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# Sustainable Investing: Navigating the Inefficiencies of an Inefficient Market

Dale Herndon

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# SUSTAINABLE INVESTING:
# NAVIGATING THE INEFFICIENCIES OF AN INEFFICIENT MARKET

By

Dale C. Herndon Jr.

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Doctorate of Business Administration

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**ACCEPTANCE**

This dissertation was prepared under the direction of the DALE COLLINS HERNDON Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Business Administration in the J. Mack Robinson College of Business of Georgia State University.

Richard Phillips, Dean

DISSERTATION COMMITTEE

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One of the biggest takeaways from this experience is that I am not done – I am just getting started. My journey is just beginning, and I can't wait to embark on my next project.

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## ABSTRACT

Sustainable Investing: Navigating the Inefficiencies of an Inefficient Market

By

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Chair: Dr. Richard Baskerville

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Over the past decade, sustainable investing, also known as socially responsible investing, ethical investing, or responsible investing, has experienced heightened popularity worldwide. This popularity reflects the increasing awareness of investors of social, environmental, ethical, and corporate governance issues. However, while retail investors' interest has increased, their actual participation has been nominal. This paper explores the question: *How do individual investors incorporate sustainability-related experiences, information, learning, or a combination of these in deciding to invest in sustainable investments?* This study aims to identify the barriers and enablers that may inhibit or facilitate participation in sustainable investments.

The study follows a grounded theory approach to construct theory from data, a method appropriate for this situation given the paucity of research involving investors' intentions but lack of execution in sustainable investing. Furthermore, the study uses Behavioral Decision Theory and Nudge Theory as conceptual frameworks to structure the collection and analysis of data. The study entailed an extensive review of extant literature and promoted data collection through an intensive interview process involving knowledgeable investing and sustainability professionals.

The findings identified several uncertainty drivers involving investors' attitudes towards rating and reporting agencies, the financial merits of sustainable investing, and concerns about greenwashing. Each of these contributes to inefficiencies surrounding sustainable investing. These inefficiencies include asymmetric information, market power, market friction, and externalities. These uncertainty drivers and market inefficiencies promote investor responses through options unavailable to traditional investors.

Contributions to theory include confirmation and extension of extant literature, enhanced function of behavioral decision theory and nudge theory, and extended application of market inefficiencies. Contribution to practice involves a conceptual model around strategic option theory for sustainable investing and the application of BDT and nudge. From these, individual investors, investment advisors, and investment companies can make more insightful decisions in their investment strategy to increase participation in sustainable investments.

*Keywords*: Sustainable Investing, ESG Investing, Socially Responsible Investing, Impact Investing, Corporate Social Responsibility, CSR, ESG, SRI

# I INTRODUCTION

Sustainable investing (SI), also known as environmental, social, and governance investing, or ESG investing, is one of the fastest-growing segments of investor assets worldwide. Between 2018 and 2020, US-domiciled sustainably invested assets under management grew 42% (Nason, 2020). However, investment in this domain is conducted predominantly by institutional investors, which are large investment organizations such as asset managers, fund companies, pension plans, insurance companies, banks, labor unions, and insurance companies. Individual investors, also referred to as retail investors, comprise approximately 19.5% of the US investing universe (Osipovich, 2020) but are largely absent from investing in SI.

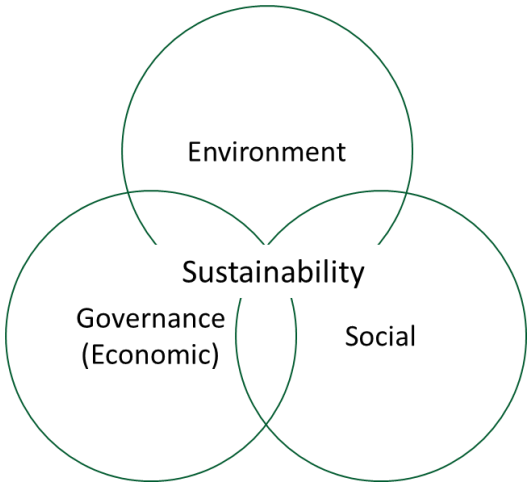
We do not fully understand why individual investors are not participating in this strategy when their interest is evident. Research around institutional investors and their activity in SI is abundant, but research around individual investors is scant. My research question identifies why this is and provides a path to enable greater participation. My research seeks to uncover how individual investors incorporate sustainability-related experiences, information, learning, or a combination of these in deciding to invest in sustainable investments.

## I.1 Coming to Terms with Sustainability

According to the Brundtland Commission Report to the United Nations (1987), sustainable development is defined as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs." In today's business environment, however, sustainability goes beyond doing what is suitable for the planet or complying with government regulations – it also involves society and corporate governance. In other words, a sustainable company creates profit for its shareholders while protecting the

environment and improving the lives it interacts with (Savitz & Weber, 2014). Sustainability involves a complex interaction between the environment, society, and the company's governance or economic policies, as shown in Figure 1.

**Figure 1: Sustainability as Three Intersecting Components of ESG**




Sustainability has become an essential component of many global companies' overall business model, directly impacting their bottom line. Savvy consumers have high expectations when buying products and services from companies that claim sustainability as an essential part of their business practices. The unfortunate business leader with a superficial understanding of sustainability may consider it a distraction from the company's primary purpose. This approach reveals a fundamental misunderstanding - sustainability is not about writing a check to philanthropy or being flippant about their commitment to social and environmental causes (Savitz & Weber, 2014). Consumers demand that companies care beyond revenue, and they no longer perceive businesses solely as profit-driven entities.

In a recent study in Euromonitor International (2021), 69% of professionals expect consumers to be more concerned about sustainability than before Covid. The new expectation is

to protect the health and interest of society and the planet. More so, a European Commission (2013) study found that 77% of the participants were willing to pay higher prices for green products. However, slightly more than half of EU citizens (55%) feel informed about the environmental impacts of the products they buy and use. The majority (73%) of global consumers say they would consider changing their consumption habits to reduce their impact on the environment, and almost half (46%) said they would switch to environmentally friendly products (NielsenIQ, 2019). Globally, as many as 78% of people are more willing to buy a product or service from a company that is committed to the principles of sustainable development (PwC, 2015). Because of this, marketers often set the price of green products higher than conventional products because consumers are willing to pay a premium price for such products (Lee et al., 2018).

And it is not just consumers – stakeholders, in general, require firms to consider the interests of society and the environment (Savitz & Weber, 2014). A stakeholder is a person or entity with an interest or concern in the business. Typical stakeholders include employees, investors, customers, suppliers, the community, government, and trade associations. Stakeholders require firms to help reshape the world more sustainably by "leading a shift from a volume- to a value-driven economy and turning the tide on social inequity and environmental damage" (Euromonitor International, 2021).

### I.2 Sustainable Investing

Sustainable investing (SI) refers to strategies that align an investor's social and environmental values with their financial goals (Hirst, 2017). Investors who pursue a sustainable investing strategy want to deploy their capital with their personal and ethical values in mind and do so in a way that benefits and supports the world around them. There are many different

definitions of what it means for an investment to be considered a sustainable investment. Eurosif defines sustainable investing as "a long-term oriented investment approach that integrates Environmental, Social & Governance (ESG) factors in the research, analysis and selection process of securities within an investment portfolio" (Sakuma-Keck, 2021). In essence, the strategy involves avoiding companies that damage the environment and favoring companies that seek to contribute toward sustainable development by integrating long-term ESG criteria into their practices. At a more granular level, SI involves selecting investments based on an investor's values in a way that helps them achieve their long-term financial goals.

Contrary to its growing popularity, sustainable investing has no legal or regulatory definition (Bourgeois et al., 2019). As a result, terminological ambiguities are associated with sustainable investing, leading to confusion in the marketplace. Multiple terms refer to the concepts around sustainable investing, including ethical investing, socially responsible investing (SRI), social investment, responsible investing, environmental, social and governance (ESG) investing, impact investing, values-based investing, and green investing. Ultimately, all of these terms mean more or less the same: investing with the goal of long-term performance and risk management while promoting positive outcomes in the world centered around ethics and morals.

Given this context, the heterogeneity of terms is not problematic and does not hinder the investment climate (Global Sustainable Investment Alliance, 2021; Maisuradze, 2022; Sandberg et al., 2009) or the premise of this study. Therefore, for this study, the generic term sustainable investing refers to investing in a way that seeks to contribute toward sustainable development by integrating an investor's values or sustainable investment attributes into their investment decisions (Busch et al., 2016; Eurosif, 2018; Glac, 2008).

## I.3 History of Sustainable Investing

In early biblical times, Jewish law established directives on investing ethically. Centuries later, religious organizations followed that ethos by shunning investments in specific industries considered to have negative societal impacts, such as the Quakers, who disallowed investing in war and slavery, and Methodists, who employed stock screening methods since the 1700s (Sherwood & Pollard, 2019). Other religious groups embraced ethics-based investing philosophies; Sharia, or Islamic Law, forbids banks to invest in alcohol, gambling, pork, and other restricted products (Esty & Karpilow, 2019; Eurosif, 2018).

While it is likely that the Quakers and Methodists brought the concept of social responsibility in investing to the new world, their practice was predominately exclusionary. Today, however, SI refers to taking a more proactive stance toward assessing sustainability risks to all companies in a portfolio and determining how well each one addresses the risks relevant to its business. This process began to materialize in the United States in the 1960s. At that time, anti-Vietnam war and civil rights came to the forefront of the American community, quickly followed by concerns about women's rights, labor issues, and anti-nuclear sentiment during the 1970s. The notion of social responsibility and accountability continued to escalate in the 1980s as millions of people, churches, universities, cities, and states focused investment strategies on pressuring the white minority government of South Africa to dismantle the racist system of apartheid (Schueth, 2003). In later years, environmental concerns emerged as vast amounts of new information regarding global warming and ozone depletion came to the American public's attention. Human rights, labor conditions, and the Covid pandemic have recently become catalysts for investors worldwide looking to support sustainability causes (Díaz et al., 2021; Garel & Petit-Romec, 2021).

It wasn't until 2004 that this modern perspective on sustainable investing received global attention. Former United Nations Secretary-General Kofi Annan invited the chief executives of major financial institutions to participate in the UN Global Compact initiative, a program designed to integrate sustainability considerations more broadly into capital markets. This program resulted in the Principles for Responsible Investment (PRI), a plan endorsed and promoted by the New York Stock Exchange in 2006. The PRI's six principles encourage asset managers to think wholistically about ways sustainable and ethical investing principles could become a more significant part of investment firms' daily investment activities (PRI, 2021; United Nations, 2006).

The Six Principles for Responsible Investment offer a menu of possible actions for incorporating ESG issues into investment practice. PRI's Six Principles are voluntary and aspirational, but in agreeing to the terms, a signatory commits to act in the best interests of their beneficiaries along with sustainable investing. Signatories believe sustainability issues can affect the performance of investment portfolios to varying degrees across companies, sectors, regions, asset classes, and through time. Signatories also recognize that applying these Principles may better align investors' values with broader objectives of the society. Appendix A details PRI's Six Principles.

### I.4 Current Status of Sustainable Investing

During the past decade, sustainable investing has experienced explosive growth worldwide. According to the Global Sustainable Investment Alliance (GSIA) in its 2020 report, sustainable investing has grown in absolute and relative terms. At the start of 2020, global sustainable investment reached $35.3 trillion in the five major markets covered in their report, representing a 55% increase in the past four years (2016 to 2020). Sustainable investment assets

under management comprise over 35.9% of total assets, up from 33.4% in 2018. Currently, sustainable investing represents more than 62% of total professionally managed assets in Canada, followed by Europe (42%), Australiasia (38%), the United States (33%), and Japan (24%) per the Global Sustainable Investment Alliance (2021).

In addition, the total US-domiciled assets under management using sustainable investing strategies grew from $12.0 trillion at the start of 2018 to $17.1 trillion at the beginning of 2020, an increase of 42 percent. This growth represents 33% – or one out of every three dollars – of the total US assets under professional management (US SIF, 2020).

According to Principles for Responsible Investing (PRI), the United Nations initiative designed to promote sustainable investing discussed above, over $121 trillion in assets are currently managed under a sustainable investment methodology, an increase of 17% between 2020 and 2021 alone (PRI, 2022). Since its founding in 2006, PRI has grown from 100 signatories to over 3,826 signatories. PRI uses the term "signatories" to classify asset owners, investment managers, and professional service partners who commit to including sustainability factors in their investment decision-making and ownership.

However, increasing public awareness of sustainable investing does not amount to understanding what it is or how to execute a suitable strategy around it (Woods & Urwin, 2010). While investor interest in SI has grown considerably, especially given the recent COVID pandemic (Garel & Petit-Romec, 2021), adoption and integration of sustainable investment practices by individual investors has not (Friede et al., 2015; Hirst, 2017; Lewis et al., 2016; Paetzold & Busch, 2014). Investor surveys find a correspondingly low level of sustainability exposure within portfolios. According to the CFA Institute (2020), 69% of individual investors have expressed an interest in investing in products incorporating ESG or sustainability factors,

but only 10% currently do so. Among retail investors aged 25 to 34, only 19% use ESG strategies, and only 3% of those 65 and older use ESG strategies. Additionally, 70% of investors perceive integrating ESG investment as a challenge (Schroders, 2020).

### I.5 Barriers to SI

Few investment decisions are more polarizing and fraught with misunderstanding than sustainable investing (Statman, 2008). Many investors believe their expertise in sustainable investments is inadequate (SSGA, 2020). Further, few investment professionals know how to advise clients on it. According to the CFA Institute (2020), approximately 11% of financial advisors and asset managers feel proficient in SI matters, and only 19% offer or promote sustainable investing products to their clients. Surprisingly, only 10% of global professionals receive formal training (Friede, 2019). Another study by Ernst & Young LLP (2015) confirms that less than a quarter of investment professionals consider extra-financial information in their investment decisions. As a result, financial advisors and investment managers often do not inform retail clients about sustainable investing (Schrader, 2006) since they know little about it. This lack of competent guidance further inhibits individual investors from investing according to their SI preferences (Eurosif, 2018).

Investors nor advisors are sure how to follow SI frameworks. For example, at the core of sustainable investing is incorporating an evolving language of sustainability issues, terms, and indicators into the investment process (CFA Institute, 2018), which makes SI a challenge. However, extant literature identifies three central themes which stand out regarding investors and their reluctance to invest in an SI framework: (1) confusion around the reporting of ESG and SI criteria, (2) a misunderstanding around financial performance, and (3) misrepresentation of sustainability labeling, known as Greenwashing. Each are discussed in more detail below.

**Confusion and Data Reliability**

A significant barrier slowing down good intentions involves confusing claims around the sustainability landscape (West & Polychronopoulos, 2020). One of the challenges of sustainable investing is that no established sustainability taxonomy exists, which causes investors to conflate sustainable products and processes (CFA Institute, 2020). While there is a need for different types of products to meet various investor needs, the practical challenge has been confusion between these strategies and their intended outcomes (Starks, 2021).

Additionally, while various organizations and institutions are currently developing standardized frameworks for ESG reporting, sustainability disclosures vary significantly between corporations. As a result, investors often cite a lack of comparability, lack of standards, lack of reliability, and lack of quantifiable sustainability-related information (Amel-Zadeh & Serafeim, 2018; Starks, 2021). Investors assert that sustainability data must become more trustworthy to take action (Busch et al., 2016).

Further, investors and executives are conflicted on disclosures for several reasons. On one side, investors believe that most corporate reporting is insufficient, and a debate exists around the issue of how much companies should disclose concerning their sustainability profiles and activities (Starks, 2021). In particular, investors want companies to provide more sustainability disclosures that are material to financial performance, although there is little agreement on what constitutes material sustainability issues (Whelan et al., 2020). On the other hand, firms release a wealth of information in the form of sustainability data, and the volume of reporting issues raises the question of which sustainability data are material (Khan et al., 2016; Lewis & Pinchot, 2017)

The confusion corporations have around sustainability disclosure is slowing the pace of improvements in this area (T Rowe Price, 2020). Executives indicate that reducing the number of reporting standards around sustainability would be beneficial. Doing so would help alleviate the hurdles they experience navigating reporting standards and address the fact that they are overburdened with data requests (Eltogby et al., 2019). Further, many executives believe legal mandates for reporting should be put in place since much of the reporting is discretionary (McKinsey & Company, 2004).

The lack of financially relevant SI information published by listed companies (Hummels & Timmer, 2004) and a lack of information transparency (Schrader, 2006) are just a few obstacles adding to the diffusion of acceptance. Another is the increase in the number and complexity of financial products available in the SI marketplace. In 2010, the ten largest funds held 70.6% of sustainably invested assets under management; in 2020, the ten largest funds accounted for only 38%, suggesting a significant growth in the number of new sustainable funds, according to Sustainable Research and Analysis LLC (2021). At the start of 2010, 149 mutual funds and 16 exchange-traded funds (ETFs) in sustainable investing existed; by 2020, those numbers had increased to 977 mutual funds and 116 ETFs. Rebranding of mutual funds and ETFs has been the root cause of this (Nason, 2020).

The plethora of research organizations vying for their attention adds to the confusion among investors. Estimates are that over 650 organizations produce sustainability-related research, and approximately 150 offer sustainability ratings (Mercer, 2022), each providing their version of reporting metrics and ratings. Table 1 below provides a few notable organizations that provide sustainability research or reporting (in no particular order).

**Table 1: Sustainability Research and Rating Agencies**

| Rating or Reporting Agency | Rating or Reporting Agency | Rating or Reporting Agency |
|---|---|---|
| Equator Principles | Eurosif | US SIF |
| Global Impacting Investing Network | Global Initiative for Investment Ratings | Global Thinkers Forum |
| Greenhouse Gas Protocol | Interfaith Center on Corporate Responsibility (ICCR) | Intentional Corporate Governance Network (ICGN) |
| Overseas Private Investment Corporation (OPIC) | Sustainable Investment Research Initiative Library | Responsible Investor |
| MSCI, Inc | Sustainalytics (Morningstar) | The Conference Board Center for Corporate Citizenship and Sustainability |
| The European Center for Corporate Engagement (ECCE) | United Nations Global Compact | United Nations Principles for Responsible Investing (UNPRI) |
| World Business Council for Sustainable Development | yourSRI | CDP Global |
| Task Force on Climate-Related Financial Disclosures (TCFD) | International Financial Reporting Standards Foundation (IFRS Foundation) | ISS Environmental & Social Quality Score |

This abundance of organizations makes it difficult for investors to know where to get information and which information to trust. However, much headway has been made around standardized metrics. The IFRS Foundation formed the International Sustainability Standards Board (ISSB). Further, it consolidated the Climate Disclosure Standards Board (CDSB) and the Value Reporting Foundation (VRF), which houses the Integrated Reporting Framework and the Sustainable Accounting Standards Board (SASB), in June 2022. These are major international ESG and sustainability reporting agencies. IFRS Accounting Standards are currently required in more than 140 jurisdictions and permitted in many more. In September 2020, the World Economic Forum and its International Business Council (IBC) published a new, consolidated set of ESG global standards. This core collection of 'Stakeholder Capitalism Metrics' consolidates existing metrics (from SASB, TCFD, and GRI) into a more consistent option for companies to measure and report on their progress in areas of the UN's Sustainable Development Goals (SDGs). In September 2020, five leading framework and standard-setting organizations—CDP, CDSB, GRI, IIRC and SASB—announced a shared vision for a comprehensive corporate

reporting system that includes financial accounting and sustainability disclosure, connected via integrated reporting. Still, while much progress around sustainability reporting and rating has been made, a profusion of available data complicates the SI landscape.

As a result, the information discrepancy and deficiency surrounding SI prevent investors from following through on their intentions and complicate financial decision-making around SI. It also influences decision-making through various heuristics and biases (Sahi, Arora, & Dhameja, 2013), resulting in investors potentially making errant decisions when investing in a sustainable framework (Hammond, Keeney, & Raiffa, 2006; Daniel Kahneman, 2013).

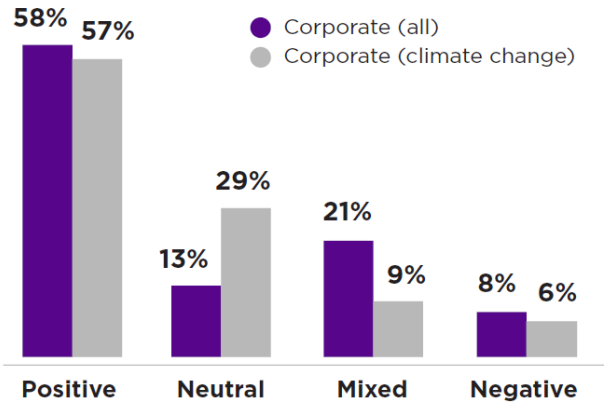
**Financial Performance**

In addition to confusion surrounding SI factors, investors' fears of low financial returns are potential deterrents (Glac, 2009; Lewis, 2001). According to the CFA Institute (2020), while 67% of retail investors would be willing to give up some return to meet the values objective, research indicates they may not have to. Research has shown that sustainable companies generally perform on par or outperform their counterparts over the long term in terms of stock market performance and accounting performance. Academic studies (Friede et al., 2015; Nilsson, 2008; Statman, 2008; Whelan et al., 2020), as well as practitioner studies and reports (Bioy, 2022; CFA Institute, 2018; Morgan Stanley, 2019; RBC Global Asset Management, 2019), have shown that sustainable investing performs as well if not better than conventional investing strategies. Others state that disadvantageous performance in SI has abated in recent years (Friede, 2019).

NYU Stern Center for Sustainable Business and Rockefeller Asset Management examined the relationship between sustainability and financial performance in more than 1,000

research papers from 2015 to 2020 (Whelan et al., 2020). Their research focused on the correlation between sustainability performance and financial returns based on companies' operational metrics such as return on equity (ROE), return on assets (ROA), and stock price. As shown in Figure 2 below, sustainability and financial performance had a positive relationship for 58% of the companies studied, indicating that companies with favorable sustainability performance also had better financial returns. Approximately 13% of the studies showed a neutral impact (meaning the companies performed similarly to traditional investments), and 21% showed mixed results (the same study found positive, neutral, or negative results). Only 8% of the companies studied had a negative relationship between sustainability performance and financial returns.

**Figure 2**: **The relationship between Sustainability and Financial Performance based on studies focused on operational metrics such as ROE, ROA, or stock price**

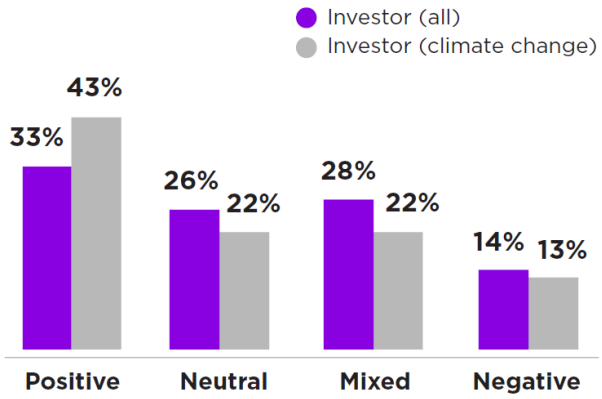



*Source: Whelan et al., 2020*

The second part of their research focused on investment studies that analyzed risk- and return-adjusted attributes such as alpha (a measurement of excess returns) or Sharpe ratio (a measure of risk-adjusted returns). As shown in Figure 3 below, 59% showed similar or better

performance than conventional investment approaches, while 28% were mixed, and 14% found negative results.

**Figure 3: The relationship between Sustainability and Financial Performance based on risk- and return-adjusted metrics, such as Alpha and Sharpe Ratio**




*Source: Whelan et al., 2020*

The logic behind investors thinking SI returns are lower than traditional investments may stem from a belief that there are fewer investment opportunities in the sustainability space. Modern portfolio theory assets that portfolios will be more efficient (i.e., have higher expected returns, lower expected volatility, or both) with a larger universe of investments (Markowitz, 1959). SI operates within a smaller universe; therefore, following an SI framework will result in less efficient portfolios. However, SI advocates claim that eliminating companies that engage in unsustainable activities or practices will result in a fewer but more superior choice of investment options. The smaller investment universe comprises better performing assets, and any loss of portfolio efficiency is more than offset by the attractive investment characteristics of the remaining companies (RBC Global Asset Management, 2019).

Others, however, believe that SI is not an investment strategy or perceive there is no business case for following such a framework (Friede, 2019). Aswath Damodaran (2021), a well-regarded New York University finance professor, has denounced sustainable investing as "a

mistake that will cost companies and investors money while making the world worse off." Many subscribers to this train of reasoning cite Milton Friedman's (1970) view on shareholder theory, which states that a business's social responsibility is to increase profits. Also known as the Friedman Doctrine, this theory asserts that companies should focus on the business and not divert resources from income-producing projects. They should let shareholders decide what social initiatives to take part in because it is questionable if social responsibility translates into increased profits and shareholder wealth (Orlitzky, 2015).

Investors express disinterest in sustainable investing because they lack belief or familiarity with the fundamentals of investing in it (Paetzold & Busch, 2014). Some believe it is a myth, "hot air," or a fashion word used as a sales argument (Busch et al., 2016; PitchBook, 2021). Others claim SI is a waste of time. It may make companies reevaluate their way of doing business, but it does nothing to save the planet. The shares trade hands between a buyer and a seller in the secondary market, and the company has little repercussion in the transactions (Mackintosh, 2022). In other words, oil companies will still drill for oil.

Other analysts note that a simple comparison of the performance of an SI index with a comparable traditional investment index, while intuitively appealing, is insufficient to determine if SI performed better, the same, or worse than conventional investing techniques. Differences in index construction, sustainability evaluation processes, style, industry, size biases, or growth biases make a comparison of results ambiguous, inconclusive, or contradictory (Friede et al., 2015). For example, RBC (2019) noted that some sustainability models favor large capitalization firms with more resources to dedicate to corporate social responsibility, or CSR, activities. Additionally, recent examinations of the performance and flows of sustainability funds and firms during the Covid pandemic have come to mixed conclusions (Starks, 2021).

Further, empirical studies have not addressed causal factors; existing studies leave doubt as to whether more sustainable companies create financial value – or whether more financially valuable companies invest more in sustainability (Esty & Cort, 2017).

In theory, the truth around SI performance should attract rational retail investors; however, public knowledge about sustainable investments' financial performance remains fragmented and prevents investors from following through on their intentions.

**Greenwashing**

Another formidable barrier investors face is mistrust towards the marketed merits of SI products, resulting in investors refraining from looking for a suitable product (Nilsson, 2008; Torelli et al., 2020). Greenwashing, where a company makes unsupported, exaggerated, or misleading claims about its commitment to being eco-friendly, was cited as one of the main deterrents to investors investing in SI instruments (Delmas and Barbano, 2011). Greenwashing is a marketing ploy to persuade the public that its product, aims, and policies are environmentally friendly; however, the inherent motive is to improve the public's perception of the company and its brands to enhance profit.

Greenwashing is not a new concept; the term has existed since the 1980s. Hotels placed placards in rooms promoting the reuse of towels ostensibly to "save the environment" when their ulterior motive was to lower washing costs. While the term has gained considerable recognition in recent years, its use has escalated as companies strive to meet growing consumer demand for greener products and services (Dahl, 2010).

Despite the growing concerns surrounding greenwashing, there are many shades of green, and professionals are still coming to terms with a formal definition of “green” or “sustainable.” As a result, characterizing what is green is not clear-cut. However, researchers and practitioners

have identified several forms of greenwashing that affect consumer and investor perceptions of companies and their products.

TerraChoice (acquired by UL, one of the world's oldest independent testing and certification organizations) evaluated claims regarding companies' operations, products, and services around sustainability. Based on the original study and subsequent studies, they identified the Seven Sins of Greenwashing to help consumers identify products that make misleading claims, from the egregious to the relatively benign (UL, 2016). Appendix B details UL's Sins of Greenwashing.

Maria Maisuradze, founder of Education for Sustainability (ED4S), an education and training service provider on ESG and sustainable finance, delineates greenwashing in three areas, shown in Table 2 below. Distinguishing the attributes of greenwashing is challenging, but according to Maisuradze (2022), "This is where the investors and their advisors' responsibility is to be knowledgeable enough to conduct a proper due diligence and ensure alignment with the investor's views and values."

**Table 2: Classification of Greenwashing**

| Classification | Example |
|---|---|
| Misinformation / Fraud by the company or fund | Volkswagen Scandal regarding its diesel emissions, Morningstar delisting 1200 funds from its Sustainable Funds list |
| Corporate social responsibility efforts used as a marketing tool, while not embedded in the company's core strategy | Committing to Net Zero emissions without a clear plan for short- and medium-term targets |
| Misalignment between investor's expectations and fund's investment strategy | A fund that uses Best-in-Class strategies may still have some child labor practices within the value chain of its portfolio companies, but to a lesser extent than the industry average, while the investor is expecting exclusion of child labor from the portfolio. |

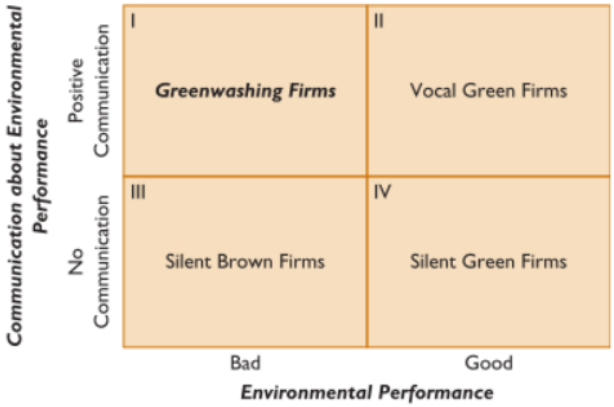
*Used by permission of ED4S. Personal correspondence, April 2, 2022*

There are other classifications around greenwashing. Torelli et al. (2020) identify four primary greenwashing levels characterized by specific goals and communication procedures: the corporate level, strategic level, dark level, and product level. These different levels of

greenwashing influence stakeholders' perceptions of corporate environmental responsibility and the stakeholders' reactions to environmental scandals. Gillespie (2008) identifies "ten signs of greenwash," ranging from "fluffy language" (words or terms with no apparent meaning such as "eco-friendly") to "outright lying" (totally fabricated claims or data). Further, Delmas and Burbano (2011) propose a typology of firms based on environmental performance and communication, depicted in Figure 4 below. Firms can fall into one of two ecological performance categories: poor environmental performers (called "brown" firms) or good environmental performers (called "green" firms).

Additionally, they can fall within a communication spectrum ranging from no communication on one end ("silent") to increasing degrees of positive communication on the other end ("vocal"). The authors note that firms can move between quadrants based on environmental performance and public relations strategy. Firms with positive marketing strategies around bad environmental performance are greenwashing, while those who are silent or are environmental stewards are not.

**Figure 4: A Typology of Firms based on Environmental Performance and Communication**




*Delmas and Burbano (2011)*

### *The Drivers of Greenwashing*

Unfortunately, the concepts around greenwashing do not apply solely to corporations and their products. Purpose-washing is a process where investment funds are presented as sustainable investments but do not satisfy a tightly applied definition (Findlay & Moran, 2019). Fund companies are rebranding their investment offerings as green, hoping to grab a portion of investors' interest in sustainable products, but the rebranding has often been in name only (Shifflet, 2021). In 2020, companies that managed mutual funds and exchange-traded funds rebranded a record 25 funds as sustainable; as of June 2021, fund companies have rebranded a total of 64 funds with $35 billion in assets. The American Century Fundamental Equity Fund is now the Sustainable Equity Fund, the USAA World Growth Fund is the USAA Sustainable Growth Fund, and the Putnam Multi-Cap Growth Fund is now the Putnam Sustainable Leaders Fund. Before the name changes, these actively managed funds, and most like them, were experiencing drastic outflows, but after the rebranding, most have seen a reemergence in investment dollars.

Greenwashing is not the only form of disingenuous marketing used in sustainability. Recently, coronawashing has emerged, a practice involving questionable attempts at caring for society amidst the Covid pandemic. Companies increasingly urge the public to be safe considering the current state of affairs. While an admirable message, these same companies had little to no presence in the sustainability space before Covid (Bradley, 2021). A key element of coronawashing is having the perception of providing various means to remediate the global crisis while, not so unsurprisingly, benefiting financially (Rickett, 2020).

Further, bluewashing and social washing are variants of greenwashing that focus on improving a firm’s reputation through social responsibility. Other forms of greenwashing, such as sports washing, pinkwashing, and even woke washing, are coming into the mainstream, all of

which lead to false impressions that negatively impact the integrity of the SI industry. The terms are used to describe deceptive marketing that overstates a company's commitment to responsible practices around human rights, labor and employee conditions, and equality in the workplace. Meanwhile, McKinsey & Company (2004) found that 40% of corporate members who volunteered for the United Nations and its Global Compact Initiative did not use its ten principles to make any policy reform. Instead, they were leveraging the UN's reputation to improve their standing.

While organizations have tended to overcommunicate their green achievements – often to the point of adopting greenwashing tactics – other entities choose deliberately to under-report their green efforts, a process known as "green blushing." Greenblushing, the opposite of greenwashing, is when a company disseminates little to no information about their product or company's sustainable attributes. Corporations invest substantial energy and resources to improve their green performances but do not communicate effectively about their initiatives and successes due to lack of confidence or other reasons.

***Not all Greenwashing***

While sustainability has resulted in many worthy initiatives, market pundits have stated that the broad range of options contributes to a misuse of the term greenwashing. For example, John Hale of Morningstar's Sustainalytics thinks it is essential for investors to understand that there are many SI funds in the marketplace, each with a different investment mandate and focus. "I think it is an important way to avoid people being disappointed, and when people are disappointed in something like this, greenwashing claims come up," he states. Hale advises investors to beware of overusing the term greenwashing because "it is a moving target."

According to Maria Maisuradze (2022), CFA, Founder, and CEO of Education for Sustainability (ED4S), "this should not stop investors from seeking out companies and funds that are systematically and rigorously incorporating sustainability factors into their core business or investment strategy. Luckily, much progress has been made on standardization, disclosure, and verification requirements. In February 2022, Morningstar stripped some 1,200 funds of their sustainable tag for not delivering on their stated sustainability goals. So Greenwashing is becoming harder and harder in the investment field. Good due diligence that covers a company's or fund's sustainability efforts should largely reduce the risks and is based on common sense." There are no defined rules in sustainable investing, and investors, consumers, and stakeholders must remember that sustainability is a journey for a company, not a destination.

In short, depending on a company's structure, resources, industry, and culture, the sustainability journey may take different paths, which may not align with a specific investor's views or expectations. Therefore, industry pundits state that avoiding greenwashing starts with a general understanding and common sense.

# II LITERATURE REVIEW

While they want to do good in the world while doing well in their portfolio, investors have trouble integrating the two concepts. Literature on individual investors' motivations is abundant; however, there is a lack of sufficient research on the decision-making process behind individual investors investing in sustainable investments (Glac, 2009). Little is known about how investors select investments with explicit non-financial attributes (Renneboog et al., 2008) or their motivations for considering corporate pro-social behavior in investment decisions (Amel-Zadeh & Serafeim, 2018).

The literature review and my data show individual investors are interested in SI, but the execution is lacking. Research to date has not examined why there is a lack of involvement by individual investors. Therefore, this lack of participation begs the question, how do individual investors incorporate sustainability-related experiences, information, learning, or a combination of these in deciding to invest in sustainable investments? My research question identifies why and provides a path to enable it.

Broadly, sustainable investing integrates specific non-financial concerns in the investment process. At the individual level, on the other hand, sustainable investing has different meanings for each investor. Sustainable investors invest to gain peace of mind and consistency between their values and investments, improve the world, and realize suitable financial performance (Massa, 2003; Renneboog et al., 2008). At the same time, retail investors face a series of complex decisions when considering investment choices.

Implementing a sustainable investment strategy is complex for three reasons. First, SI investors want to do more than avoid companies that fail to meet their values-based investment strategies, such as alcohol, gambling, and cigarettes; these investors seek to invest in

sustainability leaders (Lewis et al., 2016). For this reason, they must identify those leaders, which is problematic given that no standardized definitions or reporting requirements exist. While rating agencies abound, none have proven themselves as a market leader (Busch et al., 2016; Esty & Karpilow, 2019).

Second, sustainable investors care about earning positive portfolio returns (Bernow et al., 2017; Khan et al., 2016). While many investors may be willing to accept lower returns than conventional investment strategies, they still want positive returns (Esty & Cort, 2017). Further, sustainability factors are in investment decisions, and investors can and should pursue financial performance (PRI, 2021).

Third, individuals define SI differently and analyze opportunities differently, resulting in discrepancies between investment choices and decisions among investors. For example, an investor may invest in the cannabis industry due to its medicinal properties while another eschews its negative societal impact. Further, one environmentalist may believe nuclear power is critical to a low-carbon future, while another sees nuclear power as dangerous and potentially harmful to the environment. In other instances, some investors may view a company's past practices as problematic, while others may consider the company's current efforts beneficial to driving future growth. Regardless, divergent views cause disagreements in analysis (Cort & Esty, 2020).

In short, investors coveting sustainable investments are no longer interested solely in the "negative exclusion" strategies of the past and instead seek to bring an SI tilt to their portfolios, calibrated to their own desired levels of sustainability and financial returns (CFA Institute, 2020; Esty & Karpilow, 2019).

## II. 1 Investor Motivators and Behaviors

While investors have barriers and inhibitors that dissuade them from investing in sustainable investments, people are generally motivated to apply their sustainability concerns to their investments. Two main reasons support this. The first is to improve investment results by controlling risk and enhancing return by considering relevant sustainability risks and opportunities. The second is to improve the world, either by investing in companies that are not harmful (i.e., avoid negative impact) or ones that make a difference (i.e., seek positive effects) (Hale & Svidler, 2021).

Throughout the literature involving sustainable investing, four main themes have emerged. First, all investors are looking for financial return, whether acting in conventional or socially responsible contexts. It is clear that SI investors intend to receive positive returns; their motives are not acts of charity or pacification of a guilty conscience (Hale, 2021). However they are generally willing to accept a return differential between their SI-themed portfolios versus conventional investment strategies, indicating they may benefit from their investments' financial and non-financial characteristics (Lewis & Mackenzie, 2000; Webley et al., 2001).

Additionally, extant literature suggests that some investors engage in SI for social identity reasons. They may view it as a contributor to their image, their way of life, or an expression of their identity (Chatterji et al., 2009; Rosen et al., 1991; Statman, 2010). These investors are concerned that a firm's decisions today affect its future reputation and, by extension, those who invest in them. Rosen et al. (1991) state that these investors seek high-quality environmental management to avoid future social stigmas and enhance future social status.

Similarly, some investors are interested in avoiding certain companies or industries for ethical and values-based reasons. In this case, they avoid investments in firms with unacceptable ethical or environmental practices because they consider it unethical to profit from irresponsible companies (Chatterji et al., 2009; Lewis, 2001).

Lastly, some investors operating under an SI framework want to positively impact companies doing good in the world and negatively impact those that are not. These investors may take a proactive stance in convincing a firm to act ethically, but generally, they want to invest in firms already doing that. These investors are looking for firms that are doing good things in the world by rewarding responsible management decisions today (Esty & Cort, 2017).

In the end, the most significant motivation for investors engaging in SI opportunities is the utility they receive from owning securities of companies consistent with their values and societal concerns (Bollen, 2007).

### II. 2 Investor Strategies

This study uses an inclusive definition of ESG factors to refer to sustainable investing. However, there are different types of sustainable investing strategies.

Various entities, organizations, and researchers have identified between three and nine multiple classifications of sustainable investing strategies (Bradley, 2021; Busch et al., 2016; CFA Institute, 2020; Chatterji et al., 2009; Cort & Esty, 2020; Esty & Cort, 2017; Eurosif, 2018; GSIA, 2018; PRI, 2018).

The diverse classification presents yet another potential point of confusion among investors, advisors, and management firms. At the same time, however, seven main categories have

emerged in the literature, listed below in Table 3. These approaches are not mutually exclusive; an investor may implement multiple strategies at any given time.

**Table 3: Classification of Sustainable Investing Strategies**

| Classification | Description | Example |
|---|---|---|
| Negative/Exclusionary screening | Values-based system applying negative screening criteria; excludes securities, issuers, or companies from the product based on certain ESG-related activities, business practices, or business segments. | No weapons, nuclear, fossil fuels, tobacco, etc., allowed |
| Positive/Best-in-Class screening | Only the best performing firms in each industry; investment in sectors, companies, or projects selected for positive ESG performance relative to industry peers | Only the best 10% that use ESG criteria |
| Norms-Based screening | Addressing specific aspects; screening of investments against minimum standards of business practice based on international norms | Only firms with ISO 14001 certification, those listed as a B-corp, or attaining industry-recognized ESG certification standards |
| ESG Integration | Integration of ESG aspects into traditional financial analysis; explicitly considers ESG-related factors that are material to the risk and return of the investment, alongside conventional economic factors, when making investment decisions | In-house research of many institutional investors |
| Thematic/ Sustainable Themed Investing | Specific sustainable-themed investment; aims to invest in sectors, industries, or companies expected to benefit from a long-term macro or structural ESG-related trend | Invest in cleantech funds, clean energy, green technology, sustainable agriculture |
| Impact/Community Investing | Impact comes first (over financial considerations); targeted investments aimed at solving social or environmental problems | Investing in underserved communities or providing financing to businesses with a clear social or environmental purpose, e.g., microfinance to help farmers in India |
| Corporate Engagement, Shareholder Action, Voting | Active ownership: the use of shareholder power such as proxy voting to influence corporate behavior, engagement, and stewardship | Initiate or propose shareholder resolutions |

According to the CFA Institute (2020), the most used features are best-in-class/ positive screening (used by 56% of survey respondents) and sustainability integration (53%), followed by negative/ exclusionary screening (48%). Approximately 40% of investors use voting, engagement, and stewardship, while 35% use a thematic investing style. Other research sources indicated that negative screening is the most common (GSIA, 2018), although the alternative categories have increased, especially sustainability integration (Bernow et al., 2017; Lewis, 2001; Lewis & Pinchot, 2017). According to these authors and researchers, investors are more interested in pursuing opportunities outside negative/exclusionary criteria but find it challenging to do so given the confusing, complex, and unreliable data.

### II. 3 Sustainable Investing Frameworks

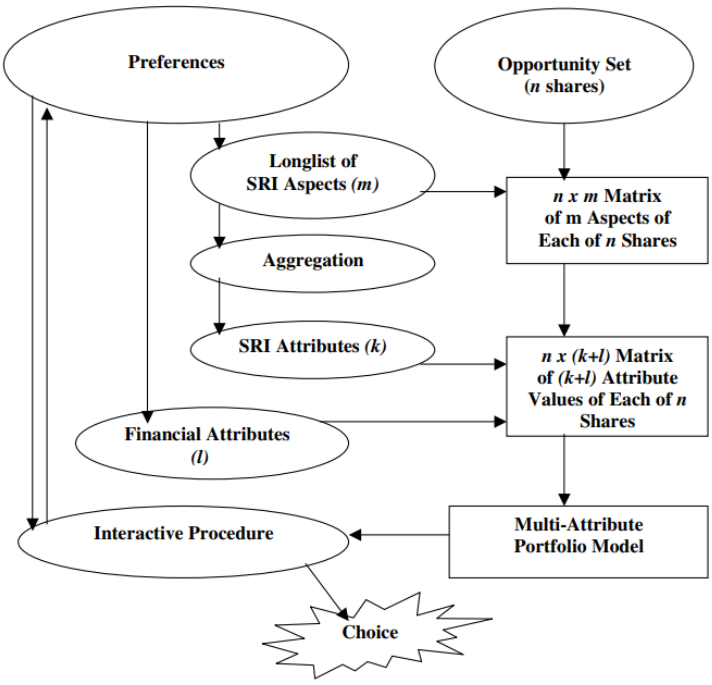
The early days of SI focused on avoiding certain companies or industries, known as exclusionary screening. It was a relatively easy concept to implement – investors would not invest in alcohol, tobacco, or other sectors which they felt were detrimental to society. When it comes to sustainable investing today, the fundamentals have changed significantly.

Per Hallerbach et al. (2004), investors face a series of problems in determining how to invest in a SI framework. First, incorporating sustainability components of companies complicates the investing decision even more. One issue involves defining – and measuring – the degree of sustainable investing an individual investor is willing to undertake. Each investor has different views on which factors are considered critical, how to estimate them, and how important they are relative to each other. However, while many environmental, societal, and governance issues exist, investors need to identify the critical factors in their investment decision. Additionally, the question exists of selecting and combining shares of different firms into a portfolio that best meets the investor's preferences.

Figure 5 shows Hallerbach et al.'s recommended structure to solve these two complex problems. The first step is identifying the critical financial characteristics in making an investment decision and determining the significant attributes concerning sustainability. As the left side shows, the traditional investing framework, where an investor identifies the financial characteristics necessary to warrant an investment, is still a vital step. There is a long list of options for the SI attributes that the investor must prioritize.

The second step entails the portfolio mix depicted on the right side of the figure. Here, the investor identifies the portfolio's assets as the opportunity set in the picture. The opportunity set includes the potential securities that meet the investor's security attributes. The stocks are then compared to the financial and sustainability characteristics to determine if they should be included in the portfolio.

**Figure 5: A Framework for Selecting SI Assets**

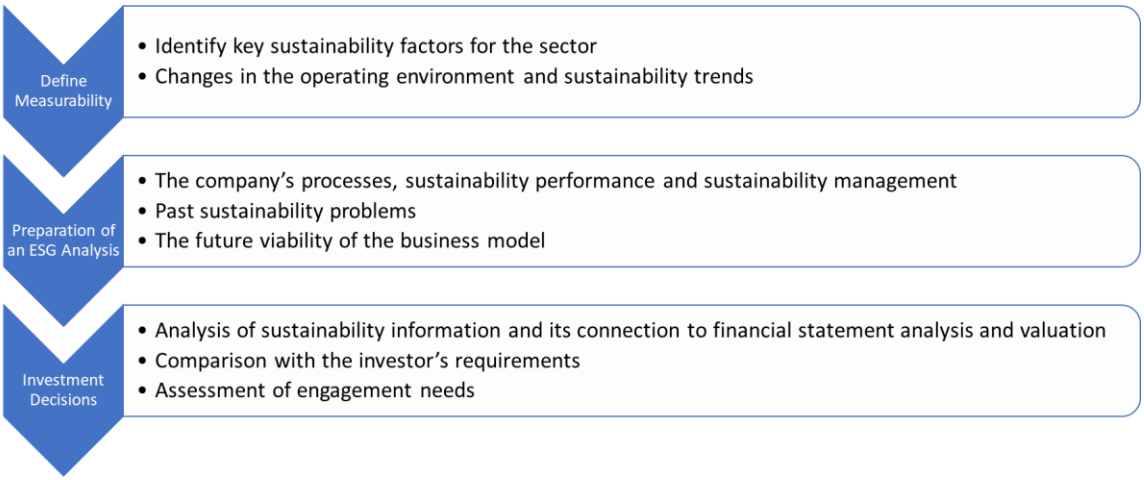



*Hallerbach, et al. (2004)*

Other researchers and practitioners have provided models similar to Hallerbach et al.'s model. Bradley (2021) explains that investors new to sustainable investing should first conduct qualitative analysis to identify the material factors most likely to impact a company's financial condition. Investors can conduct due diligence by gathering relevant intelligence from different sources, such as company reports and research organizations, then incorporate that into their quantitative valuation models accordingly.

In *Sustainable Investing, Beating the Market with ESG* (2021), authors Hanna Silvola and Tiina Landau point out that preparing an in-depth sustainability analysis begins with identifying sustainability themes that are material in terms of investment analysis. They further point out that sustainability reports are not standardized in quality and coverage but are evolving steadily. Additionally, reports usually focus on the past while investors try to predict the future. However, they are the best predictions for what may happen in the future, and traditional investment analysis can integrate forward-looking information. Figure 6 summarizes the process they recommend.

**Figure 6: Process Description of Sustainability Analysis**




*(Silvola & Landau, 2021)*

In 21st Century Investing, Burckart and Lydenberg (2021) believe that SI requires more than re-evaluating conventional investing. Current thought on sustainable investing is not enough, either. SI requires sustainable investors to intentionally manage the risk and rewards, which they refer to as system-level investors. The authors advise investors to follow a six-step process: set goals, decide where to invest, allocate assets, apply investment tools, leverage advanced techniques, and evaluate results. Burckart and Lydenberg acknowledge that this six-step process requires balancing multiple considerations that may appear burdensome at first. However, they claim this need for balance is inherent in conventional investing. For example, investors must balance risk and reward, income and asset appreciation, social benefit and financial returns, public good or harm, and private gain. In their opinion, sustainable investors should not ask themselves, "What are the carbon emissions and working conditions of our investment?" Instead, they should ask themselves, "What can we, as investors, do to minimize the risk of client climate change globally and prevent abusive labor throughout all supply chains?"

Sustainable investing differs from traditional investing in two ways (Hale, 2021). First, it aims to improve the conventional investment analysis. By incorporating sustainability criteria, investors get a clearer understanding of an investment. Second, sustainable investing considers the broader ESG impact of the investment (referred to as double materiality). A sustainable investment can have either an impact or environmental perspective, a financial perspective, or both.

### II. 4 Efficient Market Hypothesis

In 1953, Maurice Kendall, a British statistician, examined the behavior of stock prices over time, assuming that stock prices reflect a firm's financial prospects. If that were the case,

recurrent patterns of peaks and troughs in economic performance should show up in those prices. However, in his paper "The Analytics of Economic Time Series" (Kendall & Hill, 1953), he found no discernable pattern in stock prices. Before his discovery, financial economists believed that the stock market was dominated by erratic market psychology that followed no logical rules. On the other hand, Kendall proposed that random price movements indicated a well-functioning or efficient market, not an irrational one. Kendall's theory had been proposed before, but his research was conclusive and led to the basis of the random walk hypothesis proposed by Burton Malkiel and the closely related efficient-market hypothesis proposed by Eugene Fama. Both advance the notion that random price movements indicate a well-functioning, efficient market.

Kendall's discovery indicated that a forecast about the favorable *future* performance of a stock leads to a favorable *current* performance because market participants will try to take advantage of the current price before it increases. As soon as new information becomes available, investors will rush to buy the stock, quickly bidding its price to a reasonable level where ordinary rates of return can be expected. If a stock is reasonably priced, it will reflect all current information and respond only to new information, which is, by definition, unpredictable; if further information could be predicted, then the prediction would be part of today's information. Therefore, stock prices that change in response to new (i.e., unanticipated) information must also move unpredictably; it cannot be predicted from earlier shifts in the stock price. In a market where stocks are fairly valued, their prices will wander randomly. Stock will be equally likely to offer a high or low return on any particular day, regardless of what happened on previous days. This led to Burton Malkiel's theory that stock prices change randomly, which he coined the "Random Walk" (Malkiel, 2016). Malkiel postulated that randomly evolving stock

prices would be the necessary consequence of intelligent investors looking to identify relevant information on buying or selling stocks before anyone else in the market becomes aware of it.

Prior to Malkiel forming his Random Walk Hypothesis, Eugene Fama, a Nobel Laureate in Economics, theorized that stock market prices reflect all available information (Fama, 1970). He asserted that the primary role of the capital market is the allocation of ownership of the economy's capital stock, and the ideal market is one in which prices provide accurate signals for resource allocation. According to his theory, investors can invest in securities assuming that security prices "fully reflect" all available information. The market in which prices always "fully reflect" available information is called "efficient," and his theory became known as the Efficient Market Hypothesis, or EMH, and remains one of the cornerstones of modern finance theory (Brigham & Houston, 2020).

Fama's Efficient Markets Hypothesis states that it is virtually impossible to outperform the stock market over the long term. Investors may occasionally buy a stock that provides a substantial profit, but portfolios that consistently beat the market are unrealistic (Brealey et al., 2023).

In an efficient market, investors can be confident that they are getting reasonable prices when buying and selling stocks. However, the EMH theory has been controversial since its introduction and is the subject of much discussion and debate today (Bodie et al., 2022). Some people think that markets are highly efficient, some believe that markets are highly inefficient, and others feel that the problem is too complex for a simple answer. Economists believe there is no means to develop a perfect test for EMH; therefore, it cannot be proven empirically (Brigham & Houston, 2020). Further, researchers and practitioners dispute whether inefficiencies are due to an imperfection in an investor's model or if it is due to the market itself (Pilkington, 2016).

For example, upheavals in the market, like price fluctuations due to lack of consumer confidence or negative or positive news, can lead to anomalies.

Those who believe that markets are efficient note that thousands of full-time, highly trained professional analysts and traders operate in the market. Many have degrees in physics, engineering, chemistry, or other technical fields and advanced degrees in finance and business. These analysts are highly trained, have extensive resources, and can dedicate their time to studying and following the 6000 public companies. Further, the SEC has disclosure rules, which, combined with electronic information networks, ensure that new information about a stock is received by all analysts at about the same time, causing almost instantaneous revaluations. To EMH supporters, this translates into efficient markets and stock prices moving toward their intrinsic values.

Other people point to data that suggest that markets are not very efficient. Proponents of an inefficient market believe a specific security's price at any particular time does not reflect its actual value. For example, when information about a recent event becomes available, an efficient market would quickly disperse it into the marketplace, which the security price would soon reflect. There would be gaps and delays in an inefficient market before the stock price reflects the information. Since the asset price would not react immediately to the news, an opportunity for investors to profit or, conversely, to accrue a loss can result.

Market inefficiencies can occur for different reasons, such as externalities. Events such as market-wide crashes, the dot-com bubble in early 2000, and the Covid pandemic revealed market inefficiencies. On May 6, 2010, the Dow Jones Industrial Average fell nearly 1,000 points only to rebound rapidly before the trading day ended. In 2000, Internet stocks rose to phenomenally high prices and fell to almost zero, or close to it, the following year. No essential

news was announced that could have caused these changes. It is difficult to see how drastic actions could have occurred if the market were efficient.

The Covid pandemic is another anomaly caused by externalities. While the S&P 500 Index lost one-third of its value during the COVID-19 crash of February and March 2020, it gained it back by August 2020. The quick recovery of the financial markets in the United States can be partially attributed to the Federal Reserve, which took swift actions to avert a full-fledged financial crisis. Still, these patterns led many to wonder about a possible disconnect between financial markets and the real economy and the relevance of financial market indicators for economic recovery (Goldstein et al., 2021).

Another example of inefficiency is market friction, which occurs when something interferes with trade. GameStop's share price volatility which occurred in early 2021, is an example of market friction. Shares for the firm were selling for about $17.50 when Ryan Cohen, a billionaire investor, took a significant position in the firm to expand the company's online presence. Retail investors following the company on Reddit's WallsStreetBets engaged in a speculative frenzy that drove the stock price to over $480 per share in under two weeks. Firm fundamentals did not justify the run-up in price. When exchanges became concerned about the volatility of GameStop's price and the prospect of broken trades and default by investors, regulators tightened both collateral and lending requirements, and the bubble burst. One week after the firm's stock price reached its peak, it had fallen to 11% of its high. The expected future cash flows were insufficient to justify the exorbitant price increase. The price swings of GameStop, as a result, present an exception to the efficient market hypothesis (Brealey et al., 2023).

Additional proponents of the inefficiency of the capital markets cite asymmetric information, for example, between large market capitalization (aka large-cap) stocks versus small-cap stocks and among emerging market stocks. Large-cap stocks, companies whose market capitalization or stock price times shares outstanding exceeds $10 billion, are widely held by individual and institutional investors. Analysts closely follow them, and their stock prices quickly reflect new information that comes into the market. For example, news of a product recall by Ford or an oil issue with Exxon will likely impact their stock price immediately. However, small-cap stocks with a market capitalization between $300 million and $2 billion are neither widely held nor closely followed. Relevant news may not affect the stock price for hours, days, or even longer, regardless if it is good or bad. Similarly, emerging markets are often not closely-followed, which introduces anomalies, mainly since their accounting disclosure requirements are less rigorous. These inefficiencies allow investors to purchase a stock at distressed or below-market prices.

The efficiency/inefficiency dispute stems from disparate views from researchers and practitioners. The hypothesis assumes that each investor perceives all available information precisely the same as every other investor, which is not likely given individuals' varying ability to analyze and process data. If an investor evaluates a stock as a value opportunity while another evaluates it for its growth potential, the two investors will arrive at different assessments of its intrinsic value. Because investors assess stocks differently, it is impossible to determine what a stock should be worth under an efficient market.

While many financial markets appear reasonably efficient, most of the stock market may fairly reflect tendencies towards efficiency depending on the type of security traded and events occurring in the market; that is not always the case. Price does not always reflect the accurate

value of the stock. Many researchers believe most financial markets do display some form of inefficiency. Richard Thaler (2015), a Nobel Laureate for behavioral economics, suggests all humans are prone to error and behavioral biases. Additionally, research by academicians such as Daniel Kahneman (2013), Amos Tversky (1974), and Paul Slovic (1977), among others, express similar sentiments. Given this line of reasoning, the question we might ask ourselves isn't "Are the markets efficient?" but rather, "How efficient are the markets?"

As discussed further in the data analysis section, the sustainable investment market is fraught with inefficiencies. In the world of SI, not all information is readily available. Investors must contend with asymmetric information and externalities, among other inefficiencies, when deciding to invest alongside their values.

# III THE THEORETICAL BASIS FOR THE RESEARCH

A theory is a statement of relations among concepts within a set of boundary assumptions and constraints (Bacharach, 1989). Generally, when one mentions a theory, that individual refers to an idea, conjecture, or basic explanation about a situation. However, the National Academy of Sciences (1999) states that "the formal scientific definition of theory is quite different from the everyday meaning of the word. It refers to a comprehensive explanation of some aspect of nature supported by a vast body of evidence," such as how organizations function or why people behave in specific ways.

Framing the research question around the scientific definition of a theory (or theories) helps guide data collection, serves as a foundation for data analyses, and is the critical intellectual vehicle for answering the research question to develop a contribution (Mathiassen, 2017). I identified Behavioral Decision Theory (BDT) as a central theory relevant to my study and Nudge Theory as a background theory. These theories emerged as appropriate lenses to examine my study due to their relevance and proven acceptance in the world of finance.

BDT is a psychological theory of human judgment, decision-making, and behavior (Takemura, 2020). It starts with a traditional, normative view of rational decision-making and then tries to understand and incorporate descriptive decision-making patterns of humans.

## III. 1 Behavioral Decision Theory

Numerous theories related to decision-making exist, most of which are bifurcated into two theoretical constructs: normative and descriptive. Normative theories support rational decision-making, that is, how people *ought* to behave; descriptive theories describe how people *actually* behave and make decisions (Aldag, 2012; Simon, 1959). Normative theory prescribes courses of action that most closely conform to the decision maker's beliefs and values.

Descriptive decision theory describes these beliefs and values and how individuals incorporate them into their decisions (Slovic et al., 1977).

Traditional, normative finance theories around investing involve portfolio utility functions and assume that investors are rational and make decisions that maximize their expected portfolio return. For example, modern portfolio theory suggests that an efficient portfolio exists for an individual that will provide the highest anticipated return for each given level of risk (Markowitz, 1952). Additionally, the capital asset pricing model (CAPM) and the Fama-French three-factor model are used to determine an asset's theoretically appropriate required rate of return, enabling an individual to make decisions about adding assets to a portfolio (Fama & French, 2017). Chance-constrained portfolio selection assumes that investors' preferences are representable by the expected utility of final wealth and the probability that wealth will be below a survival or safety level (Charnes & Cooper, 1959). These and other portfolio optimization methods involving linear, quadratic, nonlinear, or stochastic programming assist investors in making rational investment decisions. Unfortunately, they are computationally intensive and often beyond most investors' cognitive bounds.

In turn, descriptive behavioral theories describe an individual's decision-making behavior as attempting to provide a satisfactory and sufficient outcome, better known as *satisficing* (H. Simon, 1955). Instead of identifying optimal solutions, satisficing entails analyzing available alternatives until an acceptable threshold is met. Furthermore, individuals do not always reference themselves against objective standards, which normative models try to do. Instead, individuals measure themselves against internal standards and criteria (Cummins & Nistico, 2002). The internal standards that guide human decision-making include emotions, imagination, limitations in the cognitive processes, mental organization principles, and personal motives,

among others (Haselton et al., 2016; Kahler, 2007; Keren & Teigen, 2004; Pullen, 2004; Simon, 1997).

**Figure 7: Simon's Behavioral Model of Decision-Making**

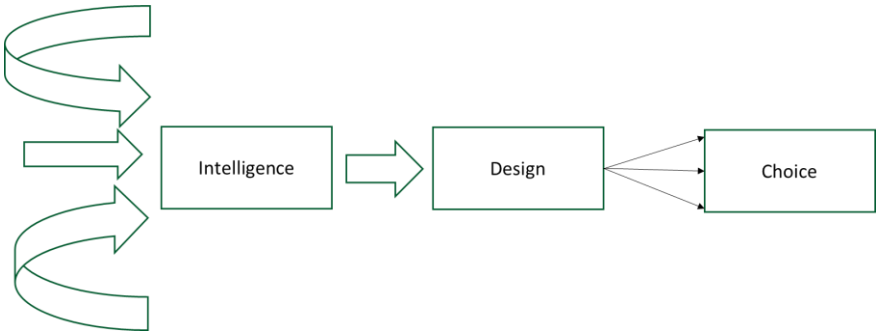



Figure 7 represents Simon's original view of decision-making, which emphasizes structure and order in a three-step sequence. The first is intelligence, which entails reducing the confusing messages of the environment into a manageable diagnosis of a problem. This, in turn, drives the design of the criteria in which alternate solutions to the problem are developed. The criteria are applied to settle on one out of many alternative solutions. The process progresses steadily towards a solution, albeit bounded by people's limited cerebral rationality.

Both normative and descriptive theories reflect the nature of human decision-making. Normative models require behavioral steps, including model composition, data inputs, and interpretation, while descriptive approaches seek a certain level of rationality in human decision-making. Consequently, the two are not mutually exclusive.

One of the most salient examples of descriptive theory is behavioral decision theory. BDT is closely related to behavioral economics and behavioral finance. Behavioral economics attempts to understand human behavior, and behavioral finance studies human behavior in financial markets. Both fields overlap through BDT, a descriptive theory of human decision-

making that focuses on decisions under certainty, those under risk, and others under uncertainty, including ambiguity and ignorance (Takemura, 2014).

BDT covers a wide range of theoretical expressions, including theories that have been developed mathematically (such as prospect theory) and those expressed only with natural language (such as multi-attribute decision-making process models). Behavioral decision theory integrates the normative and descriptive theories (as well as prescriptive ones) that help people make better decisions.

In brief, behavioral decision theory is a general term for descriptive theories to explain the psychological knowledge related to decision-making behavior. While termed a theory, BDT is a combination of various psychological theories, for which axiomatic systems used in economics have not been established. However, the psychological methodology and knowledge of behavioral decision theory have been applied widely in fields such as economics, finance, business administration, and engineering (Takemura, 2014).

**Heuristics**

Central to the concept of BDT is heuristics. People rely on heuristic principles to reduce the complex task of assessing probabilities and predicting values to simpler judgmental operations (Tversky & Kahneman, 1974). Heuristics are simple strategies or mental processes to quickly form judgments, make decisions, and find solutions to complex problems (Gigerenzer & Brighton, 2009). As opposed to complex models, heuristics are the use of "rules of thumb" or "educated guesses" to make decisions and the reduction of the number of possible alternatives to formulate a solution (Lewis, 2008). Herbert A. Simon (1955) developed one of the first models of heuristics, known as satisficing (mentioned above). His more general research program questioned how humans make decisions when conditions for rational choice theory are unmet, that is, how people decide under uncertainty. Simon is also known as the father of bounded

rationality, the study of the match (or mismatch) between heuristics and decision environments. This program later developed into the study of behavioral economics and ecological rationality. Behavioral economics studies psychological, cognitive, emotional, cultural, and social factors which influence a person's decisions. Ecological rationality refers to the functional match between cognition and circumstances to achieve one's goals in a particular context (Mousavi & Gigerenzer, 2014).

Heuristic processes are used as quick methods to provide answers and solutions. At the same time, the intention is for them to work or be correct, and as with any decision-making tool, they are not always correct or the most accurate. Heuristics exist because they serve valuable functions and their benefits outweigh their costs, but sometimes they can lead to severe and systematic errors (Tversky & Kahneman, 1974). Subjective confidence is often determined by the internal consistency of the information on which a judgment is based rather than by the quality (Einhorn & Hogarth, 1981). Further, heuristics lead to decisions that are often inconsistent. The correlation between the accuracy of a decision maker's judgments and the confidence they experience is not consistently high (Kahneman & Klein, 2009).

At the same time, heuristics can still be useful. Some heuristics are more applicable and beneficial than others depending on the situation, such as everyday experiences and decisions. Further, judgments and decisions based on a heuristic can often be good enough to satisfy a need (Gigerenzer, 2008). For example, where information is incomplete, heuristics allow for the less-is-more effect, a condition in which less information leads to greater accuracy (Mousavi & Gigerenzer, 2014). It is a strategy that effectively matches the structure of information in the environment and can be ecologically rational. Heuristic strategies are simple rules of thumb that solve complex, uncertain situations precisely because of their simplicity, not despite it.

Heuristics are not rudimentary shortcuts taken to avoid extra effort or to make probability judgments hastily and carelessly. Heuristics are beneficial when a more reliable method is unavailable, and even if one was available, more calculation, time, and information are not always better. Heuristics strategies that use fewer pieces of information and parameters tend to have lower errors from variance than strategies with more parameters (Gigerenzer & Brighton, 2009). Therefore, in general, heuristics can be helpful.

Following Herb Simon (1955) and his original model of satisficing, Tversky and Kahneman (1974) proposed three heuristics—availability, representativeness, and anchoring and adjustment. Subsequent work has identified many more, some of which may apply in an investment strategy. Appendix C: Types (and Models) of Heuristics delineates the types of heuristics that may play a part in a retail investor's investment strategy.

Heuristics are often employed when making decisions about investments. Heuristics play a central role in making initial decisions on potential buyouts, suggesting the presence of fast, experiential thinking by private equity firms (Sinyard et al., 2020). Ortmann et al. (2008) compare the performance of investment portfolios that included stocks highly recognized by laypeople, a process known as the recognition heuristic, to performances of portfolios based on customary and sophisticated algorithms. They found the heuristic-based portfolios performed as well as or better than the average of mutual funds, chance portfolios, and some market indices, to name a few. Evans and Sun (2021) show that improvements in simple performance heuristics can result in more sophisticated risk adjustment by retail investors. In another study, DeMiguel et al. (2009) compared the naïve investment strategy 1/N to the mean-variance scheme and other optimizing algorithms and found naivety beneficial under certain conditions.

By employing heuristics and non-compensatory rules during decision making, individuals minimize the amount of information needed to make a decision, either by evaluating only some of the consequential dimensions of each alternative, considering only some of the options in their entirety, or ignoring (or not seeking) information about a choice (Lebbon & Sigurdsson, 2017).

**Cognitive and Emotional Biases**

While a heuristic is a mental shortcut that allows people to solve problems and make judgments quickly, it can lead to cognitive and emotional biases in decision-making. According to Webster's Dictionary, a bias is "a prejudice in favor of or against one thing," and Merriam-Webster Dictionary defines biases as "personal and sometimes unreasoned judgment." However defined, biases act as a lens in a decision maker's thought process that often leads to judgments or decisions that prove erroneous or suboptimal by some objective criterion or violate some well-accepted axiom or normative standard (Baker & Nofsinger, 2002). For example, the increase in the number and complexity of financial products available in the financial markets makes the financial decision-making process highly complicated and influenced by various heuristics and biases (Hafenstein & Bassen, 2016).

Researchers have identified and studied various behavioral biases associated with sustainable investing (Hafenstein & Bassen, 2016; Kumar & Goyal, 2015; Thaler & Sunstein, 2008). While there are many cognitive and emotional biases, Appendix D identifies some of the most prevalent (Nofsinger, 2018; Sahi & Arora, 2012).

The heuristics described in Appendix C and biases in Appendix D are only a few of the many that have been identified. Heuristics and behavioral biases are essential influencers in an individual's decision-making but are a developing research area.

### III. 2 Choice Architecture and Nudge Theory

In addition to BDT, I employ choice architecture and nudge theory to help direct my research. Choice architecture presents different choices to consumers and identifies the impact of that presentation on consumer decision-making. Richard Thaler and Cass Sunstein, professors at the University of Chicago, coined the model in their book *Nudge: Improving Decisions about Health, Wealth, and Happiness (2008).*

A choice architect designs the interfaces between decision problems and decision-makers so that individuals' choices work well for them (Sugden, 2009). For example, a doctor could act as a choice architect when describing alternative treatments to a patient. In that role, the doctor is narrowing the patient's options, which can help the patient make an easier, more informed decision.

Closely related to choice architecture is nudge theory. Nudges are modifications of the choice environment that produce a predictable change in decisions for the decision-maker's benefit (Gajewski et al., 2021). If choice architecture describes how decisions are influenced, nudge theory is the arrangement of the choices.

An example of a nudge is switching healthy foods in a school cafeteria to eye level while putting less-healthy junk food in harder-to-reach places. Students can eat whatever they want, but arranging the food choices in this way entices them to eat less junk food and pursue healthier options (Thaler et al., 2012).

In the world of finance, investors are more inclined to participate in their company's 401K if the default option is to opt-in. They still have the opportunity not to participate, but the employee's preference would likely be to participate.

Using choice architecture to motivate people to choose the desired result works well for nudge; however, a nudge used to force people to select the desired result remains questionable (Cai, 2019).

Analyzing financial metrics is difficult alone; incorporating suitable sustainable investment parameters and metrics further complicates the process. Investment advisors, investment companies, researchers, and organizations can use nudge theory to provide information as positive reinforcement and adjust how investment choices affect individual investors through indirect suggestions (Pilaj, 2015). It can be a means to help individual investors make better-informed decisions around their sustainable investing strategy, which is the focus of this study.

# IV RESEARCH METHODOLOGY

This paper is an exploratory study to understand how individual investors successfully integrate sustainable investing criteria into their investment philosophy and strategy. The purpose of this research is twofold. The first is contributing to the theoretical body of finance knowledge through proposition development, a conceptual framework based on empirical evidence around investors interested in SI. The second is to contribute to practice by providing a practical SI framework to enable investors, asset managers, financial advisors, and other finance community members to make investing in sustainable companies more straightforward and convenient.

This study used a qualitative and interpretive research approach. Qualitative research explores what, why, and how, instead of how many or how much, which quantitative analysis explores (Keegan, 2009). This methodology is primarily concerned with establishing meaning rather than determining measurement, which is appropriate for this study since my goal is to understand why and how individuals react to particular circumstances, in this case, deciding whether to invest in sustainable companies.

Additionally, a qualitative research approach is appropriate when there is a lack of theoretical and empirical research (Myers, 2013). Few of the current studies involving sustainable investing analyze the motivations or intentions of these investors; instead, most focus on financial performance, possibly due to data availability (Capelle-Blancard & Monjon, 2012). Collecting qualitative data in a study where prior or existing theory is absent is more appropriate since anticipating which constructs to measure in a closed-ended, quantitative manner would be difficult (Graebner et al., 2012).

Making investment choices under traditional investment methods is very complex; doing so with an SI focus is even more difficult. Therefore, nuanced and in-depth qualitative approaches have a more significant potential to gain a better and more encompassing understanding of these transactions than commonly used quantitative methods (Keegan, 2009).

Further, I elected to use an interpretive research design for my study. Unlike quantitative research, which relies on predefined dependent and independent variables, my goal is to identify critical interactions between the actors involved in sustainable investing. This process requires focusing on the complexity of human sense-making as the situation emerges (Myers, 2013). Further, I wanted informants to express themselves in their own words, allowing me, as a researcher, to more closely capture the subject's experiences and interpretations (Graebner et al., 2012), which an interpretive research method enabled me to do.

### IV. 1 Grounded Theory

While this research warrants a qualitative research design, a grounded theory methodology is the most appropriate approach for this project. Sociologists Barney Glaser and Anselm Strauss developed grounded theory methods while researching dying hospital patients in 1965. Then, it was known as the constant comparative method, but it later became known as the grounded theory method, which they described in more detail in their 1967 book, *The Discovery of Grounded Theory* Today, many qualitative researchers select grounded theory to justify their research approach in fields as diverse as theatre and drama, business, management, education, sociology, psychology, and psychiatry.

In *The Discovery of Grounded Theory*, Glaser and Strauss proposed that researchers initiate their study without preconceived ideas regarding relevant concepts and hypotheses. In

this way, the investigator avoids imposing preconceived categories upon the research. Glaser (1978) suggested that grounded theory researchers should delay reading relevant research to prevent undue influence in interpreting and managing the qualitative data collected. His concern was applying preexisting ideas to the data instead of interpreting concepts that emerge from the data. At the same time, he encouraged a broad reading of the literature to develop "theoretical sensitivity." Theoretical sensitivity refers to integrating complex knowledge in research that accurately reflects the data (Glaser, 1978).

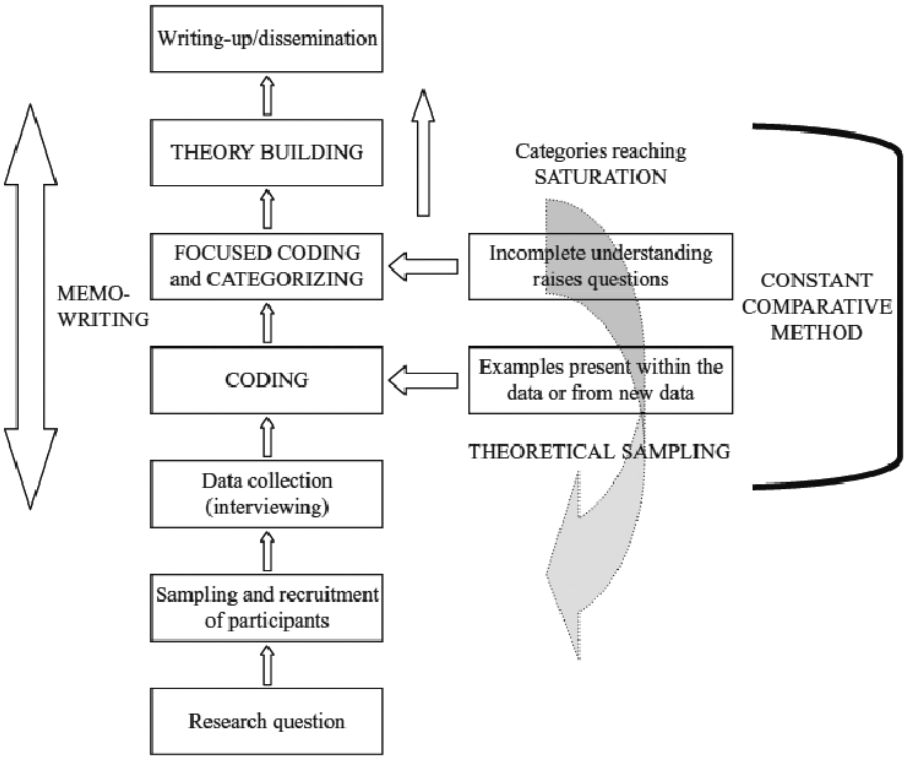
On the other hand, Strauss felt that reading relevant material could enhance the researcher's theoretical sensitivity (Thistoll et al., 2015). A later version of this methodology called constructivist grounded theory proposed by Kathy Charmaz (2014) supported conducting a literature review before initiating research. Within the framework of this approach, a literature review before data collection is used productively and sensitively without forcing conclusions of the studies on the collected data.

My approach also encompassed biographical research, which is not uncommon: The principles of grounded theory, as noted by Glaser and Strauss (1967) are often applied alongside biographical research. According to Creswell (2013), biographical research is “the study of an individual and his or her experiences as told to the researcher or found in documents and archival material.” The firsthand observations and experiences I obtained while interacting with professionals in the SI space provided valuable insights into their specific experiences and knowledge base.

## IV. 2 Research Approach

Grounded theory methods consist of systematic yet flexible guidelines for collecting and analyzing qualitative data to construct theories from data (Charmaz, 2014). This was the most practical approach because it identifies new concepts and ideas of business-related phenomena. Figure 8 below presents the defining components of grounded theory practice described by Charmaz.

**Figure 8: Grounded Theory Flow Chart**




*Charmaz (2014)*

Following the steps outlined in Figure 8, I began my research by identifying the research problem and framing a research question around the phenomenon: individual investors are not following through on their sustainable investment intentions.

Before I began sampling and recruiting participants, I researched the phenomenon. My first step involved collecting, analyzing, and synthesizing peer-reviewed literature specific to sustainability and ESG, traditional investing strategies, sustainable investing, and the theories I used to frame my research (BDT and nudge). I also reviewed and synthesized empirical agency and industry research reports relevant to sustainable investing, including asset management studies, industry studies, practitioner studies, and financial planning reports. This intermediate step aims to identify what work has already been done, which issues are central to SI, and what knowledge gaps currently exist. I completed most of this step before I began my interviews, but my relationship with existing literature during the research process was pragmatic. Throughout the process, I continually uncovered empirical findings and theoretical ideas, which progressed my study.

I then identified, recruited, and sampled informants, the second step in Charmaz's flow chart (Figure 8). Throughout my research, I followed a theoretical sampling procedure, a process that differs from other sampling methods, such as those representing a population or testing hypotheses. This method generates and develops theoretical data as it progresses.

My sampling began with individuals with extensive experience in sustainability and sustainable investing to address the research question. I identified respondents from personal and professional networks, referrals, and social networks and deliberately selected the particular settings, individuals, and events for the critical information they could provide. Throughout the sampling procedure, I continued identifying and interviewing respondents well-versed in my topic.

Based on the emerging concepts that became relevant to the theoretical basis for the research, I discovered essential themes and their elements which I used to detect and explain

interrelationships between the categories. I jointly identified codes and analyzed data to help determine what information to collect, how to manage it, and where to find it (Glaser & Strauss, 1967).

### IV. 3 Data Sources

I obtained empirical data for this grounded theory research in multiple ways. First, I conducted 23 in-depth, semi-structured interviews with individuals, professionals, and experts in the finance and sustainability industry. Of the 23 respondents, 13 were individuals proficient in making security selection and asset allocation decisions around traditional and sustainable investments. Additionally, seven were finance professionals, and three were sustainability experts.

In addition, I studied industry trends and followed practitioner research in tandem with my interviews. My research in this capacity involved participating in webinars, seminars, and conferences on SI and accessing and reviewing market commentaries, documents, and research reports.

I was able to access webcasts and webinars hosted by Morningstar and Sustainalytics (a division of Morningstar focused exclusively on ESG and sustainable investing). I also accessed internet events with the Conference Board (an independent, non-partisan economic research institute), RepRisk (an ESG data science company), IPE (a publication for institutional investors with a focus on ESG), and Responsible Investor (a media company focused on sustainable finance for investors). Highly profiled conferences were held during my research tenure. Although I was unable to attend these in person, I was able to view videos from the conferences. The videos and onscreen discussions enabled me to see firsthand what issues were being discussed and addressed. Two conferences focusing on ESG and Sustainability were COP26

(Conference of the Parties) held in Glasgow, Scotland, and World Economic Forum 2022 held in Davos, Switzerland; videos of the events were posted online throughout and after the sessions.

Additionally, I attended several conferences and seminars around sustainability in the Atlanta area. These included the World Affairs Council of Atlanta, The Carter Center, Japan-America Society, and CFA Institute of Atlanta. Additionally, I participated in educational training programs hosted by Education for Sustainability (ED4S), CFA Institute, and PwC.

Finally, I reviewed emerging concepts involving sustainable investing in other forums. For example, I was able to examine standards and reporting protocols from organizations, including the Sustainability Accounting Standards Board (SASB), Global Reporting Initiative (GRI), and Principles for Responsible Investing (PRI), among others. These organizations have undergone extensive growth, experienced monumental changes, and seen a massive transformation over the past few years due to COVID, climate change, labor law infractions, and other social causes. Many of these concepts are vague and unstandardized in the investing world, as stated previously, and are contributors to investor confusion and misunderstanding.

Grounded research studies rely on multiple sources of evidence, and triangulating data from these sources gave me a rich understanding of the phenomenon surrounding my project.

### IV. 4 Data Collection

The unit of analysis for this study is the individual investor, and the unit of observation includes individual investors (also known as retail investors), sustainability experts, and finance professionals. I identified interview candidates through personal and professional networks, referrals, social networks (in particular, LinkedIn), and internet searches. These included experienced individual investors, finance professionals (such as asset managers and financial

planners), and sustainability industry experts (people involved in sustainability daily). All interviewees were well versed in sustainability and investing regardless of their specialty.

In total, I interviewed 23 professionals. Table 4 provides a breakdown of my informants.

**Table 4: Interviewee Profile**

| Id | Pseudonym | Profile | Specialty | Gender | Age |
|---|---|---|---|---|---|
| 1 | Alan | Capital markets risk manager for national bank. Experienced investor with background in finance. CFA charter holder. | Individual Investor | M | >50 |
| 2 | Beth | Portfolio manager of sustainable investments. Holds a doctorate degree. | Finance professional | F | <50 |
| 3 | Chuck | Asset manager specializing in sustainable investments. CFA shareholder. | Finance professional | M | >50 |
| 4 | Doug | Management consultant and experienced investor. | Individual Investor | M | >50 |
| 5 | Eric | Former head of equity research for a major securities firm. Holds the CFA and ASA (valuation) designations. | Individual Investor | M | >50 |
| 6 | Frank | Management consultant and experienced investor. | Individual Investor | M | >50 |
| 7 | Gina | Marketing executive and experienced investor. | Individual Investor | F | <50 |
| 8 | Helen | Director of sustainability for Fortune 500 firm in logistics. | Sustainability Expert | F | >50 |
| 9 | Ivan | Director of risk analysis for international bank. Experienced investor, CFA charter holder. | Individual Investor | M | <50 |
| 10 | Jill | Retiree. Former business manager. Experienced investor. | Individual Investor | F | >50 |
| 11 | Klara | Retiree. Former accountant. Experienced investor. | Individual Investor | F | >50 |
| 12 | Leonard | Professor of management and sustainability at regional university. Has graduate certificate in sustainable management. | Sustainability Expert | M | >50 |
| 13 | Mary | Graduate student. Experienced investor. | Individual Investor | F | <50 |
| 14 | Nancy | Real estate executive. Experienced investor. | Individual Investor | F | >50 |
| 15 | Oscar | Real estate executive. Experienced investor. | Individual Investor | M | >50 |
| 16 | Patty | Financial advisor, national brokerage firm. Holds the CFP designation. | Finance professional | F | <50 |
| 17 | Qiana | Financial advisor, national brokerage firm | Finance professional | F | <50 |

| Id | Pseudonym | Profile | Specialty | Gender | Age |
|---|---|---|---|---|---|
| 18 | Randy | Corporate executive. Experienced investor. | Individual Investor | M | >50 |
| 19 | Steve | Chief operations officer (COO) of a sustainable energy company. | Sustainability Expert | M | >50 |
| 20 | Tom | Lecturer of finance and investments and private equity investor. Holds a doctorate degree and CFA designation. | Finance professional | M | >50 |
| 21 | Ursula | Sustainability expert. Owns a sustainable finance and ESG training company. Holds both CFA and FSA (sustainable investing) designations. | Finance professional | F | <50 |
| 22 | Victor | Advertising executive; part-time, active investor | Individual Investor | M | >50 |
| 23 | Wayne | Executive VP. Head of equity and quantitative strategies of international trust company; Holds doctorate degree. | Finance professional | M | <50 |

My primary interview group was individual investors, which comprised 13 of the 23 interviewees. My first qualification with these interviewees was that each had to have a history of investing on their own. I looked for individuals who were responsible for making the final decisions in the investment process. They did not have to manage the entire portfolio themselves since many investors had investments in 401K and IRA plans or used a financial planner for some of their investments. However, they needed to have a portion of their portfolio in an account they managed, where they made decisions on security selection and asset allocation. Additionally, they had to invest at least a portion of their portfolio in individual stocks. They could also invest in exchange-traded funds (ETFs), mutual funds, or other pooled investments, but I needed them to have individual stocks in their portfolio. The investors needed to have a strategy they used when investing in companies.

Finally, there was no requirement that individual investors currently invest in an SI framework. I was interested in identifying the barriers preventing investors from investing in SI, and I believed talking with people who experience barriers could provide insights on what needs

to change. At the same time, however, the investors had to be interested in investing in an SI methodology or framework and have a basic understanding of what SI meant. In short, they needed an SI philosophy but may not have an SI strategy in place yet.

Of the individual investors, five were female, and eight were male. Additionally, three of the 13 investors interviewed were less than 50 years old. As indicated in my Results section, I observed no biases due to age around sustainable investing throughout my data analysis. Additionally, my literature review showed that age was not necessarily a determining factor in sustainability (CFA Institute, 2020; McLachlan & Gardner, 2004). Some research seemed to indicate that motivations for investing in SI were different for men versus women and younger versus older generations, but the purpose of this study was not around the aspirations of investing in SI. This study focused on the processes around investing in SI, which did not seem to vary among generations of age groups.

All candidates had personal portfolios over $100,000 that they managed independently, except for one respondent younger than 25 who managed $25,000. A breakdown of the individual investor composition is depicted in Table 5 below.

**Table 5: Breakdown of Individual Investors Interviewed by Age and Gender**

| | Gender | | |
|---|---|---|---|
| Age | Male | Female | Total |
| <50 | 1 | 2 | 3 |
| >50 | 7 | 3 | 10 |
| Total | 8 | 5 | 13 |

My second group of informants consisted of three sustainability industry experts. These individuals' rich backgrounds in SI helped guide my research. They made my research process more efficient by contributing evidence, sharing knowledge, providing unique perspectives, and generating ideas. My respondents included former or current directors of sustainability for

corporations, although one was a current professor of sustainability at a regional university. Of the three sustainability experts, two were male and one was female. As noted previously, I attended several sustainability meetings and webinars. These events provided insight into corporate sustainability, and the sustainability experts played a crucial role in helping me understand how corporate sustainability practices parlayed into the world of investments.

My third group included finance professionals such as asset managers, portfolio managers, financial advisors, and financial planners who advise investors on investment decisions. These individuals had exposure to traditional, alternative, and sustainable investments (alternatives being commodities, real estate funds, or other investments outside of stocks and bonds). I interviewed seven individuals in this category. The lowest amount of assets under management by any of my finance professional informants was $30 million, while the largest amount managed was over $750 billion. Four asset managers focused exclusively on SI and worked explicitly with investors interested in SI; the other three offered SI in addition to traditional and alternative investments. Additionally, three hold doctorate degrees, one holds a Certified Finance Professional (CFP) designation, and three have the Chartered Financial Analyst (CFA) designation. As with the sustainability experts, the finance professionals provided a wealth of knowledge that helped shape my research.

Table 6 below shows the breakdown of the 23 interviewees and their specialties.

**Table 6: Breakdown of Interviewees by Specialty**

| Specialty | Number of interviewees |
|---|---|
| Individual Investor | 13 |
| Sustainability Expert | 3 |
| Finance professional | 7 |
| Total | 23 |

## IV.5 Data Analysis

To conduct my research, I employed theoretical sampling, a method of data collection used to generate theory where the researcher collects, codes, and analyses data concurrently. Throughout this process, the researcher decides what data to collect next and where to find it to develop a theory as it emerges (Glaser & Strauss, 1967). Concurrent data collection and analysis is recommended as it helps a researcher cycle back and forth between thinking about the existing data and generating strategies for collecting new data (Miles et al., 2020).

Throughout my sampling process, I used NVivo as the central repository for my research, supplemented with Excel. I organized all interviews, memoranda, field notes, conference proceedings, third-party research, educational materials, and literature reviews according to these files' topics, themes, or patterns.

I could not record all interviews as some interviewees requested that I not do so, but for those I did record, I stored the recordings on password-protected files. For each interviewee, I transcribed notes and followed the interview outline approved by the Institutional Review Board (IRB). Understanding that this process entailed personally identifiable information, I did not include names on the interview questionnaire. Instead, I had a separate sheet with key codes to indicate the respondents, stored separately from the interviews, and password and data encrypted, locked in a separate file drawer, and stored in a locked office.

As data was collected and reviewed, ideas or concepts became apparent and began to "emerge." They were then tagged and coded based on their properties through first cycle and second cycle coding. As more data was collected and re-reviewed, these codes were further grouped into higher-level concepts around themes. This process was iterative; sampling and data

collection continued until the cycle reached theoretical saturation. At this point, additional data collection failed to produce new concepts or identify changes in conditions (Strauss & Corbin, 1998).

To initiate my research, I implemented a "ground up" analytical strategy depicted in Figure 8: Grounded Theory Flow Chart proposed by Charmaz (2014), a process similarly recommended by Miles et al. (2020). My entry into the data collection process began with an initial coding list that was provisional, comparative, and grounded in extant data. I identified themes early in the data collection process through my examination of Behavioral Decision Theory (BDT), the literature review, preliminary market research (webinars and symposiums, for example), and the interview protocol. Data collection and analysis was an iterative, cyclical process; I continued to alternate between data and analysis throughout the study.

In his seminal work, Johnny Saldaña (2013) identified 32 coding methods for qualitative research. I used his provisional codes to establish a preliminary categorization around the findings, which provided a roadmap to connect my data and research question at a high level. I relied on Initial Coding (aka Open Coding) techniques to parse my data for my first coding cycle. This coding technique applies provisional and tentative codes in the first cycle of coding, which was appropriate at this stage since my coding consisted predominately of data obtained from my literature review, educational training, and seminars. As my data collection progressed and I began to conduct my interviews, I used Axial Coding and Thematic Coding schemas to further the first and second cycle coding cycles and isolate themes. Axial coding consists of developing categories by grouping and sorting the number of codes generated from the first coding cycle. Thematic (aka Selective) Coding involves identifying codes that capture the essence and essentials of participant meetings. As the interviews and data collection progressed,

the original list of provisional codes was expanded and changed, and supplemental first and second cycle codes identified from the data were added. Table 7 below shows examples of comments some interviewees made that led to my coding schema and themes.

**Table 7: Provisional Themes, Codes, and Participant Examples**

| Themes | First and Second Cycle Codes | Examples of participant's words |
|---|---|---|
| Uncertainty Drivers | Rater Reliability<br>Financial Performance<br>Greenwashing | "I don't know what to read or believe."<br>"It's too hard to access."<br>"My investment returns [with SI] have not been good."<br>"I am willing to accept lower returns, but not negative returns."<br>"You can't find greenwashing, but you know it's out there. Lurking."<br>"The company isn't always doing greenwashing; sometimes, the investor is misinformed." |
| Market Inefficiencies | Asymetric information<br>Market Power<br>Market Friction<br>Externalities | "Rating agencies are missing a lot because they are going on public information only."<br>"Are good companies more profitable, or are companies that are more profitable able to take the actions that make them look good?"<br>"It can hurt some industries because they may not meet some sustainability metrics by their inherent nature." |
| Investor Responses | Options<br>Opportunities | "We need a Charity Navigator for the SI field."<br>"I want to input variables and see potential options."<br>"I look for 'different'. Things that are untapped and can make an impact."<br>"[My clients] don't know their options – I must find it and suggest it to them." |

Throughout the data analysis process, I extracted themes and developed a conceptual framework backed by the findings in my data. I was able to draw conclusions and address propositions around my research question. I followed engaged scholarship principles while conducting my iterative data sampling and analysis. Careful consideration was given to construct validity, internal validity, external validity, and reliability.

# V RESULTS

Through extensive qualitative research, I discovered how retail investors decide to invest in companies they deem sustainable investments. I wanted to investigate their processes, their analysis, the metrics they considered necessary, and the framework they employed. I tried to understand what enables successful investors who invest in sustainable companies to follow their desires. Additionally, I wanted to uncover barriers preventing other individual investors from following theirs.

I accessed hundreds of academic papers, industry reports, and investing literature on traditional and sustainable investing in understanding the situation. To learn the latest trends in SI, I took educational courses and received certification from one of the institutes. I attended several webinars, seminars, and conferences on sustainability, both in-person and virtual, and spoke with industry specialists to get their thoughts and ideas on the space. Most importantly, I interviewed 23 individuals, including individual investors, sustainability experts, and finance professionals, to get their thoughts and insights on the state of sustainable investing (refer to Table 4 for a list of interviewees and Appendix E for the Interview Guide). Approximately 40 hours were spent in discussions and personal correspondence, resulting in over 200 pages of transcribed data. The goal of this extensive research was to answer the question posed at the beginning of this study, which was:

> *How do individual investors incorporate sustainability-related experiences, information, learning, or a combination of these in deciding to invest in sustainable investments?*

This study used a Straussian-based grounded methodology as its research method. Behavioral Decision Theory (BDT) and Nudge Theory provided a premise for the research and helped shape the interview guide. These two theories are integrated: both are featured

prominently in behavioral economics (Takemura, 2014) and investments (Thaler and Sunstein, 2008). Furthermore, heuristics are often easier and better to use in investing (Gigerenzer, 2008).

This approach aimed to analyze how individual investors integrate sustainability factors into their investment decision-making. To understand this phenomenon, I felt it essential to examine investors' ideas on investing from both traditional and sustainable perspectives. The purpose was for comparison. The 13 individual investors that I interviewed each had experience making investment decisions. All indicated that they managed at least some, if not most, of their portfolio independently. Even if they used a financial advisor or asset manager for advice, they took responsibility for making a majority of the final investment decisions or managed a slice of the portfolio independently. In addition, the seven financial professionals I interviewed had at least ten years of experience advising clients on traditional and sustainable investments. The three sustainability experts I interviewed provided commentary on how investors, consultants, reporting agencies, and others used sustainability data to make investment decisions. To facilitate understanding and provide a reference for my research, I have included pseudonyms of my interviewees, and I indicate if they were an individual investor (II), a financial professional (FP), or a sustainability expert (SE). I have separated the research findings into three sections:

I. Interest and Intention
II. Adoption and Execution
III. Uncertainty Drivers

**Interest and Intention**

As stated in the Introduction section of this study, interest in SI continues to rise, which was a similar conclusion observed in this study: virtually all my respondents indicated interest at some level. Similarly, the literature suggests that SI is more prominent among women and young adults. However, I observed no noticeable difference between men's and women's

interests, nor a noticeable difference between the younger and older generations. Although my sample size was limited, the older generation expressed concern as much as the younger generation. Both had altruistic motives, the younger generation expressing concern for their lives and the older generation wanting to leave behind a healthy environment.

Regardless, my respondents confirmed that their interest in SI was growing, that SI had entered the mainstream of investing, and it was here to stay.

> *"A [CFA Institute] study found that over eighty percent of investors now express interest in sustainable investing, but half of the respondents participate in at least one sustainable investing activity. That is commensurate with what I see with my clients and prospects. "* Chuck (FP)
>
> *"I would like to learn more about [investing in an SI framework]. My friends talk about it; my advisor talks about it. I'm interested - I want to invest alongside my values."* Jill (II)
>
> *"I don't get a lot of calls from investors, but we see a lot of activity on our website. Our analytics show that people want to know what we are doing (concerning sustainability). The interest is there."* Helen (SE)
>
> *"It is in the news a lot, but only maybe 5% to 10% of my investors are involved in SI or even have expressed an interest in SI. But more are certainly asking about it, and more are doing it. When I mention it, they express an interest and most follow through."* Patty (FP)

Another initial discovery is that investors define sustainability differently, impacting how it relates to their values. In one sense, this is to be expected due to insufficient clarity regarding the definition of *sustainable investment* and poor delineation of product categories, as discussed in the Introduction section of this paper. Despite several positive developments the industry has witnessed over the past few years, the broad and diverse definition of sustainability-related terms seems to hamper further growth (Micilotta, 2018). SI is broadly defined as "a long-term oriented investment approach that integrates Environmental, Social & Governance factors in the research, analysis and selection process of securities within an investment portfolio" (Sakuma-Keck, 2021).

Some investors I interviewed stated sustainability is solely related to environmental concepts. In their eyes, these investors sought investment opportunities around pollution, deforestation, global warming, green gas emissions, and climate change. To them, SI is about using current capabilities and not depleting the world of its natural resources. Those who equated SI with the environment made comments such as the following:

> *"I look for companies focused on minimizing their carbon footprint and reduction of greenhouse gas emissions."* Alan (II)
>
> *"It's being environmentally friendly. I like green companies, ones that don't pollute or that reduce GHG emissions."* Eric (II)
>
> *"It's long-term viability of the planet. It shouldn't really have anything to do with diversity and inclusion, executive pay, or social norms. It has to do with greenhouse gas emissions and climate change."* Frank (II)
>
> *"It's about minimizing the current needs of using natural resources."* Oscar (II)
>
> *"It's about meeting the needs of the present without compromising the ability of future generations to meet their needs (per the Brundtland Commission)."* Randy (II)
>
> *"Sustainability is the ability to maintain our resources constantly. It's not renewables because those don't have control over the source or life cycle. It's sustainable – it's maintained."* Steve (SE)

Others were interested in the interaction of the actors within the environment. That is, they took a more societal approach. These individuals focused on population size, diversity, and the treatment of others.

> *"Company friendly, environmentally friendly, or both. Compliance is important. It's following people, profit, and purpose."* Gina (II)
>
> *"Sustainability is anything that is good for society and the environment."* Klara (II)
>
> *"I pay attention to the social and governance side of a business. I like to see companies take care of their employees."* Mary (II)
>
> *"I focus more on the social and governance side of ESG. I do not favor or follow environmental issues around investing."* Nancy (II)
>
> *"It's about doing good – to the environment and to each other."* Patty (FP)

Still, others viewed SI on a broader scale and incorporated general ESG concepts into their definition. To them, SI is not solely about the environment or how the environment and the society operate together; it is about coordinating all components of environmental, social, and governance.

> *"ESG is at the core of SI."* Chuck (FP)
>
> *"Sustainability centers around an ESG framework."* Ivan (II)
>
> *"Along the constructs of ESG."* Beth (FP)
>
> *"Focusing on businesses with a net positive return on environmental, social, and governance issues."* Qiana (FP)

Not only did interviewees have different definitions of sustainability, but they had very different ways of implementing it. To begin with, many investors claimed they did not implement a strategy around sustainability or ESG constructs when, in fact, they were very much doing so. They did not consider their actions related to sustainability, but investors revealed that they have invested in (or avoided) certain companies or industries due to ESG issues. Others stated that they invested in companies because it was the industry leader and their ESG efforts were paying off. Some felt the company was doing something worthwhile and the investor wanted to support their efforts. As such, interviewees made the following claims about their investing strategies:

> *"I am looking for financial returns, first and foremost. I don't think sustainable investing has the returns. I invested in natural gas because the US is dependent on it, and there will always be demand for energy."* Later, the interviewee commented, *"I prefer natural gas because I don't think nuclear power is a good long-term play. It's not safe for the environment, so investors won't support it." Doug* (II)
>
> *"I don't follow a sustainable investment strategy,"* and later said, *"I look for companies that promote low pollution and environmental causes."* Frank (II)
>
> *"I don't consider myself an SI investor; it's just part of the process I go through."* Jill (II)
>
> *"I do not consider myself a sustainable investor,"* but later stated, *"I won't invest in [international beverage company] because they sell a product that is harmful to society. It is making people obese and causing diabetes." Nancy* (II)

*"I don't do it [sustainable investing]. I believe it is trendy and a marketing ploy."* Later, that interviewee stated, *"I like Blackrock's strategy with respect to sustainability. They seem committed to it."* Oscar (II).

*"We need to get off fossil fuels and more into renewable energy like solar and wind. I don't own any of those, but I don't own any fossil fuel companies either."* Victor (II)

*"We are a biotech start-up. Investors can't see the returns yet, but they see how it may impact the world. They ask themselves, 'Do I understand the tech and believe in it? Do I trust the other person on the other side?' That's the tipping point."* Steve (SE)

***Motivation***

Investors expressed multiple reasons why they felt SI is a worthwhile cause. Some felt that companies pursuing good governance, supporting the environment, and fighting for social causes would win customers and gain investors' attention. When that happens, investors' demand for the stock will increase along with its share price.

*"A large percentage of investors see value in it, which means demand will increase for SI companies. That pushes prices up."* Alan (II)

*"SI is a worthwhile endeavor, but I have different SI styles. I am exclusionary to pharma companies. I won't invest in them. Then for other investments, I look at D&I, particularly women on the board and in leadership positions, and for others, I look at how they are treating the environment. That one's a little vague for me – I don't know what to look for or where to get it. It's more that I don't want to see that they are doing something bad to the earth."* Jill (II)

*"Companies have to be sustainable today. There's no way they can't. Young consumers are paying attention to sustainability, and therefore, companies need to adjust their strategy to appease the socially conscious consumer. If the company isn't attracting them, the company won't do well. Of course, the company may be playing games and what one consumer wants vs another differs, but a company has to do something to attract them.*

*If the company is doing something right to attract the consumer it stands to reason that the company is doing something right to attract the investor."* Mary (II)

*"It is. Look at the flows. If you look at Refinitiv Lipper statistics for 2021, there were approximately $650 billion in ESG investments in equity, which accounted for 10% of the total market. It's massive, and it's growing. Any individual investor can't ignore that."* Wayne (FP)

*"SI is worthwhile. You can still get good returns while focusing on good things, which people are just starting to notice - being able to invest in the right side of change while generating good returns."* Patty (FP)

*"Investing in SI is absolutely a worthwhile endeavor. We live in a capitalistic society but using the money to work for good versus return makes the world a better place."* Qiana (FP)

Others felt SI sends a positive message to the company. The company is encouraged to continue doing the right thing.

*"SI is good in the sense that you are supporting companies that you think are doing the right thing. Of course, that's your opinion – somebody else may not have the same opinion. They may not think the company is doing the right thing, or not to the degree you think it is.*

*But still, it's a vote of confidence in the company. You are supporting the fact that it is abiding by some sort of criteria around how it's treating the environment, society, its employees, or its stakeholders in general. That, in turn, forces other companies to do the same. Their peers have to rise to the level of competition in order to attract consumers, employees, suppliers, etc."* Doug (II).

*"Consumer buying is more important to the company. It has more impact. The company won't see your investment – it goes to the seller, not the company. But the company wants its stock price to go up, and ultimately, that is due to financial performance – increasing sales, decreasing costs, and improving profits – factors which may or may not be related to CSR/ESG initiatives.*

*But SI does send a message to the company. It tells them that they are doing something right. Often, the negative message if they screw up has more impact than a positive message if they do good. But I haven't confirmed this".* Eric (II)

*"It's important due to net-zero pollution and carbon dioxide emissions. Environmental impacts can be mitigated through SI. Investing sends a positive message to the company to reduce $CO_2$ emissions."* Frank (II)

*"Before 2019, I never heard of SI or ESG investing. I worked for a startup that was around traditional finance, but then I saw them using sustainability in their investment decisions and I became intrigued with it. I wondered why they put nonfinancial data with financial data because the point of any corporation is to increase shareholder value. I quickly found out there are many reasons why sustainable investing was important.*

*One of the reasons why it makes sense is because companies have issues and ignoring CSR initiatives can have a negative impact on their long-term prospects. The consumer won't buy their products, the company can have an adverse effect on the planet and their community, and in general, it makes sense for long-term efficiency."* Ursula (FP)

*"It is worthwhile because of the initiatives we have for 2050. We need to get off fossil fuels and more into renewable energy like solar and wind."* Victor (II)

*"Firms need to follow SI not for profit maximization, but rather to address the risk and unpredictability stemming from changes in the natural and socioeconomic tension in the community."* Steve (SE*)*

*"Companies often mistake profit for purpose. When a company thinks its purpose is solely to make a profit, its motivation, line of reasoning, decision making, and ethics can be called into question. Profit is a limited metric that doesn't provide any long-term, strategic guidance, but using it in place of purpose is a simple strategy – profit is a straightforward, observable measure that can be easily monitored and managed. Investing in a company for sustainability reasons tells the company to focus less on the profits and more on the long-term. "* Helen (SE)

Not everyone views SI so favorably, however. Some interviewees expressed contempt for the idea. Most respondents in this camp stated that SI is a marketing ploy, while others said it is not a viable investment mandate. In their opinion, investors can invest alongside their values, but SI will not generate excess returns or reduce risk, particularly in the long term.

*"The bar keeps getting raised because of the competitive landscape. Firms are trying to outdo each other; each wants to be a sustainable leader. But they can't consistently maintain their position. Today they may be the leader, but tomorrow it will be someone else. You can pick today's winner, but how do you pick tomorrow's?"* Chuck (FP)

*"Personally, I think it is too limiting of a scope. Not diversifiable."* Ivan (II)

*"I am not sure it is, actually. I am not a huge advocate for sustainable investing, mostly because I don't understand how to do it. I am not sure where to start."* Nancy (II)

*"I don't it is worthwhile. I think it is trendy and is a marketing ploy. It's often a stretch to call something sustainable – it is defined differently and means different things to each person. And companies can spin the term however they want to. It might not have long-term legs."* Oscar (II)

*"The company won't see your investment – it goes to the seller, not the company. The company wants its stock price to go up, but ultimately that is due to financial performance, which may or may not be related to CSR/ESG initiatives"* Eric (II)

*"Not investing in Exxon will not keep gas combustion engines off the road. Consumers still need it."* Tom (FP)

*"It's worthwhile, but there is not enough accurate information out there. There is too much information out there, but at the same time, there's not enough. It's not reliable."* Klara (II)

*"I don't get a lot of interest from my clients and prospects on SI. I work with a group called SmartAsset, and there was a question regarding the importance of SI to investors. Around 50% say it's not important, and 50% say it would be nice. Only 5% at best say that it's critical. These numbers don't add up, but the point is, there's not a lot of interest*

*in the community for this at the current time. At least I don't see it. It is interesting how these mutual fund companies are pushing it while clients aren't really asking about it."* Patty (FP)

*"Yes, but not by itself. I invest for financial returns and if the investment has SI components, then all for the better. I will look at the investment and incorporate SI research if the investment warrants it. And even then, I am just making sure the company isn't screwing up."* Randy (II)

All interviewees indicated that adopting SI has a long way to go. One reason cited was that interest is rising, forcing investors to adapt to a new investing paradigm. They have to consider SI whether they want to or not.

*"Whether we, as investors, consumers, or bystanders, want to accept it, business-as-usual and traditional economic growth no longer apply. Firms follow ESG precepts and protocols; therefore, conventional financial analysis by itself no longer holds. A new paradigm has to be used. While investors can choose to ignore it, ESG and SI will change the investing landscape."* Doug (II)

*"I read that over 60% of executives believe sustainability is important to investors. Whether that number is accurate is irrelevant – the point is the executives are taking sustainability seriously. Investors need to take note of that and be able to incorporate it into their investment methodology somehow. Right now, only a few firms have systems and plans in place, which is throwing things off, but a transition is happening, and investors have to consider that."* Steve (SE)

"*Investors must understand that corporations operate in an ever-evolving social context. They're facing more scrutiny than ever before due to social media, news agencies, and the internet. Plus, investors' aspirations have changed. They are no longer looking solely at returns; they are looking at mitigating climate change, gender equality, social justice, income disparity, and a host of other issues. Added to that is an increasing disenchantment with capitalism and globalism everywhere, including in the USA. All of these factors put at risk a corporations' ability to operate in a free market economy. Investors today have to take that into account."* Ursula (FP)

*"We have seen a lot of statements and plenty of good intentions, with many leaders and business in the financial markets stressing the importance of looking beyond financial profit to the generation of wider societal and environmental value. Today, however, it's a lot more difficult for the financial market to assess where an organization's main value lies and what it's worth in both financial and societal terms. We need greater transparency, a clearer sense of purpose, and accountability in leadership. When businesses apply a long-term view and focus on holistic value, they will convince the financial markets to do the same."* Wayne (FP)

## Adoption and Execution

While most interviewees were interested in SI, few were uncertain how to implement it in their analysis or execute a strategy around it. Many believed that a company following a sustainability/ESG protocol would result in a long-term increase in sales, reduced costs, and more significant profit. However, most were unsure how to incorporate a firm's sustainability practices into their analysis. Instead, they indicated that their SI research was centered around verification that the firm was doing "good" (Gina, II), was "not screwing up" (Jill, Nancy II), or, in general, "doing what they are supposed to be doing" (Randy, II). In the end, the investors felt they did not have adequate resources to make a well-informed decision regarding a firm's sustainability initiatives.

### *Fundamental Research*

Respondents indicated that they relied on fundamental processes in making investment decisions, particularly around SI. These included knowing the company, knowing its products and customers, and getting opinions from others.

Generally, respondents indicated that the investment approach begins with companies whose business models they understand. Many individual investors stated that this approach made it easier to evaluate a company since it gives them a perspective on how well the company is delivering on its marketing promises. Individual investors cited that they had to believe in the company before investing in it.

> *"I need to know the story behind the stock. What is the management doing, what's their strategy?"* Alan (II)
>
> *"I don't invest in companies that I don't understand."* Jill (II)
>
> *"I invest in companies because I feel confident in who they are and what they represent. I know what they do."* Mary (II)
>
> *"I like to invest in companies that I understand and think have a long-term growth potential. I invest for the long-term."* Nancy (II)

> *"I believe in the company; I have conviction in what they do."* Victor (II)
>
> *"I have to know the company."* Gina (II)
>
> *"I don't consider myself investor savvy. I don't use models; I don't do extensive analysis. But I do get a feel for the company. I need to know what the company is doing before I will even think about investing in them."* Victor (II)

Investors invest with companies that they buy from, that they know, and that they understand. There is a connection between the respondent's behavior as a consumer and investor, and it is especially true when investing under a sustainable framework. Investors indicated that they invested in a company because they researched its sustainability record and screened for investments aligned with their values, both from a consumer and investor standpoint.

> *"I look for consumer behavior as best I can. Usually that translates to SI-themed investments because of my values (vegan, animals, etc.). And the best of breed has to follow SI mandates or else they will get penalized."* Gina (II)
>
> *"I invest in things I know about. My partner and I have a Tesla, so we know the company and we know the space. Because of that, we felt confident investing in the company."* Klara (II)
>
> *"If I don't like the company for some reason, I won't invest in them. For example, I don't like how Amazon treats their employees, so I don't want to invest in them. But I have to buy from them – they are the cheapest and most efficient. So, in theory, I should think about investing in them because of the potential returns, but in principle, I don't want to support them by investing in them."* Mary (II)
>
> *"If the client can't grasp what the company does and its products, it's a hard sell for me. They rely on me to give them good advice, to know what I am promoting. That's why they come see me. But if they have a negative image of the company, for whatever reason, it's a 'no-go' more than likely."* Patty (FP)

Additionally, individual investors stated that they relied on the advice and opinions of others before making investment decisions. Often, they relied on people they felt were experts, but there were times when they relied on less knowledgeable individuals, such as family and friends. Still, when reviewing a stock's sustainability qualifications, respondents indicated that

getting qualifiable opinions from experts was challenging. Frequently, they relied on news, social media, and stock opinion boards on the Internet.

> *"I want to see that the company is well-governed. It's hard to determine that often because companies don't release bad news if they can avoid it. But if there is negative news out there, I stay clear of it. I have to rely on third parties for that information."* Doug (II)
>
> *"I listen to the opinions of professionals. I watch financial news and watch what's happening in market, do some reading on the company, and get thoughts others have. I look for validation from others often – what are other people doing? Third-party sources are important to me in my analysis. It's questionable how relevant their comments are, though."* Alan (II)
>
> *"I rely on the advice of experts. I don't feel I am an expert by any means, so I listen to others I respect, particularly when it comes to an industry or a company I don't know that well. I want to get their opinions. Like discussing it with my advisor, talking with friends, getting ideas from experts."* Nancy (II)
>
> *"I reference Google, Fidelity, company website, maybe yahoo finance or something similar. But I ask other people, like my son, brother-in-law, or a friend who invests regularly. I don't trust my abilities, so I need to hear what others are saying."* Randy (II)
>
> *"Third-party sources are important for me. I access some social media sites like Reddit and Seeking Alpha, I watch financial news like CNBC, and I watch what's happening in the markets on stock apps. I look for news and opinions of others. To me, investing – or attracting investors – is about publicity. Using analysts, industry pundits, and experts to talk about the company provides the validation I need."* Victor (II)
>
> *"Investors are going on what they see on FB, LinkedIn, or other SSM. Or what they read on Google or Bing. So, the individual investor is swayed."* Ursula (FP)

Respondents indicated that SI is a challenging endeavor. As with traditional investing, they use fundamental techniques: getting to know the company, its products, and what others think about the stock. The respondent acknowledged that this is very elementary; however, it provided enough information for them, as long as it was material, relevant, and accurate.

### *Behavioral Decision Theory and Nudge Theory*

Optimization is difficult to achieve in finance, and investors must, instead, rely on acceptable solutions, ones that satisfice (Simon, 1955). Often, this is acceptable because, in

many situations, optimization is impossible (e.g., computationally intractable) or less accurate because of estimation errors (i.e., less robust) (Gigerenzer, 2008). However, my research discovered that investors interested in SI could not find a satisfactory answer. They could not find suitable investments that they felt maximized returns and minimized risks.

My respondents commented that getting a feel for the company, understanding its customer base, and getting input from others were key determinants in deciding to invest. Most interviewees said it was a game of heuristics, intuition, and gut instincts in evaluating investment opportunities, the fundamental concepts behind BDT. However, the respondents commented that heuristics and "rules of thumb" did not work for sustainable investments. They were unable to apply these methods to generate ideas.

BDT and nudge provided a frame for my analysis. Nudge provides practical solutions by propelling investors forward in making investment decisions. Behavioral economists have tried to develop policy measures or "nudges" to help correct people's irrational use of heuristics, to help them achieve more optimal outcomes; however, that was not prevalent in my informants.

> *"I usually don't do a lot of analysis. It's more a gut feeling, heuristics, intuition."* Gina (II)
>
> *"It's more behavioral – heuristics, biases, gut feeling, qualitative measures that I can't really describe."* Ivan (II)
>
> *"We rely on financial figures, but we don't review it. It's almost gut instincts. We won't even look at something unless we first understand the industry and the company. And we are limited on that – so we rely on heuristics and biases to figure it out."* Klara (II)
>
> *"When I invest in stocks, it is because I see a long-term trend, and often, current numbers may not indicate that trend. I really rely on heuristics, and I can't say what those are. Gut feelings, intuition, a hunch for something."* Oscar (II)
>
> *"I rely predominately on heuristics, a hunch, a guess. What is being said about the company, its products, etc. feed into the decision, but putting all that together is like*

*throwing it into a bucket and picking out information. And most of the time, I don't know if it's the right information I need."* Randy (II)

*"Bounded rationality comes into play big time in SI. Investors can't get all the information they need. It's hard to make truly informed decisions. They have to satisfice. Furthermore, confirmation bias plays a big role in SI. Investors want to see what they believe. If they find that, they feel confident making the investment. If they don't find it, they may think differently. If it's counter to their views, they may ignore the information and keep looking. It's only until they see too much negative that will they will refrain from investing in an SI stock."* Eric(II)

## Uncertainty Drivers

The growing interest in sustainable investments has created intense demand for ESG information. Accordingly, the abundance of sustainability material has generated a confusing arena of data, resulting in investors questioning what is valid, relevant, and reliable. This confusion stems from several sources and is a significant deterrent to the adoption of SI by individual investors. In particular, the informants cited three main reasons why adopting a sustainable investing framework is challenging: rater reliability, financial performance, and greenwashing.

### *Rater Reliability*

As stated earlier in this study, the main shortcomings of current sustainability-reporting practices are inconsistency, incomparability, and lack of alignment in reporting standards. To be sure, it is not for lack of reporting. In 2020, 92% of the companies in the S&P 500 and 70% in the Russell 1000 published sustainability reports. For comparison, only 20% of the S&P 500 reported their sustainability initiatives in 2010, and 60% of the Russell 1000 reported in 2018 (Governance & Accountability Institute, 2022).

Rater divergence is the difference in sustainability ratings among rating agencies and is a central contributor to the lack of reliability, a term known as rater reliability. An MIT Sloan study found that a primary source of divergence among ratings is how rating agencies measure

different elements within each sustainability category (Berg et al., 2022). Another statistical study found that the correlation between rating agencies was negligible (Chatterji et al., 2016). A company can receive a high score from one rating agency while simultaneously receiving a low score from another. Further, some components seemed to show more unreliability. For example, valuing and measuring human rights within the social characteristics of sustainability follows no standardization.

One issue involving sustainability disclosure is the variability between reports. Helen (SE) stated, *"For the most part, companies have free reign on what to disclose."* Further, there is no required disclosure auditing process to verify reported data, although more firms are using such services. Between the variability and data integrity, investors and analysts relying on public reports experience frustration deciphering what is meaningful and truthful. Discussions with experts in the field confirmed this sentiment.

> "*Raters provide incomplete models (e.g., MSCI, DJ sustainability index). They miss a lot because they are going on public info only. They rarely call for clarification or to get updates. Only the institutional investors and asset managers that use their own models call for details, get new information, ask for clarification, etc."* Helen (SE)
>
> *"There are no standardized rules for environmental and social disclosures. Worse, there is no disclosure auditing process to verify the reported data. So all of these agencies apply assumptions which only adds to the subjective nature of sustainability ratings."* Wayne (FP)
>
> *"The rating agencies' methods are sound but can be different – for example, one on the product and another on operations. If a company has a high number of accidents, is that because the company is less sustainable? Or is the company more open about reporting those things?"* Leonard (SE)

An additional area of grievance is the process of raw sustainability data collection and the quality and coverage of sustainability data itself. Companies lack adequate resources to respond to all agency requests. Both sustainability experts and financial professionals commented that companies have to pick the ones that they feel are the most viable, which means that some agencies may not have complete data about a company. Consequently, analysts use conventional

data sourcing techniques to collect data disclosed directly by the reporting company or otherwise made publicly available which may not tell the whole story. They then rely on various statistical models to generate estimates for undisclosed data. These estimation techniques use peer-group averages and industry benchmarks, whose relevancy is questionable. Investors and analysts, therefore, incorporate potentially inaccurate information into their investment process.

> "*Many companies have limited resources and can't do all the reporting needed –it's too capital intensive."* Steve (SE)
>
> *"Not every company can adhere or contribute to all requests; they have to pick the most important ones. You can't take every bus that comes into the station. You must choose one. One reason confusion surrounds the market is that companies are picking different components, reports, and agencies. "* Leonard (SE)
>
> *"Additionally, one industry is going to be rated differently than another industry. Google, Apple, and P&G are all in different industries, and one person may think one of the companies is more ESG compliant than another company, but for the rating agencies, they are comparing the companies to their peers, so their scores could be very different. For example, P&G could be higher than Apple, in theory, even though P&G could be doing more harm in another area than Apple ever would. Additionally, the reporting agencies themselves may do something completely different. Sustainalytics, RepRisk, Dow Jones, or whoever, don't have any standards or metrics to follow."* Chuck (FP)

Additionally, many of my informants believed the reports had significant biases. Companies want to paint themselves in the best light possible. Therefore, it is unlikely that self-reported and unaudited sustainability reports will indicate looming problems since firms are not known to disclose adverse events. However, a Deloitte audit identified several data omissions, unsubstantiated claims, and inaccurate figures in over 4,000 sustainability reports (Hespenheide & Koehler, 2013). Another study found that 90% of company reports did not acknowledge or indicate adverse sustainability incidents (Doyle, 2018).

> *"Not all news is made public; sometimes it's hidden, sometimes it's a short, brief announcement. It can be overlooked. Companies want to stay out of the negative news limelight, so they do whatever they can to hide the bad news. But they bask in good news, and that is more often reported."* Eric (II)
>
> *"Measuring and managing the financial implications of ESG and CSR initiatives are inadequate. For example, when a company reports its carbon footprint, it is for a specific*

> *point in time; it is not forward-looking. And the company has discretion on what to include, in the sense that they have incentives to report the positive and downplay the negative."* Helen (SE)

Avoidance of negative subjects is not the only bias found in agency reports. Rating agencies reward companies that are more vocal and open about their disclosures. Even though a company may have historically weak sustainability practices, rating agencies tend to score them in line with or above their peers despite having more potential sustainability risk (Doyle, 2018). At the same time, this bias could be due to the more prominent firm having more significant resources to follow sustainability. Still, it could be due to dedicating more resources to conduct effective marketing campaigns.

> *"There are a lot of biases in the rating agencies. Companies with higher market caps tend to be awarded better ratings than their lower market cap peers. And there seems to be a bias toward firms headquartered in Europe - they often receive higher ratings than peers in the US and elsewhere. And companies in one industry are often unfairly evaluated under a model for another industry, even though the industries have significant differences in risk exposure."* Beth (FP)

> *"[Big-box retailer A] promotes its CSR initiatives heavily, but [big-box retailer B] is actually doing a better job at it. Yet, [retailer A] gets the credit, and individual investors may be swayed by what they read even though [retailer A] has a higher risk of greenwashing."* Ursula (FP)

> *"Are good companies more profitable, or are companies that are more profitable able to take the actions that make them look good?"* Wayne (FP)

The reporting agencies' incomparable disclosure standards and public companies' reporting constraints contribute to barriers that prevent individual investors from fully adopting SI. One issue was that the investors felt the reports were inaccurate, untrustworthy, or unreliable, commensurate with the research uncovered in the literature review. However, my respondents indicated that these were not the only barriers related to reporting that were holding them back. Their lack of accessing rating reports was also due to time, desire, and understanding.

Individual investors stated that they do not access reports because they are unsure what to look for, what to access, and where to get the data. Additionally, they were not willing to pay for it.

> *"It's too time consuming and too difficult for an individual to digest the data." Helen (SE)*
>
> *"Where do you find the information you want to see? Where is it? Where does the company put it?"* Mary (II)
>
> *"Individual investors don't read SASB, GRI, TCFD, CDP, etc. If these standards could get standardized, it would certainly help. The confusion is high in large part because the reporting is unreliable. But still, I wonder if they would read any of it."* Leonard (SE)
>
> *"SI is worthwhile, but there is not enough information out there. There is too much information out there, but at the same time, there's not enough. It's hard to know what to read, which is accurate, so I don't read any."* Klara (II)
>
> *"The abundance of voluntary sustainability standards is impeding progress. Many of the reports compete, overlap, or diverge from each another. It's too confusing. Even experienced professionals like myself don't know where to turn or what to rely on*." Beth (FP)

A common theme from my investor informants was that they did not access reports; instead, they relied on internet searches, the company's website, and what they read on social media. Their reasoning was simple - the data was easier to obtain and understand. Further, they were well aware the data was biased, incomplete, and probably not accurate, but they felt it was relatable. It was easier to read someone's opinion and determine if it was relevant or commensurate with their beliefs rather than trying to decipher a complex report.

> *"I don't read or access reports from reporting agencies. I know nothing about them. I don't know who they are or which one's matter."* Victor (II)
>
> *"I don't access any special reports. I mostly look on the website or google it. I know there are programs out there, but I don't know what they are, and I don't know how to access them. I don't have time to learn them and provide my inputs. I'm not going to pay more for something like this because I trade so infrequently it's not worth it."* Jill (II)
>
> *"More transparency. We need a standard that applies to all and can be interpreted easily. What does Morningstar rating mean? How do we interpret it? I'd rather read something off Facebook or LinkedIn – something I can relate to."* Ivan (II)

### *Financial Performance*

The second dimension which causes uncertainty lies in the investor's beliefs regarding how SI principles deliver pecuniary or nonpecuniary rewards. Concerning financial performance, interviewees cited two main reasons why they did not intentionally invest under an SI framework: (i) they believe it provides fewer options, and (ii) they believe it diverts resources from income-generating activities. A lack of understanding or perceived view of lower returns and options is a barrier to sustainable investing participation. This perception prevents investors from investing in SI opportunities because, generally, respondents felt investing purely for SI would not give them the needed returns.

> *"To invest in a company solely for its sustainable characteristics ignores its financial prospects. I think it is limiting."* Doug (II)
>
> *"My investing strategy is about financial performance and returns. The financial viability of success for SI is questionable. It is not predictable."* Alan (II)
>
> *"Financial returns. Returns are questionable. It's difficult to determine how these efforts translate into better financial performance."* Eric (II)
>
> *"My clients don't believe the financial performance. I show it to them and they are encouraged, but generally clients and prospects think that SI investments have lower returns."* Patty (FP)

Respondents often stated that they felt SI provided fewer options, eliminating diversification benefits. If companies meet specific criteria, only a select few candidates would be viable, limiting their investment universe.

> *"Excluding companies and industries limits my options and can result in under diversification, which can impact my returns and risk. The oil and gas sector is up about 50% for the year while the S&P 500 is down 10%. And tobacco stocks are up about 10% for the year. So why should I pick one company or industry over another for its CSR initiatives?"* Tom (FP)
>
> *"I am invested in natural gas drilling, which gives me tax breaks and long-term returns. Whether the investing public likes it or not, we have to have fossil fuels. I am invested in oil, too. That's not "sustainable" in the true sense of the word. We are depleting natural resources. But I am not interested in investing in solar power for its sustainability*

*properties. Until an industry or company shows promising returns, I won't invest in it."* Doug (II)

Counter arguments to the lack of diversification mainly came from sustainability experts and finance professionals. Although there were fewer investment options, those remaining were the leaders, and as such, they have the potential to provide lower risk, higher returns, and greater diversification. Further, SI proponents claim SI provides a screening process; if a company is not sustainable, it is not a worthwhile investment.

*"Investing alongside an SI framework is about maximizing risk-adjusted returns. Firms that follow good sustainability initiatives should reduce risk and provide higher returns than those that don't."* Wayne (FP)

*"Sustainable firms are more efficient with their resources, for example, using less water or electricity, better technology, etc. Greater efficiency leads to lower costs, which leads to higher profits. Firms that aren't as efficient can't do as well in the marketplace – they can't compete. Investors need to avoid those companies."* Helen (SE)

*"SI enhances returns, it strengthens risk management, it aligns a firm's strategies with the priorities of its stakeholders. Firms that don't meet that criteria shouldn't be considered in a portfolio."* Beth (FP)

Other detractors of the financial benefits of SI stated that it diverts resources from income-producing projects. They side more closely with Friedman's (1970) view of shareholder value versus Freeman's (1984) view on stakeholder value.

*"I don't invest in a company solely for its sustainable characteristics. That ignores its financial prospects, and I think the company needs to focus on what it does best. Sustainability is not a reason for investing in a company, especially if its ROI is not there. CSR is only good if it results in higher revenue, lower costs, and a higher stock price."* Doug (II)

*"The Common argument is that you won't get the same returns. China companies will be more competitive because they are not spending money conforming to sustainability mandates."* Ivan (II)

*"A firm implementing sustainability protocol to look good is not a reason to invest in them. I need to see financial results from it."* Eric (II)

*"I would rather give to society in a way I want to. A corporate CEO doesn't know my value system better than I do; he is not in a better position to determine how much to give*

*back to society. I would rather be the judge of that. He should focus on his business."* Alan (II)

*"When a firm focus on things like climate change, it diverts resources. The cost of dealing with the consequences will increase in the future, but current practices are biased toward short-term profit maximization at the expense of future generations."* Eric (II)

*"Firms must maximize their profits. Focusing on externalities like sustainability diverts resources. The consequences and repercussions will increase in the future, but right now, under current practices, companies must focus on short-term profit maximization, often to the detriment of future generations."* Steve (SE)

Some informants stated a company's SI efforts could be financially rewarding, especially in the long term. Following a suitable SI protocol can result in more efficient operations, provide better access to capital, and increase sales, among other benefits.

*"ESG/CSR companies may be more efficient in the long run because cost reduction, access to capital, and higher sales because consumers will want it more. We may need to rethink the business model. It's hard to determine the financial effects of being CSR/ESG sufficient, and too slow to realize how it is working."* Ursula (FP)

*"Generally, people invested in SI care less about returns then they do about doing good even though the returns for SI are good. The returns are better with respect to the recent economic downturn. I am not sure why that is. ESG firms are more efficient with their resources, for example using less water. Maybe that's why."* Qiana (FP)

*"One of the reasons why it makes sense is because companies have issues and ignoring CSR initiatives can have a negative impact on their long-term revenue. The consumer won't buy their products, and the company can have an adverse effect on the planet and their community. In general, sustainability makes sense for long-term efficiency."* Beth (FP)

*"Sustainability is about efficiency, so an employee that can find an easier way may make the company more sustainable, and likewise, being sustainable may make it more efficient. For our firm, we have to do projects on a large scale; most efforts that pertain to the employee level may not transfer down and be implemented fully."* Helen (SE)

One thought-provoking consideration not discussed in the literature is that sustainability may not provide the content an investor thinks it does. In some informants' opinions, investors may believe their investments deliver returns or reduce risk due to sustainability-related initiatives when those returns are due to factors other than sustainability.

> *"What are we getting from sustainability? There are a lot of good intentions, but the execution leaves something to be desired. Is the investor getting the sustainability content that they want? What they get and what they think they get are often very different."* Wayne (FP)

> *"I have been reading articles in WSJ and seeing postings by noted experts in finance that sustainable investing is not what it's cracked up to be. Aswath Damodaran (Professor of Finance at New York University) has stated that you can't really measure 'goodness', and it's questionable that 'goodness' translates into profits or high stock price. And the WSJ says it's a bubble. It's not really having much impact on the environment. Just because a company's share price increases doesn't mean the company has changed – or will in the future."* Eric (II)

***Greenwashing***

Greenwashing and deceptive actions were the most cited explanation for not investing in a company. And for valid reasons – UL reported that 95% of products claiming to be green in Canada and the USA committed at least one of the "sins of greenwashing," from the sin of the hidden trade-off to the sin of worshiping false labels (UL, 2009). It is important to note that greenwashing undermines well-intentioned efforts by companies to inform investors, leading to increased confusion and mistrust in the marketplace. Greenwashing can negatively affect investor confidence in sustainable firms because it misleads consumers and investors and hurts companies committed to sustainability initiatives. Ultimately, it erodes confidence in the SI market.

At the same time, greenwashing is a nebulous term. As stated in the literature review section, there are many forms of greenwashing and varying degrees of severity. Investors understand that the concept is simple, but defining it is not easy. While greenwashing claims are abundant, respondents noted that investors should conduct due diligence to determine whether a company is misleading, inaccurate, or negligent in their claims, or if they are legitimately offering what they state, which may not be to everyone's taste. This vagueness causes investors to wonder whether the firm is telling the truth or if they are misconstruing the message.

*"When it comes to truth in reporting (i.e., greenwashing), I am leery but it's hard to determine what is greenwashing and what is a misunderstanding on my part, a misrepresentation from the company, or something else like bad press. Therefore, I don't put a lot of weight on what a company says. I want them to provide accurate information, I want them to play by the rules and be ethical in their business dealings, but I don't think it is realistic for a company to meet everyone's expectations on what it is doing for its stakeholders."* Doug (II)

*"I am always wondering if they are doing what they say. Is the company doing something they shouldn't be doing? Or are they not doing something they should be? I don't think it is lying; I think it is that they don't reveal the truth. You can't find greenwashing, but you know it is out there.* Jill (II)

*"Investors are concerned about greenwashing and results that aren't real. It concerns them greatly and they don't like the risk associated with companies that are disingenuous. They get very upset when they hear a company is not being truthful. I have to remind them, that sometimes it's not that the company was being untruthful, or even that they weren't telling the whole truth. Rather it's that there was a mistake or misunderstanding about what the company was doing in the first place. The company may not have been doing bad; it could be that we misinterpreted it or there was just a misunderstanding about what the company was doing. It's not always that the company was being devious."* Qiana (FP)

*"Greenwashing is a major factor for me. I want to find a way to get verified data, but I haven't found anything that I trust."* Randy (II)

*Investors want industry leaders, and industry leaders are assumed to be doing the best in ESR/CSR. But they may be doing it for reputational damage control – and that can promote greenwashing."* Beth (FP)

Various vague environmental claims have caused investors and consumers to question corporate honesty. The concern over greenwashing is that it not only misleads investors but also companies true to their sustainability mission lose their competitive edge. Ursula was the most vocal on the topic.

*"Greenwashing and social washing are huge issues, but both have been in existence before SI was ever introduced. Firms have always embellished on what they were doing to some extent. They have been lying for years on other things.*

*"Today, many individual investors have come to accept that firms don't tell the whole truth. The issue is that individual investors don't know what to look for or what to believe.*

*"Further, and more importantly, the company isn't always doing greenwashing – sometimes it's the investor's interpretation or the source that is reporting on it (e.g. a third party). The investor thinks one thing but he/she may be wrong. The company never said it or never indicated it didn't do something or did something.*

> *"People don't do enough research, and they can't. It's hard to do analysis. Often, people are going by a company's brand image and what they (the II) thinks is going on. In the end, it's not fraud, but the investor feels deceived."* Ursula (FP)

While greenwashing and many offshoots like woke washing and sports washing have gained notoriety of late, an opposite view has emerged. Green blushing is a corporation's reluctance to talk about its sustainability policies. Companies that engage in green blushing disseminate little or no information about their social and environmental sustainability practices or the environmentally-positive characteristics of their products. As a result, investors cannot evaluate the company's sustainability efforts since minimal public information is available. As a result, the investor relies on insufficient information, which can lead the investor to make errant decisions. Interestingly, no respondent mentioned green blushing; however, the lack of available data is another component promoting uncertainty in the SI marketplace.

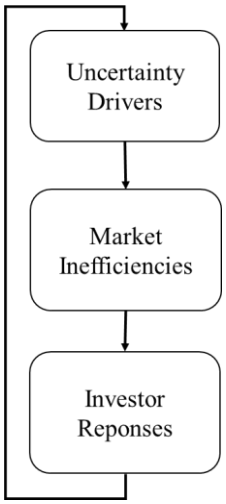
The uncertainty drivers of rater reliability, financial performance, and greenwashing lead to inefficiencies in the market. An inefficient market is one where prices do not include all publicly available information, per Fama (1970). Therefore, an asset's price does not accurately reflect its intrinsic value, suggesting that a stock exhibiting sustainability-related characteristics could be undervalued or overvalued. Because investors cannot gather, interpret, or act on reliable information, sustainable investing lacks efficient market dynamics.

# VI DISCUSSION

This research study offers vital insight into sustainable investing and addresses the gap identified at the outset of this research. Statics repeatedly show that individual investors are interested in investing in products that support sustainability. However, the same statistics show that many investors do not follow through on their intentions. This study researched how investors used sustainability-related experiences, information, learning, or a combination to help them formulate decisions around investing in sustainable investments. This study helps close the gap between interest in SI and its adoption with individual investors.

The study used a Straussian-based grounded theory approach to analyze how individual investors integrate sustainability factors into their investment decision-making. The intention was to identify barriers and enablers that may make the process more efficient. Research has focused on barriers involving mistrust around rater reliability, misunderstanding of financial performance, and fears of greenwashing. These uncertainty drivers have resulted in inefficiencies in the market that lead to investor responses involving options tied to SI opportunities that can impact an investor's portfolio. Figure 9 below shows the theoretical model outlining the iterative relationship between these factors.

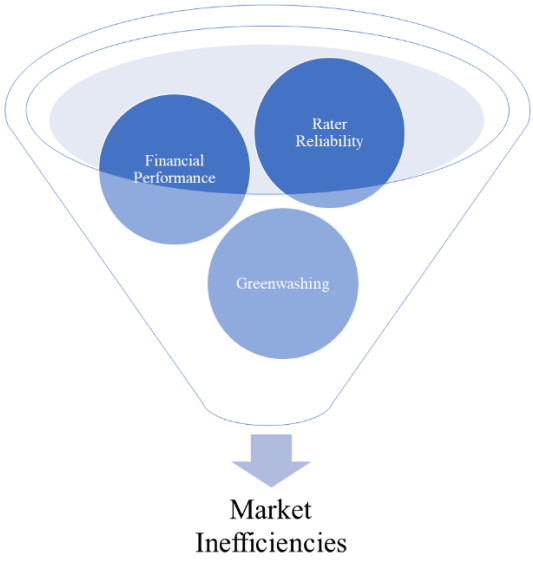
**Figure 9: Components Impacting a Sustainable Investor's Decision**




## VI. 1 Uncertainty Drivers

Extant literature indicated several factors inhibited investors' ability to invest in a sustainable framework, which my informants confirmed as significant barriers. These barriers consisted of three uncertainty drivers: mistrust around rater reliability, misunderstanding of financial performance, and fear of greenwashing. Each of these contributes to inefficiencies surrounding SI, as shown in figure 10 below.

**Figure 10: Uncertainty Drivers Leading to Inefficiencies**



As the name implies, rater reliability involves the trustworthiness of the rating agencies and their sustainability reports. Respondents indicated that finding reliable metrics around ratings and sustainability characteristics was difficult. They cited that information was abundant, but the accuracy and integrity of the reports were circumspect. This lack of reliability led many to avoid using third-party analysis altogether or access other sources, like the internet or company websites. These sources are potentially more misleading than third-party reports.

My informants confirmed that financial performance detracted them from investing in sustainable investments, a sentiment identified in the literature review. Whether accurate or not, the lack of strong financial performance contributed to investors avoiding sustainable investments. Interestingly, the belief that SI would not generate sufficient returns was expressed by almost all informants, even though many did employ a sustainable strategy to some extent.

Greenwashing, where firms make disingenuous claims about their sustainability initiatives, was cited in the literature and with my informants as the primary inhibitor to SI. Investors and financial professionals stated that evaluating the extent of a company's greenwashing activity was extremely challenging. All felt it was difficult to identify the severity, and getting reliable data was nearly impossible.

BDT was prevalent among the uncertainty drivers. Investors indicated they relied on intuition, heuristics, and "rules of thumb" in making investment decisions around these uncertainty drivers. Overall, my respondents stated that several issues around these uncertainty drivers were holding them back from following through on their interest in investing in sustainable investments. Nudges, which help correct people's irrational use of heuristics, would be beneficial to help them achieve better outcomes.

## VI.2 Market Inefficiencies

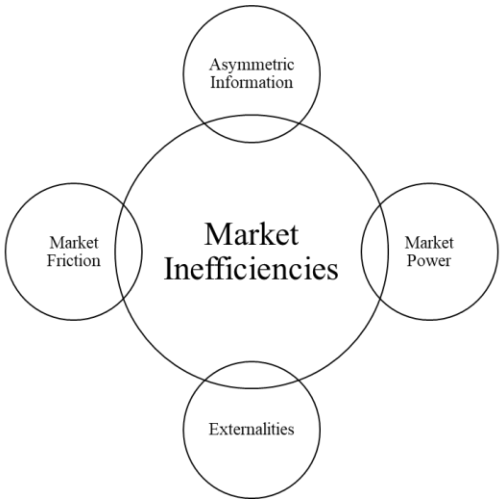
As stated in the Literature Review section, traditional economic theory purports that a stock's price reflects all available information, per the Efficient Market Hypothesis (EMH). While empirical evidence suggests that markets are reasonably efficient, research indicates they are not perfectly efficient. Often disputes over market inefficiency center around small, neglected stocks, emerging market stocks, and short-term market anomalies. However, sustainable investing presents market inefficiencies, an area that has not been researched to date.

A stock's market price as quoted on an exchange does not always equate to its intrinsic value, a term describing an asset's perceived worth. A company's intrinsic value involves an investor's or analyst's fundamental analysis of the investment rather than its current trading market price. Quantitative factors, such as revenue, costs, and earnings, and qualitative factors, such as products, management, reputation, and brand recognition, play a central role in determining intrinsic value. While a company's financial data is relatively easy to access, qualitative factors can be challenging to access and assess.

The EMH assumes that all investors have access to the same information, which is not the case with the sustainable investing market. Qualitative factors used to assess a sustainable investment's worth are challenging to locate and interpret. Therefore, determining a firm's intrinsic value using SI techniques is problematic. For this reason, SI is more susceptible to market inefficiencies than traditional investing.

Figure 11 below shows the market inefficiencies affecting SI: asymmetric information, externalities, market friction, and market power. Respondents indicated that it was challenging to make decisions around sustainable investment in large part because of these market inefficiencies, a dilemma nudge could overcome.

**Figure 11: Four Components That Contribute to SI Market Inefficiency**




**Asymmetric Information**

Asymmetric information, or information asymmetry, occurs when a firm's CSR efforts are hard to observe or prove. Asymmetric information occurs due to incomplete information, also called hidden information or adverse selection, and imperfect information, also called hidden action or moral hazard. An example of asymmetric information is a car buyer not knowing the maintenance history of a used car they want to buy.

This issue is especially prominent in SI because investors cannot access all information relevant to a company's sustainability efforts. For an SI investor, it is harder to observe and evaluate financial strength and risks and to observe risky behavior. Many incentives are distorted, and investors can be misled easily.

Many comments in the Rater Reliability section of this paper identified cases of asymmetric information. However, a few additional thoughts my respondents provided include the following.

> *"We have to make decisions on incomplete information. Often, we have to estimate or model relevant metrics and run with it. We usually don't have access to concrete and verifiable facts and figures."* Beth (FP)

*"Reporting agencies deliver broad qualitative assessments often based on publicly available data that may not tell the whole story."* Leonard (SE)

*"Companies are never asked questions about the environment and social dimensions of their business model during investor and analyst meetings."* Steve (SE)

*"Our company only fills out MSCI, Sustainalitics, and a few others; we don't use Dow Jones sustainable index information. It takes too long and is too time-consuming to complete all the requests. We can't do all, so some raters don't have it all. It could be incomplete."* Helen (SE)

As a result of asymmetric information, an investor may be exposed to undisclosed liabilities. Although they may conduct due diligence, the investor is subjected to potential issues until the company publicly discloses it.

**Market Power**

Market power is a firm's ability to control conditions in the market in which it operates. Firms with sizable market power (an extreme example would be a monopoly) can set high prices, produce low output, and make other inefficient decisions around product quality, innovation, and promotion. They can engage in unilateral, anticompetitive behavior around pricing, excess capacity, and strategic bundling (Leslie, 2013; Vatiero, 2010).

Prominent actions around a firm's CSR activities may give a company a competitive advantage. In particular, firms with market power can dedicate abundant resources to sustainability, increasing obstacles to competitors and new entrants in the market. To compete, rivals must follow suit, which small players or ones without sufficient resources cannot do. Therefore, investors may invest in a company or exclude another based on their view of what the firm is doing, whether it is accurate or not.

A few comments around market power from my respondents include the following.

*"The biggest companies get the word out, while the smaller guys get crushed. Even though they may be doing sustainability better than the big guys, they will lose."* Oscar (II)

*"Some companies need to put their money into doing activities versus talking about it."* Helen (SE)

*"[Big-box retailer A] promotes its CSR initiatives heavily, but [big-box retailer B] is actually doing a better job at it. Yet, [retailer A] gets the credit, and individual investors may be swayed by what they read even though [retailer A] has a higher risk of greenwashing."* Ursula (FP)

*"Higher market cap firms tend to receive better ratings than their smaller counterparts. This could partly be due to the larger firm having more resources to follow ESG, but it could be due to the larger firm having more resources to conduct effective PR campaigns."* Beth (FP)

*"ESG rating systems seem to rank companies with more disclosures higher. Companies with relatively low ESG practices but ample disclosure receive scores commensurate with their peers despite having more overall sustainability risk."* Wayne (FP)

Simply because a firm touts its sustainability initiatives does not mean it implements sustainability better than its competitors. An investor can think they are investing in the best-in-class when they may not be.

**Externalities**

Externalities are conditions where bystanders can be affected by another party's decisions. For example, an externality occurs when the production or consumption of a good or service results in a cost or benefit to an unrelated third party. An example of a positive externality may be a neighborhood benefiting when a company creates green space. A negative externality could be a neighborhood suffering when a factory emits pollutants into the air.

One of the most noted externalities related to sustainability is carbon emissions and pollutants such as greenhouse gases. Companies are increasingly tracking and recording the emissions created from manufacturing (known as scope 1) and those indirectly produced for the company's operations, such as purchased electricity for heating and cooling buildings (known as scope 2). Companies often tout their efforts to reduce pollutants; however, few companies discuss their scope 3 emissions. Scope 3 pollutants are those created by suppliers, distributors, consumers, employees, and other stakeholders when they buy and use the products. For most

companies, scope 3 emissions comprise the bulk of a company's greenhouse gas impact, yet, they are rarely discussed. Part of the reason lies in the difficulty of doing so – it's a complex task that most companies lack sufficient resources to track.

Still, scope 3 emission is an example of an externality that can impact an investment. Since SI entails additional components an investor must consider relative to sustainability, several other externalities exist that can impact an investment. My respondents made the following comments regarding externalities.

> *"There is a downside to sustainability – sustainability can harm improvement. For example, investors will avoid industries or companies such as oil and fossil fuel because the companies won't be able to get capital to make improvements. They can't get better if they can't get financing to pursue it."* Tom (FP)
>
> *"Firms are focused on maximizing profit. To divert resources to externalities like climate change is unproductive, especially in the short term. The cost of dealing with the consequences will show up at some point, though."* Steve (SE)
>
> *"At what point is sustainability not a consideration? Eventually, all companies will have to be sustainable. The issue for now is, how much more exposure are you willing to take in your portfolio? With sustainable investing, you don't always know what additional risk lurks behind the scenes."* Leonard (SE)
>
> *"Externalities affect both traditional and sustainable investing. But with SI, there are more factors to take into account. There are more variables, some of which you can't predict."* Ursula (FP)
>
> *"I support Disney's decision to support non-traditional families. But that brings in another question – I may approve of their decision, but what about others? Will it attract more customers, or will it turn them off? There is a lot of controversy around this. And Florida may change Disney's business classification, which could impact a lot of things."* Nancy (II)

Market prices rarely reflect the effects of externalities. They are often unknown to the company, much less to the investor, until it is too late. Yet, it is a factor that impacts an SI investor.

**Market Friction**

Market friction occurs when something interferes with trade (DeGennaro & Robotti, 2007). This friction can affect the investment opportunity set available to investors, reduce investors' utility, and prompt investors to change their behavior. For example, financial market frictions cause a market participant to deviate from holding the market portfolio.

Consider a stock investor who prefers a fifty-fifty mix of stock and bonds. If stock prices rise while bond prices fall, the portfolio becomes overweight in stocks and is too risky for the investor. Divesting some of the equity position to reestablish the fifty-fifty mix would trigger capital gains taxes. Because of this, the investor may choose to retain the unwanted risk exposure rather than incur a tax liability.

Concerning sustainable investing, an investor may invest in a company with the expectation of aligning their values with the company's actions. However, the relationship can get misaligned, which can happen for several reasons. For one, a competitor could implement better sustainability practices making it a more attractive option. Or, conversely, the firm's efforts could fail to materialize, the firm gets charged with greenwashing, or the investor's values change. Regardless, the investor finds themself with an asset they wish to sell but continue to retain. They may continue holding the investment for financial reasons such as avoiding capital gains taxes or capitalizing on its continuing stock price appreciation.

Likewise, an SI investor may keep the asset for sentimental purposes. One reason is wishful thinking that the company's situation will change, known as loss aversion or regret avoidance. These biases become prevalent when the stock price falls, and the investor decides to continue holding onto the stock, hoping its price will rebound. Another is divestiture aversion (or

endowment effect). This investment bias causes individuals to value an asset higher, often irrationally, than its market value, and, therefore, they continue to hold onto it.

While the investor may no longer wish to hold the position, they find it difficult to unwind it. By implication, these frictions can cause a market participant to to retain assets that no longer fit their SI criteria. My informants provided some thoughts on market friction, privded below.

> *"There is a reversion to the mean, that is, companies will try to keep up with this until eventually all firms catch up. They may go above, or they may fall below, but they will end up being average. It's very competitive for a business in all aspects, particularly SI, so to do the right things will only keep them at a moderate place. I have to work with my clients to remind them of this. They have to monitor it. A company's position on some of these reports change, and it may mean they have to rebalance more than they would like."* Chuck (FP)
>
> *"Si is about doing good, but it seems everybody has their own definition. It is hard for me to position it with my investors because it's different between investors. And it changes. One day they want one thing, another day they want something else – they end up not doing anything, so they end up missing opportunities."* Patty (FP)
>
> *"Sometimes clients come in with diverse needs such as faith-based investing. At times like that, we may not have the materials that they need. When that happens, there is a bit of a disconnect. I don't know what to recommend, and they don't know what to buy."* Qiana (FP)
>
> *"An investor may avoid [a fossil fuel company] but then realize it was for the wrong reason and realize they missed out. But they don't do anything about it because their conscious prevents them from investing in the company. Meanwhile, their portfolio is tanking."* Tom (FP)

Market frictions are diverse, widespread, and affect almost every transaction in some way. For investors, it can add another layer of complexity to maintaining a balanced SI portfolio.

### VI.3 Investor Responses

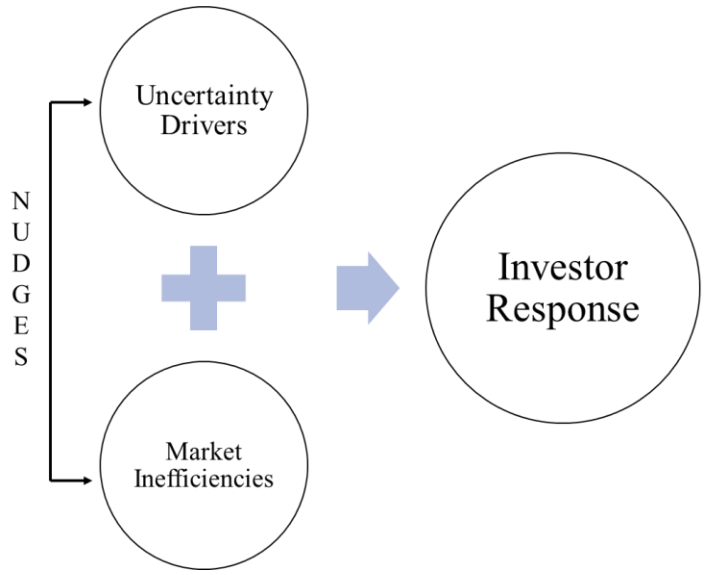
Extant literature indicates investors are interested in SI, but their acceptance is low; while their intentions are admirable, their execution leaves much to be desired. My research suggests investors are interested in SI since it allows them to invest alongside their values, generate excess

returns, reduce risk in their portfolio, or use a combination of these. The implementation is not mutually exclusive; it was not uncommon for investors to follow multiple mandates for an investment. Furthermore, many investors stated that they were not currently pursuing a sustainable investing framework when, in fact, they were doing so to some extent. The disconnect was that they did not realize they were doing it or were unsure how to follow through on their intentions.

Investors face uncertainty drivers around rater reliability, financial performance, and greenwashing. In addition, market inefficiencies involving asymmetric information, market power, market friction, and externalities plague the SI market. Between these two constructs, heuristics and cognitive biases are evident and problematic. Investors find it challenging to identify a solution that satisfices, much less find an optimal one. Nudges help propel the investor forward in making investment decisions in this regard.

The uncertainty drivers and the inefficiencies in the market lead to investor responses, which are options tied to sustainable investments that can impact an investor's portfolio. Investor responses acknowledge, activate, and exercise investment options related to SI investments tied to their values or attributes they view relevant. These option chains, in turn, identify sustainable investment opportunities that maximize an individual's risk-return profile. Figure 12 shows how uncertainty drivers and market inefficiencies lead to investor responses.

**Figure 12: Uncertainty Drivers and Market Inefficiencies Influence Investors' Responses**




While many investors believe SI limits investment options, financial professionals and sustainability experts cite that sustainable investing offers investors better investment options. Under traditional investment analysis, investors include investments considered too risky or with inadequate return potential. On the other hand, investing under an SI framework enables investors to identify stocks that maximize their risk-return profile. That is, the investments have the potential to provide higher returns and lower risk. SI investors are offered two options unavailable to traditional investors:

1. **New investment options**. Sustainable investing presents opportunities that were previously outside the investor's investment profile.
2. **Portfolio rebalancing options**. Sustainable investing narrows, elaborates, or widens an investor's current portfolio management options.

Although many of my respondents believed following an SI strategy limited their investment options, SI may expand their opportunity set. Investors pursuing a strategy around sustainable investing have the opportunity to identify new investment options that were previously unnoticed or unavailable under traditional analysis alone. In analyzing a company's SI

attributes, investors can spot opportunities that address their sustainability criteria even though the investments may not meet their fundamental standards. Additionally, when investors review their portfolio, some assets may no longer be worthy due to weak SI attributes and can be removed from the portfolio. Furthermore, the investor may find companies in their portfolio that deserve additional investment or identify companies previously excluded from their portfolio that should be added.

A financial option is a security giving the owner a right to buy or sell an asset, subject to certain conditions, within a specified time (Black & Scholes, 1973). One of the most recognized options involves the right to buy common stock in the future at a specific price; however, there are other options. For example, strategic options are alternatives that an investor has regarding uncertainties in the business environment. There are differences between financial options and strategic options. For one, financial options are acquired through a simple monetary transaction; in contrast, strategic options are acquired by analyzing a firm's actions and resources. However, there are many similarities, too. In both cases, options are acquired, activated, or exercised. Further, financial and strategic options eventually expire, in which case they are no longer actionable.

An investor operating under sustainable investment guidelines has options unavailable to the traditional investor. In SI, a strategic Investment Option reflects incremental decision-making on current and future investments around SI attributes, enabling the investor to frame future actions around their portfolio. Financial options take three forms: shadow options, real options, and struck options (Sandberg et al., 2014). These options apply in an SI setting, as shown below in Table 8.

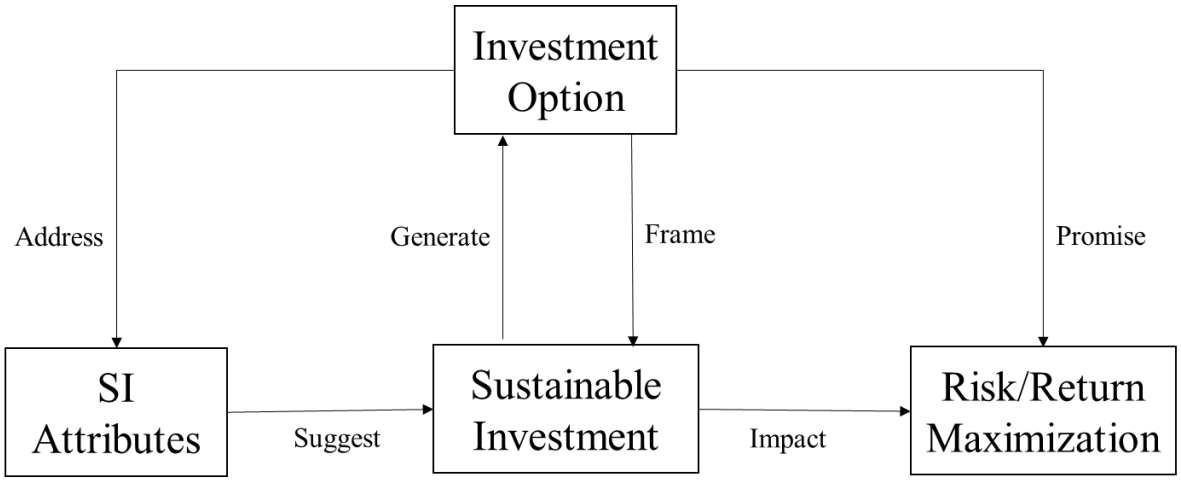
**Table 81: Sustainable Investment Options Chain**

| Financial Options | | Sustainable Investing Options | |
|---|---|---|---|
| **Construct** | **Definition** | **Construct** | **Definition** |
| Shadow option | An investment opportunity in the options bundle that awaits recognition | Available SI option | An SI opportunity that awaits recognition. |
| Real option | An option to which you make a small initial investment to obtain preferential access to a future investment | Actionable SI option | An examined SI opportunity that is both desirable and feasible. |
| Exercised option | An option activated through a larger investment | Realized SI option | An SI opportunity exercised (acted on) |

Eventually, options expire and become unexercisable. Financial options have a set time frame after which the owner can no longer exercise it; on the other hand, strategic options, such as those involving SI, expire when they no longer provide a strategic opportunity. That is, their strategic advantage has dissipated.

The conceptual map in Figure 13 describes these options' relationships. The map's left side captures how SI Attributes suggest a Sustainable Investment that, in turn, generates Investment Options (the opportunity set), which eventually address SI Attributes. SI Attributes are the values that the investor feels are important, such as greenhouse gas emissions, diversity & inclusion, or ethical business practices, to name a few. The map's right side captures how Investment Options promise higher Risk/Return Maximization and, as such, the Investment Options may frame the evaluation of the impact of Sustainable Investments. This conceptual map does not claim causal relationships but clarifies how examining SI Attributes (the investor's values) may help identify Sustainable Investments through Investment Option considerations.

**Figure 13: Conceptual Model of SI Options**




A sustainable investor typically has many unknown investment alternatives available. The SI opportunity requires identifying those options; the investor cannot take action without doing so. Initially, the focus is on generating many desirable investment alternatives without particular concern for their practical implications. Once identified, however, each investment must be evaluated by considering available sustainable investment criteria and fundamental analysis. Finally, the option must be exercised, meaning the investor must act on it. Otherwise, the option will expire worthless, and the SI opportunity will no longer be actionable.

Investment Options are potential investments enabled by traditional investment protocol and addressing relevant SI opportunities. These options are dormant until recognized by the investor. To identify suitable investments, the investor could examine which Investment Option characteristics they need to generate to address the specified SI Attributes (e.g., carbon neutrality or diversity & inclusion). To evaluate the desirability of adopting this SI Attribute, the investor would then examine whether the framed Sustainable Investment impacts the investor's portfolio performance as promised. Available options may be systematically analyzed regarding their desirability and feasibility during the investment process. Those recognized as most suitable

become actionable Investment Options. Eventually, if a decision is made to invest in the proposed Sustainable Investment, the Investment Option is activated and becomes a realized option.

As an illustration, suppose an investor identifies their SI Attributes, or values, important to them. The investor analyzes the investing landscape for companies that meet these values. Once a company is acknowledged as meeting the investor's criteria, it becomes a potential Sustainable Investment which, in turn, generates an Investment Option. After conducting fundamental research on the company, the investor may view the Investment Option as actionable. If exercised, the company (the Sustainable Investment) is added to the portfolio which impacts the portfolio's characteristics.

In addition to sustainable investments, this model can be practical when investing in other inefficient markets, such as small-capitalized stocks (small-caps) and emerging markets. As discussed in this paper's Efficient Market Hypothesis section, capital markets are generally efficient, and researchers often suggest some markets are more inefficient than others. In such cases, this model could be helpful since investors can identify those attributes they feel are essential, identify potential investments that meet those criteria, then analyze the investment to determine if they are actionable. Once exercised, the investment can be evaluated on how well it contributes to the portfolio.

# VII CONTRIBUTIONS

This study offers a novel perspective on sustainable investing by providing a new approach to deal with the lack of adoption by individual investors. It contributes to an existing knowledge base by providing a description and taxonomy of the barriers and enablers (influencers) regarding what motivates individual investors in deciding whether to invest in sustainable investments. My research study has provided three areas of contribution to theory and two involving practice. The contributions to theory relate to confirmation and extension of extant literature, enhanced function of behavioral decision theory and nudge theory, and extended application of market inefficiencies. The contribution to practice involves a conceptual model around investment option theory for sustainable investing and the application of BDT and Nudge to help investors adopt SI.

## VII. 1 Contribution to Theory: Confirming and Expanding Extant Literature

This study confirms and expands extant literature that investor interest in SI is high but adoption is lacking. In particular, Uncertainty Drivers (rater reliability, financial performance, and greenwashing) do, indeed, inhibit investors from adopting an SI strategy. Informants indicated that they rarely accessed rating agency reports. Individual investors stated they primarily accessed a company's website, the internet, and social media to verify or refute a company's stance on sustainability due to the ease of access and interpretation. Financial professionals indicated they contacted the company directly if they had concerns. However, the informants provided ideas for improvement. My respondents indicated that ESG ratings and reports need standardization and greater clarification, but that may not be enough. Respondents indicated accessibility, ease of use, and flexibility were critical considerations for acceptance.

My interviewees believed SI has the potential to curtail portfolio performance. They thought SI limited their investment options, and many felt a company's sustainability activities diverted resources from income-producing activities. Conversely, many commented that a firm's sustainability efforts could produce long-term benefits to the company. For example, a company can create a competitive advantage through more efficient operations, lower cost of capital, and reduced exposure to liabilities. Further, they believed SI offered opportunities to generate alpha (enhanced returns), reduce risk, and invest alongside values (attributes they viewed as necessary in SI).

Greenwashing is pervasive among companies, and most all informants cited this as the most significant barrier. At the same time, many acknowledged that there are different degrees of severity, and they could be misinterpreting the message. It is not just the company's fault. Companies may not intentionally be disingenuous in their claims. However, the respondents acknowledged that many companies do not provide the whole truth or avoid making negative statements about their sustainability efforts. Regardless, a clear divide exists between a company's actions and the investing community's interpretation of those actions.

### VII.2 Contribution to Theory: Enhancement to BDT and Nudge Theory

When it came time to invest, most interviewees based decisions on heuristics, intuition, and gut instincts, which are defining characteristics of behavioral decision theory (BDT). BDT has its roots in behavioral finance and behavioral economics. Behavioral economics attempts to understand human economic behavior, and behavioral finance studies human behavior in financial markets. An individual's decision-making represents an essential aspect of both, the overlap of which is BDT. BDT focuses on decision-making phenomena in situations involving

certainty, risk, and uncertainty, such as ambiguity and ignorance, two traits highly reflective in SI.

BDT comes into play because investors try to incorporate their knowledge when they frequently have limited information and computational abilities. For this reason, uncertainty drivers, market inefficiencies, and investor responses involve BDT. Analyzing sustainability components involves much more uncertainty around what is accurate, truthful, and material. Investors cited that it is difficult to know what these components are. As a result, they would frequently make decisions based on limited data and cognitive ability to process information around SI. Their reliance on intuition, instincts, heuristics, and biases was much higher than in traditional investing.

With traditional investing, investors frequently are unable to find optimal solutions; with SI, my informants indicated they could not find a solution that satisfices, let alone generate an optimal one. Most investors find acceptable investment opportunities, but my informants felt SI information was inadequate. They could not get a satisfactory answer, which prevented them from following through on their interests and intentions.

Nudge theory, which proposes positive reinforcement and indirect suggestions to influence behavior and decision-making, can play a large part in investing; however, it is largely absent in SI. Nudges can provide practical solutions in imperfect markets by suggesting options that were not identified or otherwise seemed implausible. Investors like information to be easy, clear, and concise. My informants indicated information around SI was none of these. They frequently relied on other parties for advice, such as their family, friends, or financial advisors, people they recognized as having little knowledge of SI. Some indicated they accessed news outlets such as CNBC or the internet such as Reddit, which were biased.

BDT and nudge provide viable opportunities for SI. Investors rely on heuristics to make investment decisions around SI, often leading to unsatisfactory results. Additionally, they look to the advice of others; nudges can help propel investors forward in making investment decisions by providing direction. Nudges may help correct investors' irrational use of heuristics and other forms of BDT, which can help them achieve more optimal outcomes through positive reinforcement and indirect suggestions.

### VII. 3 Contribution to Theory: Extension of Market Inefficiencies

This study uncovered several Market Inefficiencies that had not previously been studied in sustainable investing. An inefficient market is one where asset prices do not accurately reflect their true or intrinsic value. This inefficiency results when not all information is reflected in a stock's price. Most markets are inefficient to some extent, including the traditional financial market. However, the sustainable investment market exhibits a higher degree of inefficiency due to asymmetric information, market power, market friction, and externalities. Because of these, sustainable investments may be over- or under-valued in the market, which creates opportunities for excess profits and increased risk.

Asymmetric information is when a company has information unavailable to the public. Firms report on their positive SI qualities, not their negative, and even the largest firms do not have the resources to complete every request. Further, reporting is for a point in time, and conditions change, for the better or worse. Additionally, a firm may set the standard in greenhouse gas emission protocol, but its diversity & inclusion policies are abysmal. Such discrepancy is prevalent in SI, and as a result, issues are only publicized when necessary.

A firm with market power can present obstacles that prevent new entrants or existing weaker firms from competing effectively in the market. Larger firms have more resources to conduct and promote their sustainability efforts, even though some smaller firms may be doing a better job. Market friction is anything that interferes with trade. It occurs when an investor invests in a company but cannot unwind the position when the company no longer has the sustainability characteristics the investor desires. For example, a company does not execute on its sustainability intentions, and, as a result, it no longer meets an investor's needs. However, the investor continues to hold onto the stock. The reluctance to sell may be due to taxes, a belief that the firm's position may change in the future, or an emotional attachment to the firm. Externalities occur when a company experiences an event that impacts its sustainability characteristics, whether positively or negatively. An investor may invest in a company due to its greenhouse gas initiatives but then discover that a subsidiary, distributor, supplier, or third party is committing egregious acts.

Market Inefficiencies raise the question of whether an investor is getting the sustainable content they want. Returns may not be from sustainable initiatives but from other projects the company undertook instead. For example, the company may incorporate new diversity & inclusion measures and simultaneously introduce a new product into the market. It is hard to tell which is responsible for the company's performance. What investors get and what they think they get are often very different.

### VII. 4 Contribution to Practice: Conceptual Model of SI Options

This study identified a conceptual model for investing in sustainable investments. Uncertainty drivers and market inefficiencies present an investor response: investment options unavailable to traditional investors. Investor response is driven by an investment options chain

around sustainable investments.  Investors identify and acknowledge SI options, examine actionable options, and decide whether to execute on the options. A conceptual map detailed how investors can address SI attributes, generate investment options, and maximize their investment portfolio.

Investors interested in sustainability can invest in alignment with their values while maximizing their portfolio's risk/return profile. They can enhance returns (generate alpha) or reduce risk in their portfolio. To do so, they must first identify their options. Investors focused solely on conventional investment methods can rebalance their portfolio and incorporate sustainability metrics in their analysis to narrow, elaborate, or widen their portfolio holdings. Additionally, investors considering new investments can use sustainability frameworks to identify new investment opportunities. In both cases, SI provides greater diversification and risk-return maximization.

In addition, this conceptual model can help individuals new to investing and those who rely on the advice of financial professionals. Individuals new to investing often find the capital markets intimidating and challenging. This conceptual map facilitates an individual's foray into investing by providing options that help address critical attributes that suggest investments resulting in a diversified portfolio. Likewise, those individuals familiar with investing but who do not manage their portfolios independently can use this model when working with their investment advisor. By identifying key attributes essential to their investment philosophy, investors can specify options that help frame investments the advisor can use to support the portfolio. In both cases, this process map benefits investors by addressing key attributes that suggest sustainable investments, which impact their portfolio's risk-return maximization.

### VII. 5 Contribution to Practice: Application of BDT and Nudge

BDT and nudge have practical applications in SI. Parties interested in providing sustainable investments as part of their product offering can help investors overcome heuristics and avoid biases in making investments in SI, which can help them achieve more optimal outcomes. Financial advisors and investment companies can create products and market them to investors more effectively by identifying investors' key uncertainty drivers and promoting nudges around them. Investors investing on their own will understand how to invest in sustainable companies and may be more willing to invest in them.

Nudge is prevalent in uncertainty drivers, market inefficiencies, investor responses, and the entire process. The basic SI process involves incorporating sustainability information in the investment decision, but each investor has a different definition of what is material and relevant. Therefore, sustainable investment is practiced differently among investors. As a result, investors stated they would benefit through investing suggestions such as a Charity Navigator or variable input models. Nudges can help investors identify potential opportunities or confirm investment hunches they may have about possible options.

### VII. 5 Limitations

As is the case with all research studies, this dissertation is not without limitations. I faced two primary limitations in conducting my research, the first relating to it being a specific country context and the second relating to the economic environment in which this study was conducted.

My informants were all based in the United States. This unique country context made for an ideal research setting. However, US-based investors may operate under different

paradigms than investors in other countries. While investing is becoming more mainstream worldwide, individual investors in other countries may follow different investment philosophies and strategies than in the US. There are no defined rules in sustainable investing, and sustainable investing in the US may differ from other countries. Most of my respondents suggested that information around sustainability is material to their investment decision, but which information is material probably varies between countries. For example, water, greenhouse gas emissions, and labor standards are top priorities for most countries, but the importance of each may vary between countries. Additionally, "sustainable" is hard to define, and different cultures can define the term differently. Further, regulations and reporting differ between countries. Europe, for example, has adopted more stringent reporting regulations than many other countries. Japan has different standards, as well. Therefore, it is worth noting that the results of this study, even if conducted in a like context, could differ between countries.

The second limitation involved using sustainable information for investment decision-making during an expansionary climate. This study was conducted after the Covid pandemic when most financial markets experienced positive gains. The investors I interviewed were confident in their investing abilities and felt comfortable integrating sustainable information, albeit they may not have known how much they used it. Regardless, investors' decision-making, strategies, and techniques often differ during turbulent or recessionary times versus periods of growth. It would be interesting to see how sustainable investment attributes are used during a downturn.

### VII. 6 Future Research

Two future studies could further this research. First, additional research could include a replication study in other countries to evaluate how investors outside the United States use

sustainable information in their investment decision-making. Second, further research could include the use of sustainable information on investment decisions during economic downturns. As sustainability and sustainable investing become more accepted in the investing community, these future research areas can better identify how to evaluate sustainability in the investment process.

# VIII CONCLUSION

In the present article, I investigated why individual investors have largely been absent from the sustainable investing market even though this style has risen in popularity in recent years. The central purpose of this study was to provide contributions and answer the stated research question, *How do individual investors incorporate sustainability-related experiences, information, learning, or a combination of these in deciding to invest in sustainable investments?* The study's results suggest that individual investors rely on nudges or positive reinforcement and indirect suggestions to help correct their irrational use of heuristics, enabling them to achieve more optimal outcomes in SI.

Research has shown that individual investors' interest in sustainable investing is strong, but participation is weak. This study investigated why individual investors express an interest in investing in sustainable investments but fail to follow through on their intentions.

I began my research by collecting relevant literature on ESG and sustainability and attending events to learn more about the topic. Analytics around sustainability is very robust but constantly changing, requiring me to participate in industry events and access the knowledge of experts in the field of sustainability. My data collection involved an intensive interview process that provided critical insights into my study. The informed contributors provided meaningful thoughts and observations not identified in prior research.

The findings show that investors face uncertainty drivers around rater reliability, financial performance, and greenwashing. Individuals question the veracity of sustainability ratings, how well SI performs relative to the market, and claims companies make regarding their sustainability initiatives. In addition to uncertainty drivers, market inefficiencies involving asymmetric information, market power, market friction, and externalities plague the SI market. Heuristics

and cognitive biases are problematic in SI – investors find it challenging to identify a solution that satisfices, much less find one that is optimal. Nudges help propel the investor forward in making investment decisions in this regard. The uncertainty drivers and the inefficiencies in the market lead to investor responses, which are options tied to sustainable investments that can impact an investor's portfolio. Investor responses acknowledge, activate, and exercise investment options related to SI investments tied to their values or attributes they view relevant. These option chains, in turn, identify sustainable investment opportunities that maximize an individual's risk-return profile.

Future research can extend the work of this study by expanding the scope to an international scale and conducting similar research during a market downturn. This research was limited to the United States, but sustainable mandates differ between countries. Results in other countries could be different. Additionally, this study was conducted post-Covid when market performance was generally strong; turbulent markets or recessionary environments may provide different results.

Research has pointed out that investors want not only to invest for financial returns but also to invest alongside their values. The industry's ability to define, measure, and track the nonfinancial impact of investments will be critical in the evolution of sustainable investing and its growth. It can help close the gap between interest in sustainable investing and its adoption.

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# APPENDICES

## Appendix A: UN PRI's Signatories Commitment

| Principle | Commitment |
|---|---|
| 1 | We will incorporate ESG issues into investment analysis and decision-making processes. |
| 2 | We will be active owners and incorporate ESG issues into our ownership policies and practices. |
| 3 | We will seek appropriate disclosure on ESG issues by the entities in which we invest. |
| 4 | We will promote acceptance and implementation of the Principles within the investment industry. |
| 5 | We will work together to enhance our effectiveness in implementing the Principles. |
| 6 | We will each report on our activities and progress towards implementing the Principles. |

## Appendix B: UL's Sins of Greenwashing

| UL's Sin Label with Definition |
|---|
| Sin of the hidden trade-off |
| A claim suggesting that a product is green based on a narrow set of attributes without attention to other important environmental issues. Paper, for example, is not necessarily environmentally preferable because it comes from a sustainably harvested forest. Other important environmental issues in the paper-making process, such as greenhouse gas emissions or chlorine use in bleaching, may be equally important |
| Sin of no proof |
| An environmental claim not substantiated by easily accessible supporting information or by a reliable third-party certification. Common examples are facial tissues or toilet tissue products that claim various percentages of post-consumer recycled content without providing evidence. |
| Sin of vagueness |
| A claim that is so poorly defined or broad that its real meaning is likely to be misunderstood by the consumer. All-natural is an example. Arsenic, uranium, mercury, and formaldehyde are all naturally occurring, and poisonous. All natural isn't necessarily green. |
| Sin of worshiping false labels |
| A product that, through either words or images, gives the impression of third-party endorsement where no such endorsement exists; fake labels, in other words. |
| Sin of irrelevance |
| An environmental claim that may be truthful but is unimportant or unhelpful for consumers seeking environmentally preferable products. CFC-free is a common example, since it is a frequent claim despite the fact that CFCs (chlorofluorocarbons) are banned under the Montreal Protocol. |
| Sin of lesser of two evils |
| A claim that may be true within the product category but that risks distracting the consumer from the greater environmental impacts of the category as a whole. Organic cigarettes or fuel-efficient sport-utility vehicles could be examples of this sin. |
| Sin of fibbing |
| Environmental claims that are simply false. The most common examples are products falsely claiming to be ENERGY STAR® certified or registered. |

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## Appendix C: Types (and Models) of Heuristics

| Heuristic | Definition |
|---|---|
| 1/N (aka naïve allocation) | Individuals allocate shares of equal size to each option. For example, allocating 20% to each of 5 investment options. |
| Affect | Decisions are based on how it makes them feel. The affect heuristic helps bestow meaning on judgments, particularly from a reflective standpoint. For example, an individual invests in a certain company because it makes the investor feel good that they are supporting a certain cause. |
| Availability | When people predict the frequency of an event based on how easily an example, instance, or example can be recalled. For example, picking (or avoiding) a stock because it did well in the past (or did horribly in the past). |
| Anchoring and adjustment | Start at initial value (the anchor) and adjust based on new information to yield the final answer. For example, an investment purchased for $25 increases to $35 in a few months and then decreases to $30 a few months after that. If the investment is sold for $30, is it a $5 loss or a $5 gain? |
| Default | If there is a default, accept it (or do nothing about it). For example, automatically invest in a 401K (the individual would have to elect to opt out). |
| Elimination by aspects | When all alternatives are available, the individual reduces the number of alternatives by eliminating each one that does not meet the criterion. For example, picking C because it held characteristics that neither A nor B had. |
| Fluency heuristic | When multiple alternatives are recognized, the one that is recognized fastest can be inferred to have the higher value. Similar to the recognition heuristic but this heuristic applies when two (or more) alternatives are recognized. For example, picking a stock because the company is more distinguishable than its competitors. |
| Imitate the majority | Look at the majority of people in a peer group and imitate their behavior. For example, making an investment based on how many mutual funds own it. |
| Imitate the successful | Look for the most successful person (or people) and imitate his or her behavior. For example, making an investment based on which mutual funds own it. |
| Recognition | Given a choice of alternatives, the individual picks the option they recognize and are most familiar. Like fluency heuristic but this infers the recognized option has a higher value. For example, given option A, B, or C, A is chosen because B and C are not recognized. |
| Representativeness (and familiarity) | Picking an option because it is similar in essential characteristics to an existing prototype (or representative idea) that already exists in an individual's mind. For example, choosing a stock because the firm is well-respected in the marketplace (i.e., makes good products, provides good service, treats its employees well, etc.), not because its financials are strong. |
| Satisfice | Search through alternatives and choose the first one that meets or exceeds the individual's criterion or aspiration levels. For example, picking a stock without analyzing its fundamental characteristics. |
| Tallying | Pick an alternative based on the number of cues that favor one alternative over others. For example, picking a stock over others because it met 4 out of 5 criteria, whereas the other stocks met less than 4 criteria. |
| Take the best | Select the best option according to the one that meets the higher value order on some criterion. Instead of considering information about all alternatives of each option, the heuristics uses only information on the most valid attribute and chooses the option favored by the attribute. In essence, this is "take the best, ignore the rest." For example, pick the stock that does not pollute or emit greenhouse gas. |

## Appendix D: Common Behavioral Investment Biases

| Behavioral Bias | Description |
|---|---|
| Confirmation | Searching for and interpreting evidence in a way that supports the conclusions favored at the outset. i.e., proving whatever you believe. How would you respond if an investment you selected as the result of your own research failed to deliver expected returns? |
| Framing | Framing bias occurs when people decide based on the way the information is presented, as opposed to the facts themselves. |
| Herd mentality | Imitating the investing actions of others. |
| Information overload | Sustainable investments are more complex due to incorporating additional non-financial information and applying different investment criteria, such as best in class or positive/ negative screening |
| Mental accounting | Classifying investments separately, such a putting them into different mental "buckets." For example, a speculative portfolio, a long-term, low risk portfolio, and a low-interest savings account (while carrying large credit card balance). |
| Overconfidence | The tendency for an individual to overestimate his or her abilities. This can include over-precision (believing judgments and decisions are more accurate than they really are), over-estimation (belief in cognitive speed, accuracy, intelligence being better than they really are), and over-placement (belief of a higher rank than others on certain dimensions, particularly in competitive contexts). |
| Prospect theory (aka loss aversion) | According to prospect theory, also known as "loss-aversion," investors value gains and losses differently, placing more weight on perceived gains versus perceived losses. The concept is that investors seek risks when their portfolio has lost value and are risk averse when it is positive. |
| Regret avoidance (aka escalation of commitment) | The tendency of investors to refuse to admit that a poor investment decision was made. Risk avoidance can lead investors to hold investments with negative returns for too long or to continue adding money in hopes that the situation will turn around and losses can be recovered, thus avoiding feelings of regret. Regret avoidance is sometimes called escalation of commitment. |
| Risk aversion | The risk reduction potential achieved through sustainable investing activities could be significant for risk-averse investors |
| Status quo bias | People are likely to continue a course of action since it was used in the past, even though this course of action may not be in their best interest. They may procrastinate and not invest in SI because they keep putting it off. |

## Appendix E: Interview Guide

**Sustainable Investing: Navigating the Inefficiencies of an Inefficient Market Interview Guide**

| | |
|---|---|
| Code number/key | *Unique identifier* |
| Date | *Interview date* |
| Age | *Over 50, Under 50* |
| Education level | *High school, college, graduate; CFA or CFP designation* |
| Sex | *Male/female* |
| Category | *Individual investor (II), Financial professional (FP), Sustainability expert (SE)* |
| Job title/ responsibility | |
| Marital status | *divorced, married, single/never married, widowed* |
| Investable assets | *>$100,000* |
| How much of your portfolio is in sustainable investments? | *Approximate percentage* |
| Investment experience | *extensive, moderate, low (beginner)* |

### I. Topic area: Discuss your investment experience and background

1. *What traits do you think characterizes a successful investor?*
2. *Why do you think investing in sustainable investing (SI) is a worthwhile endeavor?*
3. *How do you define sustainable investing?*

### II. Topic area: Investment decision making (heuristics, biases)

1. *In general, how do you make investment decisions?*
2. *What factors do you feel are important to consider in making investment decisions?*
3. *What sources do you use to identify investments for your traditional investment portfolio?*
4. *How does that differ for SI-related investments?*
5. *What is your process for evaluating and determining whether to invest in a traditional investment?*
6. *How is that different from an SI-related investment?*

### III. Topic Area: Motivation for investing in SI assets

1. *Is your investment strategy different with traditional investments versus sustainable investments, and if so, how do they differ?*
2. *What factors affect your decision in making a sustainable investment?*
3. *How do you think emotions [heuristics, biases] affect investment decisions regarding SI?*

### IV. Topic Area: Problems in investing in SI

1. *What process or criteria do you use in determining your final decision to invest or not invest in either a traditional or SI-related investment?*
2. *Why do you think individual investors avoid sustainable investments?*
3. *What suggestions do you have to correct, remedy, fix this?*
4. *Are there other ways to make SI investing easier and more efficient?*

5. *How has your investment philosophy or strategy changed in the last two years?*

## Appendix F: List of Abbreviations and Acronyms

| Abbreviation or Acronym | Definition |
|---|---|
| AUM | Assets under management, a term used to denote the dollar amount of investments a portfolio manager oversees. |
| SI | Sustainable Investing |
| SRI | Socially Responsible Investing |
| ESG | Environmental, Social, Governance |
| PRI | Principles for Responsible Investing, a framework initiated by the United Nations promote sustainable investing |
| CSR | Corporate Social Responsibility, a management concept whereby companies integrate ESG in their business operations. In 2018, 86% of S&P 500 published their CSR reports. However, reports are not mandatory or standardized |
| GRI | Global Reporting Initiative, an international organization that developed global reporting standards for ESG. |
| SDG | Sustainable Development Goals, a global agenda of 17 goals set by the UN and adopted by countries in 2015 to create a cleaner planet and more peaceful world by 2030. |
| ETF | Exchange-traded fund, a type of investment fund that trades on a stock exchange much like a mutual fund. |
| Individual investor (aka retail investor) | An individual who buys single stocks based on their view of a company. |

**VITA**

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**Dale Collins Herndon** is a business professional with over 30 years of experience working in finance for numerous organizations. Dr. Herndon currently serves as an Assistant Professor at Georgia Gwinnett College, teaching finance, global business, and other business topics. In addition, he is President of Investing Essentials, an online financial literacy program designed to help busy professionals make sense of the financial markets. Before joining GGC, Dr. Herndon worked for various investment banks, including Daiwa Securities in New York City, GE Capital, and Capital Strategies Group. Dr. Herndon started his corporate career working for PwC, where he consulted with companies throughout the United States.

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