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Nemo Halminen

The Impact of Behavioral Biases on Individual Investors' ESG Investing

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UNIVERSITY OF VAASA**The School of Accounting and Finance****Author:** Nemo Halminen**Topic of the Thesis:** The Impact of Behavioral Biases on Individual Investors' ESG Investing**Degree:** Bachelor of Science in Economics and Business Administration**Major Subject:** Finance**Supervisor:** Enamul Hasan**Year of Graduation:** 2025 **Pages:** 43

Abstract:

The purpose of this thesis is to examine the impact of behavioral biases on individual investors' environmental, social and governance (ESG) investing. Furthermore, the thesis seeks to identify some of the biases that occur in such investing and to find out if both herding and biases stemmed from an individual's beliefs and values impact ESG investments. These biases can cause investors to make irrational financial decisions. ESG investments, gaining a growing amount of attention and adding a non-financial aspect to investing, could be expected to include the aspect of irrationality. The non-rational behavior of investors' is depicted by behavioral finance. Therefore, it can be expected that some of the biases theorized by behavioral finance occur when individual investors invest in ESG labeled assets.

This subject is quite novel and doesn't have too much academic research on it. As ESG investing gains more and more attention from the investors, the factors leading to investments decisions are important to study. Better understanding of the impact of behavioral biases on the ESG investing of individual investors would provide crucial information of the topic. Existing literature seems to show signs of behavioral biases existing when individual investors invest in ESG assets.

KEYWORDS: ESG, individual investors, behavioral biases, behavioral finance, ESG investing, socially responsible investing

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1 Introduction

As sustainability in environmental, social and governance issues is a growing concern amongst us, it affects the financial markets and naturally reflects to the investment behavior of people (Renneboog et al., 2010). To align their investments with their values regarding these issues, people invest in a socially responsible way, which ESG investing is a crucial part of.

Environmental, social and governance (ESG) investing is a notable phenomenon amongst both institutional and individual investors. Also, capital invested in global assets managed with a sustainable manner has experienced significant growth. This surge in ESG investments can be explained with the growing demand of sustainability amongst consumers, which leads to them picking companies that produce high quality without compromising environmental, social and governance sustainability. Also, it has to be noticed that a more and more prevalent goal amongst investors, is to create positive social and environmental impacts. It is expected that this trend towards sustainable investments continues until 2030. (Foley et al., 2024).

Focusing on the individual investors, ESG-labeled products offer a more sustainable way of investing for those, who want to take environmental, social and governmental things in account. Being a relatively new topic or way of investing with a growing trend, it is important to acknowledge the reasons behind individual investors' ESG investing and to study whether behavioral biases have impact on it.

It has been noted that investors aren't always rational, and many irrationalities occur in decision-making when investing (Hirshleifer, 2001). Many of these biases and behavioral patterns that cause irrationality amongst investors, are studied in behavioral finance. As environmental, social and governance matters are significant to a myriad of people, it would be surprising if they didn't lead to irrational behavior caused by beliefs and biases regarding for example environmental affairs. Because of this it is essential to do research

on the behavioral patterns and biases that can be linked with ESG investing to form a better understanding of the reasons individual investors invest in a sustainable manner.

1.1 Purpose of the study

The purpose of this thesis is to review recent literature and to dig into the individual investors' behavior when investing into ESG products, hoping to point out the inclusion of some behavioral finance's theories regarding investors' biases. If such theories are recognized in the decision-making behavior, the goal is to point out the ones that effect the decision the most commonly. This leads to hypothesizing the following:

H1: Biases and behavioral patterns theorized by behavioral finance occur when individual investors invest in ESG.

Following this hypothesis, it is important to address why do these behavioral issues take place when individual investors invest in ESG assets. As ESG seems to be a more and more trending thing in the financial markets, the individual investors' eagerness to invest in this trend can have many reasons. Some may follow the lead of other investors while others possibly follow their values and opinions regarding sustainability and green impact of ESG assets, making that the main reason to invest in ESG. This leads to the integration of personal values into decision-making. Following this thought-process another hypothesis is formed:

H2: The biases that occur when individual investors invest in ESG exist because they herd among other investors in the financial markets and because of their own beliefs, values and feelings regarding ESG issues.

These hypotheses are formed leaning towards existing literature that has evidence of heuristics and biases being a part of ESG investing. Although, it must be noted that being quite a novel area of research, it doesn't have that many papers on it. This only points

out the importance of doing more research on the subject and adding papers on the subject.

1.2 Structure of the study

The first chapter introduces the motivation of the study and forms the hypotheses. The following chapters construct the theoretical background for the thesis by discussing relevant theories for the ESG dimensions, ESG investing and behavioral finance. The theory part focuses on the most notable factors that occur when individual investors invest into ESG products. The literature review is presented in chapter four and finally chapter five concludes the study and discusses the main findings.

2 ESG investing

As stated previously, investing in a socially responsible way is a growing phenomenon in the financial markets (Renneboog et al., 2010). Socially responsible investments consider environmental, social and/or ethical factors (Doskeland & Pedersen, 2015). Environmental, social and governance (ESG) investments are a part of socially responsible investments. ESG investment products are for example funds that take sustainability into account when allocating assets. Investors have started to recognize the possible impact they make on both financial performance and long-term sustainability, when they invest in ESG (Hong & Minh, 2025). Abate et al. (2021) suggest that those European equity fund investors who include ESG criteria into their preferences would gain a better financial efficiency than those that invest into similar funds without such strict policies towards sustainability.

There are multiple styles of ESG investing. Different screening methods are one of the most common styles of ESG investing. Negative screening means excluding companies, sectors or practices leaning to certain ESG criteria. Positive screening on the other hand means including companies, sectors or practices based on specific ESG criteria. In relative screening method the leaders of a certain sector are chosen using specific ESG criteria. Thematic investing is also a style of ESG investing, where the assets are chosen from a specific theme such as green innovation or clean energy. Other styles of ESG investing for example focus on including the ESG risks to risk analysis or active shareholder engagement to make a difference in a company's ESG decisions. (Amel-Zadeh & Serafeim, 2018).

To help the investing into ESG there are ratings that measure the sustainability of for example the assets a fund contains. These ESG ratings evaluate the financially material ESG factors of different assets. One of the most known of such ratings is the Morningstar Sustainability Rating (Abate et al., 2021). Most of the time investors lean on ESG scores when integrating sustainability into their investment decisions (Ferrariani, 2024). While the ratings are easy to understand and simplify investing into ESG, the significant

downside with them is that they are not standardized and do not share the same ways of evaluating the sustainability of an asset (Abate et al, 2021; Amel-Zadeh & Serafeim, 2018; Ferrariani, 2024).

Another method for ESG disclosure is the Sustainable Finance Disclosure Regulation (SFDR) introduced by the European Union. The SFDR aims to bring harmony to sustainability disclosure standards. It classifies European mutual funds into three categories, which are represented by Article 9, 8 or 6. Funds that explicitly have sustainable goals as their investment target fall under Article 9. The funds that have some characteristics of environmental or social sustainability promoted in their investing strategy locate in Article 8 and Article 6 includes funds that don't sustainability is not a part of general criteria when choosing assets. (Ferrariani, 2024).

In the subchapters ESG is broken down letter by letter and some of the most important theories regarding the three dimensions of ESG are discussed in order to depict the contents of ESG in a better way. This section starts with the environmental dimension, then talks about the social dimension and finally governance dimension. In the end of this chapter, some ESG assets and companies that have done significant ESG advances are portrayed in a separate subchapter to give a more concrete example of the ESG investments.

2.1 Environmental aspect

Climate change and risks posed by it are an important part of the environmental aspect in ESG investing. It is possibly the most universally known description of the 'E' in ESG, (Trahan & Jantz, 2023). They also argue that the environmental part of ESG suffers from a well-documented definition of what it exactly is. Thus, Trahan & Jantz (2023) propose a reorientated model of the 'E' in ESG, focusing on climate change and furthermore linking it to decarbonization. Although climate is the most known issue in the environmental dimension of ESG and the whole 'E' could be structured around it, there are other theories can be used to form a more thorough understanding of this dimension.

Natural capital is arguably an important theory in the environmental dimension of ESG. Costanza & Daly (1992) describe the natural capital to be finite natural resources, for example a stock of trees or a population of animals, which can produce an annual yield of new trees or animals, that can be kept sustainable year after year. The yearly yield natural capital can produce sustainably is called natural income. To avoid overconsumption of our environment, the yearly consumption of trees and for example fish must be kept at a level, that the stocks of trees or populations of fish can reproduce in this given time. Therefore, the minimum level for sustainability is to keep these stock or populations at least on the current level. This leads to the fact that as the resources of our planet are finite, sustainable infinite growth is impossible (Costanza & Daly, 1992). This is directly linked into ESG investing, as the ESG-labeled assets consider the sustainability of consumption and for example using renewable sources of energy.

Ecological modernization theory suggests that via technologic and economic innovation or growth a more sustainable way of using environmental resources can be met (Spaargaren, 2000). This is linked to ESG investing, as many assets that are included in ESG-labeled products are related with green innovation and seek after environmental sustainability, ruling out for example companies with a high carbon footprint.

Resource-based view is another theory that can be used as a backbone to other theories to add to the environmental dimension of ESG. The theory argues that sustained competitive advantage can be gained by using the firm's resources more efficiently than competitors. The theory also states that firms can be heterogenous regarding the strategic resources and these resources are not perfectly mobile across companies (Barney, 1991). The author classifies a firm's resources to physical capital like machinery, human capital which can be for example the education of a worker and organizational capital that is the firm's way of reporting for example. The resources can also be classified by their rarity, value, imitability and non-substitutability (Barney, 1991). The resource-based view can be further developed and used to create theories that include

sustainability. Hart (1995) argues that inevitably markets will be more and more dependent upon nature and incorporates the natural environment to the resource-based view to form the natural-resource-based view. The conceptual framework is built with three interconnected strategies that are pollution prevention, product stewardship and sustainable development. Sustained competitive advantage can be obtained by operating in an environmentally sustainable way (Hart, 1995).

To connect the resource-based view to the ESG-friendly economy the resource-based view has to include ESG-friendliness in its resources (Bhandari et al., 2022). The authors argue that the resource-based view has an inherent flaw in the resource base for sustained competitive advantage as it ignores the environmental, social and governance friendliness of a resource. Therefore, together with profit the firm's strategical objectives should be respecting social development, ecological justice and governance compliance (Bhandari et al., 2022). Because of this, Bhandari et al. (2022) propose a refined version of the resource-based view; the ESG-RBV. This version of the RBV sees eco-friendliness as a major attribute of a resource base. Both Hart's (1995) and Bhandari's et al. (2022) models of the resource-based view can be used to build theoretical background to the environmental dimension of ESG, as they recognize the importance of sustainability regarding the usage of natural resources and emissions and drive the agenda of the environmental aspect of ESG.

2.2 Social aspect

Although the environmental dimension of ESG might be the most well-known and prevalent in research, methods and calculators, the investment world continues to evolve around ESG and in the future more investments will flow towards the social aspect of ESG (Baid & Jayaraman, 2022). The authors argue that in recent times, socially motivated investors do not only seek maximizing the financial returns but are also after aligning their investments with their social values and added to that, some hope to create social value as a result of their investment.

Some of the most prevalent agendas in the social dimension of ESG are social equality, diversity and human rights. Therefore, a suitable theory to describe this dimension is the social justice theory. The social justice theory argues that there are two principles for justice. The first principle states that everyone should have an equal right to the most extensive scheme of basic liberties compatible with a similar scheme of liberties for others. These liberties are such as freedom of speech and right to vote. The second states that even the distribution of wealth and income do not need to be equal, it has to be to everyone's advantage. At the same time everyone must have equal opportunity to seek positions of authority and responsibility (Rawls, 1999). The author argues that social and economic inequalities are only acceptable if they benefit least advantaged members of society. This is called the difference principle. Rawls (1999) leads the thought to the social justice theory by introducing the "original position", which is a position where an individual can choose the principles of justice of a society without knowing their own place in this society. This is to prevent everyone choosing principles of justice that only give them advantage. The limited information of the effect of the choices on your own status in the society is called the veil of ignorance. As said before, the social justice theory matches the goals and key messages of the social aspect of ESG. Also, ESG promotes intergenerational sustainability, in which, Rawls' (1999) veil of ignorance in decision-making is important, as it doesn't benefit you directly, but the future generations.

The human capital theory argues that an individual's abilities like health, wisdom and physical skills hold economical value. There are many ways to invest into the human capital, such as education, on-the-job training, healthcare. Investing in human capital leads economic gain in the future as they raise the chances of for example employment or well-being. People that are more "abled" tend to invest in themselves more which leads to unequal distribution of human capital and furthermore to some people earning more than others. (Becker, 1962).

The human capital is seen as a firm's resource in the resource-based view (Barney, 1991). As mentioned earlier, the ESG-resource-based view adds ESG-friendliness to the

resource-based view (Bhandari et al., 2022). Therefore, to treat the human capital resource of a firm in an ESG-friendly way, a firm should aim for equality, social justice and taking care of the “human capital’s” needs such as healthcare and on-the-job training.

The stakeholder theory states that a firm’s purpose is not to create value only to shareholders but also to the whole stakeholder network (Freeman, 1984). The author argues that stakeholders consist of owners, customers, employees, suppliers, governments, competitors, consumer advocates, environmentalists, special interest groups and media. To sum it up, a stakeholder has influence on a firm’s actions or is influenced by them. Freeman (1984) writes that the relationship between a stakeholder and a firm is defined by ethical responsibilities and the level of dependence between the two parties. To build long term success, the stakeholder interests need to be optimized by integrating and balancing them.

There is a constant change in societal attitudes to which businesses have to adapt by changing their value creation process. For example, the increasing scarcity of natural resources increases the importance of environmental aspects of business operations. This leads to the fact that firms have to implement things such as environmental management, corporate social responsibility or sustainability management research into their operations (Schaltegger et al., 2019; Wang, 2024). Nowadays, ESG-friendliness is more and more called for by many stakeholder communities of a firm, such as investors, customers and legislation. Therefore, the stakeholder theory can be used to describe the social dimension of ESG, as it states that companies should create value to the stakeholders. On the other hand, what Schaltegger et al. (2019) argue that has to be noted, is that the firm should not focus on a single part of stakeholders that demand sustainability, if it is not the prevalent view the entire stakeholder community of a firm. Thou, in today’s world, it can be argued that demanding sustainability and aligning with ESG-agenda is more and more prevalent.

2.3 Governance aspect

The governance dimension of ESG deals with shareholders and stakeholders, trying to balance their interests. Also following the best practices of corporate governance is a part and parcel of this dimension. As the board of directors is a part of a company's governance, it can arguably effect all of the ESG's three dimensions as they discuss strategies that are related to the firm's social or environmental sustainability. (De Masi et al., 2021).

One theory that can be implemented when discussing the governance aspect of ESG is the agency theory. Jensen's and Meckling's (1976) agency theory states that the owners and the management of a company can have their intentions and actions in conflict, when someone acts as an agent and does something on behalf of the other. The authors depict this situation by arguing that it cannot be expected that you would manage someone else's money with the same care than your own. This creates agency costs that can be summed up to the monitoring expenses of the owner, the bonding costs of the agent and residual losses (Jensen & Meckling, 1976). To ESG the agency theory can be equaled by comparing the shareholders' expectations about sustainability and the company's management's actions towards sustainability. The agency costs can be seen as for example loss of positive effects on sustainability, when the shareholder and the company's management don't share same values towards ESG.

As well as in the social aspect of ESG, the stakeholder theory is important in the governance dimension of ESG. As stated earlier, the stakeholder theory views a firm's purpose to be value creation for stakeholders (Freeman, 1984). To view it from the governance perspective, it is decided by the governance of a firm, how they create value for the stakeholders. As Schaltegger et al. (2019) and Wang (2024) stated, the constant change of societal attitudes requires the companies to change their value creation processes. As the stakeholders, such as legislation, customers and shareholders demand more participation in ESG, it is for the firm's governance to decide how well they commit to these issues. The company's governance decides for example the level of commitment

to environmental and social responsibility, good governance and the level of compliance with legislation regarding ESG issues (Wang, 2024). Good governance includes anti-corruption and truthful reporting, for example. Wang (2024) argues that there is a significant relation between a corporate's ESG performance and the corporate's overall performance, even it is not yet recognized widely enough. This shows signs of the benefits of responding to the stakeholders' prevalent demand of ESG-friendliness.

The institutional theory argues that institutional homogeneity happens due to institutional isomorphic change (DiMaggio & Powell, 1983). The authors name three mechanisms that pressure to institutional isomorphic change. First, the coercive isomorphism which stems from regulations and legislation. Second, the mimetic isomorphism which is a result of standard responses to uncertainty. And lastly, the normative isomorphism that can be associated with professionalism and following ethical norms. These three mechanisms lead to isomorphic change as institutions seek legitimacy and success (DiMaggio & Powell, 1983). ESG issues can be recognized in all three mechanisms that pressure institutional isomorphic change, as it is more and more demanded. Amaral & Galleli (2025) state that regulatory changes like the European Union's compulsory sustainability reporting represent coercive isomorphism and the normative isomorphism is pressured by public attitudes. Institutions mimicking the ESG-leaders in their industry is an example of the mimetic isomorphism.

One of the most important theories to mention in the governance dimension of ESG is the corporate social responsibility. McWilliams and Siegel (2001) define corporate social responsibility (CSR) as actions provided by the firm that contribute to social good. These actions go beyond the firms interests and are not required by law. McWilliams and Siegel (2001) want to underline that the key point in CSR is going beyond obeying the law and doing good by the own will of the firm, but they also recognize the effect that comes from stakeholder groups pressuring firms to doing good. The two main groups that demand CSR are consumers and other stakeholder such as employees, investors and community. Some examples of CSR actions are non-animal testing, recycling, social

responsibility and avoiding pollution (McWilliams & Siegel, 2001). CSR and ESG go hand-in-hand but have a few slight differences. One difference between them is that ESG is a bit more expansive as it includes governance directly where CSR includes these issues indirectly (Gillan et al., 2021). Companies can signal their efforts in CSR and ESG issues via CSR and ESG reporting.

To match the increasing demand for information on corporate social responsibility companies use CSR reporting to inform stakeholders of the actions the company takes to enhance corporate social responsibility. These reports are disclosure documents to keep the stakeholders updated on the economic, social and environmental impacts of a firm's performance in a selected time frame (Koh et al., 2023). There is no standardized method or document to CSR reporting as stakeholder engagement is often voluntary and not financially motivated. Due to the nature of stakeholder engagement the CSR reporting does not usually fall under the requirements and regulation of financial reporting (Koh et al., (2023). This leads to notable differences in quality, content and format of CSR reports. Koh, Li and Tong (2023) argue that firms with better CSR performance have more economic incentive to report their CSR disclosure for the stakeholders to compare to other firms. Thus, their reports are longer and more consistent and focus on long-term issues. On the contrary the authors state that firms with poor CSR performance issue shorter reports and use impression management techniques to seek approval through distortion in their CSR reports.

ESG reporting is very similar to CSR reporting. With ESG reports firms can disclose their efforts in environmental, social and governance issues and deliver information on their ESG performance to the stakeholders (Arvidsson & Dumay, 2022). As a response to the stakeholders increasingly wanting to keep in track with the ESG, CSR and sustainability performance of companies, the regulations for reporting sustainability are developing. The global reporting initiative (GRI) played a notable role in developing and standardizing voluntary reporting concerning sustainability issues before non-financial disclosure had mandatory requirements (De Villiers et al., 2022). The main objective of GRI was to set

an accountability mechanism to make sure firms follow environmental responsibility. Later it has developed and started to include social, governance and economic issues (De Villiers et al., 2022). To bring further obligation to sustainability reporting, the European Union has issued the European Union Directive and Corporate Sustainability Directive (CSRD). These both are supposed to increase the ESG and CSR performance of companies in the European Union and with that boosting the efforts of making Europe a carbon neutral economy by 2050 (Arvidsson & Dumay, 2022).

2.4 Examples of ESG investments

Responsible hedge funds are an integral part of the portfolio of an institutional investor that manages individual investors' assets in a responsible way. ESG factors are incorporated into responsible hedge funds' ownership and investment decisions. A much-used way to signal commitment to responsible investing is to support the United Nations Principles for Responsible Investment (PRI). Following these principles means promoting, implying and disclosing ESG issues and PRI. Unfortunately, there are some problems with the responsible hedge funds. First, the level of ESG commitment is not always sufficient, even a PRI signatory claims ESG status. Especially low-ESG signatories seem to underperform compared to their peers. The low-ESG signatories are not discriminated by investors due to more aggressive marketing. Second, the agency problem exists as the incentives of the investors and the hedge fund managers are not always aligned. And finally, the responsible hedge funds seem to show lower levels transparency, disclosure and regulation. (Liang et al., 2022).

ESG stocks are another example of ESG assets. Stocks of companies that meet the ESG criteria are ESG stocks. These stocks seem to have the resilient capability of attracting respectable earnings, even in uncertain times in the financial markets, which can be explained by a few factors (Yang et al., 2024). The authors state that one of these factors is the brand equity and loyalty which is built by a firm's ESG approach. This attracts loyal customers and managers. It is also argued that loyal investors have non-financial drivers to invest into ESG assets, which makes it less likely for them to sell them during crisis

periods. Another key point is the fact that as the ESG firms attract loyal managers who possess quality capabilities for employer management, customer relations and running businesses, which can enhance future profits (Yang et al., 2024). According to the authors, commodities like gold or oil, market sentiment, implied volatility of crude oil and geopolitical risk predict distributions of ESG returns as ESG stocks hedge against geopolitical shocks.

It is appropriate to mention a few examples of companies that have integrated ESG principles into their operations in order to depict the forementioned ESG stocks a little better. Blagova et al. (2024) report a few real-world examples of successful integrations of ESG principles in their case study. According to them successful ESG integration can lead to significant rewards for the company. The authors name Unilever, Tesla, Microsoft, Nestle and Patagonia as examples of successful ESG principles integration followed with concrete rewards.

Unilever, a company offering consumer goods globally, launched the Sustainable Living Plan in 2010 with targets of halving ecological footprint and improving the health and well-being of people. By 2019, the company's brands regarding sustainable living grew significantly faster and accounted for 75 % of the company's growth. Tesla, a company manufacturing electric vehicle for the most part, on the other hand reported a 28 % increase in revenues compared to their previous year after launching their Green Revolution by mastering sustainable transportation. Also, Tesla's commitment to sustainability doesn't end there as they invest in solar energy and battery storage solutions (Blagova et al., 2024). The authors continue the list with introducing Patagonia's, an outdoor apparel firms, long efforts in the field of social responsibility. Patagonia has a campaign "1 % for the Planet" where they donate 1 % of their sales to environmental causes. This resonates with consumers leading to brand loyalty and sales. In Nestle's case, the company known for foodstuffs, managed to cut their costs as a result of reducing water consumption. An act that benefits both nature and the company. Finally, Microsoft, a tech giant, lead the way in governance excellence. Their governance

is aligned with transparency, shareholder rights and board accountability. This has been notified by investors and governance experts and increases trust in the company (Blagova et al., 2024). The authors use these examples to give concrete evidence on how by ESG practices, companies can tackle multiple risks they face on a daily basis, gain more profits, boost stakeholder engagement and gain popularity amongst all stakeholder parties. Simultaneously, these companies pose as an example of ESG sensitive companies that have gained concrete benefits as they act in a sustainable manner. Thus, the stocks of these companies can be used as an example of ESG stocks.

3 Behavior of individual investors

After building the theoretical background for ESG and products with such label, it is important to focus on the investing behavior of individual investors and point out several behavioral models and biases that could affect the decision-making process when investing into ESG. This chapter focuses on some theories that depict biases and irrationalities that occur in individual investors' behavior. These theories are expected to likely be the ones that have effect on an investment decision in ESG investing.

3.1 Individual investors

Individual investors are market participants that do not always operate rationally in the financial markets. Because of that an average individual seems to underperform and earn poor long-run returns. There are many reasons for this such as asymmetric information, investment costs, beliefs, biases and heuristics. For example, individual investors sell their winners and hold their losers, act overconfidently and seek the thrill from investing. (Barber & Odean, 2011).

3.2 Behavior of individual investors

As stated above, individual investors' behavior in the financial markets is not always driven by pure rationality, and psychological and emotional factors affect the behavior. Behavioral finance argues that heuristics and biases occur when individual investors try to simplify and justify their decisions when investing, which leads to them making mental shortcuts rather than using rationality when making decisions. (Kahneman & Tversky, 1979; 1981; Thaler, 1985).

Kirk et al. (2015) state that a notably overlooked part of an individual's investment decision-making is that they often override non-consciously activated goals in order to pursue conscious goals or pre-determined decision rules. These kinds of goals can be social and emotional goals, and they can reflect the individual's status, identity, and

behavioral satisfaction. When individuals overcome the non-consciously activated goals and replace it with a conscious goal in investment decisions, they feel greater engagement to the asset (Kirk et al., 2015). As mentioned earlier, investors have started to notice the impacts on long-term sustainability when investing in ESG (Hong & Minh, 2025). Thus, in ESG investing a conscious goal or a pre-determined decision of doing good often lies and this leads to a stronger engagement to ESG assets. This and some of the theories of behavioral finance can be used to theorize the individual investors behavior that specifically affects decision-making in ESG investments.

3.2.1 Prospect theory

While dealing with uncertainty, investors deal with potential gains and losses differently. When making investment decisions, some investors tend to make choices that increase the amount of risk and lead to situations where a sure loss is inevitable. This can be addressed as risk-seeking behavior. It occurs, for example, when the risk is undervalued because something else regarding that particular investment is overvalued or other than financial gains are also seen as profitable gains. (Kahneman & Tversky, 1979.)

A higher risk can be tolerated when it comes to ESG investments. Some individual investors are willing to take higher risks or ignore the risk-factor completely when investing sustainably. The reason for this is simply because, for them, the sustainability or the ESG label of the investment overpowers the risk it can contain.

The environmental, societal or governance gain is sometimes seen as profit, when investing in ESG products. This leads to the fact that some individual investors sacrifice financial gains for the gains mentioned above. As a consequence of this behavior, financially unprofitable assets are chosen when investing, because seeking environmental, societal or governmental gain is seen more important than financial gain. (Renneboog et al., 2010).

3.2.2 Mental accounting

People justify their usage of money differently, even the financial gain or loss remains the same between two alternatives. In some cases, also decisions that certainly cost money to the person happen because of mental accounting. This theory explains some of the financially irrational actions made by people as they allocate their finances into separate imaginary accounts. For example, having just gained money, people tend to use it in a more careless way and end up making financially irrational decisions. (Thaler, 1985.)

Thaler (1985) states that mental accounting can lead to bad investments, as alternative options are separated into different mental accounts. Into some of these 'accounts' the investors deposit money with fewer thoughts of the financial gain and instead justify the investment via other things such as the labels attached to the asset. When investing in ESG, mental accounting can happen. Some investors choose ESG-labeled assets solely for the purpose of it being labeled as such. This can lead to ignoring other possible investments that can be financially more profitable. Also, an investor that owns both ESG and other investments can separate them instead of seeing the whole capital of their investments as whole. This leads to treating them differently which furthermore reduces the rationality of the investor's investment behavior.

3.2.3 Herding

Another cognitive bias regarding individual investors' behavior is herding. Banerjee (1992) states that when investors succeed in financial markets, others tend to mimic their financial moves such as investment decisions. This creates herds that more and more investors join. As a result of this, less experienced investors copy more experienced ones without completely understanding the fundamentals of the investing decisions they make.

Even though herding behavior in ESG investing may be a more relevant theory in institutional investing, it does occur when individual investors in ESG (Tiwari et al., 2024).

The authors argue that mutual fund advisors tend to copy their peer norms and industry trends which causes herding. This is transmitted to the individual investors, when they are advised, and leads to them to be biased by herding. In individual investors' ESG investing it can lead to people choosing assets with the ESG label simply because others invest in them without really understanding what these investment products consist of. The growing interest in ESG can be driven by herding behavior instead of financial performance or a motive to make an impact in environmental, social or governmental issues.

3.2.4 Framing effect

Another theory that impacts individual investors' decision-making is the framing effect theory. It suggests that when people must decide between multiple options, especially when risk is present, they form a decision frame that depicts the probabilities and outcomes of the decision. The decision-maker's frame to each option is molded by the way the problem is presented, norms, habits and personal characteristics. Although a single problem can be framed multiple ways, the preference between options should stay the same, even the frame is changed. Due to irrationality in humans' decision-making, the framing of a problem often leads to predictable changes in the preference between alternatives. (Tversky & Kahneman, 1981).

As stated previously, Tversky and Kahneman (1981) suggest that the framing of an option impacts the final decision of a person when risk is prevalent. In the financial markets, risk exists at almost all times. Therefore, the framing effect is relevant in the decision-making of investors and can lead to making an investment-decision that is not financially beneficial, because other things create the decision-frame. Furthermore, to link the theory's effect to ESG investing, the framing of ESG investments is a part of individual investors' decision-making. This frame is formed by the investor's own characteristics such as beliefs and values, societal norms and the way the option to a certain investment is presented to the investor (Tversky & Kahneman, 1981). As ESG investing is often framed as a more sustainable and responsible way of investing, and sustainability and/or

responsibility is seen as a positive thing, it creates a positive frame towards investing in ESG. Also, as investors personal characteristics are a part of the frame they create towards a decision, people who support the values of ESG, frame such investments as better decisions.

3.2.5 Cognitive dissonance

The cognitive dissonance theory explains that a cognitive dissonance occurs when people have values, attitudes or beliefs that are in conflict with each other. This happens, because people strive to be consistent within themselves (Festinger, 1957). The author argues that inconsistency within a person creates psychological discomfort, which people try to actively avoid. Therefore, people tackle cognitive dissonance by aligning behavior with beliefs or vice versa. They can also justify their behavior by adding other reasonings for it, which can be called adding cognition (Festinger, 1957). In ESG investing cognitive dissonance can be seen by people aligning their investments with their beliefs of environmental, social or governance sustainability. They can also add new cognitions to weakly performing investments by justifying them with the responsibility of an investment.

Confirmation bias is something that can follow cognitive dissonance. Wason (1960) argues, as a result of his study, that people are biased when confirming something. They evaluate and process information in a way that is aligned with their existing beliefs. This often leads to erroneous outcomes as information validating existing beliefs is overweighted (Wason, 1960). Confirmation bias happens, because of the psychological discomfort Festinger (1957) explains people to feel when having a conflict within them. When people invest in ESG, confirmation bias can occur when processing information regarding the asset's sustainability, responsibility, profits and ESG score.

Another thing that can occur as a result of cognitive dissonance is the overconfidence bias. Humans often overestimate their abilities, knowledge and future prospects (Barber & Odean, 1999). Overconfidence causes investors to be too confident of their own

opinions which leads to ignoring contrary opinions and the opinions of other people. It also leads to people overestimating the accuracy of their information and misinterpreting the information available to them. Overconfidence increases the trading activity of an investor (Barber & Odean, 1999). As a result of experiencing cognitive dissonance due to a conflict within themselves and following it with biasedly confirming it, investors can feel overly confident about some information that has been wrong from the beginning. Overconfidence in ESG investing can occur when people view ESG investments lucrative due to their existing opinions or misinterpret or give too much weight to ESG information without evaluating it furthermore.

4 The impact of behavioral biases on individual investors' ESG investing

Linking behavioral finance to the ESG investing of individual investors is yet to be thoroughly studied. Being a novel point of research regarding ESG investing it has captured the interest of researchers. Thus, there is a growing number of studies focusing on this topic and it has received a lot more attention in the last decade or two since sustainability and responsibility are both more and more a sought-after part in investing. There seems to be evidence supporting the behavioral biases and patterns being a part of individual investors' ESG investment behavior, and on the other hand, against it. This part discusses evidence from both sides.

4.1 Behavioral biases regarding the investor's values and beliefs

Raut, Shastri, Mishra and Tiwari (2022) discuss factors that have effect in investors' attitudes and intentions towards ESG stocks in their study focusing on Indian investors' behavior. Their study investigates the impact of both altruistic and egoistic values. To collect data a survey for investors with at least three years of experience was conducted. First, evidence of environmental concern being a vital part of the decision-making process of individual investors when investing in ESG is concluded. Also, available information on firms' ESG actions leads to pro-environmental investors choosing well performing firms and contributing towards their responsibility for climate change (Raut et al., 2022). Second, results indicated that environmental concern has more impact on the attitude and intention in ESG investing than economic concern. This hints towards ESG investing decision-making having behavioral finance's insights, as altruistic values outweigh egoistic values, which are depicted by the maximization of financial returns in this study. Third, evidence of a positive attitude towards ESG stocks leading to behavioral intention towards action. In other words, positive attitude towards ESG stocks leads to investing into them more likely. Finally, perceived risk was found to not have an influential role affecting choices towards ESG stocks (Raut et al., 2022).

The findings of Raut et al. (2022) indicate the existence of multiple behavioral biases in Indian individual investors' attitudes, intentions and actions towards ESG stocks. Environmental concern being the main driver when making decisions and attitude leading to actions reflect value alignment, which hints towards cognitive dissonance or mental accounting. The impact of available information and believing to contribute towards responsibility when investing into companies that rank highly when measuring ESG performance, could be seen to indicate confirmation bias and framing effect. The perceived risk not having effect could be explained with prospect theory.

4.1.1 Sacrificing financial returns for sustainability

Assaf, Monne, Harriet and Meunier (2024) conduct a study on how one ESG score fits all investors' preferences. They perform this study by analyzing answers from a survey of French individual investors. The authors argue that five categories of attitudes on which investors rate ESG criteria are "anti-discrimination", "green for the planet", "anti-fraud", "day-to-day green" and "economic development". To evaluate the intention to invest in ESG and the actual behavior of the respondents, the authors ask them if they are willing to sacrifice a part of the financial profits because of a good ESG score of a firm. As a result of this, the authors find evidence of respondents with "anti-discrimination" and "green for the planet" attitudes to be very willing to pay for companies with high ESG scores. Also, investors with "economic development" were quite willing to pay for a high ESG score. "Anti-fraud" attituded investors were slightly willing to pay for a high ESG score, the "day-to-day green" investors were found to be unwilling to pay for it. Furthermore, to link attitudes to behavior the study surveyed the respondents of their actual assets. The "anti-discrimination" investors were found to hold ESG funds and pick ESG stocks and the "green for the planet" investors were especially fond of picking stocks of companies with a high ESG score. The three investor groups with the other attitudes did not show a significant interest in ESG products.

Renneboog, Ter Horst and Zhang (2008) find similar evidence hinting that investors who invest in socially responsible investments are willing to accept suboptimal financial results to include responsibility and ethics into their investments. They study socially responsible investors' (SRI investors) behavior and address two topics essential to this literature review. First, they study if SRI investors care less about financial performance compared to conventional investors. They do that by evaluating the risk and return characteristics of socially responsible investments. Second, they discuss if the behavior of SRI investors differs from conventional investors' behavior by conducting a literature review.

By comparing the average performance of SRI and conventional funds in UK, US, Europe and Asia-Pacific, Renneboog et al. (2008) find out that the amount of socially responsible investments has increased in Continental Europe and Asia-Pacific, even though the SRI underperforms when compared to conventional investing. This is supportive evidence for their hypothesis of investors being willing to accept suboptimal financial performance to satisfy their personal values of social responsibility. Investors may be content with inferior rates of return from firms that operate in an ethical or socially responsible way because they experience non-financial utility gain from firms with superior CSR standards (Renneboog et al., 2008).

Recent studies state that money-flows in and out of socially responsible investments are not as sensitive to lagged negative returns than the money-flows of conventional funds. The sensitivity between the flows and past performance is dependent on the methods and intensities of SRI screening activities. This supports the claim that SRI investors value non-financial attributes when investing. (Renneboog et al., 2008). The results of this study are attached to ESG investing as the motivations for ESG investments are discussed by Dugaard (2020) in a systematic literature review.

The fact that in the study conducted by Assaf et al. (2024), the investors categorized under the "anti-discrimination" and "green for the planet" attitudes were more likely to

follow their intentions with behavior and match their actions with their beliefs or take a risk of sacrificing potential gains for a higher ESG score, and Renneboog et al. (2008) finding supportive evidence of SRI investors accepting a suboptimal financial performance and having personal values of social responsibility integrated into investment decision-making, shows evidence of behavioral biases occurring in individual investors' decision-making when investing in ESG, which is a form of SRI. For example, cognitive dissonance, mental accounting and prospect theory are a few biases that could explain the results Assaf et al. (2024) and Renneboog et al. (2008) gathered from their studies. Thus, they give supportive evidence on hypothesis one.

Barreda-Tarrazona, Matallín-Sáez and Balaguer-Franch (2011) report results aligned with the previously mentioned studies. The authors analyze the behavior of investors when it comes to socially responsible mutual funds by conducting an experiment with a sample of university students. In this experiment, where participants had to distribute an investment budget, socially responsible mutual funds were presented in an unfavorable return position compared to their competitors. Information of the social responsibility of other of the two investment options was presented in conducted treatments during the experiment. The results indicated that the main driver for decision making was returns and diversification, but the socially responsible nature of an option significantly increases the investments in it. The authors report that particularly the participants that had claimed to be concerned about social responsibility, invested more in the socially responsible option. To take it further, a small group of participants showed such social responsibility faithfulness that they invested most of their capital to socially responsible funds, even though they were unfavorable in terms of financial returns.

Yet another study concludes reports evidence of individual investors being in terms with receiving suboptimal financial gains when having the opportunity to allocate their assets in a more sustainable manner. Bauer, Ruof and Smeets (2021) run two field surveys to investigate Dutch pension funds that allow their members to vote on the sustainable-investment policy. Following their study, the authors obtain results which indicate that

the majority of respondents choose to increase sustainable investing, even those who expect inferior financial returns or those who are unsure about the financial return. This is a result of social preferences. Kraussl et al. (2023) also add to the list of studies that find evidence of investors being willing to sacrifice returns to create societal impact, but they bring a new viewpoint to the issue. The fact that companies report their operations to be greener than in reality, poses a challenge to this kind of behavior. This evidence supports the framing effect's impact in individual investors' ESG investing, as companies that practice greenwashing create a more appealing frame that affects the investors' decision-making. Also, blindly believing an ESG label without yearning for further evidence of the responsibility, could be seen as confirmation bias or overconfidence.

4.1.2 Framing effect

Barreda-Tarrazona et al. (2011) obtain results from their study which indicate that when information of the level of a mutual fund's social responsibility was disclosed, the socially responsible fund gained more overall investments. The authors state that this proves the impact of the frame on investors' decisions. Glac (2009) finds similar evidence of the framing effect's impacts on socially responsible investing when conducting an experiment on a sample of undergraduate students in the United States. In the study, respondents had to decide where to invest their retirement contribution between a conventional fund and a socially responsible fund. Financial and expressive manipulation was conducted in order to create different frames for decision-making. The results showed evidence that the framing of the situation in both financial and expressive ways had impact on the investment decision on the socially responsible fund. Manipulation of the returns made the socially responsible fund less invested in, whereas expressive manipulation of the options clearly increased of the likelihood of the socially responsible option to be chosen (Glac, 2009). Pointing out that framing effect has impact on decision-making in socially responsible investments, Barreda-Tarrazona et al. (2011) and Glac (2009) give supportive evidence to the first hypothesis.

4.1.3 Confirmation bias, overconfidence and cognitive dissonance

Leite and Uysal (2023) find evidence of confirmation bias when examining the connection between a firm's ESG score and investors' reaction to positive information of that firm. More specifically, the authors conceptualize how the perception of the firms' ESG attributes may lead to confirmation bias in a stock's valuation when positive news are present. By using credit-rating change data representing positive and negative information and forming a model with MSCI's ESG scores they find evidence that supports a high ESG score being a significant influencer on how investors respond to positive information not related to ESG and impact stock prices, especially in the highest quartile of ESG scores. Investors seem to incorporate high ESG scores into investment decisions when positive news are present without notable effects when negative news are present. This finding is consistent with confirmation bias, as high ESG scored companies are seen as good companies or investments by the investors and positive news such as credit-rating upgrade reinforces that belief, which leads to a higher level of investor demand for that stock (Leite & Uysal, 2023).

Banerjee and David (2024) also report evidence of confirmation bias in ESG investing decisions of Indian investors. After conducting a semi-structured in-depth interview on a sample of Indian investors they find results of investors disregarding familiar firms' negative information of governance issues because of the firm's good reputation. Also, a respondent stated that it is a waste of time to do ESG research on a firm that is already familiar. This hints towards investors confirming their existing beliefs of a firm's positive reputation on ESG issues without a question, instead of doing own research. Additionally, their study notices other biases among investors when it comes to ESG information. Overconfidence, framing effect and mental accounting are mentioned to occur in Indian investors' perceptions of ESG information (Banerjee & David, 2024).

Kräussl, Oladiran and Stefanova (2023) review the investors' expectations, beliefs and perceptions in ESG investing. The authors hypothesize that no matter how well the ESG investment does financially, the investors create societal impact, which is one of the key

drivers when investing in ESG products. The results presented in the study stated that the investors' claims of chasing sustainability in their investments did not always reflect to the assets in their portfolio. Sometimes, the investors are misinformed and act on inaccurate expectations or simply say that they invest in sustainable assets to make a difference, even if they only go after the possible profits. Also, in some cases what is believed to be a sustainable investment is not because of greenwashing, which some companies are found guilty of (Kräussl et al., 2023). This kind of behavior could hint towards overconfidence, confirmation bias and cognitive dissonance, as investors overconfidently believe the ESG profile of the firm to be true and in some cases make false reports of the sustainability of their own assets.

Giglio et al. (2025) add to the evidence of some ESG investors being motivated by ethical values. This result is gathered by analyzing survey data on individual investors' ESG beliefs and preferences. When asked about motives to invest in ESG funds, 48 % of the respondents saw no specific reason to invest in them, 22 % saw climate risk hedging to be the most important motive, 24 % were most motivated by ethical arguments and the remaining 6 % were motivated by the superior financial performance of ESG funds. According to the authors, about half of the investors that actually hold ESG funds are motivated by ethical reasons. Ethical motivations being a driver to invest in ESG funds, for a large part of those who actually invest in them, aligns with results of the previously mentioned studies. Therefore, giving evidence of value alignment as a result of cognitive dissonance. Another thing Giglio et al. (2025) state is that the ESG-labeling of a fund is important to investors who don't necessarily check the assets behind that label. This again shows evidence of possible overconfidence bias, framing effect and confirmation bias.

Having many studies pointing out behavioral patterns where behavioral biases can be noticed, gives robust support to both hypotheses. Several biases theorized by behavioral finance being pointed out supports hypothesis one and these biases depicting the values and beliefs of the individual investors backs up hypothesis two. Although, it has to be

noted that not all of these studies exclusively point out a certain behavioral bias, but find evidence of behavioral patterns, that can be explained with biases theorized by behavioral finance.

4.2 Herding

Gavrilakis and Floros (2023) study the relationship between ESG performance and herding behavior in six European countries. The authors investigate ESG herding of investors in Portugal, Italy, Greece, Germany, Spain and France. ESG herding depicts the forementioned herding bias, when concerning ESG investment decisions. The authors find evidence on ESG performance and herding having interaction in Greece and France. Additionally, in Portugal, Italy and Greece herding bias occurred within ESG investors during the COVID-19 crisis. On the other hand, there was no evidence on ESG motivating herding in Spain and Germany. Also, other than during the crisis, ESG herding did not seem to be a thing in Portugal and Italy.

Lobato, Rodríguez and Romero-Perez (2024) investigate the herding behavior of socially responsible investors before and during the COVID-19 pandemic. They compare the herding of conventional exchange traded funds to socially responsible ETFs before and at the time of the pandemic. As a result of their study, the authors concluded that socially responsible investors herded during the pandemic, especially in the ETFs with global focus. Giving contrast to this, the more conventional ETFs did not show signs of herding during this time. The herding behavior of socially responsible investors could be a behavioral response to the lack of information and difficulty to develop clear financial decisions. On the other hand, it could be a rational reaction to crisis, relying on firms that have good reputation regarding social responsibility, as they can be as stable firms that can endure hardships. Herding bias in the US was not significant during the crisis but was detected at a significant level during the entire timeframe from 2018 to 2021 (Lobato et al., 2024). According to the authors, socially responsible investors possibly expose themselves to an insufficient perception of risk, as they can be affected by behavioral biases.

These two studies give supportive evidence on herding existing in individual investors' ESG investing. Especially, in the times of the COVID-19 crisis herding bias is found to exist (Gavrilakis & Floros, 2023; Lobato et al., 2024). Although, there is evidence of ESG herding, it is not robust as it is noticed only in the period of COVID-19 crisis in both studies and only in Greece and France in the study of Gavrilakis and Floros (2023). Together with previously mentioned reports of behavioral biases regarding investors' values, evidence hinting towards herding bias impacting the ESG investing of individual investors gives slight support to the second hypothesis. As a result of herding, investors can put their money in assets that they do not understand and take unnecessary risks.

5 Conclusions

This thesis examines the impact of behavioral biases on individual investors' ESG investing. In addition to pointing out their existence, it is studied, which biases occur in individual investors' behavior when they invest into ESG assets. Furthermore, the biases that occur are categorized into herding and biases that stem from the investors beliefs and values towards ESG issues. This thesis also includes a section that builds theoretical background for each dimension of ESG, investing into ESG assets and the behavioral biases of individual investors. The hypotheses are formed by existing literature and relevant studies are used to answer them.

When it comes to previous studies, behavioral patterns that can be explained by behavioral biases theorized by behavioral finance, are pointed out to exist. Also, some studies directly name a few of these biases, such as herding, framing effect, confirmation bias, overconfidence and mental accounting. Thus, the first hypothesis presented in this thesis is being supported. The impacts of these biases on individual investors' ESG investing are following. First, the investors are sacrificing financial returns in order to chase responsibility presented by ESG labels. Second, the positive framing of the ESG assets and mental accounting has effect on the investors' decision-making. Also, some assets are falsely framed as ESG labeled, which can lead to investors investing into non-responsible stocks under the expression of them following ESG principles. Third, biases like cognitive dissonance, overconfidence and confirmation bias lead investors to, for example, align their investments with their values, confirm positive claims of sustainability of a firm without further research and disregarding information that argues against the responsibility of an ESG labeled asset.

Additionally, subtle hints towards the existence of herding in individual investors' ESG investing were concluded. It was found to be present at least during the times of COVID-19 crisis. This, and the evidence of biases stemmed from the values and beliefs of the investor give slight support to hypothesis two.

For further research, this study suggests that behavioral biases impact individual investors' ESG investing, and they lead to irrationality in investing decisions. Although, it has to be noted that this field of study is novel and lacks academic research. Thus, more experiment on this field of study has to be conducted out in order to understand the topic more thoroughly.

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