

ESG Scores and Stock Returns: Evidence from the French Equity Market

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ABSTRACT

This paper examines the relationship between Environmental, Social, and Governance (ESG) performance and stock returns in the French equity market. Using ESG scores from Refinitiv, portfolios are developed based on both aggregate ESG ratings and individual pillar scores (Environmental, Social, and Governance). A long-short portfolio strategy is implemented, and performance is assessed through multifactor asset pricing models, including the Fama-French three-factor, Carhart four-factor, and Fama-French five-factor models over the period 2017–2023. The results indicate that firms with lower overall ESG scores tend to outperform those with higher scores, particularly in value-weighted portfolios. This effect is driven by statistically significant positive alphas in low-ESG portfolios, while high-ESG portfolios do not exhibit abnormal returns. The High–Low spread is negative and significant, supporting the hypothesis that higher ESG performance is not associated with superior stock returns in this context. At the pillar level, Governance emerges as the primary driver of this effect, with low-governance firms generating higher abnormal returns, whereas Environmental and Social dimensions show no significant return differentials. Overall, the findings suggest that traditional risk factors do not fully capture ESG performance and may reflect market perceptions of ESG as a cost rather than a value-enhancing investment, particularly in the French market.

Keywords: ESG, stock returns, asset pricing, Fama-French model, Carhart model, France, portfolio sorting, ESG pillars.

JEL Codes: G12, G11, G14, Q56.



I. Introduction

In recent years, Environmental, Social, and Governance (ESG) criteria have become a central component of corporate performance assessment and investor decision-making. Multiple factors, including increased awareness of sustainability-related risks, evolving regulatory frameworks, and a structural shift in investor preferences towards responsible investment practices, have driven this growing relevance. As a result, ESG considerations are no longer viewed as peripheral or purely ethical concerns but are increasingly integrated into mainstream financial analysis and portfolio management.

A rapid increase in the availability of ESG-related data and ratings from specialised agencies and financial information platforms has accompanied the expansion of ESG investing. These scores aim to capture the performance of firms across a range of non-financial dimensions, including environmental impact, social responsibility, and governance structures. Consequently, ESG metrics have emerged as an additional layer of information that complements traditional financial indicators, potentially influencing both firm valuation and capital allocation decisions.

However, despite widespread adoption of ESG criteria, their impact on financial performance - and, in particular, on stock returns - remains an open and contested question in the academic literature. On the one hand, several studies argue that firms with strong ESG profiles benefit from improved operational efficiency, better risk management, enhanced reputation, and stronger stakeholder relationships. These factors may translate into a lower cost of capital and superior long-term performance, ultimately leading to positive abnormal returns. On the other hand, a competing strand of literature suggests that adopting ESG practices may entail high costs, such as investment in cleaner technologies, compliance expenditures, or constraints on profit-maximising activities. From this perspective, higher ESG performance could be associated with lower short-term profitability and potentially weaker stock returns.

This divergence in findings highlights the complexity of the relationship between ESG performance and financial outcomes. Empirical results appear to be highly sensitive to factors such as geographical context, time period, sample selection, and methodological approach. For instance, differences in regulatory environments, market maturity, and investor preferences across regions may lead to heterogeneous effects of ESG factors on stock performance. Similarly, the time horizon of the analysis is crucial, as the benefits of ESG investments may materialise only in the long term, while their costs are often incurred upfront.

In addition to these challenges, measuring ESG performance introduces further sources of uncertainty. ESG ratings are typically developed using different methodologies, weighting schemes, and data sources, leading to significant discrepancies across providers. This lack of standardisation complicates the comparison of results across studies and raises questions about the reliability and consistency of ESG metrics as indicators of corporate sustainability.

Against this backdrop, there is a clear need for further empirical research examining the ESG–return relationship in specific market contexts, using robust, transparent methodologies. In particular, relatively little attention has been devoted to certain

European markets, including France, which represents an important case given its strong regulatory emphasis on sustainability and the growing integration of ESG criteria among institutional investors.

This study aims to contribute to this ongoing debate by analysing the relationship between ESG scores and stock returns in the French equity market. Using a sample of publicly-listed firms from 2017 to 2023, the analysis examines whether ESG performance is systematically associated with differences in risk-adjusted returns. To this end, the study employs well-established multifactor asset pricing models, namely the Fama-French three-factor and Carhart four-factor models, which allow for a comprehensive assessment of return drivers beyond market risk.

In addition to regression-based analysis, the study employs a portfolio sorting approach to develop High-Low portfolios based on ESG scores. This methodology enables a direct comparison of the performance of firms with high versus low ESG ratings, providing further insights into the economic significance of ESG factors. Moreover, the analysis is extended to examine the individual components of ESG (environmental, social, and governance) to determine whether specific dimensions drive the overall relationship.

The empirical results reveal a negative relationship between aggregate ESG scores and stock returns, suggesting that firms with lower ESG ratings tend to outperform their higher-rated counterparts, particularly in value-weighted portfolios. These findings are consistent with the view that ESG-related investments may impose costs that are not fully offset by financial benefits, at least within the time horizon considered. However, the analysis of individual ESG components uncovers a more nuanced pattern. While environmental and social scores do not exhibit statistically significant relationships with returns, the governance component appears to play a more prominent role, displaying greater variability and explanatory power.

These results have several important implications. First, they contribute to the academic literature by providing recent and context-specific evidence on the ESG/return relationship in the French market. Second, they highlight the importance of disaggregating ESG scores into their constituent components, as aggregate measures may obscure underlying dynamics. Finally, they offer practical insights for investors aiming to incorporate ESG criteria into their investment strategies, suggesting that a more granular and selective approach may be necessary.

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature, and Section 3 develops the research hypotheses. Section 4 describes the data and Section 5 presents the methodology. Section 6 presents the empirical results followed by a discussion. Section 7 concludes, outlining the main findings, limitations, and avenues for future research.

II. Literature Review and Hypothesis Development

Several fundamental economic theories provide a useful foundation for analysing the relationship between ESG performance and financial outcomes. The integration of non-financial metrics, such as ESG, into investment analysis has sparked significant debate

among economists and academics, particularly regarding corporate purpose and responsibility. These theoretical perspectives are essential for understanding how investors interpret ESG information and how it may influence corporate valuation and stock market performance.

Among the most relevant frameworks are Shareholder Theory, Stakeholder Theory, Signalling Theory, and Agency Theory, each offering distinct predictions regarding the financial implications of ESG engagement.

A. Theoretical Framework

Shareholder Theory, most prominently associated with Friedman (1970), posits that the primary responsibility of a firm is to maximise shareholder wealth. From this perspective, corporate resources should be allocated exclusively toward profit-generating activities, and social or environmental initiatives are justified only if they directly contribute to financial performance.

Within this framework, ESG-related expenditures are often viewed as agency costs that deviate from value maximisation (Bebchuk & Fried, 2004). Traditional financial models aligned with this view assume that market efficiency depends on prioritising financial outcomes over broader societal considerations.

Empirical evidence consistent with this perspective suggests that ESG initiatives may lead to inefficiencies or reduced returns, particularly when their financial benefits are difficult to quantify (Barber et al., 2021). However, this view has been increasingly challenged as ESG considerations become more relevant in financial markets.

In contrast, Stakeholder Theory, developed by, among others, Freeman et al. (2004) and Freeman et al. (2018), extends beyond the shareholder-centric view by emphasising the importance of addressing the interests of a broader set of stakeholders, including employees, customers, suppliers, and society.

Freeman et al. (2004) and Freeman et al. (2018) argue that firms should aim to create value for all stakeholders, stating that “managing for stakeholders is about creating as much value as possible for stakeholders, without resorting to tradeoffs”. This perspective aligns closely with ESG integration, framing corporate responsibility as a driver of long-term value creation rather than a constraint.

Empirical studies support this view, showing that firms with strong stakeholder engagement often achieve superior financial performance due to enhanced reputation, increased customer loyalty, and improved risk management. Moreover, stakeholder-oriented firms tend to be more resilient in uncertain and complex environments, where ESG performance plays a critical role (Parmar et al., 2010).

In another plan, Signalling Theory is particularly relevant in the context of ESG, as it addresses how firms communicate information in environments characterised by information asymmetry.

Firms with strong ESG performance may voluntarily disclose sustainability-related information to signal superior management quality and lower risk (Bergh et al., 2014). ESG ratings and disclosures thus function as signals that help investors differentiate between firms.

Empirical evidence supports this interpretation. Some literature finds that greater ESG transparency is associated with a lower cost of capital, indicating that markets reward sustainability. Others report a negative relationship between ESG disclosure scores and the weighted average cost of capital, suggesting that improved transparency enhances access to financing disclosure (see Gillan et al., 2021, for a review).

Finally, Agency Theory (Jensen & Meckling, 1976) focuses on conflicts of interest between managers (agents) and shareholders (principals), particularly in the presence of weak governance structures.

From this perspective, ESG governance mechanisms - such as independent boards, transparent auditing, and performance-linked executive compensation - play a crucial role in mitigating agency problems and aligning managerial incentives with shareholder interests.

Empirical evidence supports the importance of governance in enhancing firm performance. Gompers et al. (2001) and Alves and Mendes (2004) show that firms with stronger shareholder rights significantly outperform firms with weaker shareholder rights, achieving annual excess returns of approximately 8.5%. Similarly, Lins et al. (2017) find that firms with higher social capital, proxied by Corporate Social Responsibility (CSR) engagement, exhibited greater resilience during the 2008 financial crisis.

Importantly, failures to address environmental or social risks - such as climate change or labour issues - can also be interpreted as agency failures, as they may undermine long-term shareholder value.

B. The Evolution of Responsible Investment

The development of responsible investment reflects a broader shift in how firms and investors incorporate sustainability considerations into decision-making processes. ESG builds on earlier concepts such as CSR and Socially Responsible Investing (SRI), offering a more structured, data-driven framework.

CSR emerged in the mid-twentieth century as firms began to recognise responsibilities beyond profit maximisation. Over time, CSR evolved from philanthropic activities to broader concerns, including ethics, stakeholder engagement, and environmental sustainability. Regulatory developments, such as the Grenelle II Act in France, further institutionalised CSR practices by making social and environmental disclosures mandatory.

SRI developed alongside CSR, focusing on aligning investment decisions with ethical values. Early SRI strategies relied on negative screening, excluding industries such as tobacco, weapons, and fossil fuels (Renneboog et al., 2008). SRI evolved towards more sophisticated approaches, including positive screening and thematic investing, emphasising firms with a strong sustainability performance. This transition reflects a growing recognition that ESG factors are relevant for both ethical and financial considerations.

The ESG framework emerged to address the limitations of CSR and SRI, particularly their lack of standardisation and comparability. ESG integrates environmental, social,

and governance data into financial analysis, providing measurable indicators of sustainability performance.

Unlike CSR, ESG relies on standardised disclosures and external data, and unlike SRI, it explicitly incorporates financial materiality. Its objective is to identify firms capable of delivering sustainable, risk-adjusted returns (Friede et al., 2015).

Regulatory initiatives such as the EU's Sustainable Finance Disclosure Regulation (SFDR) and the Task Force on Climate-Related Financial Disclosures (TCFD) have further accelerated ESG adoption, while empirical evidence suggests that strong ESG performance is associated with lower volatility and improved operational efficiency (Giese et al., 2019).

ESG has become an integral component of modern financial analysis (Alves & Meneses, 2024). The European Commission defines ESG as a framework for evaluating the sustainability and ethical impact of investments across ESG dimensions.

ESG integration involves incorporating ESG data into investment research, portfolio construction, and valuation models (Amel-Zadeh & Serafeim, 2018). Unlike exclusion-based approaches, ESG integration focuses on how sustainability factors affect financial performance.

ESG risks - such as regulatory changes, labour disputes, and governance failures - can significantly influence firm value. These risks are increasingly incorporated into valuation models, including cash flow projections and discount rates (Fu & Li, 2023).

Recent research also highlights the role of investor preferences. Pastor et al. (2021) show that demand for sustainable assets can lead to higher valuations and lower expected returns, while Khan et al. (2016) demonstrate that performance on material ESG issues is associated with superior financial outcomes.

C. ESG Pillars

The ESG framework consists of three dimensions - environmental, social, and governance - each capturing different aspects of corporate performance. Their financial relevance varies across industries and contexts (Friede et al., 2015).

Environmental performance relates to emissions, resource efficiency, and climate risk. Strong environmental practices are associated with improved financial outcomes (Renuka & Padmaja, 2022). The environmental pillar assessed the corporate management of ecological effects, encompassing factors such as greenhouse gas emissions, energy and resource efficiency, pollution, biodiversity, and climate resilience. Comprehensive measures, such as circular-economy practices and environmental risk mitigation, are relevant, especially in resource-intensive industries. Research by Renuka and Padmaja (2022) found that firms with robust environmental performance, as measured by metrics such as relative emissions and energy intensity, exhibit markedly superior financial outcomes. This positive association indicates that proactive environmental management reduces ecological hazards and enhances financial performance.

The social dimension includes labour practices, diversity, and stakeholder relations. Board diversity, for example, has been linked to improved CSR performance (Hartmann & Carmenate, 2020), while disclosure studies highlight its prominence (Baier et al.,

2020). The social pillar examines how a business affects people, employees, communities, and stakeholders. It includes human rights, labour policies, diversity and inclusion, community involvement, supply chain ethics, and data privacy. These factors influence the reputation of a firm, employee retention, and stakeholder trust. Recent studies have shown that having a diverse staff, especially in terms of gender, is crucial to the reputation of a company in terms of social responsibility. Hartmann and Carmenate (2020) found that a company with a diverse board had a better reputation for CSR. This means that boards with people from different backgrounds are better at understanding social issues and stakeholders' requirements. Moreover, Baier et al. (2020) conducted a textual analysis of ESG reporting and identified "diversity" as the most frequently reported issue within the social dimension, underscoring its prominence in corporate disclosures.

Governance focuses on internal controls and shareholder alignment. Strong governance is consistently associated with superior performance (Gompers et al., 2001). The governance pillar includes internal controls, leadership accountability, and shareholder alignment. Core indicators include board independence and diversity, executive compensation and accountability, shareholder rights and engagement, audit transparency, ethical conduct and legal compliance. Other important aspects, such as stakeholder engagement initiatives and strong compliance mechanisms, improve governance. This helps firms operate with transparency and integrity while meeting the needs of shareholders and stakeholders. Governance is often seen as vital for integrating ESG. It plays a key role in implementing and monitoring environmental and social policies. Gompers et al. (2001) found that firms with strong governance, especially those with policies that align with shareholders' interests, outperformed those with poor governance by 8.5% per year. This shows that good governance is crucial for building market confidence and achieving lasting success.

D. The Role of ESG Ratings

ESG ratings provide standardised assessments of sustainability performance and are widely used by investors (Kotsantonis & Serafeim, 2019). ESG rating providers assess the sustainability performance of a company by reviewing its own reports and third-party data. Their assessments combine quantitative indicators and qualitative inputs across ESG pillars. Some use structured subcategory metrics, while others emphasise disclosure levels or controversies. Leading ESG rating agencies include MSCI, Sustainalytics, Bloomberg, Refinitiv (Thomson Reuters), and RobecoSAM, with Moody's, S&P Global, and Fitch also offering ESG scores in recent years. Each agency uses distinct scoring systems.

However, they suffer from methodological inconsistencies and low inter-provider correlation (Christensen et al., 2020; 2022). Studies show average correlations around 0.3, indicating significant disagreement in ESG leadership due to differences in data sources, weightings, and controversy treatment (Christensen et al., 2022). Despite these differences, many people accept ESG ratings as tools that convert non-financial data into long-term indicators of financial risk and value. Institutional investors and asset managers rely on them to incorporate sustainability considerations into portfolio

management. This is especially true under regulations like the EU's SFDR, which encourages greater ESG transparency (Martinez-Meyers et al., 2024).

Additional limitations include a lack of transparency and a bias towards larger firms (Drempetic et al., 2020). These issues highlight the importance of analysing ESG at the pillar level. Regulators like France's AMF have urged greater monitoring and oversight, as well as harmonisation (AMF, 2022).

Furthermore, a firm-size bias can be observed, suggesting that larger firms often receive higher ESG scores due to greater disclosure capacity, regardless of performance (Drempetic et al., 2020).

Lastly, a combination of ESG scores may mask poor performance in particular domains. Therefore, in order to increase accuracy and interpretability, it is more useful to analyse ESG performance at the pillar level.

E. ESG in the French Market

France represents a leading case in ESG integration, supported by strong regulatory frameworks such as Article 173-VI and the Loi PACTE. As the second-largest economy in the eurozone and home to major financial institutions, France promotes a stakeholder-focused model. Under civil law, this model highlights the social aspect of ESG more than the shareholder-driven systems found in the U.S. or Germany. France is also one of the top countries in integrating ESG into regulatory frameworks and corporate disclosures. It references EU initiatives, such as the SFDR.

The country has also promoted ESG through initiatives such as the CAC 40 ESG Index (Euronext, 2021). France was the first country to require institutional investors to disclose the impact of ESG factors on their investment choices through Article 173-VI of the Energy Transition Law of 2015. This legislation contributed to a deeper understanding of ESG regulation at the EU level. Furthermore, the 2019 Loi PACTE reinforced ESG principles by amending the corporate objective as outlined in Articles 1833 and 1835 of the Civil Code, requiring companies to incorporate social and environmental factors into their operations and permitting them to establish a clear "raison d'être". Additionally, the Grenelle II Act required large companies to publicly disclose their labour, diversity, anti-corruption, and environmental policies. This enhanced France's position as a frontrunner in ESG reporting.

Despite these advances, challenges remain, including data comparability and transparency of ratings (BNP Paribas, 2023; AMF, 2024). A BNP Paribas survey (2023) revealed that 71% of institutional investors identified data comparability as a significant obstacle. Furthermore, the opacity of ESG scoring systems constrains transparency. In response to these challenges, France has implemented the Corporate Sustainability Reporting Directive (CSRD), which requires companies to adhere to established European Sustainability Reporting Standards beginning in 2024 (AMF, 2024).

F. ESG and Stock Performance: Empirical Literature

The empirical relationship between ESG performance and financial outcomes remains inconclusive, despite a growing body of literature. A meta-analysis by Whelan et al. (2021), covering more than 1,000 studies published between 2015 and 2020, finds that

58% report a positive relationship, 8% a negative one, 13% no relationship, and 21% mixed results. While most of the evidence suggests a positive association, significant methodological differences and contextual factors continue to fuel debate. Broadly, the literature can be categorised into three strands: studies reporting positive effects, those reporting mixed or context-dependent outcomes, and those reporting negative or neutral relationships.

A substantial number of studies support a positive link between ESG performance and financial outcomes, arguing that sustainability-oriented strategies enhance firm value through improved risk management, stronger stakeholder relationships, and greater operational efficiency. Kempf and Osthoff (2007) show that high-ESG firms outperform low-ESG firms using a long-short strategy, even after controlling for risk using the CAPM and the Fama-French three-factor model. Similarly, Albuquerque et al. (2020) find that high-ESG firms exhibit lower volatility and superior performance during the COVID-19 shock, while studies like Derwall et al. (2005) and Edmans (2011) demonstrate that firms with higher employee satisfaction generate a 3.5% annual alpha over 25 years. Bhaskaran et al. (2020) further confirm that firms with strong ESG performance outperform their peers on Tobin's Q, ROE, and ROA, reinforcing the argument that integrated sustainability practices can generate financial benefits.

However, other studies suggest that the ESG–performance relationship is highly context-dependent or even negative. Halbritter and Dorfleitner (2015) find that ESG scores do not consistently predict superior returns, while Borgers et al. (2013) show that ESG-related abnormal returns tend to diminish over time as markets incorporate sustainability information. More critical perspectives find negative or reverse relationships, particularly in certain contexts. Ruan and Liu (2021) document a negative association between ESG and firm performance in China, while Garcia and Orsato (2020) show that ESG may reduce firm value in emerging markets. However, Prol and Kim (2022) demonstrate that low-ESG portfolios outperform in terms of Sharpe ratios due to better diversification, suggesting that ESG investing may involve tradeoffs between sustainability and financial performance.

III. Hypothesis Development

As discussed in the literature review, the relationship between ESG performance and stock returns remains complex and inconclusive. Early empirical evidence, such as Kempf and Osthoff (2007), suggests a positive association between ESG performance and abnormal returns. However, more recent studies indicate that this relationship is neither stable nor universally beneficial. Borgers et al. (2013) and Halbritter and Dorfleitner (2015) document that ESG-related premiums tend to decline over time and vary significantly across sectors, methodologies, and data providers. These findings suggest that ESG does not affect all firms uniformly and highlight the importance of examining its impact within specific market contexts.

More recent evidence, particularly in European markets, points to a negative or even reverse ESG premium, attributing this pattern to higher compliance costs and more

conservative risk profiles associated with ESG adoption. For example, Luo (2022) reports that firms with lower ESG ratings generate superior returns in the UK market, especially in low-liquidity segments, supporting the existence of a "neglect effect." In addition, Prol and Kim (2022) show that high-ESG portfolios underperform low-ESG portfolios in terms of Sharpe ratios, partly due to reduced diversification and sector concentration. Taken together, these findings suggest that ESG compliance may entail tradeoffs, particularly when it constrains exposure to higher-return opportunities or imposes additional costs.

Building on this evidence, it is reasonable to expect that firms with lower ESG scores may exhibit superior stock performance, particularly in environments where financial benefits do not fully offset the costs of ESG investments. This leads to the formulation of the primary hypothesis:

H1: Firms with lower overall ESG scores exhibit higher stock performance than firms with higher ESG scores.

To further refine this analysis, it is important to consider ESG not as a single composite measure but as a multidimensional construct. Prior literature provides strong justification for examining the Environmental (E), Social (S), and Governance (G) pillars separately. For instance, Luo (2022) finds that the negative premium is more pronounced for environmental and social dimensions than for the aggregate ESG score, while Prol and Kim (2022) report relatively consistent underperformance across all ESG components. These mixed findings raise the question of whether specific pillars drive the overall ESG effect or whether all dimensions contribute similarly to stock performance.

The literature also presents divergent views regarding the financial materiality of individual ESG dimensions. In the social domain, Krueger (2015) argues that certain socially responsible actions may be perceived as misaligned with shareholder interests, potentially leading to negative market reactions. In the governance dimension, Bebcuk (2013) suggest that governance-related excess returns may have diminished over time as markets have become more efficient and governance practices have become more standardised. These insights reinforce the need for a disaggregated analysis of ESG components.

Accordingly, the following hypotheses are proposed:

H2: Firms with lower Environmental (E) scores exhibit higher stock performance than firms with higher Environmental (E) scores.

H3: Firms with lower Social (S) scores exhibit higher stock performance than firms with higher Social (S) scores.

H4: Firms with lower Governance (G) scores exhibit higher stock performance than firms with higher Governance (G) scores.

Taken together, these hypotheses reflect competing theoretical predictions regarding the relationship between ESG performance and stock returns. The empirical analysis that follows evaluates whether ESG characteristics, both in aggregate and at the pillar

level, are associated with differences in risk-adjusted stock performance in the French equity market.

IV. Data

A. Data Sources and Sample

This study relies on data obtained from two primary sources: Refinitiv Eikon and the Kenneth R. French Data Library. Firm-level data - including annual market capitalisation, industry classification, monthly stock returns, and ESG scores - were collected from Refinitiv for French-listed companies. In parallel, European risk factors used in asset pricing models were retrieved from the Kenneth R. French Data Library, ensuring consistency with the geographical focus of the analysis.

Refinitiv provides one of the most comprehensive global databases for financial and ESG information, with ESG scores constructed from publicly disclosed data and updated annually. This study uses the standard ESG score, widely adopted in empirical finance research, alongside its three underlying components: Environmental (E), Social (S), and Governance (G). These scores are derived from multiple thematic categories and indicators, combining both quantitative and qualitative information. Importantly, the weighting of ESG pillars varies across industries to reflect sector-specific risks, while maintaining comparability across firms. This disaggregated structure allows the analysis to assess both the aggregate ESG effect and the individual contribution of each pillar.

To ensure a consistent national focus, firms were required to meet three criteria simultaneously: the country of headquarters, the country of incorporation, and the primary listing location had to be France. This triple-filter approach ensures that all firms in the sample are fully exposed to French regulatory, institutional, and market conditions. The initial dataset comprised 633 firms associated with France, based on a triple-filter criterion requiring that the headquarters, country of incorporation, and primary listing location all be in France. The sample was then reduced through four sequential exclusion steps: (i) firms with missing ESG scores in any year of the 2017–2023 period were removed; (ii) firms with incomplete monthly stock return data were excluded; (iii) firms lacking annual market capitalization figures were dropped; and (iv) firms without complete data coverage across all seven years were eliminated. This process resulted in a final sample of 78 firms (546 firm-year observations). The primary source of attrition is the requirement for complete panel coverage, which disproportionately excludes smaller firms and companies that have only recently begun disclosing ESG data, and may therefore introduce a survivorship bias favouring larger, more established issuers. Financial sector firms are retained in the sample and represent 12 of the 78 firms. Industrials and Infrastructure represent the largest group (22 firms, 28%), followed by Consumer and Retail, Finance, and Other (12 firms each, 15% each). Healthcare, Pharma, Utilities, and Materials each account for 7 firms (9%), while Technology comprises 6 firms (8%). Financial sector firms are retained in the sample, as their exclusion would disproportionately reduce an already small sample and bias it away from a sector that is both large in the French market and increasingly central to ESG

integration. Similarly, Utilities and Materials firms - typically among the most ESG-scrutinised sectors - are included. No single sector dominates the sample, suggesting reasonable sectoral diversity given the constraints of the filtering process. Nonetheless, the relatively low representation of Technology firms (8%) and the absence of newly listed companies - excluded by the complete-panel requirement - should be borne in mind when generalizing the results.

Although the final sample of 78 firms is relatively small compared with studies covering multiple countries, it reflects the structure of the French equity market after applying strict data availability and consistency requirements. In particular, firms were required to have complete ESG, return, and market capitalization information throughout the sample period and to satisfy the triple-filter criterion based on headquarters location, incorporation country, and primary listing venue. While these restrictions reduce sample size, they enhance internal consistency and ensure that all firms are exposed to the same institutional, regulatory, and market environment.

Monthly stock returns, expressed as total returns including dividends and adjusted for corporate actions, were obtained from Refinitiv for the period January 2017 to December 2023, yielding 84 observations per firm. Excess returns were calculated by subtracting the risk-free rate and serve as the dependent variable in all asset pricing models. Market capitalisation, measured annually as the product of share price and shares outstanding, is used to construct value-weighted portfolios, allowing the analysis to capture size-related effects on performance. Firms are also classified according to the Global Industry Classification Standard (GICS) and grouped into broad industry categories to ensure sectoral diversity within the sample.

Finally, risk-adjusted returns are estimated using standard asset pricing models, including the Fama-French three-factor, Carhart four-factor, and Fama-French five-factor models. The corresponding European factors - market, size (SMB), value (HML), momentum (MOM), profitability (RMW), and investment (CMA) - are obtained monthly from the Kenneth R. French Data Library over the same sample period. Together, these data provide a consistent and comprehensive framework for analysing the relationship between ESG performance and stock returns.

B. Descriptive Statistics

The descriptive statistics reveal substantial heterogeneity across firms in both ESG performance and financial characteristics (see Panel 1 of Table 1). ESG scores are relatively high on average (mean of 74.26), with the environmental (78.80) and social (80.38) dimensions outperforming governance (62.24), which has the lowest mean and the highest dispersion (standard deviation of 20.45). This suggests that governance practices vary considerably across firms and may play a key role in differentiating overall ESG performance. Market capitalisation also shows significant dispersion, ranging from €84 million to €368.3 billion, with a median of €10.1 billion, reflecting a diverse sample that includes both small and large firms. Regarding performance, annualised stock returns average 6.79%, but with high volatility (standard deviation of 30.56%) and a wide range from -95.74% to 162.47%, indicating substantial variation in firm-level outcomes over the sample period.

Table 1– Summary Statistics.

Note: Panel 1 reports summary statistics for ESG scores and their three components (Environmental, Social, and Governance) obtained from Refinitiv at the firm-year level. Market capitalisation is expressed in millions of euros. The table presents the number of observations (N), mean, median, standard deviation (Std), minimum (Min), and maximum (Max) for each variable. Stock returns correspond to annualised total returns, computed from monthly returns using compounding, and include both capital gains and dividends. Panel 2 presents the Pearson correlation coefficients between the ESG score, the Environmental, Social, and Governance pillars. All data are annual and firm-level.

	ESG	Environmental	Social	Governance	MarketCap	Stock Return
Panel 1 - Summary Statistics						
N	546	546	546	546	546	546
Mean	74.26	78.8	80.38	62.24	25,727	6.79%
Median	76.11	79.28	83.19	64.31	10,086	5.96%
Std	10.38	12.78	11.61	20.45	43332	30.56%
Max	95.68	98.8	97.65	97.41	368,303	162.47%
Min	37.92	40.62	30.31	5.37	84	-95.74%
Panel 2 - Correlation Matrix of ESG, Environmental, Social and Governance						
ESG	1.00	.	.	.		
Environmental	0.47	1.00	.	.		
Social	0.64	0.32	1.00	.		
Governance	0.74	0.01	0.18	1.00		

Panel 2 of Table 1 further supports these findings by presenting the correlation matrix between ESG components. The governance pillar exhibits the strongest correlation with the overall ESG score (0.738), followed by the social (0.638) and environmental (0.474) dimensions. In contrast, correlations among the individual pillars are relatively weak (not reported for brevity), particularly between environmental and governance scores. This pattern reinforces the idea that governance acts as a central driver of ESG variation across firms, consistent with its higher dispersion observed in the descriptive statistics. As such, governance is likely to play a more prominent role in explaining differences in ESG performance in subsequent empirical analyses.

V. Methodology

This study examines the relationship between ESG performance and stock returns using a portfolio-based approach combined with multifactor asset pricing models. Specifically, firms are sorted annually by ESG score, and three portfolios are developed: High ESG (top 30%), Low ESG (bottom 30%), and a zero-cost High-minus-Low (H–L) portfolio. Given the final sample size of 78 firms, each annual portfolio contains approximately 23 firms (30% of the sample), with minor variations across years due to data availability and portfolio rebalancing. This long-short strategy allows for a direct comparison of the performance of firms with different ESG profiles. Portfolios are rebalanced annually, and monthly total returns, including dividends and adjusted for corporate actions, are computed from January 2017 to December 2023. To ensure robustness, both equal-weighted and value-weighted portfolio returns are analysed.

The dependent variable in all specifications is the monthly excess return of these portfolios, calculated as total return minus the risk-free rate. To assess whether ESG characteristics are associated with abnormal performance, returns are evaluated using multifactor asset pricing models rather than the traditional CAPM, which is known to

have limited explanatory power (Fama & French, 2004). Accordingly, the analysis employs the Fama-French three-factor model (Fama & French, 1993), the Carhart four-factor model (Carhart, 1997), and the Fama-French five-factor model (Fama & French, 2015). These models extend the CAPM by incorporating additional systematic risk factors, including size (SMB), value (HML), momentum (MOM), profitability (RMW), and investment (CMA), allowing for a more comprehensive assessment of return drivers.

By combining a long-short portfolio strategy with multifactor regressions, this methodology identifies abnormal returns (alpha) associated with ESG characteristics while controlling for well-established risk factors. This approach is widely used in the ESG-performance literature and provides a robust framework for assessing whether ESG scores have predictive power for stock returns in the European market.

To examine the relationship between ESG performance and stock returns, a portfolio-sorting approach is implemented. Firms are ranked annually based on their ESG scores, with the top 30% assigned to the High ESG portfolio and the bottom 30% to the Low ESG portfolio. ESG scores from Refinitiv are reported annually as of 31 December. To avoid look-ahead bias, portfolio formation is lagged by two months: firms are ranked based on their December t ESG scores and assigned to portfolios at the beginning of February $t+1$, ensuring that scores are fully available and publicly accessible before any position is taken. Value-weighted portfolios use market capitalization weights as of 31 December t (the portfolio formation date), held fixed until the next annual rebalancing. Since the final sample requires complete data coverage over the entire 2017–2023 period, no firm exits the sample during the holding period, and delisting is not an issue by construction. We acknowledge, however, that this design introduces a form of survivorship bias, as firms that were delisted, merged, or ceased ESG disclosure during the period are excluded from the outset. This may affect the Low ESG portfolio in particular, where financially distressed or governance-weak firms, more likely to be delisted, are systematically absent.

A zero-cost High-minus-Low (H–L) portfolio is constructed by taking a long position in high-ESG firms and a short position in low-ESG firms, thereby allowing a direct assessment of ESG-related return differentials. Both equal-weighted and value-weighted portfolios are considered to account for differences in firm size and to better reflect real-world investment strategies.

Before estimating the models, standard time-series diagnostics are performed to ensure the reliability of the analysis. Heteroskedasticity is tested using the Breusch-Pagan test, which indicates its presence across several specifications; consequently, robust standard errors are employed to ensure valid statistical inference. Autocorrelation is assessed using the Breusch-Godfrey test, which provides no significant evidence of autocorrelation, confirming that the residuals are independently distributed.

The empirical analysis uses Ordinary Least Squares (OLS) regressions to assess whether ESG-based strategies generate abnormal returns after controlling for systematic risk factors. The dependent variable is the monthly excess return of the ESG portfolios (High, Low, and H–L), while the independent variables include standard asset pricing factors: market (MKT), size (SMB), value (HML), momentum (MOM), profitability (RMW), and investment (CMA). The key parameter of interest is the intercept (alpha),

which captures abnormal returns not explained by these factors. A statistically significant alpha would indicate that ESG performance has predictive power for risk-adjusted stock returns.

To assess the potential impact of multicollinearity among the explanatory variables, variance inflation factors (VIFs) were computed for all risk factors included in the multifactor models. The results indicate that multicollinearity is not severe, with VIF values ranging from 1.38 to 5.70. Therefore, the estimated coefficients are unlikely to be materially affected by linear dependence among the explanatory variables.

VI. Results and Discussion

This study employs a long-short portfolio approach to examine the relationship between ESG performance and stock returns in the French market. The results reported in Table 2 reveal a clear pattern: firms with lower ESG scores outperform those with higher ESG scores, particularly in value-weighted portfolios.

More specifically, the low ESG portfolio generates statistically significant positive alphas, ranging from 1.187% to 1.418% per month, while the high ESG portfolio exhibits lower alphas (between 0.639% and 0.898%), which are statistically insignificant in most specifications, with the exception of the value-weighted FF3 model. This difference is reflected in the High-minus-Low portfolio, which yields negative, statistically significant alphas (−0.654% to −0.687%) across specifications. These results provide strong empirical support for Hypothesis 1 (H1).

A similar pattern emerges for the Governance pillar (Table 3), where low-scoring firms outperform high-scoring firms, providing partial support for H4. In contrast, the Environmental and Social dimensions do not show statistically significant return differentials, leading to the rejection of H2 and H3.

One explanation for these findings lies in how ESG characteristics are priced in financial markets. Firms with high ESG ratings are often perceived as safer and more reputable, attracting strong demand from institutional investors. This demand may lead to overvaluation and lower expected returns, while firms with lower ESG scores may be relatively undervalued, offering higher returns as compensation for reputational or operational risks. This interpretation is consistent with the "sin stock" argument of Hong and Kacperczyk (2009) and with evidence from Alves and Barreira (2024), who document a negative relationship between ESG scores and stock returns in European markets.

The fact that results are only statistically significant in value-weighted portfolios (Table 2) suggests that ESG effects are concentrated among large-cap firms. Larger firms tend to have higher ESG scores due to better disclosure and stakeholder pressure, but they may also face higher compliance costs and slower growth prospects. This may limit their return potential. In contrast, smaller firms often lack ESG visibility, making their scores less informative about financial performance. This interpretation is consistent with Halbritter and Dorfleitner (2015), who find limited differences in returns once ESG information is widely incorporated into markets.

Table 2— Fama-French and Carhart Factor Models for ESG Score.

Note: This table reports the results of time-series regressions based on the Fama-French three-factor (FF3), Carhart four-factor, and Fama-French five-factor (FF5) models, applied to portfolios sorted by overall ESG scores (High, Low, and High–Low). Alpha estimates are reported in percentage terms and represent monthly abnormal returns. t-statistics are reported in parentheses. Results are shown for both equal-weighted (EW) and value-weighted (VW) portfolios. Estimated coefficients and heteroskedasticity-robust t-statistics (in parentheses) are reported. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$ (one-tailed). All regressions are based on 84 monthly observations.

	Equal-Weighted			Value-Weighted		
	FF3	Carhart	FF5	FF3	Carhart	FF5
Panel I - Environmental Pillar Score						
High	0.772 (1.091)	0.718 (0.756)	0.519 (0.660)	1.351** (2.026)	1.338** (1.724)	1.022* (1.544)
Low	0.615 (0.986)	0.493 (0.755)	0.396 (0.570)	1.195** (2.229)	1.151** (1.718)	1.023** (1.824)
High-Low	0.024 (0.095)	0.091 (0.349)	-0.016 (-0.060)	0.023 (0.070)	0.054 (0.157)	-0.139 (-0.416)
Panel II - Social Pillar Score						
High	0.754 (1.256)	0.656 (0.837)	0.517 (0.829)	1.092** (2.214)	0.986** (1.657)	0.851** (1.670)
Low	0.765 (1.200)	0.607 (0.910)	0.556 (0.835)	1.202** (2.181)	1.112** (1.938)	0.981** (1.713)
High-Low	-0.145 (-0.594)	-0.085 (-0.331)	-0.178 (-0.691)	-0.243 (-0.810)	-0.267 (-0.847)	-0.269 (-0.848)
Panel III - Governance Pillar Score						
High	0.702 (1.008)	0.6 (0.822)	0.438 (0.603)	0.939* (1.610)	0.864 (1.120)	0.687 (1.088)
Low	0.865* (1.595)	0.772 (1.098)	0.594 (1.014)	1.397*** (2.618)	1.388*** (2.477)	1.111** (2.019)
High-Low	-0.297 (-0.950)	-0.306 (-0.931)	-0.295 (-0.897)	-0.592* (-1.636)	-0.657** (-1.733)	-0.562* (-1.477)

From a theoretical perspective, these findings contribute to the ongoing debate between shareholder theory and stakeholder theory. While stakeholder theory argues that ESG engagement enhances long-term value, the absence of abnormal returns for high-ESG firms in this study suggests that financial markets (at least in the French context) may not yet fully reward stakeholder-oriented strategies.

The results in Table 2 also allow for an assessment of whether traditional asset pricing factors can explain ESG-related return differences. Overall, the evidence suggests that standard risk factors do not adequately explain ESG performance differentials.

The estimated abnormal returns are, in some specific cases, economically large. It is the case of the Low ESG value-weighted portfolio yields abnormal returns above 10% per year. While such magnitudes are uncommon in developed equity markets, they should be interpreted in the context of a relatively concentrated portfolio construction, a limited sample of French-listed firms, and a period characterized by substantial cross-sectional dispersion in stock performance. Additional robustness tests (not reported) excluding the COVID-19 period confirm that the results are not solely driven by the exceptional market conditions observed in 2020.

Among the factors considered, the size factor (SMB) is the only consistently significant variable. In the value-weighted specifications, the High-minus-Low ESG portfolio exhibits positive and statistically significant SMB loadings (ranging from approximately 0.518 to 0.576), indicating that ESG-sorted portfolios differ systematically in their exposure to firm size. More specifically, the positive SMB

coefficient of the High-minus-Low portfolio implies that high-ESG firms exhibit relatively greater exposure to small-cap stocks, whereas low-ESG firms display a stronger tilt towards large-cap companies. This result is somewhat unexpected given the commonly documented positive association between firm size and ESG disclosure. One possible explanation is that several large firms in the French market remain represented in the low-ESG portfolio despite their size and market prominence. Additionally, ESG ratings may reflect disclosure practices and reporting intensity rather than underlying sustainability performance, potentially weakening the expected positive relationship between firm size and ESG scores (Drempetic et al., 2020).

In contrast, the value (HML), momentum (MOM), profitability (RMW), and investment (CMA) factors are largely insignificant across all specifications. One possible concern is that these results may reflect multicollinearity among the explanatory variables rather than a genuine lack of exposure. However, variance inflation factor (VIF) diagnostics indicate that multicollinearity is not severe, with all values remaining within commonly accepted thresholds. Consequently, the lack of statistical significance appears to reflect the limited relevance of these factors in explaining ESG-related return differentials within the French market.

This finding suggests that ESG-sorted portfolios do not systematically differ in terms of value, momentum, profitability, or investment characteristics. As a result, the return differences observed between high- and low-ESG firms are unlikely to be driven by traditional factor exposures and may instead reflect investor preferences, valuation effects, or other non-traditional mechanisms.

Another noteworthy result concerns the market factor (Mkt-RF). Several high-ESG portfolios exhibit negative market betas, particularly in the value-weighted specifications. Although the magnitude and statistical significance of these coefficients vary across models, the overall pattern suggests that high-ESG firms tend to be less sensitive to broad market fluctuations. This finding is consistent with the view that firms with stronger ESG profiles may possess more defensive characteristics. High-ESG firms are often associated with more stable stakeholder relationships, stronger reputational capital, and lower exposure to regulatory or operational risks. As a result, their returns may be less closely tied to aggregate market movements, particularly during periods of heightened uncertainty. Importantly, however, the market beta differences do not translate into significant exposures in the High-minus-Low portfolios. This suggests that systematic market risk is unlikely to be the primary driver of the return differentials observed between high- and low-ESG firms. Rather, the evidence points towards valuation effects, investor preferences, or other non-traditional sources of return variation. Overall, the limited explanatory power of traditional risk factors suggests that ESG-related return differences may reflect investor preferences, behavioural biases, or valuation effects, rather than systematic risk exposures. This interpretation is also consistent with Barnea and Rubin (2010), who argue that ESG investments may be perceived as agency costs when they do not clearly enhance shareholder value.

Table 3 provides a more granular analysis by decomposing ESG into its Environmental, Social, and Governance components. The results reveal significant heterogeneity across pillars.

Table 3– Alpha estimates for the different ESG pillars.

Note: This table reports the estimated alphas from time-series regressions using the Fama-French three-factor (FF3), Carhart four-factor, and Fama-French five-factor (FF5) models, applied to portfolios sorted by ESG pillar scores (Environmental, Social, and Governance). Alpha estimates are reported in percentage terms and represent monthly abnormal returns. t-statistics are reported in parentheses. For each pillar, portfolios are constructed as High, Low, and High–Low (long–short) portfolios, where the High–Low portfolio represents a zero-cost strategy that is long in high-scoring firms and short in low-scoring firms. Results are shown for both equal-weighted (EW) and value-weighted (VW) portfolios. Reported coefficients correspond to abnormal returns (alpha), with heteroskedasticity-robust t-statistics displayed in parentheses below each estimate. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$ (one-tailed). All regressions are based on 84 monthly observations.

	EW			VW		
	FF3	Carhart	FF5	FF3	Carhart	FF5
Panel I - Environmental Pillar Score						
High	0.772	0.718	0.519	1.351**	1.338*	1.022
	-1.091	-0.756	-0.66	-2.026	-1.724	-1.544
Low	0.615	0.493	0.396	1.195**	1.151**	1.023**
	-0.986	-0.755	-0.57	-2.229	-1.718	-1.824
High-Low	0.024	0.091	-0.016	0.023	0.054	-0.139
	-0.095	-0.349	(-0.060)	-0.07	-0.157	(-0.416)
Panel II - Social Pillar Score						
High	0.754	0.656	0.517	1.092**	0.986	0.851*
	-1.256	-0.837	-0.829	-2.214	-1.657	-1.67
Low	0.765	0.607	0.556	1.202**	1.112*	0.981*
	-1.2	-0.91	-0.835	-2.181	-1.938	-1.713
High-Low	-0.145	-0.085	-0.178	-0.243	-0.267	-0.269
	(-0.594)	(-0.331)	(-0.691)	(-0.810)	(-0.847)	(-0.848)
Panel III - Social Pillar Score						
High	0.702	0.6	0.438	0.939	0.864	0.687
	-1.008	-0.822	-0.603	-1.61	-1.12	-1.088
Low	0.865	0.772	0.594	1.397**	1.388**	1.111**
	-1.595	-1.098	-1.014	-2.618	-2.477	-2.019
High-Low	-0.297	-0.306	-0.295	-0.592*	-0.657*	-0.562
	(-0.950)	(-0.931)	(-0.897)	(-1.636)	(-1.733)	(-1.477)

For the Governance pillar, the results are the most pronounced. The low governance portfolio generates statistically significant alphas ranging from 1.111% to 1.397%, while the high governance portfolio remains insignificant. The High-minus-Low spread is negative and significant across all value-weighted specifications (–0.562% to –0.657%), with significance ranging from 10% to 5%, being strongest in the Carhart model. These findings provide partial support for Hypothesis 4 (H4) and suggest that governance is the primary driver of ESG-related return differences.

One explanation relates to agency theory (Jensen & Meckling, 1976). While governance mechanisms are designed to align managerial and shareholder interests, they may also introduce rigidity, compliance costs, and operational inefficiencies. From this perspective, firms with lower governance scores may benefit from greater managerial flexibility and lower costs, leading to higher returns. This interpretation is supported by Krueger (2015), who argues that ESG initiatives may not be rewarded by markets when their financial benefits are unclear.

In contrast, the Environmental and Social pillars show no statistically significant return spreads. Although both high and low portfolios generate positive alphas (e.g., Environmental alphas up to 1.351% and 1.195%, Social alphas up to 1.202%), the High-minus-Low differences are insignificant. Therefore, Hypotheses 2 and 3 are not supported.

These findings contrast with some prior literature, such as Edmans (2011), who finds that employee satisfaction enhances long-term returns, and Servaes and Tamayo (2012), who highlight the value of strong stakeholder relationships. However, these effects may be context-dependent. In France, where ESG practices are increasingly embedded in regulation and corporate norms, environmental and social factors may no longer provide a strong basis for firm differentiation. Additionally, both Environmental and Social portfolios exhibit negative market betas in some specifications, suggesting lower sensitivity to market fluctuations, consistent with Albuquerque et al. (2020). However, as these effects do not translate into significant return spreads, market risk cannot explain ESG performance differences.

Table 4— Risk and Risk-Adjusted Performance of ESG Portfolios.

Note: This table reports risk and risk-adjusted performance measures for portfolios sorted on aggregate ESG scores and on the Environmental, Social, and Governance pillars. Firms are ranked annually based on their respective scores and assigned to High (top 30%) and Low (bottom 30%) portfolios. The High–Low portfolio is a zero-cost portfolio formed by taking a long position in the High portfolio and a short position in the Low portfolio. Results are reported separately for equal-weighted (EW) and value-weighted (VW) portfolio constructions. Annualized returns are computed using geometric compounding of monthly portfolio returns over the period January 2017 to December 2023. Annualized volatility is calculated as the standard deviation of monthly returns multiplied by the square root of 12. The Sharpe ratio is computed as the ratio of annualized return to annualized volatility. Maximum drawdown corresponds to the largest peak-to-trough decline in cumulative portfolio value during the sample period and provides a measure of downside risk. Higher Sharpe ratios indicate superior risk-adjusted performance, whereas larger negative maximum drawdowns indicate greater downside exposure.

Portfolio	Annualised Return	Annualised Volatility	Sharpe Ratio	Max Drawdown
Equal-Weighted Portfolios				
ESG High	3.38%	22.26%	0.15	-35.72%
ESG Low	6.26%	17.02%	0.37	-23.65%
ESG High–Low	-3.86%	10.83%	-0.36	-43.24%
Environmental High	5.06%	22.45%	0.23	-32.78%
Environmental Low	4.30%	19.64%	0.22	-28.51%
Environmental High–Low	-0.64%	7.85%	-0.08	-20.64%
Social High	6.17%	18.93%	0.33	-27.38%
Social Low	5.30%	20.23%	0.26	-30.17%
Social High–Low	-1.33%	7.58%	-0.18	-23.22%
Governance High	4.52%	22.05%	0.21	-34.91%
Governance Low	8.00%	17.14%	0.47	-25.62%
Governance High–Low	-4.29%	9.90%	-0.43	-38.22%
Value-Weighted Portfolios				
ESG High	7.67%	19.31%	0.40	-30.04%
ESG Low	15.98%	16.45%	0.97	-18.25%
ESG High–Low	-8.96%	12.28%	-0.73	-51.40%
Environmental High	12.90%	19.65%	0.66	-25.73%
Environmental Low	12.69%	16.94%	0.75	-22.20%
Environmental High–Low	-1.46%	10.31%	-0.14	-18.70%
Social High	11.46%	15.68%	0.73	-18.33%
Social Low	12.26%	17.62%	0.70	-26.01%
Social High–Low	-3.05%	9.61%	-0.32	-24.04%
Governance High	8.40%	18.61%	0.45	-26.03%
Governance Low	15.10%	16.97%	0.89	-20.44%
Governance High–Low	-7.75%	11.70%	-0.66	-49.08%

Taken together, the results from Tables 2 and 3 show that the negative ESG premium is primarily driven by governance effects and firm size dynamics, rather than environmental or social performance.

While the multifactor regressions provide evidence on abnormal returns, they do not fully capture the overall risk-return trade-off faced by investors. To complement the alpha-based analysis, Table 4 reports additional performance measures, including

annualized returns, annualized volatilities, Sharpe ratios, and maximum drawdowns for all ESG-sorted portfolios. These metrics allow us to assess whether the lower returns associated with high-ESG firms are compensated by lower levels of portfolio risk.

The results reported in Table 4 provide additional insights into the economic significance of the ESG premium. For the aggregate ESG portfolios, the evidence indicates that the lower returns of high-ESG firms are not offset by lower portfolio risk. In the equal-weighted specification, the High ESG portfolio generates an annualized return of 3.38%, compared with 6.26% for the Low ESG portfolio, while also exhibiting higher volatility (22.26% versus 17.02%). Consequently, the Sharpe ratio of the Low ESG portfolio (0.37) is more than twice that of the High ESG portfolio (0.15).

The contrast is even stronger in the value-weighted portfolios. The Low ESG portfolio delivers an annualized return of 15.98%, compared with 7.67% for the High ESG portfolio, while simultaneously displaying lower volatility. As a result, the Low ESG portfolio achieves a Sharpe ratio of 0.97, more than double the value observed for the High ESG portfolio (0.40). Furthermore, the maximum drawdown of the Low ESG portfolio (-18.25%) is substantially smaller than that of the High ESG portfolio (-30.04%), suggesting that superior performance is not accompanied by greater downside risk.

The pillar-level results reveal considerable heterogeneity. Environmental and Social portfolios exhibit relatively small differences in risk-adjusted performance, which is consistent with the absence of statistically significant return spreads reported in Table 3. In contrast, the Governance portfolios display the strongest differences. In the value-weighted specification, the Low Governance portfolio achieves a Sharpe ratio of 0.89, compared with 0.45 for the High Governance portfolio, further supporting the conclusion that governance is the primary driver of the negative ESG premium documented in this study.

Overall, the risk-adjusted performance measures reinforce the conclusions obtained from the multifactor regressions. The superior performance of low-ESG firms persists after accounting for volatility and downside risk, suggesting that the negative ESG premium cannot be fully explained as compensation for a more favourable risk profile among high-ESG firms.

The combined evidence from the multifactor regressions and the risk-adjusted performance analysis yields a clear pattern. Hypothesis 1 is supported, as evidenced by the significant negative alphas of the High-minus-Low portfolios reported in Table 2 and by the consistently superior Sharpe ratios of the Low ESG portfolios reported in Table 4. In contrast, Hypotheses 2 and 3 are not supported, since the Environmental and Social pillars do not exhibit statistically significant return differentials and show only limited differences in risk-adjusted performance. Finally, Hypothesis 4 receives partial support, as the Governance pillar displays significant return spreads and the largest differences in risk-adjusted performance, indicating that governance is the main ESG component driving stock return differences.

VII. Conclusion

This study examined the relationship between ESG performance and stock returns in the French equity market, contributing to the ongoing debate on whether sustainability is rewarded in financial markets. Using ESG scores from Refinitiv, portfolios were developed based on both aggregate ESG ratings and individual ESG pillars. These portfolios were evaluated through well-established multifactor asset pricing models, namely the Fama-French three-factor, Carhart four-factor, and Fama-French five-factor models, in order to assess whether ESG performance is associated with abnormal returns and whether traditional risk factors can explain such effects.

The empirical results provide robust evidence that firms with lower overall ESG scores tend to outperform those with higher scores, particularly in value-weighted portfolios. This finding is driven by the strong and statistically significant alphas observed in low-ESG portfolios, contrasted with the lack of significant abnormal returns among high-ESG firms. The negative and significant High-minus-Low spreads further support the presence of a negative ESG premium in the French market over the sample period. Importantly, the lack of significance in equal-weighted portfolios suggests that this effect is concentrated among large-cap firms, highlighting the role of firm size in shaping ESG-return dynamics.

When disaggregating ESG into its individual components, the results reveal important heterogeneity. The Environmental and Social pillars do not exhibit statistically significant return differentials, indicating that these dimensions are not key drivers of stock performance within the analysed context. In contrast, the Governance pillar stands out as the most relevant component, with low governance firms consistently generating higher abnormal returns. This suggests that governance-related factors may be more directly linked to financial performance, possibly due to their immediate impact on managerial decision-making, operational flexibility, and cost structures.

The analysis of risk factors further reinforces the conclusion that traditional asset pricing models do not adequately capture ESG-related return differences. While the size factor (SMB) emerges as the most consistent and significant variable - indicating a strong link between ESG strategies and firm size - other factors such as value, momentum, profitability, and investment show limited explanatory power. This suggests that ESG performance interacts with financial markets in ways that extend beyond standard risk-based explanations. Instead, the results point towards alternative mechanisms, such as valuation effects, investor preferences, and behavioural biases. In particular, the evidence supports the view that high-ESG firms may be relatively overvalued due to investor demand, while low-ESG firms may offer higher expected returns as compensation for perceived risks, consistent with the arguments of Hong and Kacperczyk (2009).

Furthermore, the negative market betas observed for several high-ESG portfolios suggest that these firms may exhibit more defensive characteristics and lower sensitivity to aggregate market fluctuations. However, this reduced market exposure does not appear sufficient to offset their lower return performance, as high-ESG portfolios continue to underperform their low-ESG counterparts across most specifications.

From a theoretical perspective, these findings contribute to the ongoing tension between shareholder and stakeholder theories. While stakeholder theory posits that ESG engagement enhances long-term value creation, the results of this study suggest that financial markets may not fully reward such strategies. Instead, ESG investments may be perceived as costly or uncertain, aligning more closely with agency-based explanations (Jensen & Meckling, 1976; Barnea & Rubin, 2010), particularly when their financial benefits are not immediately observable.

Despite its contributions, this study is subject to several limitations. First, the analysis is restricted to French-listed firms, which may limit the generalisability of the findings to other institutional contexts. Second, the relatively small sample size may reduce statistical power and affect the robustness of some results. Third, ESG data is sourced exclusively from Refinitiv, and given the well-documented divergence across ESG rating providers, the findings may reflect provider specific methodologies (Gibson et al., 2019; Drempetic et al., 2020; Gibson et al., 2021; Berg et al., 2022). Additionally, the study focuses on a single time period without accounting for structural breaks or crisis dynamics, potentially overlooking how ESG performance behaves under different market conditions.

A further limitation concerns portfolio size and concentration. With approximately 23 firms per portfolio, equal-weighted returns are particularly sensitive to individual firm performance and to outliers, as evidenced by the wide range of annualized returns in the sample (−95.74% to 162.47%). More broadly, portfolio returns may be more sensitive to firm-specific shocks than in studies based on substantially larger stock universes, and the results should therefore be interpreted as evidence from a relatively concentrated market setting rather than as estimates of a fully diversified ESG premium. Value-weighted specifications partly mitigate these concerns by down-weighting smaller firms that tend to drive extreme observations, and should be considered the more robust set of results.

Future research could address these limitations in several ways. First, cross-country studies covering different institutional and regulatory environments would help assess the external validity of the findings. Second, larger samples and longer time horizons could improve statistical power and allow for a more comprehensive assessment of ESG-return dynamics. Third, using multiple ESG data providers or composite ESG measures could mitigate potential single-provider biases and assess the robustness of the results to alternative rating methodologies. Fourth, future studies could explore time-varying effects through sub-period analyses, crisis-based tests, or regime-switching frameworks to examine whether ESG performance behaves differently across market conditions. Finally, given the sensitivity of equal-weighted portfolios to extreme observations, future research could employ robust portfolio construction methods, alternative weighting schemes, or outlier-adjustment techniques to assess the stability of the reported results.

Moreover, given the limited explanatory power of traditional asset pricing models, further work could explore alternative modelling approaches, such as behavioural finance frameworks, downside-risk models, or machine learning techniques, to better capture the complex relationship between ESG performance and financial outcomes.

Overall, this study provides evidence that ESG performance is not uniformly associated with superior stock returns and highlights the importance of distinguishing between ESG components. The findings suggest that while ESG integration may offer long-term strategic or reputational benefits, its financial implications remain context-dependent and not fully reflected in current market pricing.

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