United States	H US Equity
Mandarin Oriental	Luxury Hospitality	Singapore	M04 SP Equity
Marriott International	Luxury Hospitality	United States	MAR US Equity
Shangri-La Asia	Luxury Hospitality	Hong Kong	69 HK Equity
Brunswick Corp	Luxury Marine	United States	BC US Equity
Malibu Boats	Luxury Marine	United States	MBUU US Equity
Brown-Forman	Luxury Spirits	United States	BF/B US Equity
Campari	Luxury Spirits	Italy	CPR IM Equity
Pernod Ricard	Luxury Spirits	France	RI FP Equity
Rémy Cointreau	Luxury Spirits	France	RCO FP Equity
Bombardier	Private Aviation	Canada	BBD/B CN Equity
Embraer	Private Aviation	United States	ERJ US Equity
Textron	Private Aviation	United States	TXT US Equity
Wheels Up	Private Aviation	United States	UP US Equity
Ferretti Group	Superyacht	Hong Kong	2268 HK Equity
Sanlorenzo	Superyacht	Italy	SL IM Equity

The use of a panel dataset is particularly appropriate in this context, as it allows capturing both cross-sectional differences across firms and within-firm variation over time. Luxury firms differ significantly in terms of brand positioning, geographical exposure, vertical integration, and strategic orientation. These factors are often difficult to observe directly but may influence both the level of ESG disclosure and the cost of capital. By exploiting within-firm variation, the analysis controls for time-invariant firm characteristics and focuses on whether changes in ESG disclosure within the same firm are associated with changes in financing costs.

At the same time, the time dimension of the dataset allows accounting for the evolution of ESG disclosure and financial variables over the sample period. This is important because both disclosure practices and capital market conditions may change over time due to regulatory developments, macroeconomic conditions, investor expectations, and broader market trends. The combination of firm-level and time-series variation therefore provides a suitable empirical framework for analyzing the relationship between ESG disclosure and the cost of capital in the luxury sector.

Table 4.2 provides an overview of the composition of the sample by subsector and country. The sample includes firms operating across a wide range of luxury segments, highlighting the heterogeneity that characterizes the industry. Fashion and leather goods represent the largest subsector, accounting for 14 firms and 154 firm-year observations, corresponding to approximately 28.6% of the sample. Other segments, including cosmetics and beauty, jewelry and watches, luxury automotive, and luxury hospitality, are also well represented, each contributing around 10% of the total observations.

Table 4.2: Sample Distribution by Subsector and by Country

Subsector	Firms	Observations	Percentage	Country	Firms	Observations	Percentage
Cosmetics & Beauty	5	55	10.20	Canada	2	22	4.08
Eyewear & Accessories	3	33	6.12	Denmark	1	11	2.04
Fashion & Leather	14	154	28.57	France	7	77	14.29
Jewelry & Watches	5	55	10.20	Germany	5	55	10.20
Luxury Automotive	5	55	10.20	Hong Kong	4	44	8.16
Luxury Hospitality	5	55	10.20	Italy	7	77	14.29
Luxury Marine	2	22	4.08	Japan	1	11	2.04
Luxury Spirits	4	44	8.16	Singapore	1	11	2.04
Private Aviation	4	44	8.16	Switzerland	2	22	4.08
Superyacht	2	22	4.08	United Kingdom	2	22	4.08
				United States	17	187	34.69

From a geographical perspective, the sample is concentrated in the United States, which accounts for 17 firms and 187 observations, representing approximately 34.7% of the dataset. France and Italy constitute the second largest groups, each contributing 77 observations, reflecting the historical importance of these countries within the global luxury industry. Additional firms are located in Germany, Hong Kong, Switzerland, the United Kingdom, Canada, Denmark, Japan, and Singapore, ensuring a geographically diversified sample.

Overall, the distribution of firms across both subsectors and countries supports the representativeness of the sample and allows the analysis to capture different business models, market environments, and risk exposures within the luxury sector.

4.2. Econometric Model

The empirical analysis investigates the relationship between ESG disclosure and the cost of capital in the luxury sector. The methodological framework is based on the approach adopted by Vaitiekuniene and Sapkauskienė (2026) in *Sustainability Practices and Capital Costs: Evidence from Banks and Financial Technology Firms in Global Markets*. Their study examines the impact of ESG disclosure on different measures of capital costs by using panel regressions with firm and year fixed effects, considering WACC, cost of equity, and cost of debt as alternative dependent variables. In line with this approach, this thesis estimates fixed-effects panel regressions in which the cost of capital is regressed on ESG disclosure and a set of financial control variables.

Given the structure of the dataset, which includes several firms observed over multiple years, the empirical specification takes the form of a multivariate panel regression estimated through ordinary least squares (OLS). Firm fixed effects are included to control for time-invariant company characteristics, while year fixed effects account for common shocks affecting all firms in the same year. Standard errors are clustered at the firm level to account for within-firm correlation over time.

The general empirical specification is the following:

$$CostCapital_{it} = \alpha + \beta ESG_{it} + \gamma Controls_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where $CostCapital_{it}$ represents alternatively the cost of equity, the cost of debt, or WACC for firm i in year t . The main explanatory variable is the aggregate ESG score, which captures the firm's ESG disclosure and sustainability-related profile. The coefficient of interest is β , which measures the association between ESG disclosure and the selected measure of capital cost, after controlling for firm-specific financial characteristics, firm fixed effects, and year fixed effects.

In additional specifications, the aggregate ESG score is decomposed into its three pillars:

$$CostCapital_{it} = \alpha + \beta_1 ENV_{it} + \beta_2 SOC_{it} + \beta_3 GOV_{it} + \gamma Controls_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

Where ENV , SOC , and GOV represent respectively the environmental, social, and governance dimensions of ESG disclosure. This second specification allows the analysis to examine whether the relationship between ESG and the cost of capital is driven by a specific ESG pillar rather than by the aggregate score.

In a second step, the baseline model is extended by adding market-based controls:

$$CostCapital_{it} = \alpha + \beta ESG_{it} + \gamma_1 \log_Size95_{it} + \gamma_2 \log_Leverage95_{it} + \gamma_3 ROA_w95_{it} + \gamma_4 \log_MktCap95_{it} + \gamma_5 BETA_ADJ_w95_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

The purpose of this extended specification is to assess whether the relationship between ESG disclosure and the cost of capital is robust to the inclusion of market-based firm characteristics. While the baseline model controls for accounting-based variables, such as total assets, leverage, and profitability, the cost of capital may also be influenced by market valuation and systematic risk. This is particularly relevant for the cost of equity, which reflects investors' required return and is therefore closely linked to market expectations and perceived risk.

The variable *log_MktCap*₉₅ is included to capture the market-based dimension of firm size. Unlike total assets, which measure accounting size, market capitalization reflects investors' valuation of the firm and may incorporate intangible assets, growth opportunities, brand value, investor visibility, and market expectations. This distinction is especially important in the luxury sector, where a substantial part of firm value depends on intangible resources such as brand reputation, exclusivity, customer loyalty, perceived quality, and pricing power. These elements may not be fully reflected in accounting assets, but they are more likely to be incorporated into market capitalization.

Including market capitalization also helps address a possible omitted-variable concern. Firms with higher ESG scores may also be firms that are more visible to investors, more followed by analysts, more exposed to institutional ownership, or more strongly valued by financial markets. If these market-based characteristics are not controlled for, the ESG coefficient may partly capture investor visibility or valuation effects rather than the independent association between ESG disclosure and the cost of capital.

The variable *BETA_ADJ_w*₉₅ is included as a proxy for systematic market risk. In corporate finance theory, investors require higher expected returns for holding securities that are more sensitive to market movements. Therefore, firms with higher beta are generally expected to have a higher cost of equity. Since WACC incorporates the cost of equity component, beta may also affect the firm's overall cost of capital.

The inclusion of beta is useful to verify whether the ESG coefficient is actually capturing differences in market risk. For instance, firms with stronger ESG disclosure may also be firms with different exposure to global demand cycles, investor expectations, or market volatility. By controlling for adjusted beta, the model tests whether the association between ESG disclosure and the cost of capital remains after accounting for systematic risk.

However, this specification must be interpreted with caution. Since the cost of equity may be estimated using market-risk inputs, beta can be mechanically related to the dependent variable. For this reason, the extended model is not treated as a replacement for the baseline specification, but as a robustness check. Its purpose is to verify whether the baseline results are sensitive to the inclusion of market-based controls.

Overall, the extended specification allows the analysis to distinguish the effect of ESG disclosure from other market-related determinants of the cost of capital. This is important because a significant ESG coefficient in the baseline model could reflect not only ESG-

related information, but also differences in market valuation, investor visibility, growth expectations, and systematic risk. Therefore, the comparison between the baseline and extended models provides a more cautious and financially grounded interpretation of the ESG-cost of capital relationship.

Interpretation of the model

The estimated coefficient on ESG should be interpreted as a conditional association, not as a causal effect. Specifically, β measures the relationship between ESG disclosure and the cost of capital after controlling for firm size, leverage, profitability, firm fixed effects, and year fixed effects.

If $\beta < 0$, higher ESG disclosure is associated with a lower cost of capital. This would support the traditional risk-reduction hypothesis, according to which ESG reduces information asymmetry, reputational risk, regulatory risk, and perceived firm risk.

If $\beta > 0$, higher ESG disclosure is associated with a higher cost of capital. This does not necessarily mean that ESG increases risk or destroys value. Rather, it may indicate that investors perceive ESG-related initiatives as costly in the short run, especially if they require investments in compliance, supply-chain transformation, sustainable materials, traceability, supplier auditing, or reporting systems.

If β is not statistically significant, the analysis does not provide evidence of a systematic relationship between ESG disclosure and the selected measure of capital cost.

This interpretation is particularly important in the luxury sector. ESG disclosure may be financially relevant because luxury firms rely heavily on intangible assets such as brand reputation, exclusivity, customer trust, perceived quality, and pricing power. At the same time, ESG implementation may require costly operational changes. Therefore, the relationship between ESG and the cost of capital may depend on whether investors price ESG primarily as a risk-reduction mechanism or as a source of short-term cost and execution risk.

4.3. Variables

This section presents the variables used in the empirical analysis, distinguishing between dependent variables, ESG-related independent variables, and control variables. The selection of variables is guided by the corporate finance framework developed in the previous chapters, in which the cost of capital is determined by the level of risk perceived by capital providers and by firm-specific financial characteristics. Overall, all variables are obtained from Bloomberg.

The dependent variables capture different dimensions of the cost of capital, reflecting the required returns demanded by equity investors and debt holders, as well as the overall

cost of financing. The independent variables focus on ESG performance, both in aggregate form and across its environmental, social, and governance components, in order to assess whether different dimensions of ESG are associated with different types of risk and are therefore priced differently in financial markets.

Control variables are included to account for firm characteristics that are known to affect the cost of capital, such as size and capital structure. Their inclusion is essential to isolate the marginal effect of ESG variables and to reduce the risk that the estimated relationships are driven by omitted firm-specific factors.

Overall, the definition and selection of variables aim to ensure consistency between the empirical specification and the theoretical framework, allowing for a clear interpretation of the results in terms of risk, required return, and firm valuation.

Winsorization at the 5th and 95th percentiles

Before estimating the models, the main financial variables were winsorized at the 5th and 95th percentiles. Winsorization was applied to Ke , Kd , and $WACC$. The resulting variables used in the empirical analysis are Ke_w95 , Kd_w95 , and $WACC_w95$.

Winsorization was used because the preliminary analysis of the raw data showed the presence of relevant outliers, especially in financial variables such as leverage and profitability. Extreme observations can have a disproportionate influence on OLS estimates, particularly in relatively small panel datasets. Instead of deleting observations, winsorization limits extreme values by replacing observations below the 5th percentile with the 5th percentile value, and observations above the 95th percentile with the 95th percentile value.

This procedure preserves the number of observations while reducing the mechanical influence of extreme values. It is particularly appropriate in this setting because the dataset includes firms with different sizes, capital structures, and financial conditions. Some extreme observations may reflect genuine firm-year events, but allowing them to fully drive the estimated coefficients could distort the relationship between ESG disclosure and the cost of capital.

The choice of 5%-95% winsorization is therefore motivated by the need to obtain more stable and reliable estimates. The ESG variables themselves are not winsorized, because they are score variables and represent the main explanatory variables of interest.

Dependent variables

The first dependent variable is the cost of equity Ke_w95 . This variable represents the required return demanded by equity investors. From a corporate finance perspective, the cost of equity reflects the compensation required by shareholders for bearing the risk

associated with the firm's future cash flows. It is particularly relevant because equity investors are residual claimants and are therefore more exposed to uncertainty regarding future profitability, growth opportunities, strategic execution, and market risk.

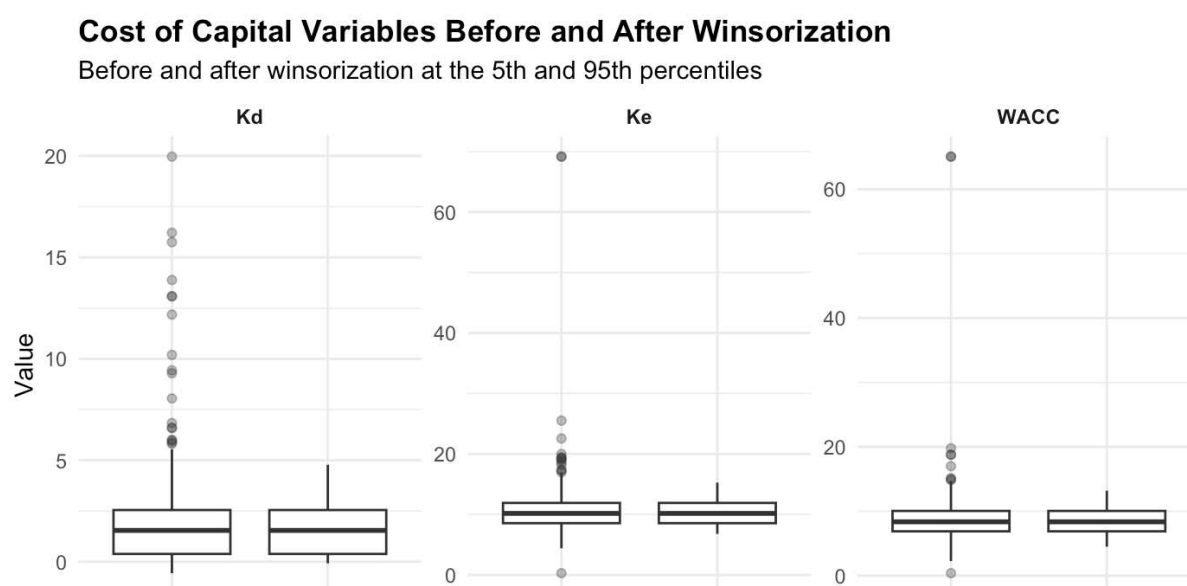
The second dependent variable is the cost of debt Kd_w95 . This variable captures the cost borne by the firm to finance itself through debt. The cost of debt is usually more directly related to credit risk, default probability, leverage, interest coverage, and lenders' perception of the firm's ability to meet its financial obligations. Compared with equity investors, debt investors have a more limited upside and are mainly concerned with downside risk and repayment capacity.

The third dependent variable is the weighted average cost of capital $WACC_w95$. The WACC represents the overall cost of financing for the firm, combining both the cost of equity and the cost of debt according to the firm's capital structure. It is particularly important from a valuation perspective, as it is commonly used as the discount rate in discounted cash flow models. A lower WACC increases firm value, all else equal, while a higher WACC reduces the present value of expected future cash flows.

By estimating the model separately for Ke , Kd , and $WACC$, the analysis allows us to distinguish whether ESG disclosure is associated with the equity channel, the debt channel, or the overall cost of capital.

Figure 4.1 presents the distribution of Ke , Kd , and $WACC$ before and after winsorization at the 5th and 95th percentiles. The boxplots highlight the presence of several extreme observations, particularly in the upper tails of the distributions. Winsorization reduces the impact of these outliers while maintaining the overall characteristics of the distributions, thereby improving the reliability of the subsequent regression analysis.

Figure 4.1: Cost of Capital Variables Before and After Winsorization



Independent variables

The main independent variable is the aggregate ESG score ESG_{it} . This variable is used as a proxy for the firm's ESG disclosure and sustainability-related profile. In this thesis, ESG is not interpreted from an ethical or normative perspective, but as a financial signal potentially relevant for investors. Better ESG disclosure may reduce information asymmetry, reputational risk, regulatory risk, and perceived operational risk. In theory, this should reduce the required return demanded by capital providers. However, ESG disclosure may also be associated with short-term costs, because of investments in sustainable materials, supply-chain traceability, compliance, supplier auditing, ESG reporting systems, and organizational restructuring. Therefore, the expected effect of ESG on the cost of capital is not necessarily immediate or unambiguous. To provide a more detailed analysis, the aggregate ESG score is decomposed into three pillars:

- ENV_{it} captures the environmental dimension of ESG disclosure. In the luxury sector, this component is particularly relevant because environmental initiatives may involve costly adjustments in sourcing, production processes, logistics, materials, emissions management, packaging, and supplier monitoring
- SOC_{it} captures aspects related to workforce management, human rights, product responsibility, customer relations, and broader stakeholder engagement. In luxury, the social dimension may be linked to supply-chain labor conditions, craftsmanship, customer trust, and brand legitimacy.
- GOV_{it} reflects the quality of corporate governance disclosure, including management structures, shareholder rights, board practices, and governance-related transparency. Governance may influence the cost of capital by reducing agency conflicts, improving monitoring, and increasing investor confidence.

Estimating the model both with aggregate ESG and with the individual ESG pillars allows the analysis to identify whether the relationship with the cost of capital is general or concentrated in one specific ESG dimension.

The ESG measures used in this study are obtained from Bloomberg and are based on the ESG scores provided by the platform. It is important to acknowledge that these scores do not directly measure the effectiveness or quality of a firm's ESG actions and initiatives. Rather, they primarily reflect the extent, quality, and consistency of ESG-related information disclosed by the company.

Consequently, Bloomberg ESG scores should be interpreted as indicators of a firm's ESG transparency and reporting practices rather than as direct measures of its actual environmental, social, or governance performance. Firms that provide more extensive and standardized ESG disclosure generally receive higher scores, even though the underlying effectiveness of their ESG policies may not be fully captured by the metric.

This distinction is particularly relevant from a corporate finance perspective. Financial markets do not observe firms' internal ESG activities directly; instead, investors and creditors rely on publicly available information when assessing risk and making

investment decisions. As a result, ESG disclosure itself may influence market perceptions, information asymmetry, and required returns, regardless of whether it perfectly reflects the firm's underlying ESG performance.

For this reason, the use of Bloomberg ESG scores remains appropriate for the purposes of this study. Since the objective is to investigate how ESG-related information is incorporated into the cost of capital, the relevant variable is not necessarily the firm's "true" ESG performance, which is inherently difficult to observe, but rather the ESG information available to market participants. Nevertheless, this characteristic of the dataset should be considered when interpreting the results, as the estimated relationships may partly reflect the financial market's response to ESG disclosure rather than to the actual effectiveness of ESG initiatives.

Control variables

The baseline model includes three financial control variables: firm size, leverage, and profitability.

Firm size is measured as $\log_Size95 = \log(TOT_ASSETS_w95)$ where TOT_ASSETS_w95 represents total assets winsorized at the 5th and 95th percentiles. Firm size is included because larger firms are generally expected to face lower financing costs. Larger companies are usually more diversified, more visible to investors, more liquid in financial markets, and less exposed to idiosyncratic risk. They may also have easier access to capital markets and better bargaining power with lenders.

In the context of this thesis, firm size is especially important because luxury firms can differ substantially in scale. Some firms are large multinational groups with diversified brand portfolios, while others are smaller specialized luxury companies. Controlling for size helps isolate the relationship between ESG disclosure and the cost of capital from differences in firm scale.

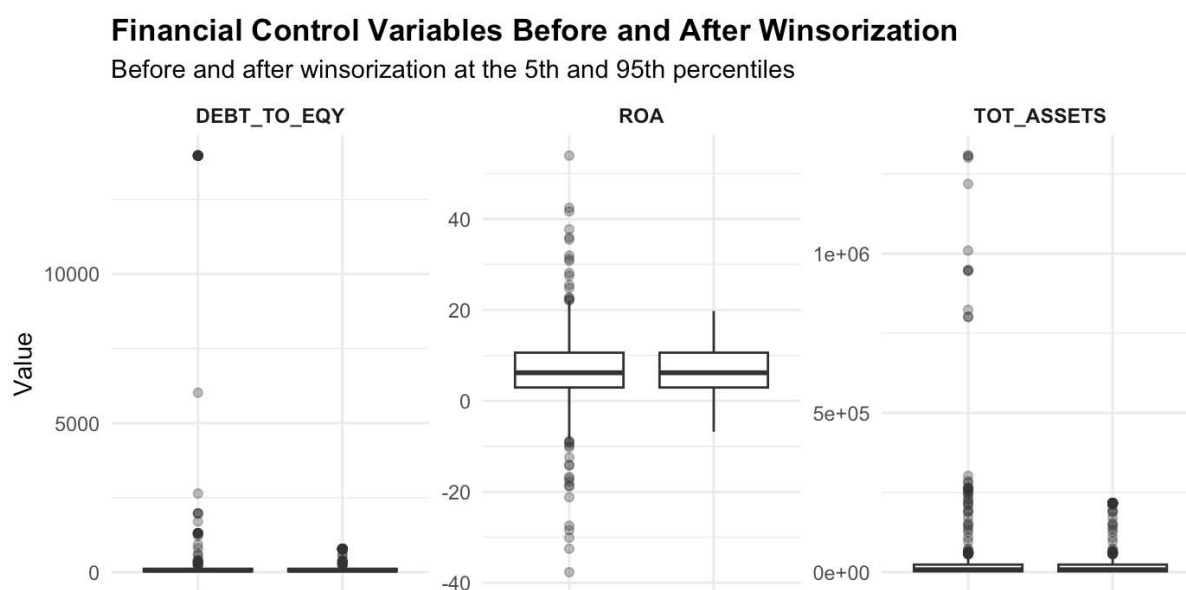
Leverage is measured as $\log_Leverage95 = \log(1 + DEBT_TO_EQY_w95)$ where $DEBT_TO_EQY_w95$ is the debt-to-equity ratio winsorized at the 5th and 95th percentiles. Leverage is included because capital structure affects the risk profile of the firm. A higher level of debt can increase financial risk, as fixed debt obligations raise the probability of financial distress. From the perspective of equity investors, higher leverage may increase the risk borne by shareholders, potentially increasing the cost of equity. From the perspective of lenders, higher leverage may increase default risk and therefore affect the cost of debt.

The logarithmic transformation is used to reduce the impact of the strong skewness and extreme values observed in the original debt-to-equity ratio, while preserving the economic interpretation of leverage as a measure of financial risk.

Profitability is measured as ROA_w95 and it is return on assets winsorized at the 5th and 95th percentiles. ROA is included because profitability can influence the cost of capital through its effect on risk and financial stability. More profitable firms are generally expected to have more stable cash flows, lower default risk, stronger internal financing capacity, and better ability to absorb shocks. Therefore, higher profitability may be associated with lower financing costs. At the same time, in a fixed-effects panel model, the coefficient on ROA captures within-firm changes in profitability over time, not permanent differences between highly profitable and less profitable firms.

Figure 4.2 illustrates the distribution of the financial control variables used in the empirical analysis before and after winsorization at the 5th and 95th percentiles. The distributions reveal the presence of extreme observations, especially for leverage and firm size, reflecting the substantial heterogeneity that characterizes publicly listed luxury firms. By limiting the influence of the most extreme values, winsorization produces more stable distributions and reduces the risk that the regression estimates are disproportionately driven by a small number of observations.

Figure 4.2: Financial Control Variables Before and After Winsorization



Market control variables

Market capitalization is measured as $\log_MktCap95 = \log(MKT_CAP_w95)$ where MKT_CAP_w95 is market capitalization winsorized at the 5th and 95th percentiles. Market capitalization captures a market-based dimension of firm size. This differs from total assets, which measure accounting size. In the luxury sector, market capitalization is particularly relevant because it may reflect intangible assets such as brand value, reputation, pricing power, investor expectations, and growth opportunities.

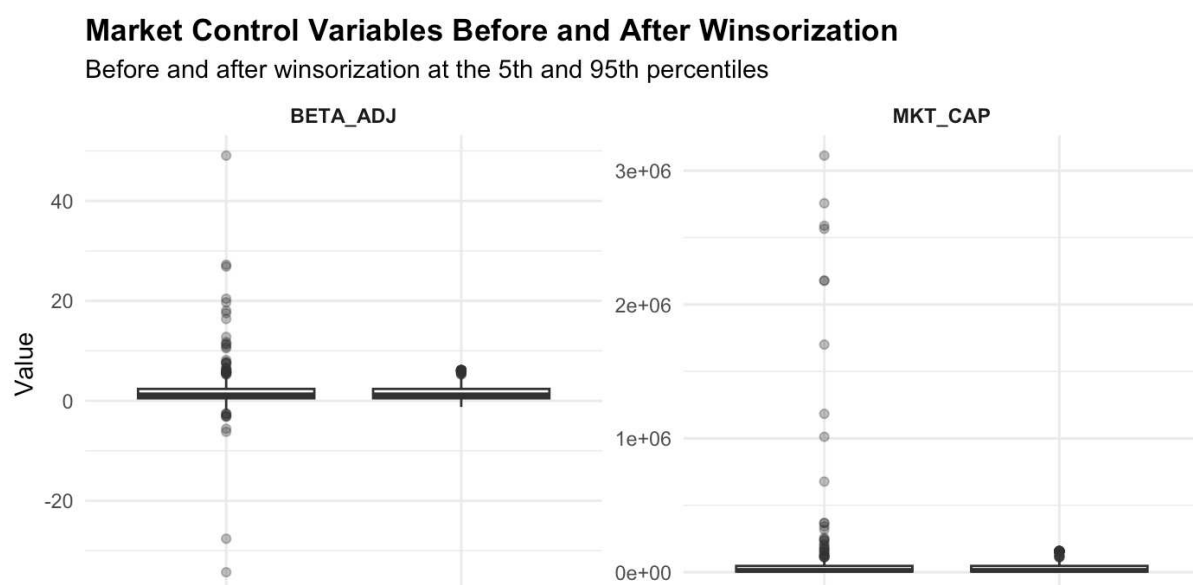
A firm may have relatively limited accounting assets but a very high market capitalization because the market assigns substantial value to its brand equity, exclusivity, customer loyalty, and expected future profitability. For this reason, including market capitalization allows the model to control for market valuation and investor visibility. This is important because firms with higher ESG scores may also be more visible, more followed by analysts, more exposed to institutional investors, and more strongly valued by the market. Without this control, the ESG coefficient could partly capture market visibility or valuation effects.

Adjusted beta is measured as *BETA_ADJ_w95* where the adjusted beta is winsorized at the 5th and 95th percentiles. Beta is included as a proxy for systematic market risk. In corporate finance, the cost of equity is closely linked to systematic risk: firms with higher beta are expected to have a higher required return because their stock returns are more sensitive to market movements.

Including beta is therefore useful to check whether the ESG coefficient is actually capturing differences in market risk. However, this control must be interpreted carefully. If the cost of equity is estimated through a CAPM-type framework, beta may already be mechanically related to the dependent variable. For this reason, the specification including beta is interpreted as an additional robustness check rather than as a replacement for the baseline model.

Figure 4.3 shows the distribution of the market control variables used in the empirical analysis before and after winsorization at the 5th and 95th percentiles. Both adjusted beta and market capitalization exhibit some extreme observations, reflecting differences in market risk exposure and firm size across the sample. By reducing the influence of outliers, winsorization produces more stable distributions and ensures that the estimated relationship between ESG disclosure and cost of capital is not affected by atypical data.

Figure 4.3: Market Control Variables Before and After Winsorization



Overall, the inclusion of market control variables strengthens the empirical specification by accounting for market-based determinants of the cost of capital. While accounting controls capture internal financial characteristics, market capitalization and adjusted beta reflect investors' valuation of the firm and its exposure to systematic risk. This distinction is particularly relevant in the luxury sector, where market value often incorporates intangible assets. Therefore, the extended specification helps verify whether the estimated association between ESG disclosure and cost of capital persists after controlling for both firm-level financial characteristics and market-based risk factors

Fixed effects

Firm fixed effects are represented by μ_i . They control for all time-invariant characteristics of each firm. In the luxury sector, these may include brand heritage, historical reputation, business model, country of origin, product positioning, long-term strategic identity, and persistent differences in risk profile. The inclusion of firm fixed effects is important because firms in the luxury sector are structurally different from each other. For example, a large fashion conglomerate, a jewelry company, and a luxury automotive firm may have very different business models and risk profiles. Firm fixed effects absorb these permanent differences.

Year fixed effects are represented by λ_t . They control for common shocks affecting all firms in a given year. These may include changes in interest rates, inflation, macroeconomic uncertainty, financial market conditions, Covid-related disruptions, monetary policy changes, and global luxury demand cycles. The inclusion of year fixed effects is highly important because the cost of capital is strongly affected by macro-financial conditions. By controlling for year effects, the model reduces the risk that the ESG coefficient captures common time shocks rather than firm-specific variation in ESG disclosure.

Therefore, the coefficient on ESG is identified from within-firm variation over time, after controlling for common annual shocks. In other words, the model does not simply compare firms with high ESG scores to firms with low ESG scores. Instead, it examines whether changes in ESG disclosure within the same firm over time are associated with changes in the cost of capital.

Variables definitions and descriptive statistics

Table 4.3 provides an overview of all variables included in the empirical analysis. The table reports the variable names, the acronyms used in the regression models, their definitions, and the corresponding data sources. This information facilitates the interpretation of the empirical results and ensures consistency between the theoretical framework, the dataset construction process, and the econometric specifications. As discussed in the previous section, selected financial variables are winsorized at the 5th and 95th percentiles to mitigate the potential influence of outliers on the estimation results.

Table 4.3: Variables Definitions

Variable	Acronym	Definition	Source
Cost of Equity	Ke_95	Cost of equity, winsorized at the 5th and 95th percentiles	Bloomberg / own calculation
Cost of Debt	Kd_95	Cost of debt, winsorized at the 5th and 95th percentiles	Bloomberg / own calculation
Weighted Average Cost of Capital	WACC_95	Weighted average cost of capital, winsorized at the 5th and 95th percentiles	Bloomberg / own calculation
ESG Score	ESG	Aggregate ESG disclosure score	Bloomberg
Environmental Score	ENV	Environmental pillar disclosure score	Bloomberg
Social Score	SOC	Social pillar disclosure score	Bloomberg
Governance Score	GOV	Governance pillar disclosure score	Bloomberg
Firm Size	log_Size95	Natural logarithm of total assets, winsorized at the 5th and 95th percentiles	Bloomberg / own calculation
Leverage	log_Leverage95	Natural logarithm of one plus debt-to-equity ratio, winsorized at the 5th and 95th percentiles	Bloomberg / own calculation
ROA	ROA_w95	Return on assets, winsorized at the 5th and 95th percentiles	Bloomberg / own calculation
Market Capitalization	log_MktCap95	Natural logarithm of market capitalization, winsorized at the 5th and 95th percentiles	Bloomberg / own calculation
Adjusted Beta	BETA_ADJ_w95	Measure of systematic market risk, winsorized at the 5th and 95th percentiles	Bloomberg / own calculation

Table 4.4 reports the descriptive statistics for all variables included in the empirical analysis. For each variable, the table presents the number of observations, mean, median, standard deviation, minimum value, and maximum value. These statistics provide an overview of the main characteristics of the dataset and allow a preliminary assessment of the distribution of the variables used in the econometric models.

The average cost of equity is 10.35%, while the average cost of debt is 1.67%, resulting in an average WACC of 8.55%. These values are consistent with the corporate finance framework, as equity capital generally requires a higher return than debt due to its residual and riskier nature. The mean ESG disclosure score is 3.50, with governance showing the highest average value among the three ESG pillars, while environmental and social disclosure display lower average values and greater dispersion. The control variables also reveal substantial heterogeneity across firms in terms of size, leverage, profitability, market capitalization, and systematic risk. Overall, the descriptive statistics confirm the importance of controlling for firm-specific financial characteristics when estimating the relationship between ESG disclosure and the cost of capital.

Table 4.4: Descriptive Statistics

Variable	Observations	Mean	Median	Std_Dev	Min	Max
Ke_95	525	10.352	10.171	2.311	6.785	15.269
Kd_95	525	1.668	1.544	1.397	-0.080	4.777
WACC_95	525	8.549	8.360	2.305	4.489	13.199
ESG	415	3.495	3.540	1.288	0.590	6.240
ENV	415	2.725	2.710	1.983	0.000	7.220
SOC	415	2.748	2.340	1.699	0.000	7.230
GOV	415	6.100	6.140	1.013	2.820	8.980
log_Size95	516	9.044	8.972	1.546	6.348	12.287
log_Leverage95	524	3.992	4.176	1.327	0.790	6.657
ROA_w95	523	6.717	6.180	6.642	-6.789	19.772
log_MktCap95	472	9.490	9.518	1.526	6.485	11.963
BETA_ADJ_w95	452	1.561	1.191	1.812	-1.243	6.097

CHAPTER V

EMPIRICAL RESULTS

This chapter presents and discusses the empirical results of the analysis. Building on the empirical framework described in Chapter 4, the objective is to assess whether ESG disclosure is associated with the cost of capital of listed firms operating in the luxury sector.

The analysis focuses on three alternative measures of financing costs: the cost of equity, the cost of debt, and the weighted average cost of capital. The main explanatory variable is the Bloomberg aggregate ESG disclosure score, while additional specifications consider the three ESG disclosure pillars: environmental, social, and governance. As discussed in the previous chapter, the interpretation of these variables requires caution, since Bloomberg ESG scores primarily capture the extent of ESG disclosure rather than firms' actual ESG performance.

The chapter is organized as follows. Section 5.1 presents the baseline results using aggregate ESG disclosure. Section 5.2 discusses the pillar-level evidence. Section 5.3 reports the robustness checks, focusing on the sensitivity of the results to the Covid-19 period and to the inclusion of market-based controls. Section 5.4 discusses the economic interpretation of the findings, their implications for firm value, and the main limitations of the analysis.

The baseline specification includes the years 2020 and 2021. This choice is relevant because the Covid-19 pandemic represents a systemic exogenous shock in which non-financial information, stakeholder trust, resilience, and ESG-related dimensions may become particularly important for investors. Therefore, these years are retained in the main analysis, while their exclusion is considered only as a robustness check. This approach is consistent with the idea that ESG-related disclosure may become more informative during periods of uncertainty and market stress.

Overall, the results do not provide support for the hypothesis that higher ESG disclosure is associated with a lower cost of capital in the luxury sector. Instead, the evidence points to a positive association between ESG disclosure and the cost of equity, while the cost of debt does not show a statistically significant relationship. The evidence for WACC is positive in the baseline specification, but less robust once additional market controls are introduced. The findings therefore suggest that the relationship between ESG disclosure and financing costs is mainly concentrated in the equity channel.

5.1. Baseline results: aggregate ESG disclosure and Cost of Capital

The baseline specification estimates the relationship between aggregate ESG disclosure and the three measures of the cost of capital: cost of equity, cost of debt, and WACC. The

model includes firm size, leverage, and profitability as control variables, together with firm and year fixed effects. Financial variables are winsorized at the 5th and 95th percentiles in order to reduce the influence of extreme observations without eliminating firm-year observations from the sample.

For the cost of equity, the coefficient on aggregate ESG disclosure is positive and statistically significant. The estimated coefficient is 0.4675 and is statistically significant at the 5% level. This result suggests that, within the sample, higher ESG disclosure is associated with a higher cost of equity. Therefore, the analysis does not support the hypothesis that greater ESG disclosure reduces the return required by equity investors. Rather, the evidence indicates that firms with higher ESG disclosure tend to display higher equity financing costs, after controlling for firm characteristics, firm fixed effects, and year fixed effects.

This result should be interpreted with caution. The estimated coefficient does not imply that ESG disclosure causes an increase in the cost of equity. The analysis identifies an association, not a causal effect. One possible interpretation is that, in the luxury sector, higher ESG disclosure may reveal transition costs, implementation risks, or exposure to sustainability-related scrutiny. Equity investors, as residual claimants, may be particularly sensitive to uncertainty regarding future margins, brand positioning, supply chain adaptation, and strategic execution.

For the cost of debt, the coefficient on ESG disclosure is negative but not statistically significant. The estimated coefficient is -0.0843 and is not statistically significant. This indicates that there is no statistically significant evidence of an association between ESG disclosure and debt financing costs in the baseline model. Although the coefficient has a negative sign, the lack of statistical significance prevents any robust interpretation of the direction of the relationship.

This finding suggests that creditors may not price ESG disclosure in the same way as equity investors. Lenders are likely to focus more directly on default risk, repayment capacity, leverage, collateral, credit ratings, and cash flow stability. ESG disclosure may not be sufficient to affect the cost of debt unless it is perceived as directly relevant to credit risk.

For WACC, the coefficient on ESG disclosure is positive and statistically significant. The estimated coefficient is 0.3467 and is statistically significant at the 5% level. This suggests that higher ESG disclosure is positively associated with the weighted average cost of capital in the full baseline sample. However, this result should be interpreted more carefully than the result for the cost of equity. WACC combines both the cost of equity and the cost of debt and is also affected by capital structure. Therefore, the positive association between ESG disclosure and WACC may partly reflect the positive relationship observed for the cost of equity.

Taken together, the baseline results do not provide evidence that higher ESG disclosure reduces the cost of capital of luxury firms. The positive and statistically significant

coefficients for the cost of equity and WACC suggest that ESG disclosure is not associated with a financing cost advantage in the baseline specification. At the same time, the insignificant coefficient for the cost of debt indicates that the relationship is not homogeneous across financing channels. The evidence is mainly concentrated in the cost of equity.

Figure 5.1 provides a graphical representation of the estimated coefficients of aggregate ESG disclosure across the three baseline cost of capital specifications. Each dot represents the estimated coefficient of ESG disclosure, while the horizontal line reports the corresponding 95% confidence interval. The vertical dashed line indicates zero: when the confidence interval does not cross this line, the coefficient can be interpreted as statistically significant at the 5% level. Visually, the figure shows that ESG disclosure is positively and significantly associated with the cost of equity and WACC, whereas the confidence interval for the cost of debt crosses zero, indicating no statistically significant association. This graphical evidence reinforces the main baseline result: the relationship between ESG disclosure and the cost of capital appears to be concentrated mainly in the equity channel, while the debt channel does not show a clear response.

Figure 5.1: Baseline Aggregate ESG Disclosure

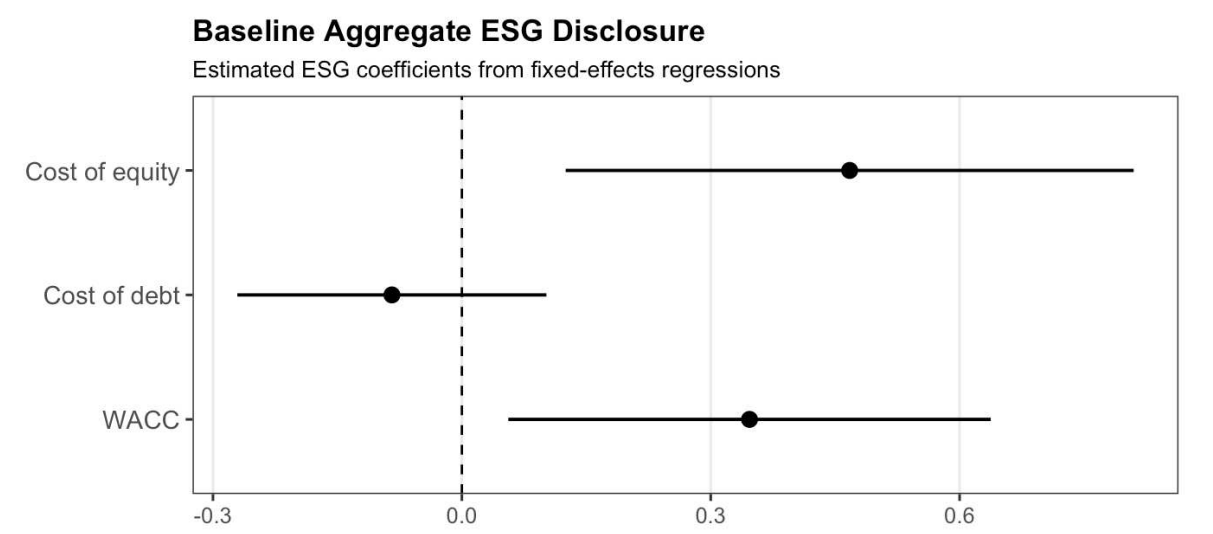


Table 5.1 reports the baseline regression results for the relationship between aggregate ESG disclosure and the three cost of capital measures: cost of equity, cost of debt, and WACC. The table presents the estimated coefficients, with firm-clustered standard errors reported in brackets, and includes firm and year fixed effects in all specifications. The coefficient on ESG disclosure is positive and statistically significant for the cost of equity, equal to 0.467, and for WACC, equal to 0.347. By contrast, the coefficient for the cost of debt is negative but not statistically significant. This confirms the evidence shown in Figure 5.1: higher ESG disclosure is not associated with a lower cost of capital in the

baseline specification, and the statistically significant relationship is mainly concentrated in the equity channel. The control variables do not show statistically significant coefficients, suggesting that the main result is primarily driven by ESG disclosure rather than by the accounting-based controls included in the baseline model.

From a theoretical standpoint, this positive coefficient suggests that equity investors in the luxury sector do not automatically interpret ESG reporting as a risk-mitigation tool. Instead, because the luxury industry is traditionally characterized by exclusivity and operational opacity, extensive sustainability disclosures may trigger market skepticism. Market participants might perceive high levels of transparency either as a potential signal of greenwashing or as an unnecessary exposure to reputational risks, particularly concerning sensitive supply chain dynamics such as raw material sourcing and labor standards. Consequently, to compensate for this perceived uncertainty, equity investors demand a higher risk premium, thereby increasing the cost of equity. Conversely, the statistically non-significant result for the cost of debt indicates that credit providers and banks remain largely indifferent to non-financial disclosures in this specific sector, focusing primarily on traditional financial metrics and physical collateral when assessing a luxury firm's default risk.

Table 5.1: Baseline Regression Results

Variable	Ke	Kd	WACC
ESG Disclosure	0.467* [0.175]	-0.084 [0.095]	0.347* [0.148]
Log Total Assets	0.006 [0.465]	0.334 [0.278]	-0.336 [0.492]
Log Leverage	0.077 [0.226]	0.098 [0.089]	-0.187 [0.214]
ROA	0.010 [0.027]	-0.001 [0.019]	0.013 [0.030]
Num. Obs.	405	405	405
R2	0.600	0.678	0.618
Adjusted R-squared	0.531	0.623	0.552
FE: Ticker	Yes	Yes	Yes
FE: Dates	Yes	Yes	Yes
Clustered SE	Firm	Firm	Firm

*Notes: OLS fixed-effects regression results for the relationship between ESG disclosure and cost of capital in the luxury sector. Standard errors are reported in brackets and clustered at the firm level. All models include firm and year fixed effects. + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

5.2. *Disaggregated ESG disclosure: pillar-level evidence*

The second set of regressions decomposes the aggregate ESG disclosure score into its three pillars: environmental disclosure, social disclosure, and governance disclosure. This allows the analysis to examine whether the aggregate ESG result is driven by a specific dimension of disclosure.

For the cost of equity, the environmental pillar shows a positive and statistically significant coefficient. The estimated coefficient on ENV is 0.2464 and is significant at the 5% level. By contrast, the coefficient on SOC is positive but not statistically significant, while the coefficient on GOV is negative and not statistically significant. These results suggest that the positive association between aggregate ESG disclosure and the cost of equity may be mainly driven by environmental disclosure.

This finding is economically meaningful in the luxury sector. Environmental disclosure may be closely related to issues such as sustainable sourcing, emissions, packaging, product traceability, supply chain monitoring, and compliance with environmental standards. These areas can require substantial investments and organizational adjustments. In luxury, where perceived quality, craftsmanship, exclusivity, and brand consistency are central to competitive advantage, changes in materials, suppliers, or production processes may be associated with execution risk. As a result, equity investors may interpret higher environmental disclosure not only as a sign of transparency, but also as an indication of greater exposure to transition costs or operational complexity.

For the cost of debt, none of the three pillars shows a robust statistically significant relationship. The coefficients on ENV and SOC are negative but not significant, while the coefficient on GOV is positive and only marginally significant at the 10% level. This marginal result should be interpreted with caution and does not provide sufficient evidence of a robust governance-related effect on the cost of debt. Overall, the pillar-level results confirm that ESG disclosure does not appear to be systematically associated with debt financing costs in this sample.

For WACC, none of the ESG pillars is statistically significant. The coefficients on ENV, SOC, and GOV are all positive, but they do not provide clear evidence of a robust pillar-level relationship. This indicates that, when aggregate ESG disclosure is decomposed into its individual components, the positive baseline result for WACC becomes less precise. Therefore, the WACC evidence should be discussed with greater caution than the cost of equity evidence.

Overall, the pillar-level analysis reinforces two main points. First, the equity-channel result appears to be partly driven by environmental disclosure. Second, the evidence for the cost of debt and WACC is weaker and less robust once ESG disclosure is disaggregated into its three components.

Figure 5.2 focuses on the pillar-level specification for the cost of equity, showing the estimated coefficients of environmental, social, and governance disclosure. As in the

previous figure, the dots represent coefficient estimates and the horizontal bars represent 95% confidence intervals, while the dashed vertical line marks the zero-effect threshold. The visual interpretation is straightforward: only the environmental disclosure coefficient lies clearly to the right of zero with a confidence interval that does not cross the zero line. By contrast, the confidence intervals for social and governance disclosure overlap with zero, suggesting that these pillars are not statistically significant in the cost of equity specification. This figure therefore suggests that the positive association between aggregate ESG disclosure and the cost of equity is mainly driven by the environmental disclosure component.

From a theoretical standpoint, this result shows that equity investors react specifically to environmental reporting, while remaining neutral toward social and governance disclosures. In the luxury industry, environmental transparency directly involves the sourcing of raw materials, such as leather, textiles, and precious stones. Extensive disclosures about these supply chains face intense scrutiny from the market. Rather than reducing perceived risk, detailed ecological reporting may increase investor concerns regarding potential greenwashing or exposure to environmental regulations. Consequently, equity investors demand a higher risk premium to protect themselves against these reputational liabilities, which ultimately increases the cost of equity through the environmental channel.

Figure 5.2: Pillar-level ESG Disclosure and Cost of Equity

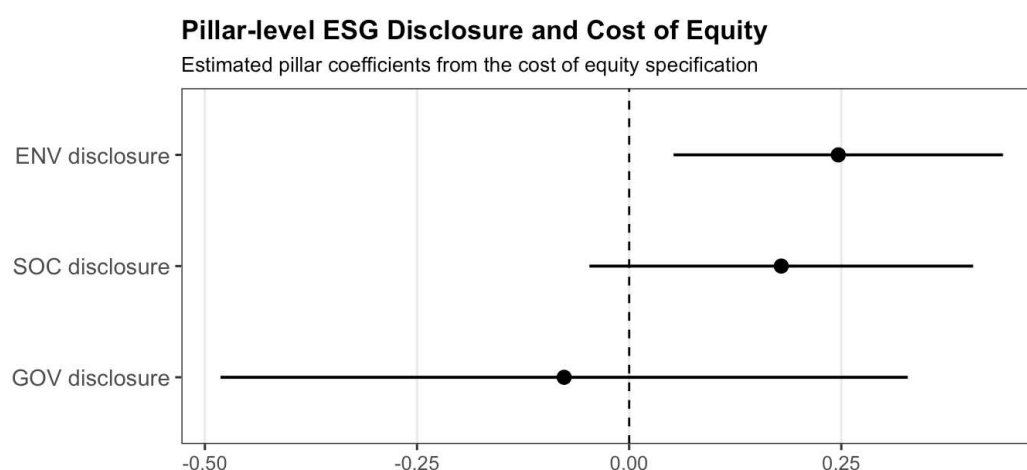


Figure 5.3 reports the pillar-level ESG disclosure coefficients for the cost of debt specification. The dots represent the estimated coefficients, while the horizontal bars show 95% confidence intervals based on firm-clustered standard errors. The dashed vertical line marks the zero-effect threshold. The environmental and social disclosure coefficients are negative but not statistically significant, as their confidence intervals overlap with zero. Governance disclosure shows a positive coefficient, consistent with the regression table, but the evidence is only marginal and should therefore be interpreted

with caution. Overall, the figure does not provide strong evidence of a systematic relationship between ESG disclosure pillars and the cost of debt.

Figure 5.3: Pillar-level ESG Disclosure and Cost of Debt

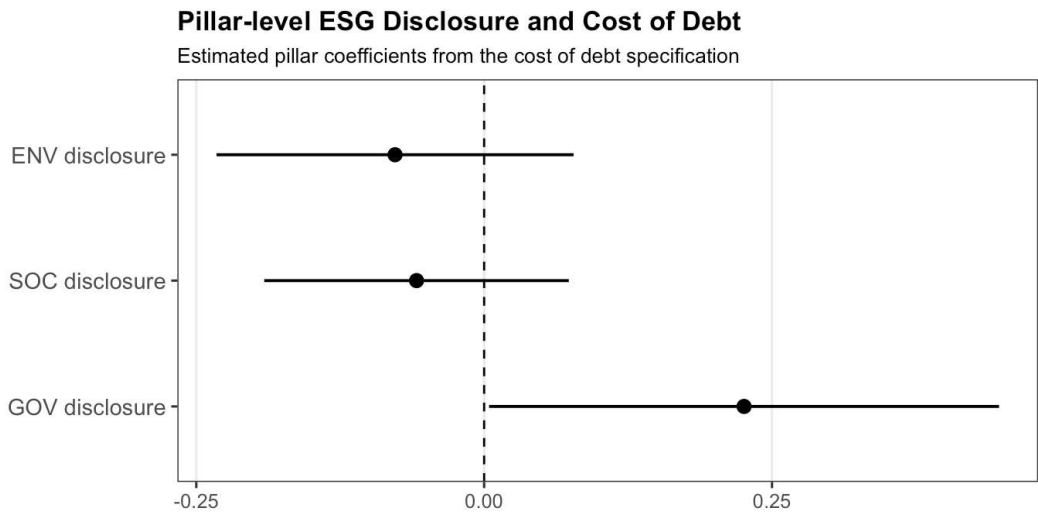


Figure 5.4 reports the pillar-level ESG disclosure coefficients for the WACC specification. The dots represent the estimated coefficients, while the horizontal bars show 95% confidence intervals based on firm-clustered standard errors. The dashed vertical line marks the zero-effect threshold. All three pillar coefficients are positive, suggesting that environmental, social, and governance disclosure are positively associated with WACC in terms of point estimates. However, the confidence intervals overlap with zero for all pillars, indicating that none of these associations is statistically significant at conventional levels. Therefore, the figure suggests that the positive aggregate ESG-WACC relationship observed in the baseline model does not appear to be clearly driven by one specific ESG pillar.

From a theoretical standpoint, these findings reflect the mathematical nature of the WACC, which combines both equity and debt dynamics. Because each ESG pillar captures a different dimension of reporting, their individual impact becomes diluted when looking at the overall capital structure. The positive estimates across all three pillars confirm that the market remains skeptical toward extensive disclosures in the luxury sector. However, the lack of individual statistical significance indicates that the increase in the cost of capital is a cumulative effect. Investors do not penalize a single pillar in isolation. Instead, they demand a higher overall return based on the comprehensive transparency profile of the luxury firm.

Figure 5.4: Pillar-level ESG Disclosure and WACC

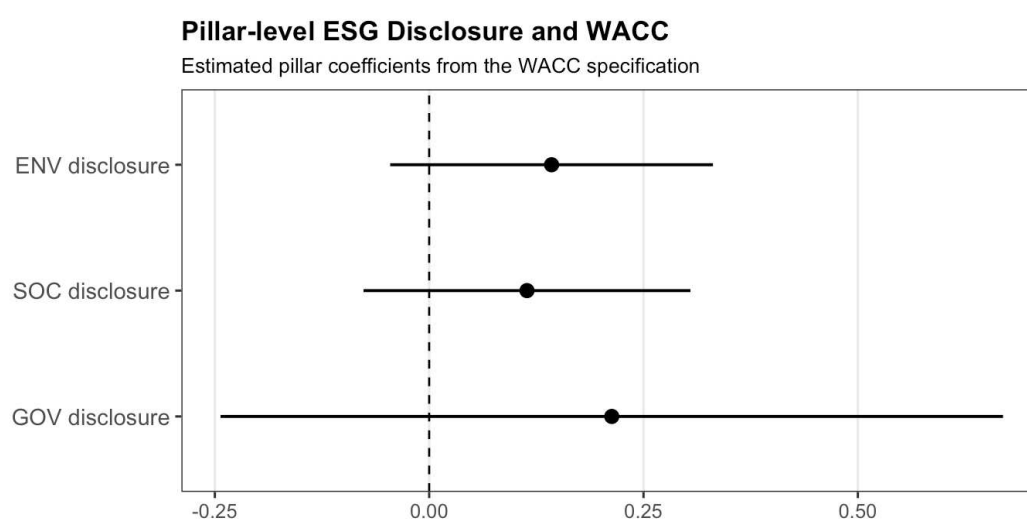


Table 5.2 reports the results of the pillar-level specification, where the aggregate ESG disclosure score is decomposed into environmental, social, and governance disclosure. This allows the analysis to identify whether the baseline association is driven by a specific ESG dimension. The results show that environmental disclosure is positively and significantly associated with the cost of equity, with a coefficient of 0.246. This suggests that the positive relationship observed in the aggregate ESG model is mainly driven by the environmental pillar. For WACC, environmental disclosure also has a positive coefficient, but it is not statistically significant. Therefore, while the environmental pillar appears to explain the cost of equity result, the WACC evidence does not seem to be clearly attributable to a single ESG disclosure dimension. By contrast, social disclosure is not statistically significant across the three specifications, while governance disclosure is only marginally significant for the cost of debt and not significant for the cost of equity or WACC. Overall, the pillar-level results indicate that the equity-channel evidence is primarily linked to environmental disclosure, whereas social and governance disclosure do not show robust associations with the cost of capital.

From an economic perspective, these findings confirm that equity markets penalize luxury firms specifically for their environmental transparency. Because ecological reporting details sensitive information about supply chains and raw material sourcing, investors interpret high disclosure as an increase in operational and greenwashing risks. Conversely, the lack of significance for social and governance components across most models reinforces the idea that capital providers do not weigh all non-financial disclosures equally. In the luxury sector, environmental transparency acts as the primary transmission channel that influences equity risk premium dynamics, while debt providers remain largely indifferent to individual sustainability pillars.

Table 5.2: ESG Pillar Regression Results

Variable	Ke	Kd	WACC
Environmental Disclosure	0.246* [0.099]	-0.077 [0.079]	0.143 [0.096]
Social Disclosure	0.179 [0.115]	-0.059 [0.067]	0.114 [0.097]
Governance Disclosure	-0.077 [0.207]	0.226+ [0.113]	0.213 [0.233]
Log Total Assets	0.023 [0.439]	0.311 [0.287]	-0.344 [0.515]
Log Leverage	0.068 [0.234]	0.114 [0.101]	-0.174 [0.210]
ROA	0.011 [0.028]	-0.001 [0.019]	0.015 [0.030]
Num. Obs.	405	405	405
R2	0.602	0.684	0.620
Adjusted R-squared	0.531	0.628	0.552
FE: Ticker	Yes	Yes	Yes
FE: Dates	Yes	Yes	Yes
Clustered SE	Firm	Firm	Firm

*Notes: OLS fixed-effects regression results for the relationship between ESG disclosure and cost of capital in the luxury sector. Standard errors are reported in brackets and clustered at the firm level. All models include firm and year fixed effects. + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*

The fact that aggregate ESG disclosure is significant in the baseline WACC model, while the individual ESG pillars are not significant in the disaggregated model, is not contradictory. The aggregate ESG score captures the firm's overall ESG disclosure profile, whereas the pillar-level specification separates this disclosure into environmental, social, and governance components. Since these pillars are likely to be correlated, the model may find it difficult to isolate the individual effect of each component. Therefore, the baseline result suggests that ESG disclosure as a whole is associated with WACC, while the pillar-level results indicate that this association is not clearly driven by one specific ESG dimension.

5.3. Robustness checks

This section presents two additional specifications. The first examines the sensitivity of the results to the exclusion of 2020 and 2021. The second introduces market-based controls, namely market capitalization and adjusted beta. These tests are not intended to replace the baseline model, but to assess the stability of the main findings.

Covid-period sensitivity

The exclusion of 2020 and 2021 is interpreted as a sensitivity test rather than as the preferred specification. The Covid-19 pandemic represented a systemic exogenous shock that affected financial markets, consumer behavior, supply chains, tourism, retail activity, and the broader macroeconomic environment. For luxury firms, this shock was particularly relevant because the sector is highly exposed to global demand, international mobility, brand perception, and consumer confidence. Industry evidence confirms that the luxury market was strongly affected by the pandemic, with the overall luxury market contracting substantially in 2020 (Bain & Company, 2020). At the same time, crisis-period literature suggests that ESG-related and non-financial dimensions may become more relevant during periods of market stress. For example, Lins, Servaes, and Tamayo (2017) show that CSR-related social capital was particularly valuable during the 2008–2009 financial crisis, while Broadstock et al. (2021) examine ESG during the Covid-19 market shock as a potential signal of future performance and risk mitigation. Similarly, Ding et al. (2021) find that firms with stronger CSR-related characteristics experienced a milder stock market reaction during the Covid-19 pandemic. Therefore, the main analysis retains 2020 and 2021, while the exclusion of these years is used to verify whether the baseline results are entirely driven by the pandemic period.

When 2020 and 2021 are excluded, the coefficient on ESG disclosure remains positive for the cost of equity, but its statistical significance weakens. The estimated coefficient is 0.4012, indicating a positive but only marginally significant association at the 10% level. This suggests that the positive association between ESG disclosure and the cost of equity is not entirely driven by the Covid-19 years, although the statistical strength of the equity-channel evidence is reduced.

For the cost of debt, the coefficient is 0.0602 and remains statistically insignificant, with a p-value of approximately 0.588. This confirms that the analysis does not identify a robust relationship between ESG disclosure and debt financing costs, even when the Covid-19 years are excluded. For WACC, the coefficient remains positive and statistically significant. The estimated coefficient is 0.381 and is statistically significant at the 5% level. This indicates that the positive association between ESG disclosure and WACC persists outside the Covid-19 period.

Overall, the Covid-period sensitivity test suggests that the baseline results are not entirely driven by 2020 and 2021. However, the cost of equity result becomes weaker when these years are removed. This is consistent with the idea that ESG disclosure and non-financial information may be particularly relevant during periods of systemic uncertainty, when investors place greater weight on transparency, resilience, stakeholder trust, and risk exposure.

Market controls

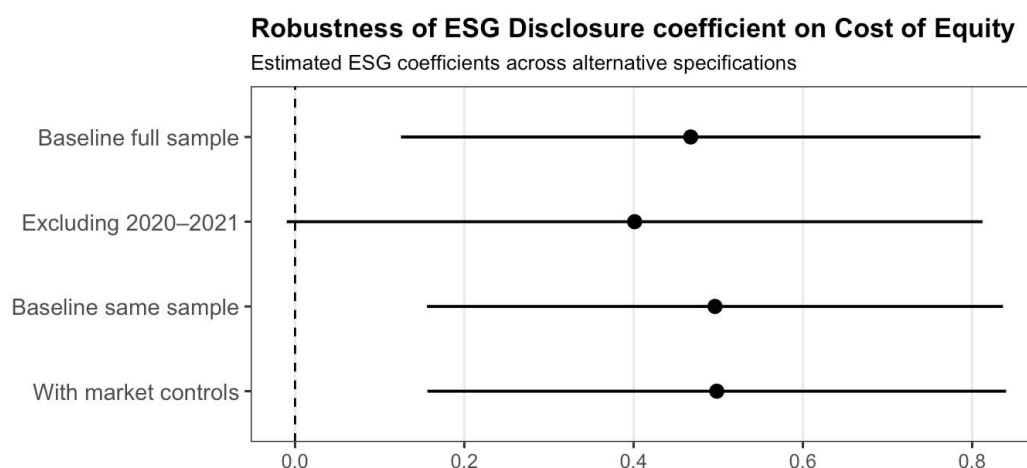
The second robustness check introduces market-based controls: the logarithm of market capitalization and adjusted beta. These variables are included because the baseline specification controls for accounting-based firm characteristics, while the cost of capital, especially the cost of equity, may also be influenced by market valuation, investor visibility, growth expectations, and systematic risk. Market capitalization is particularly relevant in the luxury sector because market value can reflect intangible assets such as brand value, reputation, pricing power, and expected growth. Adjusted beta controls for systematic market risk, although its inclusion requires caution because, when the cost of equity is CAPM-based, beta may be mechanically related to the dependent variable.

In the common sample with available market controls, the positive association between ESG disclosure and the cost of equity remains stable. The baseline coefficient in the same sample is 0.4962, while the coefficient after adding market controls is 0.4983. In both cases, the coefficient remains statistically significant. This indicates that the positive equity-channel result is not explained solely by market capitalization or systematic risk.

For the cost of debt, the coefficient remains statistically insignificant. The baseline same-sample coefficient is -0.0910, while the coefficient in the extended model is -0.1040. This confirms that ESG disclosure does not show a robust association with debt financing costs, even after controlling for market-based variables. For WACC, the result becomes weaker. The baseline same-sample coefficient is 0.3115 and is only marginally significant, while the coefficient in the extended specification is 0.2924 and remains marginally significant. This suggests that the WACC result is less robust than the cost of equity result. Overall, the robustness checks reinforce the interpretation that the most stable result concerns the cost of equity. The cost of debt remains statistically unrelated to ESG disclosure, while the WACC evidence is positive but less robust once market controls are introduced.

Figure 5.5 reports the coefficient of aggregate ESG disclosure on the cost of equity across alternative specifications, providing a visual assessment of the robustness of the equity-channel result. The figure compares the baseline full sample, the specification excluding 2020 and 2021, the baseline model estimated on the common sample with available market controls, and the extended specification including market capitalization and adjusted beta. All point estimates remain positive, which indicates that the direction of the association is stable across specifications. However, the confidence interval becomes wider and closer to zero when 2020 and 2021 are excluded, suggesting that the estimate is less precise outside the Covid-19 period. Conversely, the coefficient remains highly stable when market controls are introduced. Overall, the figure suggests that the positive association between ESG disclosure and the cost of equity is robust to the inclusion of market-based controls, while its statistical strength is weaker when the crisis years are removed from the sample.

Figure 5.5: Robustness of ESG Disclosure coefficient and Cost of Equity



5.4. Discussion, implications, and limitations

The empirical results do not support the hypothesis that higher ESG disclosure reduces the cost of capital for listed luxury firms. Instead, the evidence indicates a positive association between ESG disclosure and the cost of equity, no statistically significant relationship with the cost of debt, and a positive but less robust relationship with WACC. Therefore, the findings suggest that the relationship between ESG disclosure and financing costs is primarily concentrated in the equity channel.

A potential explanation is that ESG disclosure does not automatically reduce perceived risk in the luxury sector. Although transparency can mitigate information asymmetry, it can also make operational risks, compliance costs, and strategic challenges more visible to investors. Since this study specifically employs Bloomberg's ESG Disclosure metrics, which capture the extent of non-financial reporting rather than operational sustainability performance, a higher score does not imply that a firm is inherently more sustainable. It simply indicates a higher volume of public non-financial data. Consequently, firms with higher disclosure might be those facing greater ESG exposure, stronger stakeholder pressure, or more intense regulatory scrutiny.

This interpretation is highly relevant to the luxury industry, which relies heavily on intangible assets such as brand reputation, exclusivity, heritage, and pricing power. Adapting to modern ESG expectations requires profound structural modifications in raw material sourcing, production processes, supplier relationships, and supply chain logistics. These shifts introduce substantial execution risks and capital expenditures. Equity investors may therefore demand higher expected returns if they perceive that these transition dynamics could compress operating margins, dilute brand coherence, or destabilize future cash flows.

Furthermore, the positive association with the cost of equity may reflect an "increased scrutiny" effect. Luxury firms that disclose extensive ESG information naturally attract

greater attention from analysts, regulators, media, and activist groups. While this disclosure improves transparency, it simultaneously increases the risk that any operational delays, inconsistencies, or gaps between public commitments and actual outcomes become highly visible. In this sense, while disclosure reduces information asymmetry, it amplifies the amount of risk-relevant data available to the market, which can be heavily penalized by equity participants.

Another plausible interpretation involves reverse causality. Firms facing structurally higher corporate risk or a higher cost of capital may deliberately increase their ESG disclosure as a strategic signaling mechanism to reassure the market. Under this framework, the positive coefficient does not imply that transparency drives capital costs upward; rather, firms already perceived as riskier by the market proactively disclose more non-financial information to manage stakeholder relations.

The divergence between equity and debt results highlights the asymmetric priorities of capital providers. Equity investors, as residual claimants, are directly exposed to downside risks concerning long-term profitability, growth, and strategic execution. They are consequently highly sensitive to ESG-related transition costs and reputational liabilities. In contrast, creditors and banks focus strictly on default risk, leverage, collateral value, and short-to-medium-term repayment capacity. In the luxury sector, ESG disclosure does not appear to influence the cost of debt unless it directly translates into tangible credit risk reduction or cash flow stabilization.

Therefore, the implications for aggregate firm value must be interpreted with caution. In corporate finance, the cost of capital serves as the discount rate for expected future cash flows. A lower cost of capital supports firm value by reducing this discount rate; however, this analysis finds no evidence of such a valuation benefit. The positive association with the cost of equity suggests that, within this sample, greater transparency is met with an increased risk premium by equity investors.

Similarly, the WACC result is less robust. In the baseline model, ESG disclosure is positively associated with WACC, but this relationship weakens when controlling for market capitalization and adjusted beta. Since WACC integrates both equity and debt dynamics alongside capital structure weights, the evidence does not support a definitive conclusion that ESG disclosure systematically inflates the overall cost of capital. A more prudent takeaway is that transparency frameworks do not yield a clear cost-of-capital advantage for luxury corporations.

Several empirical limitations qualify these conclusions. First, the independent variable strictly isolates disclosure metrics rather than operational ESG performance. This remains a central distinction, as firms with extensive reporting profiles do not necessarily achieve superior sustainability outcomes. Second, the analysis establishes an association rather than strict causality. While the fixed-effects specification controls for time-invariant firm characteristics and macroeconomic shocks, potential biases from omitted variables or time-varying unobservables cannot be entirely discarded. Third, the sample size is

constrained by data availability across specific econometric models. Fourth, the luxury sector exhibits significant structural heterogeneity regarding product categories, geographic exposure, and supply chain complexities. Finally, while utilizing Bloomberg data ensures cross-firm comparability, the results remain bound to Bloomberg's specific disclosure-scoring methodology.

In conclusion, the findings of this chapter demonstrate that higher ESG disclosure is not associated with a lower cost of capital for listed luxury firms. The statistically significant evidence is concentrated entirely within the equity channel. These results indicate that equity investors do not merely view luxury ESG disclosure as a signal of corporate transparency, but rather as an indicator of transition costs, heightened external scrutiny, and underlying risk exposure.

CONCLUSION

This thesis examined the relationship between ESG disclosure and the cost of capital within the luxury industry. The central objective was to evaluate whether, and how, firms with higher non-financial disclosure profiles face distinct financing conditions, measured through the cost of equity, the cost of debt, and the weighted average cost of capital (WACC). The luxury sector provides a compelling setting for this investigation because firm value heavily depends on intangible assets, including brand equity, historical heritage, exclusivity, and substantial pricing power. These unique characteristics render luxury corporations exceptionally sensitive to reputational shocks, stakeholder alignments, and shifts in investor risk perception.

The theoretical framework developed in the opening chapters suggests that ESG frameworks can influence corporate valuation through multiple transmission channels. In traditional corporate finance, robust sustainability practices are expected to mitigate operational, regulatory, and governance risks, while enhancing corporate transparency and reducing information asymmetry. In principle, these risk-mitigation mechanisms should yield a lower cost of capital. However, the luxury industry exhibits specific structural features that complicate this direct relationship. In this sector, the ESG transition requires intensive capital expenditures in sustainable raw materials, full supply-chain traceability, strict supplier audits, and comprehensive reporting compliance. Consequently, extensive ESG disclosure may be interpreted by financial markets not merely as a commitment to transparency, but as an explicit indicator of heightened transition costs, operational complexity, and execution risks.

The empirical analysis was executed utilizing a panel dataset of publicly listed luxury corporations spanning the 2014–2024 period, with data retrieved from Bloomberg. A fundamental premise of this research is that the employed Bloomberg metrics strictly isolate ESG disclosure levels rather than direct operational performance. This distinction remains crucial for the interpretation of the final findings. This study does not evaluate whether firms with superior, objective sustainability performance enjoy lower financing costs; instead, it investigates how capital markets price the volume and transparency of public non-financial reporting.

The empirical findings do not support the conventional risk-reduction hypothesis. Instead, the evidence reveals a positive and statistically significant association between aggregate ESG disclosure and the cost of equity. This indicates that equity investors within the luxury segment do not reward extensive non-financial transparency with lower required returns. Rather, they appear to associate heightened ESG disclosure with increased perceived risk, substantial transition outlays, or greater structural exposure to sustainability challenges.

Conversely, the analysis yields no robust evidence of a systematic relationship within the debt channel. The estimated coefficients for the cost of debt remain statistically non-

significant across most specifications, suggesting that credit providers do not systematically price ESG disclosure strategies. This divergence reflects the distinct payoff structures of debt financing. Lenders and commercial banks focus primarily on default risk, short-to-medium-term repayment capacity, financial leverage, and physical collateral. Within this sample, non-financial disclosure profiles do not appear to provide incremental, risk-relevant information capable of altering the borrowing costs of luxury firms.

The aggregate evidence concerning WACC is positive in the baseline models but loses statistical robustness once market-based controls are introduced. Because WACC aggregates equity and debt dynamics alongside capital structure weights, this positive baseline effect is evidently driven by the equity channel. Therefore, the most stable and reliable empirical contribution of this thesis resides in the equity specification, whereas the debt and WACC dynamics necessitate a more conservative interpretation.

The pillar-level decomposition offers deeper granular insights. When aggregate ESG disclosure is broken down into its E, S, and G components, the positive association with the cost of equity is driven almost exclusively by the environmental pillar. This result is highly meaningful for the luxury sector, where environmental exposure is directly tied to sensitive supply chains, fine leather and gemstone sourcing, packaging footprint, and strict ecological compliance. Because restructuring these operational areas entails severe friction and long-term investment, equity participants appear to interpret detailed environmental reporting as a signal of imminent transition liabilities and strategic complexity, demanding a higher equity risk premium as compensation.

The robustness checks reinforce this balanced view. Excluding the 2020–2021 pandemic years marginally weakens the statistical significance of the equity-channel coefficient, indicating that while the baseline mechanism is not structurally driven by the Covid-19 shock, non-financial transparency carried heightened relevance during periods of extreme systemic uncertainty. Furthermore, the inclusion of market capitalization and adjusted beta leaves the cost of equity coefficient stable, confirming that the observed premium is not merely a statistical artifact of firm size or systematic market risk.

Overall, these findings demonstrate that the nexus between ESG disclosure and capital costs in the luxury market is highly complex and stands in contrast to mainstream generalist literature. Greater disclosure does not automatically lower financing costs; instead, it amplifies the visibility of underlying structural challenges. This dynamic does not imply that sustainability initiatives destroy corporate value or harm long-term performance. Rather, it highlights that equity markets separate the signaling effect of disclosure from actual operational excellence. Transparency reduces information opacity, but it simultaneously exposes the vulnerabilities inherent to the luxury transition.

This strategic trade-off is critical for luxury executives. In an industry where competitive advantage is anchored in brand equity and exclusivity, sustainability alignment is mandatory to secure consumer trust. However, modifying established luxury business

models requires complex and costly structural changes. Consequently, ESG disclosure acts as a financially material signal, but its net impact depends on investor interpretation: whether it is viewed as a sign of proactive risk management or as an indicator of near-term execution costs and margin compression.

Several empirical limitations qualify these conclusions. First, the data relies on Bloomberg's disclosure methodology, which isolates reporting volume rather than operational sustainability effectiveness. Second, the sample is restricted to publicly listed luxury corporations, limiting the immediate generalizability of the findings to private enterprises or broader consumer sectors. Third, the empirical architecture establishes robust conditional associations rather than strict causal effects; the potential for reverse causality remains, as structurally riskier firms might proactively expand their disclosure frameworks to manage stakeholder relationships. Fourth, specific luxury-centric variables, such as direct brand valuation metrics or family-ownership control structures, could not be fully endogenized. Finally, the sample period encompasses major external macroeconomic disruptions, notably the Covid-19 pandemic, which heavily impacted global tourism, retail networks, and asset volatility.

These limitations open valuable avenues for future academic research. First, future studies could directly contrast disclosure metrics against alternative, performance-based sustainability scores across different data providers to isolate whether capital markets price reporting transparency or actual operational milestones. Second, exploring the financial impact of ESG controversies, greenwashing allegations, and external auditing verification would provide deeper insights into investor trust dynamics. Third, a cross-sector comparison between luxury and non-luxury consumer goods would clarify whether this positive risk premium is unique to high-intangible, high-reputation industries. Fourth, future research should explore sub-sector heterogeneity, analyzing whether asset-pricing responses differ across fashion, haute joellerie, cosmetics, or luxury automotive segments. Fifth, integrating real-time measures of consumer sentiment and media attention would better capture the perception-driven valuation of luxury assets. Finally, as mandatory non-financial reporting regulations continue to mature globally, particularly under Europe's Corporate Sustainability Reporting Directive (CSRD), future empirical work should investigate whether standardized, mandatory ESG frameworks alter how financial markets interpret and price sustainability information over time.

In conclusion, this thesis demonstrates that ESG disclosure represents a highly material financial variable within the luxury industry, though its implications are non-linear. The results challenge the simplistic view that expanded sustainability reporting automatically yields capital cost advantages. Instead, the evidence indicates that ESG disclosure is priced primarily through the equity channel, where it can trigger a higher risk premium when investors perceive transparency as an indicator of incoming transition costs and operational scrutiny. For luxury corporations, sustainability is no longer an auxiliary ethical or public relations matter; it is a core strategic variable that fundamentally shapes how financial markets evaluate risk, value, and future corporate resilience.

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