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ESG Investing and Investor Behavior

A Literature Review on Financial Performance and Behavioral Decision-Making

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TIIVISTELMÄ:
ESG sijoittaminen on kasvattanut suosiotaan valtavirtaiseksi sijoitusstrategiaksi, vaikka sen tuottavuus verrattuna perinteisiin rajoittamattomiin sijoitusportfolioihin on vielä epävarmaa ja sitä ohjaavat psykologiset ajurit osin kyseenalaisia. Tämän kandidaatintutkielman tarkoituksena on tarkastella ESG pohjaisen sijoitusportfolion tuottavuutta sekä kestävän sijoittamisen käyttäytymismalleja. Tutkielma selittää ESG sijoittamista erilaisten käyttäytymis- ja hyötymallien avulla sekä tuottavuutta perinteisten rahoitusteorioiden näkökulmasta.

Tutkielma toteutetaan ajankohtaisena kirjallisuuskatsauksena, joka kokoaa teoreettista ja empiiristä tutkimusta muun muassa modernista portfolioteoriasta, ESG-efficient frontier-mallista, sidosryhmäteoriasta, behavioraalisesta portfolioteoriasta sekä prospektiteoriasta. Tarkastelua tehdään kahden hypoteesin avulla: ESG-portfoliot eivät tuota yhtä hyvin, kuin normaalit rajoittamattomat portfoliot, ja sijoittajat eivät ole riittävän informoituja ESG-sijoituksistaan.

Nykyisen tutkimuskirjallisuuden perusteella ESG-portfoliot eivät keskimäärin tuota enemmän perinteisiin portfolioihin verrattuna, vaan tuotto on usein suhteessa neutraalia tai hieman heikompaa, erityisesti normaalin markkinatilanteen aikana. Kriisiaikoina ESG-yritykset kuitenkin vaikuttavat kestävän markkinashokkeja paremmin. Useat tutkimukset lisäksi osoittavat, että ESG-tietoisuus on puutteellista ja että sijoituspäätökset nojaavat usein yksinkertaistettuihin luokituksiin sekä käsityksiin sijoitusten oletetusta vaikuttavuudesta. Sijoittajat vaikuttavat myös olevan alttiita psykologisille vinoumille ja greenwashing-ilmiölle. Molemmat hypoteesit saivat näin ollen kirjallisuuden valossa tukea ja tutkielma korostaa ESG-tiedon parantamisen tarvetta sekä sijoittajien ESG-tietoisuuden kehittämistä.

KEYWORDS: Environmental, social, & governance factors, Sustainable investing, Ethical investing, Financial performance, Portfolio performance, Behavioral economics

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1 Introduction

Environmental, social and governance factors (ESG) have gained significant weight and interest among all kinds of investors. Stakeholders are not just growing more concerned about the working practices of companies, but also the image that gets projected to other investors and the consumer, affecting their returns at the same time. Growing concerns over climate change, social responsibility, human rights and corporate governance have led to an increased demand for investment opportunities that align with sustainability and ESG principles. It is an increasingly important question whether ESG investing is primarily driven by concerns over these issues or financial returns and how taking these considerations into account impacts financial returns. This thesis explores these questions utilizing financial and behavioral finance theories to investigate investor decision-making and the impact of this on portfolio performance.

ESG is a part of Socially Responsible Investing (SRI), for which the biggest backer is PRI or Principles for Responsible Investment. PRI is a United Nations organization started in 2005 to gather investor signatories to uphold sustainable investment principles and ESG-reporting. PRI has been a significant organization in pushing the global adoption of ESG principles. Since its launch in 2005, PRI has grown to include over 5000 institutional signatories representing more than half of the world's assets under management (PRI, 2024). This exponential growth signals not just increased institutional commitment, but a systematic shift toward integrating ESG reporting and considerations into mainstream investing.

As PRI gathers more signatories, the ripple effect reaches the retail investing market. Retail investors looking at institutional investors as a benchmark see the global adoption of ESG as a validation that it is a credible, performance-aligned strategy, not merely an ethical practice. This is one of many ways that ESG considerations indirectly affect investor behavior and can be attributed to herd behavior.

The demand for sustainability data and legislation like the Non-Financial Reporting Directive (NFRD) introduced by the European Commission in 2014 have broadened ESG reporting and made it compulsory for many large companies operating in the EU (Dinh & Thi, 2025). According to Dinh and Thi (2025), such regulations have elevated ESG disclosures from optional corporate social responsibility initiatives to mandatory reporting standards, positioning ESG as both a business tool and a financial risk factor. The standardization and transparency of these policies have pushed companies to incorporate ESG more deeply into their risk management and business strategies.

At the same time, ethical concerns and a global sustainability shift have moved many companies' goal posts towards long term value creation instead of short-term profitability (Zumente & Bistrova, 2021). According to the Zumente and Bistrova article, a higher ESG rating is linked to greater long-term shareholder value creation. Companies are realizing how ESG interests their investors and how investing in improving these factors is better for their long-term performance and image. Consumers are demanding more sustainability and companies are seeing the value in responding to this growing trend.

Investing with ESG as a priority has, however, some problems. Currently a major problem for investors looking for reliable sustainability data and comparing that data between companies is that ESG information reporting requirements are lacking precision (Dinh & Thi, 2025). According to Dinh and Thi (2025), the data is often not reliable enough or easily comparable between companies. The lack of standardization has companies and industries uninformed on how to report the data and how it should be published. Rating agencies use different emphases and there may be disagreements on positive and negative impacts. These and other factors such as when the analysis was done cause discrepancies between ratings and create an environment where ESG factors may be perceived as skewed by the investor relying on the rating system.

There is also the question of financial performance of portfolios prioritized by ESG. Beatrice and Costanza (2024) argue that ESG-investing can lead to higher long-term profitability based on the idea that ESG portfolios tend to include companies with strong Corporate Social Responsibility (CSR) practices. Firms that have higher ESG ratings are often better managed, more transparent and less exposed to environmental or social risks. Over time, these strengths should translate into better operational efficiency, stronger reputation and increased trust, all of which can positively impact financial performance. However, these positive effects take a longer time to materialize. This is why ESG investing is more aligned with long-term value creation instead of short-term profitability, where it can underperform.

On the other hand, ESG investing may lead to lower profitability due to restricted diversification, according to Beatrice and Costanza (2024). ESG screening criteria often exclude certain sectors, which may be profitable, but do not meet ESG standards. As a result, ESG portfolios may miss out on high-return opportunities. Lower diversification might lead to worse optimization of risk and return according to portfolio theory.

In addition to traditional finance analysis, behavioral finance offers important insights into ESG investing. Investor behavior might not always be purely rational or motivated by returns. ESG investing is suggested to be mainly a psychological phenomenon where the focus of investing is on the source of returns and the total yield (Shefrin, 2024), versus as it is in traditional investing where maximizing total yield is the goal. The judgement of investors on these factors may also be affected by bias, as perceived impact and caring about the source alters asset pricing, risk, diversification and other elements. Theories can be altered and accommodated to consider these new factors.

Examining the financial performance of ESG investments can provide valuable insights into investor behavior. Researchers Dinh and Thi (2025) explain that, if ESG-aligned portfolios consistently underperform compared to traditional investments, it may suggest that investors are either ill-informed about expected returns or are motivated

by non-financial values such as ethical alignment or social impact. Additionally, the widespread adoption of ESG frameworks, driven in part by legislative mandates and institutional endorsement, can influence retail investor behavior through mechanisms like herd behavior and perceived legitimacy. Validation through herd behavior rather than individual analysis combined with the lack of standardized ESG reporting may lead to a situation where the investor relies on simplified rating heuristics, despite inconsistencies between agencies. These behavioral patterns alter how investors assess risk, value diversification and interpret performance, calling for a more nuanced approach to financial theory that integrates both traditional, rational and psychological drivers in ESG investing.

The aim of this literature review is to look at the available research and literature to determine how ESG investing performs financially opposed to traditional portfolios that do not limit their investments and how ESG investing affects investor behavior through the aforementioned factors. One of the main questions for this review is whether investors are ready to accept lower yield if their investment is sustainably aimed and/or has a positive impact? Another question is whether investors are informed enough of their sustainable investments?

The research hypotheses for this review are:

H1: ESG portfolios do not perform financially as well as their traditional counterparts.

H2: Investors are not well enough informed about their ESG investments.

During the writing of this thesis, artificial intelligence (ChatGPT 5.2) was used as a supportive tool to assist with structure, searching for potentially relevant academic literature and proofreading. All sources were verified and reviewed by the author and all interpretations, analyses and conclusions presented in the thesis are the author's own.

2 Theory

2.1 Modern Portfolio Theory (MPT) and ESG

Modern Portfolio Theory developed by Markowitz (1952) provides a framework for making optimal investment portfolios by utilizing the trade-off between risk and return. The theory assumes rational investors seeking to maximize return for a given level of risk through market efficiency and diversification of stocks and other investment options. The recognized limitations of MPT include the assumption that markets have no transaction costs, have unconstrained liquidity, always have risk-free investment options and that investors in the market always act in their own best interests.

Modern portfolio theory focuses on only the financial aspects of the investment, with a specified risk, portfolio managers should be rewarded with corresponding returns. This means that portfolios should be optimized to reward the best returns for the lowest risk. This follows that no sustainability factors should be considered, unless they lower risk or reward the risk taken in an appropriate amount. As a growing trend, a catalyst for greener companies and possibly a tool against future climate shocks, the use of ESG should possibly be considered as a positive factor in portfolio management, even if risk-reward tuning is not optimal (Cornell, 2020).

ESG investing also introduces practical limitations to MPT's application as explained by Verheyden et al. (2016). In compliance with modern portfolio theory, an ESG screened portfolio is certainly less diverse than a conventional portfolio, since ESG screens the latter one. ESG investing could produce extra risk as the pool of available stocks is smaller. In addition, companies with similar ESG ratings tend to be more heavily correlated than conventional stocks, which limits diversification even more. At the same time, stocks with higher ESG scores display significantly lower specific risk. If this effect is potent enough, it could supersede the limited diversification of the ESG pool of stocks.

As mentioned before, MPT assumes that investors are rational, self-interested actors, who aim to maximize their risk-adjusted financial returns. This could possibly collide with ESG investing, as sustainability factors are considered more from an ethical standpoint. Many investors are ready to forgo a reduction in returns, if there are ethical considerations in place. Motivation for this lies in intrinsic factors such as personal values, societal benefits and extrinsic motivations like possible long-term returns and the mitigation of risk (Lalthanliana et al., 2024). While the mentioned extrinsic motivations go together with MPT, the intrinsic ones challenge their assumption, as they prioritize value alignment over return maximization to an extent (Lalthanliana et al., 2024).

However, recent additions to MPT have been developed to accommodate ESG preferences more formally. Pedersen et al. (2021) expanded the MPT model by introducing the ESG-efficient frontier, where investors can maximize utility by a combined function of Sharpe ratio and their ESG preferences. The function, ESG-efficient frontier, defines a Sharpe ratio ESG trade-off, giving investors an ability to determine the highest attainable Sharpe ratio for a given ESG score. Pedersen et al. (2021) also categorize investors into three groups based on their derived utility from ESG scores, with ESG-motivated investors (Type-M) choosing portfolios with higher ESG scores at the cost of reduced Sharpe ratios. They further propose a CAPM model with an integrated ESG aspect, making expected returns reflect traditional firm profit earning capacity and investor preference to ESG. In the model ESG scores highlight a trade-off between investor demand and expected returns. Empirical data from the study suggests that the financial cost of implementing ESG into the model is often modest, with doubling the portfolios ESG score only lowering Sharpe ratio 3% on average. Focusing on governance factors, the adjusted CAPM model can even enhance returns.

2.2 Stakeholder Theory

According to Edward Freeman, the popularizer of stakeholder theory in 1984, a stakeholder is “any group or individual who can affect or is affected by the achievement

of the organization's objective" (Harrison et al., 2015). Stakeholder theory itself examines the business's management of its stakeholders to achieve corporate performance objectives. Stakeholder theory considers present status, cause and effect in relationships, beliefs, systems and practices for stakeholder value creation. It takes into account all stakeholders, regardless of the amount of impact, with the same severity, promoting frequent stakeholder engagement for better overall performance of the company, while having positive results for all relevant actors. In their paper Talan et al. (2024) describe that problems may arise in the event of conflicting interests, for example yield maximization and sustainability goals. In line with stakeholder theory, companies should find a balance in the financial gains of investments and the ethical side of them. This is contradictory to conventional investment theories that promote financial gains for a specific group of investors and not to a wider array of beneficiaries.

Stakeholder theory provides a relevant framework for understanding ESG investing as seen in a paper by Wang (2024), with its emphasis on the considerations of all stakeholders in the company in implementing decisions for growth. This bodes well with ESG, as according to the recent progressions in the theory, a strong ESG performance provides the company with the opportunity to benefit from internal and external stakeholders. This results in benefits in the outside brand image and improves operational efficiency, which helps with sales quality and services. All these aspects provide a net positive to a company utilizing ESG.

As explained further by Wang (2024), when applied to corporate governance, stakeholder theory includes a wide spectrum of entities, that includes managers, consumers, investors and all groups connected to corporate management. Governments and businesses are taking stakeholder theory progressively into consideration in performance evaluation. The theory provides a paramount connection for examining ESG performance in corporate settings, within stakeholder theory, good ESG performance can be linked to higher corporate performance, which coincides with higher efficiency. The incentive to apply ESG in companies is also promoted by the

aforementioned image gain. In practice businesses are not only required to perform actions against their own carbon footprint, but also to incorporate climate change impacts to their operational strategies. ESG promotes exactly this kind of behavior. Investor behavior is increasingly affected by the favoring of ESG factors and the combatting of climate change. At the same time, management efficiency helps to drive optimal resource utilization, collaboration and employee motivation, providing higher operational efficiency. As stakeholder theory proclaims, considerations for all affected stakeholders in this way, such as employees, management and investors, combines into growth and performance.

Khamisu et al. (2023) show that in the context of ESG investing, investors themselves become influential stakeholders, capable of shaping corporate ESG strategies through pressure of demanding sustainability data. Firms are found adjusting disclosure practices and sustainability goals increasingly, because of grown investor pressure about ethical conduct. From the perspective of stakeholder theory, investor expectations are a key factor in ESG adoption. This dynamic highlights the bidirectional relationship between ESG adoption by businesses and investor behavior, ESG disclosures influence investor choices and these same choices, in turn, guide corporate strategy and performance. However, potential gains from ESG closures might motivate companies to overstate positive sustainable performance, hide negative ESG performance, stay quiet about information or undersell environmental outcomes caused by their practices. This greenwashing, caused by an attempt to respond to stakeholder pressure, could cause investors to act under incomplete or misleading information.

Stakeholder theory does not only emphasize ethical responsibility and inclusivity but also supposes the idea that stakeholder-oriented companies are better positioned to long-term survival and competitive advantage, as shown by Vurro et al. (2022). Benefits of stakeholder orientation include reduced managerial earnings manipulation and a positive influence on corporate development activities. Stakeholder-oriented firms' relationships with their stakeholders create value through the ability to understand and

predict changes in the competitive landscape. Knowledge gained from communication with stakeholders stimulates new perspectives and opportunities for exploration, making the firms more adaptive to difficult market conditions and conscious of innovation demands. Through resource-dependency theory stakeholders commit to closer relationships with firms that they grow mutual interests with. This phenomenon becomes more pronounced as a result of mutual alignment and common values, as happens with firms with high ESG ratings. These factors imply that ESG conscious firms are more likely to show better long-term survival rates.

2.3 Behavioral Finance Theory

Behavioral finance uses investor psychology as an explanation for financial decisions. It questions the assumed rationality of the investor in traditional financial theories, such as modern portfolio theory and proclaims that actual investors are influenced by their psychological biases (Kapoor & Prosad, 2017). Investment decisions affected by these biases might cause suboptimal decision-making and market anomalies (Kapoor & Prosad, 2017).

Several key cognitive biases are particularly relevant in the context of ESG investing. Statman (2018) lists and explains them followingly: first, confirmation bias, where investors seek out or give more weight to ESG information that aligns with their ethical values and investment narratives, while overlooking contradictory data. Unreliable ESG data may distort the investments' true sustainability, when unconsciously focusing on data that confirms their current beliefs, leading to mispricing or poor investment choices. Second, overconfidence bias can lead to misplaced trust in limited or selected data due to investors' overestimated abilities to understand ESG ratings and data. Third, framing ESG data in an overly positive or negative way can significantly influence investor perceptions, even if the underlying facts remain the same. Companies may present only partial ESG data or emphasize certain aspects, framing corporate sustainability incorrectly to the investor. Fourth, herding bias makes investors imitate the actions of others while making investment decisions. In the case of ESG investing, retail investors

look at prominent institutional investors for validity in their decision-making. Growing ESG involvement shapes institutional investment portfolios, causing a ripple down effect with ESG stocks (Tanu & Sujata, 2024). Finally mental accounting can make investors treat their ESG portfolio separately to a conventional portfolio, even if economically the result is the same (Thaler, 1999). Investors may be less inclined to liquidate losing assets in ESG accounts, because the ESG account is higher in hierarchy and the utility of sustainable investments is viewed higher (Thaler, 1999).

Jie et al. (2023) suggest in their article that ESG preferences affect institutional trading behavior, with socially responsible (SR) institutions focusing more on ESG scores and less on traditional mispricing signals. As a result of this, these institutions trade less responsively to financial signals compared to traditional institutions. They also suggest that stocks held more by SR institutions exhibit higher abnormal returns from mispricing signals, indicating less efficient pricing. This inefficiency likely stems from ESG focused investors ignoring fundamental signals, placing a higher importance on sustainability over other factors. They also find that the pattern between ESG ownership and these return patterns did not exist before 2004, suggesting the observed return patterns are a more recent phenomenon tied to the rising popularity of ESG investing. Furthermore, in times of low arbitrage activity, pricing distortions caused by ESG investing become more severe, amplifying the pricing effects of ESG preferences in investing. This impact on pricing based on a bias of non-financial preferences demonstrates that recent ESG portfolio performance may stem from demand-driven distortions and not improved financial fundamentals, indicating that returns may taper off as time goes on and ESG investing matures. This pattern reflects the key biases mentioned, confirmation and herding bias as investors overemphasize ESG beyond its intrinsic value in many cases, as portfolios no longer fully reflect fundamental information, leading to market inefficiencies.

In practice these biases manifest as psychological factors. Among the primary factors driving ESG investing are several key elements listed by Shefrin (2024). First, investors

exhibit non-monetary motivations, valuing environmental and ethical impacts of their investments beyond financial gains. Second, marketing of ESG products plays a critical role in creating a decision based on emotionally resonant messaging, instead of rational analysis. Third, opaque framing, meaning nontransparent, of ESG information, can create misinterpretations about the actual sustainability of company practices. Fourth, biased judgements may often distort investor expectations about financial yield and the actual sustainability impact of their portfolios. Lastly, sentiment driven asset pricing suggests that ESG-related stocks may become over- or undervalued as a result of these distortions of investor emotions and crowd behavior, such as herd behavior, rather than being priced by fundamental factors. These elements propagate the importance of considering behavioral finance in ESG analysis, as psychological factors are pronounced in ESG investing and investors.

In addition to biases, social identification has been identified as a significant driver of SRI by Bauer and Smeets (2015). Social identification refers to how individuals define themselves based on their belonging in certain social groups, shaped by same values, norms and perception of inclusion. Social inclusion is another aspect to explain how investors might accept lower returns on investment and hold lower return SRI funds. Research has shown that investors that exhibit higher social identification scores invest more in sustainable assets, implicating that investment aligned with SRI and ESG factors are notably influenced by social identification.

All these psychological factors affect how ESG assets are priced. Standard asset pricing models, like the CAPM, assume that investors are only concerned with the yield from the portfolio and that investment assets are not consumption goods. Eugene F. Fama and Kenneth R. French (2007) have introduced the idea that tastes for assets viewed as consumption goods affect asset prices. Models have been created to include taste factors into the pricing models and suggestions have been established that investors valuing an asset, such as ESG stock, are ready to forgo some of the profits for preferential alignment. Preferentiality to sustainability promotes sustainable stock investment, and

with investors forming beliefs expectations about future cash flows, discount rates and investor expectations, asset prices and investment decisions get affected (Luz et al., 2024).

Investor psychology in ESG investing causes direct consequences for financial markets and portfolio selection. Behavioral finance perspective can highlight how psychological factors influence ESG investment decisions, by explaining how investors do not always act in line with rational intent. Instead, investors may be driven by values, social identification, heuristics and biases. These behavioral elements not only influence individual portfolio performance but also have broader implications for financial markets. Non-traditional and non-rational investing may cause mispricing and market inefficiency. Behavioral finance is paramount in explaining ESG investing and understanding the adversarial relationship between financial performance and sustainable impact.

2.4 Behavioral Portfolio Theory

Behavioral portfolio theory (BPT) was developed by Shefrin and Statman (2000) on top of the mean variance theory of Markowitz (1952). In the theory, investors create layered pyramids out of their portfolios. The bottom layers are designed for downside protection, and the top layers provide upside potential. The uppermost layer being the most risk-seeking one and the lowest one the least risky. Behind this behavior is not the attitude toward risk, but the motivation for aspirations, diversification for optimal risk and return is not the goal, as it is in traditional theories. According to BPT, investors do not look at their portfolios as a whole, but rather separate layers that correspond to different aspirations or goals. For example, in the case of ESG, the bottom low-risk assets could act as the securement of funds, the second layer could act for values and sustainability aspirations, and the highest layer could have non-ESG stocks with higher risk and yield potential. This way of thinking is not consistent with modern portfolio theory that focuses on optimal risk-reward-ratio through diversification. In behavioral portfolio theory, full diversification would leave investors with too little chance of reaching the upside aspirations. The lowest layer for behavioral investors is aptly diversified for lower

risk, but the upper layer consists of lower diversification stocks with potential for aspirations.

While traditionally behavioral portfolio theories aspirations have been seen as financial, with the top level linked to riches and the bottom layer as a safety net against being poor. But in today's investment world with growing ESG and SRI adoption, aspirations can be seen as more diverse. Utility gained from ESG factors can be seen to fall under the preference function in BPT, which can in turn be seen as an aspiration for a layer in the possible portfolio (Poddar et al., 2024).

Anu (2019) explains that in behavioral portfolio theory, with the established layers, utility is derived not only from return and risk, but from meeting the different goals on different layers. Using this notion, combined with the prior listed psychological reasons for taking part in ESG investing, helps explain why investors might accept lower returns. The value is seen in the total utility of multiple objectives. A central implication in BPT is that investors with high aspirations act with higher risk tolerance, as they believe they have strong chances of reaching them. This makes them likelier to choose riskier portfolios to pursue the outcomes. By this logic, ESG investors might have overly confident trust in the performance of ESG stocks, even if the actual returns were lower.

Risk profiles are differently viewed by the investor according to Shefrin and Statman's Behavioral Portfolio Theory (2000). Attitude towards the risk varies across the portfolio layers. The downside protection layers risk is seen as a loss of security, and the top layers risk may be seen as a gamble worth taking for higher gains. In the case of ESG investing, a middle layer of values, the risk could be seen as values compromised, and because of this, financial risk might be better tolerated. This risk tolerance is seen differently between layers and their aspirations, because BPT allows investors to imagine their portfolio as a collection of sub-portfolios, where all things seem perfect for a specific mental account (Mittal et al., 2022).

Behavioral portfolio theory offers a better understanding of ESG investing than many other traditional portfolio theories i.e. MPT. By interpreting portfolios as partly psychological constructions with multiple layers and goals, BPT reframes ESG investing into a value adding component of investing, rather than a constraint.

2.5 Prospect Theory

Barberis (2013) explains that Prospect theory bases itself on four elements, first, reference dependence, second, loss aversion, third, diminishing sensitivity and fourth, probability weighting. Reference dependence in prospect theory means that people's derived utility from gains and losses needs a measured point of reference. People are more attuned to changes than to their actual magnitudes. The second point of loss aversion signifies the fact that people are way more sensitive to losses than gains of the same magnitude. Thirdly, diminishing sensitivity implies that people gravitate towards risk aversion over moderate probability gains, meaning that people do not treat gains and losses equally. When gaining, people are averse to risk and when losing, people become risk-seeking. The impact of gains and losses flattens out as amounts get higher. Lastly probability weighting asserts the notion that people do not weigh outcomes by their objective probability, but instead by transformed probabilities or decision weights. According to prospect theory, people tend to overweight small probabilities and underweight larger ones.

Many of prospect theory's elements can be applied to explain ESG investor behavior. Reference dependence, for example, can be attributed as an explaining factor in why ESG investors are ready to sacrifice potential investment yields as shown by Aulia et al. (2024). If the sustainable investment is below an investor's reference point, they will become more risk-seeking. Once it moves above the reference point, they become risk-averse, holding on to the stock even when reallocation would be optimal. Risk behavior according to prospect theory supports the idea that ESG investors are anchored to subjective benchmarks.

Serafeim and Yoon (2022) show that another example of reference dependence is ESG ratings, which can act as the reference marks. Even if ratings can be an unreliable source of actual corporate sustainability due to discrepancies between agencies, investors depend on them for information instead of doing independent analysis. This behavior can give way to market mispricing and unrealistic expectations of sustainability, being in accord with the occasionally irrational behavior described by prospect theory and behavioral finance.

Regarding ESG-related events, loss aversion is an explaining factor suggested in a study by Krüger (2015). When investors are presented with a negative event of corporate social responsibility, investors react in a strong negative way to negative CSR events and weakly negatively to positive CSR events. The weak negative reaction to positive events was linked to firms with agency problems and prior corporate irresponsibility. Investors exhibit clearly stronger reactions to ESG-related losses than to comparable gains or positive news.

3 Financial Performance of ESG

This literature review examines empirical and theoretical studies that explore the financial performance of ESG investments and the influence of ESG considerations on investor behavior. This section combines findings on ESG portfolio performance versus traditional portfolios, investigates the level of awareness that investors have in ESG-related investments, and evaluates the extent to which non-financial motivations shape portfolio decisions. The reviewed literature helps contextualize the research hypotheses and provides a foundation for evaluating the dual nature of ESG investing, meaning its performance outcomes and psychological appeal.

3.1 ESG and Financial Performance During Normal Times

The relationship between ESG and financial performance has been widely studied in the recent years, but results vary and remain mixed depending on the context of the study. Some studies exhibit a positive relationship between the two, while others result in neutral or even negative financial outcomes. In this section we will review empirical evidence from multiple studies to evaluate whether the ESG-aligned investments deliver different results from traditional portfolios during normal times.

Large meta-analyses have shown that ESG rarely harms performance, but results vary. Among the largest studies, a meta-analysis by Friede et al. (2015) combines findings from over 2000 empirical studies published over a 40-year period and found mostly positive or neutral outcomes regarding financial ESG performance. The overwhelming majority of their empirical evidence suggests that ESG does not reduce financial gains.

For specific asset classes, Friede et al. (2015) found that non-equity asset classes, such as bonds and real estate, exhibit much higher positive findings than in equities. ESG equities were also found to have a positive correlation with financial returns in comparison with traditional equity investments. In specific ESG categories the meta-analysis found primarily positive correlations for all classes, while also acknowledging

that more large-scale comparisons are needed for the subgroups. Out of the sub-effects, governance showed to have the most correlation with environment coming second and social third. All classes were overall found to have rather even correlations.

Overall Friede et al. (2015) show that the overall relationship between ESG and financial performance is predominantly positive or neutral, especially on a corporate firm level. Fund-level performance was found to be more neutral or mixed due to portfolio risks and implementation costs in mutual funds.

Alternative results have been found by Long et al. (2024) in their study, in which they look at a large sample of 45 international markets from January 2005 to December 2020 by building long-short ESG portfolios where they short bottom quantile ESG companies and go long on the top ESG quantile. ESG return dependence on economic conditions is tested using macroeconomic indicators and risks are controlled with Fama-French 6-factor, momentum models and other terms.

Long et al. (2024) find weak evidence of ESG investing outperforming in good times and average returns are found to be similar in good and bad times. Their formal tests signal no systematic evidence for better or worse ESG returns based on market timing, thus they conclude that the value of ESG based timing strategies could be limited. According to the authors ESG outperformance during specific market conditions could be due to specific samples or methodologies.

To explain why ESG assets should not be expected to outperform during normal times, a study by Pástor et al. (2021) develops a theoretical equilibrium asset pricing model to explore how ESG preferences affect asset prices and expected returns. They derive implications in terms of CAPM alphas to show how assets with positive externalities should gain lower returns than negative externalities ones. They argue that as investors are willing to pay more for green stocks due to the gained non-financial utility, they will consequently gain lower returns going forward. In an equilibrium state green stocks have

negative CAPM alphas and brown stocks (ones with negative externalities) have positive alphas to offset their undesirability and their climate risk. Pástor et al. (2021) find that green stocks outperform brown stocks temporarily when ESG preferences have an unexpected increase or when capital flows into ESG accelerate.

According to the study, assets with high ESG factors should not outperform conventional assets during market equilibrium but rather underperform due to lower CAPM alphas, with the rise in ESG returns being explained by unexpected increases in investor preferences for ESG matters and strong capital flows into green assets, implying the outperformance to likely be a temporary rather than a persistent feature of ESG investing.

Blitz and Fabozzi (2017) further support the findings of Pástor et al. (2021). Their study uses a broad global dataset over long-term horizons to compare sin stock portfolios (alcohol, tobacco, weapons, etc.) to conventional portfolios using Fama-French factors for control to test if sin stock returns persist after controlling for risk factors. Main findings from the study are that sin stocks show persistent positive returns, even after the risk adjustment. Contrary to the explanation of brown assets by Pástor et al. (2021), sin-stock premiums are not found to be explained by higher risk. Blitz and Fabozzi (2017) conclude that excluding sin-stocks hurts portfolio performance as long as sin stocks have positive exposures to Fama-French factors including profitability-, investment- and value factors, meaning for example that they have high operating profitability, conservative investment policies and they have lower valuations due to reduced demand. The decreased level of diversification by excluding sin stocks is also supported by Statman and Glushkov (2009). In their paper they also found sin stock exclusion to result in a disadvantage for SRI portfolios, because of the lower return rate of SRI stocks.

Another factor to consider is the previously stated inconsistency between ESG rating agencies. Halbritter and Dorfleitner (2015) use multiple ESG data providers (ASSET4, Bloomberg and KLD) to examine global equities over multiple years. They constructed

portfolios with various ESG ratings and screening approaches in their study and found no consistent evidence of ESG scores providing better risk-adjusted performance with any significant effects being ambiguous, unstable and dependent on the ESG rating agency. ESG factors' effects were seen to weaken over time, becoming less relevant in explaining performance over a longer period.

There seems to be no consistent evidence of ESG portfolios outperforming traditional portfolios during normal (non-crisis) market conditions. Most studies show neutral or mild underperformance with only a few reporting overperformance over conventional portfolios. ESG outperformance seems to be temporary with Pástor et al. (2021) arguing ESG premiums to be driven by performance shocks and capital inflows, not fundamental factors. In a market equilibrium green stocks exhibit lower expected returns due to investor willingness toward alternative utility premiums. Factor based studies (Blitz & Fabozzi, 2017; Statman & Glushkov, 2009) show that ESG exclusions can remove exposure to profitable factors, limiting diversification and lowering expected returns. Further, the inconsistency in ESG ratings (Halbritter & Dorfleitner, 2015) weakens the reliability of studies finding outperformance and relying on a single ESG database. Overall, most of the literature does not provide evidence that ESG portfolios would overperform conventional ones in normal market conditions, rather signs of mild underperformance have been detected. These findings seem to be consistent with MPT, which suggests that exclusions reduce diversification and should therefore lower the risk-adjusted returns. Under the ESG-efficient frontier framework, investors who derive utility from sustainability allocate resources toward a more ESG-weighted portfolio, even at the cost of reduced Sharpe ratio. Thus, ESG screening shifts portfolios away from the traditional efficient frontier, making mild underperformance in normal markets theoretically expected.

However, the dynamics may change under uncertainty and market stress, which is what is explored in the next section.

3.2 ESG and Financial Performance During Crisis Times

Several studies show that ESG investments perform especially well during market stress events. This has often been attributed to ESG firms being perceived as more responsible, well managed and better prepared for future shocks. One obvious point being that ESG conscious firms reduce exposure to transitional- and reputational risks. Due to this, ESG could be seen as a stress mitigator for companies and investors.

Nofsinger and Varma (2014) examine ESG mutual funds across multiple crises, such as the 2008 financial crisis and the early 2000s recession. They claim that as much of the literature sees investors paying a cost for limiting their investments to SRI ones, this cost is offset by SRI companies being less risky during tumultuous market events. They also reflect the situation with Prospect theory, saying that as people are more negatively impacted by losses than by gains, a less risky SRI investment could be more attractive to investors.

Nofsinger and Varma (2014) find in their study that overall return alphas are mostly indifferent between conventional and SRI funds. However, this changes when the funds are analyzed during normal- and crisis periods. They find that conventional funds outperform SRI funds by a small margin during non-crisis times. But when viewed during crisis times, SRI funds perform significantly better than conventional alternatives. This finding would support the importance of ESG investment options and speak to their place as an investment alternative, not purely from an ethical stand, but from a rational financial point of view. The authors recognize that the SRI companies in the portfolio differ characteristically to the conventional ones, in that they are on average younger, smaller firms with higher profitability and lower return volatility. Even after addressing this difference, the authors confirm that SRI attributes cause the outperformance during crisis periods. This sets the ESG funds to act as defensive assets during market fallout.

In their paper Nofsinger and Varma (2014) attribute the risk performance of ESG firms to lower downside risk. This means that the companies are not as likely to face large

negative events relating to ESG matters, such as pollution events or employee lawsuits. Investors also seem to become more sensitive to corporate misconduct during worse economic times, meaning more emphasis to downside risks during these times. Other contributing factors cited in the paper are lower systematic risk for ESG firms due to ESG components being weakly negatively associated with this type of risk, negative screenings used in ESG funds avoid stocks that are likely to cause impactful negative news regarding ESG topics, good governance attributed to ESG firms cause less agency and other governance related issues and the positive screening used by ESG funds promotes firms with resilience.

The benefits of ESG investments identified by Nofsinger and Varma (2014) have been observed in later crises as well. More recent evidence from the COVID-19 pandemic shows a similar pattern, where firms more highly aligned with ESG demonstrated better resilience to severe market distress. Albuquerque et al. (2020) analyze global equity performance during the market collapse caused by the pandemic and found that firms with high ESG scores experienced significantly smaller impacts on their stock prices and had faster recoveries than their conventional counterparts.

In their paper Albuquerque et al. (2020) analyze U.S stock market data through the first quarter of 2020 to find out how especially environmental (E) and sustainability (S) qualities in ESG affected stock price properties. They used firm-level ESG scores from multiple providers to see how ESG differently ranked companies reacted to the unstable beginning of the pandemic. Specifically, ESG's effects were viewed from cumulative stock prices, volatility, systematic risk exposure and speed of recovery point of view.

The study found that firms with higher ES scores maintained significantly higher stock prices during sharp market falls and experienced lower volatility. They also found that ESG companies' stock prices recovered faster on the rebound, had lower downside beta and higher risk-adjusted returns than conventional companies during the crisis period. Customer loyalty was found to improve profit margins even as sales worsened and

improving loyalty of consumers and investors are declared the reason for ESG firms' resilience. As the study explained the phenomenon mainly through the customer loyalty aspect and they had controls in place for the regression models, they also acknowledge the fact that other mechanisms could be affecting the resilience of high ES firms.

Another study confirmed the findings that Albuquerque et al. (2020) claimed in their article. Ding et al. (2021) perform a comparable study evaluating corporate characteristics with stock price changes during the first 5 months of the COVID-19 pandemic. They use a broad set of global companies to analyze stock price reactions to specific pre-pandemic traits companies had, with one of them being CSR activities and another corporate governance systems. They provide further evidence of the resilience claims of ESG firms from before with their findings that companies which had higher levels of CSR activities pre-pandemic exhibited pronounced stock price performance during the early pandemic. They claim the qualities of CSR enhancing loyalty and bonds with stakeholders, which supports companies in times of distress. This finding coincides with the concept of customer loyalty described by Albuquerque et al. (2020).

Both studies by Ding et al. (2021) and Albuquerque et al. (2020) consider the COVID-19 pandemic as the window of analysis for company performance during crisis events, but both studies also argue to be representative of general crisis times. With Nofsinger and Varma (2014) finding similar results in their study with a different period tackled, this seems likely. Overall, explaining factors for consistency across crises seem to be structural advantages that remain stable over time. These advantages look to be stronger stakeholder relationships, better governance, lower downside risk and less exposure to litigation and regulatory backlash. According to previous analysis, higher investor trust seems to lead to better operational health. This pattern is consistent with Stakeholder theory, as companies with better stakeholder relationships and good governance may be more resilient during crisis events, which shows up as high ESG firms having better performance in stress periods.

However, despite the consistent pattern across crises, there is conflicting evidence to ESG providing better downside protection. Demers et al. (2021) look at whether ESG worked as a resilience factor during the 2020 pandemic or if the overall quality of the company, such as good company financials and innovative assets, are the explanatory variables for company risk tolerance, misattributed to ESG factors.

Demers et al. (2021) reason in their study that once controlling for firm fundamentals, for example firm profitability, leverage and size, the perceived ESG effect disappears. Mistakenly the resilience effect is attributed to ESG factors, because the companies high in ESG implementation tend to already be large, profitable and stable companies, thus performing better in crises. According to Demers et al. (2021) the outperformance during COVID-19 would have then been mistakenly accredited to ESG when in fact firms high in fundamental quality factors overlap with high ESG score ones.

The difference in outcomes could be due to methodological differences in conducting the studies. All the studies utilized different ESG databases, and as ESG scores have been admitted to being inconsistent between rating agencies, this could be an explaining factor in contradicting outcomes. With companies having inconsistent ESG scores between them, results on performance will also diverge. The researchers also used different controls to isolate the ESG effect, making the studies' results differ more. Two out of three of the studies covered also included just the COVID-19 as the crisis of choice, which could turn out to be more unique of an event with Nofsinger and Varma (2014) finding a positive result from a broader screen of cases.

4 ESG Awareness and Investor Behavior

While the previous sections focused on financial performance of ESG portfolios, another important question is how well-informed investors are about the ESG products they invest in and which psychological factors are at play when making investment decisions. A growing amount of research shows that ESG investing is often shaped through perceptions, ethical preferences and behavioral biases rather than hard numbers relied on in traditional financial theories. Despite the rapid expansion of ESG products, many investors misinterpret ESG scores, financial performance, rely on inconsistent rating systems and exhibit investment behavior that influences portfolio choices past rational risk-return considerations. This section will review evidence on investor awareness, misinterpretations and behavioral factors of ESG to evaluate whether investors make rational decisions regarding ESG investments.

4.1 Investors' Knowledge of ESG

With ESG rising in popularity, an important question is whether investors have adequate knowledge about ESG investments to make rational decisions about them. Anderson and Robinson (2022) provide evidence that investor understanding and engagement are central obstacles to ESG investing, in their large survey of Swedish households. Although many households wish to make green investment decisions, they lack the financial literacy to express their views in their portfolios. Lack of financial literacy is connected to reduced stock ownership, less pension monitoring and a higher likelihood to choose "green-sounding" funds rather than verified ESG-compliant products. The results of this study suggest that ESG investing is not restricted by lack of preference, but by knowledge and information barriers. Investors may align themselves with green values, but insufficient financial literacy prevents them from engaging in verified ESG associated financial assets.

Although Amel-Zadeh and Serafeim (2018) investigate why investors use ESG information, the results from their survey study reveal major knowledge and

interpretation challenges. Investors report the lack of reporting standards, low comparability across firms and difficulty in quantifying ESG metrics as being primary barriers for integration. The limitations noted in the study reinforce the knowledge gaps investors might have about ESG investing; even if investors want to use ESG data, determining credibility and interpreting the data might still prove challenging. In practice, an investor holding an ESG asset might not understand the rating provided to the asset, how it is calculated or how it compares to other assets.

Christensen et al. (2022) show that ESG rating agencies have disagreements when it comes to individual firms and that these disagreements worsen with increased ESG disclosures, as analysts interpret more data differently, due to the lack of standardization. Most of the disagreements arise from environmental and social aspects, rather than governance ones. These findings further support the argument that investors face substantial information barriers: even when the ESG data is available, the ratings they rely on may reflect fundamentally different interpretations, making it difficult to evaluate ESG performance reliably.

Such informational gaps lead to behavioral consequences illustrated by Hartzmark and Sussman (2019), who examine the introduction of Morningstar sustainability ratings to mutual funds, giving investors an easy way to value mutual fund sustainability for the first time. The study looks at cash flows directed to differently rated funds, to see how investors react to simple sustainability ratings. Their findings show that investors respond to simpler information, even when presented with more detailed information. Extreme-ranked categories also overshadow more normal categories, gaining more attraction from investors, making category creation a major influence on flows to funds. Investors were also reported to have strong beliefs that better rated funds provided higher returns, even if the claim presents no evidence and the opposite is found true. Investors appeared to overall attach non-financial positive attributes to investments, making feelings a basis for higher return expectations and lower risk. Additionally, investors seemed to consider simple sustainability ratings as specific to either

environmental or social factors, without giving further thought as to how the rating was actually formed, even when given access to the information. This reveals that misunderstandings toward sustainability metrics are not merely theoretical, but observable in actual market behavior, further supporting the argument that ESG decisions may not be made on fully informed grounds.

Taken together, the evidence suggests that interest in ESG-labelled investment products is high, but investment decisions are often made with incomplete information, limited financial literacy and reliance on simplified sustainability ratings and signals. This supports hypothesis H2, indicating that investors are not adequately informed about ESG investment products. These findings reflect mechanisms found in behavioral finance such as framing, limited attention and overconfidence in set labels, rather than fully processing available detailed ESG data.

4.2 Misinterpretation, Greenwashing and ESG Label Reliance

A major concern with ESG investing is that perceived sustainability does not always reflect actual sustainability, making the investor's decision reliant on labels rather than substance. This leaves the investor vulnerable to misinterpretation, over-reliance on ESG ratings and greenwashing from companies.

Label-reliant decision-making becomes a visible issue when examining whether ESG funds are truly sustainable in practice. Abouarab et al. (2024) use a large dataset of over 1500 environmental funds across multiple markets to analyze fund disclosures to actual portfolio composition. The study uses carbon intensity, fossil fuel exposure and sector weight differences to evaluate company greenwashing, comparing ESG funds to non-ESG funds using similar characteristics. Findings in the study show that many funds that market themselves as environmental do not hold portfolios that are significantly greener than conventional funds. Funds with low flows, fees and higher carbon emissions make more sustainability claims to secure more funding from investors. Sustainability exaggeration is a strategy used by funds to find short-term success and leads to obvious

greenwashing problems. Label-marketing makes non-ESG funds resemble genuine ones, creating an appearance of sustainability without environmental impact. Investors are encouraged to trust labels, but disclosure complexity makes them unable to verify claims of sustainability. This makes capital flow more because of marketing rather than actual impact.

While greenwashing can occur at the fund level, similar problems are found at the company level, where ESG ratings also misrepresent actual sustainability performance. Kathan et al. (2025) investigate how ESG rating links with greenwashing risk for STOXX Europe 600 companies. They find that firms with high ESG scores tend to be more involved in greenwashing accusations and cases. High scores were positively associated with reported sustainability, but negatively linked to actual performance, meaning that firms score well for what they announce, but not what actually happens. This connects with the findings of Abouarab et al. (2024) and implies a major risk for investors: higher ESG scores appear to indicate lower sustainability risk, when the opposite can be true. Ratings reward companies from giving disclosures and goal-statements more than actual reductions in emissions, making ESG more driven by perceptions than impact.

Further evidence of ESG misinterpretation comes from Berg et al. (2022), who document substantial inconsistency between the largest ESG rating providers. The study finds that ESG ratings differ significantly between rating agencies, the same company can be rated high by one and low by another rater. The amount of ESG score divergence also grows the more disclosure is given. The explanatory factor given for this in the study is that more ESG disclosure gives room for more subjective interpretation, as analysts use different weighting schemes, variation in scope and measurement methods. The study also finds a “rater effect”, where scores follow suit across rated categories, meaning that a high score in one category likely results in high scores in other categories for that company as well. The found effects and results create even more confusion for investors trying to rely on ESG labels as reliable signals.

Altogether, the evidence suggests that ESG labels and ratings do not necessarily reflect actual sustainability performance and that investors may lack the tools to accurately differentiate actual ESG implementation from strategic marketing and greenwashing. This leads to decision-making to rely on simplified signals rather than fundamental factors. Here an obvious link is found to behavioral finance theory, where heuristics, limited attention, framing and belief-driven expectations guide investor choices more than rational thinking and reliable data. Simplified signals, such as ESG ratings, become a shortcut for investors, leading to portfolios being created out of a perception of sustainability and not verified impact. These findings indicate that ESG investing might not always be based on rationality, but rather on imperfect information and mental shortcuts and that these factors play a major role in capital allocation in ESG markets.

4.3 Behavioral Finance of ESG Investors

Investor knowledge of ESG matters seems to be lacking, as analyzed in the previous section. In this section, however, we will inspect how investors react to the problems found in sustainable investing and how their behavior can be explained through the lens of behavioral finance.

One explanation for non-rational behavior found in ESG investing comes from Riedl and Smeets (2017), who find that investors hold sustainable funds majorly due to intrinsic social preferences. Sustainably inclined investors expect SRI fund returns to be less than conventional alternatives, yet accept the lower performance and higher fees, meaning their choices do not reflect rational return-maximization. Instead, investors derive utility from social preference and ethical alignment – consistent with non-financial utility models in behavioral finance. Social signaling seems to also play a role, although less significant. Investors who talk about their investments more frequently are significantly more likely to hold ESG aligned funds, indicating that part of the utility is drawn from social signaling and identification.

Unlike a rational investor who reallocates their funds purely based on performance, ESG investors show stickiness and positive-return chasing behavior. Bollen (2007) exhibits in his study that SR investors have lower volatility of investment flows and respond more to positive returns than conventional investors. Together with Riedl and Smeets (2017) this suggests SR investors derive utility when exposed to sustainability factors, further reinforcing alternative utility models, where preferential alignment contributes to overall gained investor satisfaction.

Investors also seem to misperceive the impact of their investment choices. Berk and van Binsbergen (2025) show that divestment strategies often utilized in ESG investing, such as excluding non-sustainable firms or employing long-short ESG portfolios, have almost no meaningful impact on targeted firms' cost of capital. The estimated effect is often too small to alter corporate investment decisions or behavior, yet many ESG investors believe that negative screening and divestment create a substantial positive impact. Berk and Binsbergen (2025) argue that a better way to gain impact is to move from the secondary markets to the primary ones, as secondary markets do not change the amount of firm funding, making them less influential on real-world outcomes. In the primary markets, which provide direct firm funding, investors could engage with the company rather than avoid it, enabling them to exercise control to have a real impact on company policy, concluding that active ownership and control rights are the key mechanism for achieving impact.

Although divestment has limited impact on firms' financing conditions, many sustainability-inclined investors continue to see it as an effective strategy. From a behavioral perspective, investors may rely on framing and heuristics to interpret negative screening as inherently impactful, even though most traded capital circulates within the secondary markets and does not reach the firm. Confirmation bias and non-financial utility models further support these beliefs, as divestment aligns with investors' ethical identities and provides psychological or social utility. Combined with limited

financial literacy, these factors lead to a situation where investors believe they are achieving real-world impact without doing so.

The patterns observed in section 4.1 in the study from Hartzmark and Sussman (2019) align strongly with confirmation bias and framing effects described by Statman (2018). Investors react to the simple label sustainability score rather than detailed performance metrics, treating the ESG rating as a mental shortcut in decision-making. This supports the findings made in section 4.2 about misinterpretation and greenwashing, indicating that investors rely often on what ESG is framed as, not what it actually is. A similar behavioral pattern appears in investors' perceptions of divestment, which is often viewed as an effective ESG strategy, despite evidence from Berk and van Binsbergen (2025) that divestment strategies have almost no meaningful influence on firms' financing conditions or behavior. The behavioral mechanisms exhibited here are further reflected in Riedl and Smeets (2017), who show that ESG investors accept lower returns due to gains in intrinsic satisfaction and in the study by Bollen (2007), who finds positive-return chasing behavior when the ESG investment is performing well, but stickiness even when the investment is doing poorly. These results are consistent with behavioral finance theory, where ESG investments act as a values-based aspiration-layer (Shefrin & Statman, 2000; Poddar et al., 2024), and with prospect theory, which suggests that investors may display loss aversion and certain risk behaviors when dealing with ESG investments (Barberis, 2013; Aulia et al., 2024). Altogether, this suggests that ESG investing is to a significant extent driven by psychological utility, identity signaling and decision-making heuristics, rather than conventional risk-return optimization.

4.4 Theory, Empirical Findings and Hypotheses

The findings discussed in the reviewed literature show that ESG investing cannot be purely explained by a single theory alone. Instead, the patterns described in the empirical findings link to a combination of financial and behavioral mechanics. When viewed from the lens of Modern Portfolio Theory, ESG screens limit the investable universe, resulting in a less efficient frontier. This coincides with the reviewed evidence,

as most of it expresses ESG portfolios to have neutral or slightly lower performance than conventional portfolios during normal market times. Even with the higher likelihood of lower returns, ESG investments' popularity can be explained by the ESG-efficient frontier model (Pedersen et al., 2021), where investors trade financial performance for alternative utility gained from investing in ESG. Viewed from this perspective, ESG underperformance is not a failure of strategy, but a predictable result of lower diversification and investor preference trade-offs.

In contrast crisis-period performance aligns better with Stakeholder theory, which argues that firms with stronger stakeholder relationships are more adaptable to change, which could be connected to why these firms are found to be more resilient during market destabilization. Studies observing COVID-19 and other crises show that firms more connected to ESG factors experienced smaller drawdowns and faster recovery, suggesting that stakeholder trust, improved governance and lower reputational risk can be used as a buffer against financial stress. However, conflicting evidence argues that ESG resilience might be attributed to pre-existing firm quality rather than sustainability factors, leaving open the question whether ESG causes resilience or correlates with it.

Altogether, the evidence demonstrates that ESG performance outcomes and investor behavior deviate from purely rational return maximization. The evident willingness of investors to accept potentially lower returns, employ sustainability strategies with limited real-world impact, rely on simplified ESG scores and stick to their sustainable investments despite uncertainty indicates that these investment choices are strongly influenced by psychological utility, identity signaling and heuristic decision-making rather than conventional finance optimization. Linking the theory to empirical evidence creates a strong foundation to examine the hypotheses of this thesis, showing that ESG portfolios might not consistently outperform conventional portfolios, and that investor decision-making is often guided by imperfect information and behavioral mechanisms rather than fully rational and informed analysis.

5 Conclusion

This thesis examined whether ESG-aligned portfolios deliver comparable returns to conventional portfolios and to what extent investor decision-making is based on informed analysis rather than behavioral factors. The theoretical and empirical analysis carried out suggests that ESG investing is shaped by both traditional risk-return trade-offs and psychological motivations, leading to the finding that investor behavior cannot simply be explained by conventional financial theories.

Regarding financial performance, no consistent overperformance of ESG portfolios under normal market conditions was shown. While some studies report positive correlations between ESG and long-term return potential, the majority exhibit neutral to mildly negative results once certain factors and diversification limitations are accounted for. Studies such as Pástor et al. (2021), Blitz and Fabozzi (2017) and Halbritter and Dorfleitner (2015) demonstrate ESG screenings to limit the investable universe and reduce exposure to high-return industries, leading to possibly reduced expected alpha. This aligns with Modern Portfolio Theory and the ESG-efficient frontier model by Pedersen et al. (2021), which suggests that investors may accept lower Sharpe ratios in exchange for non-financial utility gained from investing aligned to their sustainability preferences. Thus, based on the reviewed literature, H1 is supported, ESG portfolios do not consistently overperform conventional alternatives and often underperform slightly in equilibrium settings.

However, these findings deviated during times of market turbulence. Studies covering the 2008 financial crisis and the COVID-19 pandemic (Nofsinger & Varma, 2014; Albuquerque et al., 2020; Ding et al., 2021) show that firms higher in ESG factors experience less drawdown risk, lower volatility and have faster recoveries than average firms during these abnormal market times. These findings correspond with Stakeholder theory, which suggests that companies with better governance, stakeholder relationships and more responsible operational structures may be more adaptable to market changes. Conflicting evidence by Demers et al. (2021) nevertheless argues that

this phenomenon could be explained rather by established firm fundamentals than ESG characteristics. Even so, the evidence suggests that ESG integration functions better as a stability factor than a return enhancing one.

A central topic of this thesis is that ESG investing is greatly influenced by behavioral factors and not just conventional rational evaluation. Several studies show that investors often rely on labels, simple ESG ratings and perceived sustainability instead of assessing detailed firm fundamentals. Misinterpretation, rating inconsistency and greenwashing further amplify biased portfolio decisions, that already are affected by framing effects, confirmation bias and herding behavior. The misinterpretation that divestment creates a meaningful sustainability impact (Berk & van Binsbergen, 2025) further illustrates how investor decisions are often based on perception rather than actual outcomes. Studies by Anderson and Robinson (2022), Hartzmark and Sussman (2019) and Riedl and Smeets (2017) show that many ESG investors lack ESG literacy and willingly accept lower returns due to value alignment, preference and gained alternative utility. Therefore, H2 is also supported by the reviewed evidence, as investors are not consistently well informed about ESG matters and this behavior is largely shaped by non-financial motivations.

Overall, this thesis finds that there seems to be a trade-off of dual utility in ESG investing, financial return and ethical value. ESG does not reliably outperform conventional portfolios in normal market conditions but may offer less volatility and protection in critical market events. At the same time, behavioral mechanisms and imperfect information play a substantial part in ESG investments, suggesting that sustainable investing is not entirely rooted in rational return maximization. These findings highlight a clear need for better standardization, more consistent rating systems and improved investor education regarding ESG, as better information would likely lead to more rationality-based portfolio construction.

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