LUISS

Department of Business & Management

Master's Degree in Corporate Finance

Academic area of the thesis: Financial Statement Analysis

The relationship between ESG rating divergence and financial performance

Professor Magnanelli Barbara Sveva

Thesis Supervisor

Professor Bozzolan Saverio

Co–Supervisor

Feroci Alessandro

Candidate

Academic Year 2022/2023

LUISS

TABLE OF CONTENTS

INTRODUCTION

ESG encompasses the comprehensive incorporation of Environmental, Social, and Governance factors into companies' strategies, operations, and investment decision-making processes. In contrast, CSR (Corporate Social Responsibility) conventionally pertains to a firm's efforts to behave as a responsible corporate entity within society. A distinguishing feature between these terms lies in the explicit inclusion of Governance in ESG, whereas CSR addresses Governance matters indirectly by considering their interplay with Environmental and Social aspects (Gillan *et al.*, 2021).

The themes in question have witnessed increasing traction among diverse stakeholders, including financial investors who are now willing to integrate ESG-related considerations into their investment strategies. Financial literature has extensively investigated the influence of ESG characteristics on stock prices, recognizing that they can alter the factors considered by investors in constructing a company's valuation. In this context, ESG factors have the potential to affect both risk and performance. As outlined by Giese *et al.* (2019), three different transmission channels have been identified: the cash-flow channel, the idiosyncratic risk channel, and the valuation channel. The logic behind the cash flow channel is the idea that companies with favorable ESG ratings leverage their competitive advantages to generate exceptional returns, resulting in increased profitability and higher dividend payouts (Gregory *et al.*, 2014). The second point derives from the consideration that companies with robust ESG attributes tend to exhibit superior risk management and compliance frameworks, resulting in a reduced likelihood of facing significant events such as fraud, corruption, or legal disputes. Consequently, the decreased frequency of adverse events ultimately mitigates stock-specific downside or tail risk, thereby stabilizing the company's stock price (Hong & Kacperczyk, 2009). In the context of the valuation channel, firms with a strong ESG profile are less vulnerable to market shocks, resulting in decreased systematic risk and beta. In the framework of the Capital Asset Pricing Model this results in a decrease in the cost of capital for the company, consequently increasing the firm's overall valuation (Eccles *et al.*, 2014).

This effect occurs primarily because companies with low ESG ratings tend to attract a relatively limited investor base (El Ghoul *et al.*, 2011).

In light of the influence that ESG factors have gained and their impact on companies' performance within the stock market, the financial literature has initiated to question the reliability of ESG ratings, which serve as the foundational basis for investors' decision-making process. Surprisingly, a research by Chatterji *et al.* (2016), which has garnered support from a substantial body of prominent studies, has highlighted that the disparities observed among ESG ratings provided by different agencies are conspicuously wide. The limited reliability of the ratings used by ESG-oriented investors to determine how to allocate their funds could alter their investment decisions, resulting in suboptimal outcomes. Given these premises, Gibson *et al.* (2021) proposed an analysis of the relationship between ESG rating divergence and financial performance, revealing a positive correlation between stock returns and the absence of consensus in ESG ratings. This phenomenon is manifested through an increase in the annual cost of equity.

The present study seeks to contribute further empirical evidence, moving beyond the predominant focus on the United States. The prevailing literature on this subject tends to concentrate on U.S. companies; therefore, it might be interesting to investigate potential variations in outcomes in other geographical settings. To address this, the research centers on the Italian stock market, with the objective of shedding light on how disparities in ESG ratings from various established providers impact the financial performance of listed Italian companies.

The organization of the study follows this scheme. *Chapter I* serves as an introductory section, providing an overview of the landscape of responsible investing. This chapter presents the various approaches that investors can adopt, explores the contribution of international organizations in shaping responsible investing, discusses the financial instruments employed to pursue these objectives, and quantifies the significance of this phenomenon. *Chapter II* entails a comprehensive literature review of prior works pertaining to responsible investing. This section scrutinizes the challenging and controversial relationship between ESG factors and financial performance, also proposing a theoretical framework to clarify the factors that cause changes in investors' behavior. A significant focus of this chapter lies in investigating

the repercussions of the severe lack of consensus among ESG rating providers on stock returns, constituting a pivotal aspect of the current research. Finally, *Chapter III* is centered on the empirical investigation of the impact of divergent ESG ratings on the financial performance of firms within the Italian stock market. It proposes the research questions addressed in the study, constructs a conceptual framework, outlines the methodology employed and the data collection process, delineates the variables incorporated into the analytical model, and discusses the primary findings derived from empirical regression analysis. The section *Conclusions* synthesizes the findings presented in the previous *Chapters*, presenting a complete framework for understanding the phenomenon analyzed in the context of the Italian stock market.

CHAPTER I: General overview of Responsible Investing

1.1 ESG INVESTING DEFINITION & TAXONOMY

Responsible investing is a phenomenon that institutional and retail investors are becoming increasingly familiar with, as they become more and more aware of the importance of including non-financial features in investment considerations (Eccles & Klimenko, 2019). In the aftermath of the COVID-19 pandemic crisis, economic agents seem attracted to environmental issues and are more determined to adapt their investment decision to contribute to economic sustainability (Rousseau & Deschacht, 2020). Companies are progressively facing external pressure to adapt their *modus operandi* by integrating ESG considerations into their business operations, also in order not to damage their perception on the capital markets (Zaccone & Pedrini, 2020). Managing ESG factors is becoming an imperative that firms cannot avoid, as evident observing the continuously growing number of companies working towards a responsible environmental footprint, minimizing their carbon emissions, promoting equal opportunities, work-life balance, and ensuring human rights (McWilliams & Siegel, 2001).

Nevertheless, sometimes a clear principle for navigating through the numerous terms used to describe different aspects of the responsible investment landscape is still missing. In light of this, it is essential to establish the principles that define the various approaches to responsible investment by highlighting the three main categories. Socially responsible investing (SRI) requires building a portfolio following the criterion of avoiding investments in certain securities or sectors through negative screening, according to defined ethical guidelines (Caplan *et al.*, 2013). Conversely, impact investing aims to trigger change for social or environmental purposes, for example to accelerate the decarbonization of the economy (Giese *et al.*, 2019). This approach suits investors whose goal is to support projects or companies with an expressed willingness of effecting mission-related social or environmental changes (Caplan *et al.*, 2013). Norms-based screening represents a slight variant of this concept,

encompassing investors seeking to align their portfolios with established norms and beliefs (Giese *et al.*, 2019). Investors' behavior, selecting specific companies to allocate their funds, directly or indirectly contribute to the development of business lines that can be either beneficial or detrimental to the environment. Actually, depending on the decisions made by these capital flows, the supply side of financial markets can be an efficient driver for sustainable development (Lebelle *et al.*, 2020).

Coming to ESG investing, it is crucial to underline this is an investment approach that integrates Environmental, Social, and Governance factors into the fundamental analysis of investments, considering these aspects material to investment performance (Caplan *et al.*, 2013). ESG analysis seeks to identify and assess the potential impact of these factors on companies' financial indicators and reputation with investors, and therefore on their equity performance. In this way, ESG integration aims to achieve the key objective of improving the risk-return characteristics of a portfolio (Giese *et al.*, 2019). Unlike socially responsible investing (SRI), which involves negative screening and exclusion of certain stocks or industries based on ethical guidelines, ESG investing takes a broader perspective and aims to improve investment performance over the long term while considering sustainability-related issues. It recognizes that ESG factors, such as energy efficiency, carbon emissions, workplace safety, employee relations, and corporate governance, can have a direct impact on the way financial markets perceive companies.

A golden practice for investors to increase the level of attention that is paid to ESG issues is to be proactively involved in the investee companies, encouraging the adoption of virtuous practices and giving a renewed declination to the concept of active ownership. Engaging with companies and managers to address potential ESG risks and opportunities is becoming a widespread practice among institutional investors, which are deviating from the traditional paradigm of shareholder-centric hedge fund activism to embrace a broader perspective that takes into account the needs of a wider range of stakeholders, including employees, customers, and the community potentially affected by environmental issues (Dimson *et al.*, 2015).

1.2 RESPONSIBLE INVESTING LANDSCAPE: BACKGROUND & ASSET CLASSES

Investors' perception of sustainable finance has undergone a process of consolidation that has followed some fundamental stages marked by international commitments and agreements. The Principles for Responsible Investment (PRI), established by the United Nations in 2006 in an effort to provide a common background for integrating ESG themes into decision-making, formalized the link between ESG factors and investment performance, offering practical standards for voluntary adoption by investors. PRI's goal is to encourage the spontaneous adoption of key pillars, such as including ESG issues in investment decisions, requiring adequate ESG information from investee companies, and adhering to the model of active ownership (Kim & Yoon, 2023).

Another milestone was reached during the 2015 UNFCCC Conference in Paris (COP21) which led to the decision made by 196 nations to approve the Paris Climate Agreement, a tangible way to set binding goals and to address the perceived urge to accelerate the transition to a greener economy (Makuch, 2022). In light of this agreement, a coordinated action plan was implemented to halt future harmful climate change. In the context of recent events, specifically the Conference of Parties (COP26) held towards the end of 2021, a common framework to maintain the momentum established during the Paris Agreement of 2015 was developed.

Additionally, regulatory bodies, particularly in the European Union (EU), introduced stringent obligatory reporting guidelines in the form of the EU Taxonomy Regulations and the Sustainable Finance Disclosure Regulation (SFDR). By the end of 2023, it will be mandatory for organizations to report on both the Environmental and Social components of the ESG criteria (Makuch, 2022). The SFDR requires all investment managers to incorporate sustainability risks into their selection process, thereby making sustainable investment strategies – such as negative screening, norms-based screening and ESG integration – part of the expected practice of all financial products. The EU Taxonomy Regulation establishes the framework for responsible investing by setting out the general conditions that an economic activity must meet to qualify as environmentally sustainable. One of the major milestones of the EU Taxonomy is to bring the double materiality concept to life. Double materiality implies

that companies and investors are not only required to disclose financial risks and opportunities material to corporate valuation, but issues affecting social and environmental objectives over time must also be considered[1].

Furthermore, the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, gave strength to the 17 Sustainable Development Goals (SDGs) defined internationally. This framework was the ideal tool to implement strategies to stimulate economic progress, reduce inequalities and promote health and education while addressing climate change and other sources of global risk[2]. Green finance and responsible investing have been identified as the driver of sustainable growth, being a tool to foster a transformation of the economic cycle.

Moreover, the Financial Stability Board established a Taskforce on Climate-related Financial Disclosures. The introduction of the TCFD Recommendations in 2017 had a profound impact on global policies and regulations, altering the expectations placed on investors, asset owners, and asset managers. In 2021, a Taskforce on Nature-related Financial Disclosures (TNFD) was established with the objective of developing a framework for organizations to respond to emerging risks associated with nature[1].

Lastly, the United Nations Environment Program Finance Initiative (UNEP FI) proposes an integrated approach to foster the transformation towards a sustainable financial system[1].

1.2.1 Green Equities

The set of financial instruments on which investors can rely is vast and heterogeneous, giving each of them the faculty to choose the one most in line with their needs. Responsible investing has traditionally seen the clear prevalence of active mutual funds, although in recent years passively managed funds have begun to flourish.

---

[1] https://www.gsi-alliance.org/trends-report-2020/

[2] https://sdgs.un.org/goals

Lately, a consistent number of sustainable indices have been launched, following a trend that highlights a clear acceleration in the process of creating sustainable indices after a sharp downturn in the markets (Chiappini *et al.*, 2021). In this regard, the MSCI World SRI Net Return Index has received consistent attention, as it includes large and mid-cap stocks from 23 developed markets. It is a capitalization weighted index that provides exposure to firms with outstanding Environmental, Social and Governance ratings and excludes companies whose activities have a negative social or environmental impact[3]. The relevance of the emergence of sustainable indices is beyond doubt, given the number of structured products – exchange-traded funds (ETFs) and exchange-traded notes (ETNs) – that adopt a passive management strategy in order to replicate them.

On the other hand, active management of funds is theoretically justified by the presence of market inefficiencies to be exploited, hopefully resulting in a higher financial return which should be at least sufficient to compensate investors for higher fees. Rational agents will choose one investment strategy or the other by balancing the onerous terms imposed by active funds and their ability to generate positive alphas. Actively managed investments are subject to a dual classification, either retail or institutional. Retail assets refer to personal investments made by individuals in professionally managed funds through investment platforms with relatively low minimum investment levels; while assets classified as institutional are managed on behalf of structured asset owners – such as pension funds, foundations, and insurance companies – through investment products with higher minimum thresholds.

At the opposite end of the spectrum, companies involved in *sin industries* – tobacco, gambling, defense, and alcohol – converge in the VICEX Fund, which brings together established companies that benefit from human vices. Investing in this fund requires adopting a strategy that is the antithesis of the responsible investment philosophy (Soler-Domínguez & Matalins, 2016).

---

[3] https://www.msci.com/our-solutions/indexes/esg-indexes

1.2.2 Green Bonds

In parallel with this phenomenon, a completely new market in which debt instruments with a focus on social and environmental causes are issued and traded has emerged in the last 20 years. Five categories of securities can be identified. Green, Social, Sustainability, and Transition Bonds must finance sustainable projects, while Sustainability-linked Bonds must follow a credible transition towards specific Sustainability Performance Targets (SPTs). The use of the proceeds is the main discriminating factor for assigning a label to a particular bond: for Sustainability it includes a combination of green and social activities (renewable energy, low-carbon transport, and employment generation); for Social it is exclusively related to social initiatives (health, gender equality, affordable housing); for Transition the proceeds are allocated to activities that are not zero-emission, but have a commitment to support an issuer in its decarbonization process and alignment with the Paris Agreement. Transition Bonds predominantly originate from highly polluting industries such as mining, steel, cement, and aviation. Sustainability-linked Bonds aim to raise funds through mechanisms that provide coupon step-ups or step-downs linked to the achievement of pre-defined SPTs[4].

Green Bonds, the largest and most relevant category, deserve further analysis. Thanks to the setting of the ambitious goals of the 2015 Paris Climate Agreement, awareness that the climate crisis is a source of financial market instability has started to make its way into public opinion and decision-makers around the world. This led to acceptance of the idea that, without stringent regulation of greenhouse gas emissions, growing risks of climate disruption will also potentially imply a dramatic depreciation of assets held by banks and financial institutions, harming their stability (Dafermos *et al.*, 2018). Academics have identified three main channels through which global warming could have a significant destabilizing effect on the financial system. The *physical channel* sums up the damages resulting from natural events and extreme uncertainty leading to loan default and reluctance to invest (Dafermos *et al.*, 2018). The *transition risk channel* consists of mitigation costs and adaptation tools (Alessi &

---

[4] https://www.climatebonds.net/resources/reports/global-state-market-report-2022

Battiston, 2022). In turn, the *liability channel* represents losses compensation claims, insurance, and indemnifications (Dietz *et al.*, 2016).

This exposure to growing vulnerabilities requires the adoption of a global transformation, also known as the "great green transition", which will transversely affect all areas of the economy: low-carbon and climate-resilient infrastructure, energy, transport, clean water, sanitation, telecommunications, tourism, and agriculture, which require massive investments on the road to a carbon-free and sustainable economy (Kemfert *et al.*, 2020). The public sector can cover only a limited part of the significant investments needed, therefore the involvement of the financial system to support green investments and financing activities in a market-oriented way is necessary. To address the need for funds to tackle the green revolution and align the interests of all parties involved towards building a more sustainable economic cycle, a complex set of tools has been developed. Together with carbon pricing (emissions trading in form of certificates exchanged on the financial markets) and the introduction of a CO_2 tax, another complementary tool to be used in conjunction to the previously cited has emerged: Green Bonds (Kemfert *et al.*, 2020).

Green Bonds are a recently introduced financial instrument designed to facilitate investments that have specific environmental and social objectives. They function in a similar way to traditional fixed income securities, allowing companies and public entities to raise capital to finance projects that produce substantial benefits for society and have positive externalities. The primary purpose of Green Bonds is to generate positive environmental outcomes, such as the reduction of CO_2 emissions and the prevention of pollution, thanks to projects that may have long-term investment horizons, large capital costs, and uncertain cash flows (Tolliver *et al.*, 2020). Green Bonds mainly have four characteristics that differentiate them from traditional debt instruments: the proceeds raised are used to finance eligible responsible investments, the evaluation and selection process of green projects must be transparent, the management of the proceeds has to be appropriate, and there is the requirement to issue relevant annual reports (Han & Li, 2022).

A requisite that Green Bonds must meet is to undergo third-party certification to ensure compliance with established sustainability criteria. Consequently, the process of issuing Green Bonds can be complex and costly, requiring significant efforts and resources be in

compliance with the necessary certification requirements. Since the World Bank first issued a Green Bond in 2007 under the "climate-aligned bond" appellation, two different approaches have emerged to identify a common standard: Green Bond Principles (GBP) and the Climate Bond Initiative (CBI) (Tang & Zhang, 2020). In the earliest phase of the market, CBI – an international organization working to mobilize the capital market for solutions to climate change – was the only entity recognized as able to certify a bond as "climate-aligned", providing eligibility criteria and a detailed green taxonomy that third parties could adopt to assess the qualification of a Green Bond (Tang & Zhang, 2020). The volume, mainly from supranational entities, was consistently low until the publication of the first version of the Green Bond Principles in 2014 by the International Capital Market Association, which turned out to be the trigger event that gave the Green Bond ecosystem a boost. GBP, updated as of June 2021, is a voluntary guideline set by several investment banks – including Bank of America Merrill Lynch, Citi, JPMorgan, BNP Paribas, and HSBC – that helped standardize the definition of projects that can be financed thanks to a Green Bond issuance (Lebelle *et al.*, 2020). GBP requires transparency and detailed disclosure, indicating behavioral guidelines that are widely accepted by the market. GBP also defined how the issuer should communicate its selection and evaluation process for green projects, how it manages the Green Bond proceeds during the lifetime of the security, the periodic allocation of proceeds and the associated environmental impact[5].

The Green Bond market is populated by a variety of financial agents, ranging from institutional investors – such as insurance companies, pension funds, fund managers – to corporate treasuries, sovereign and municipal governments, and retail investors (Han & Li, 2022). In parallel, issuer types are also broadening meaningfully, including supranational organizations, governments, development banks, commercial banks, non-bank financial institutions, and corporations (Tang & Zhang, 2020).

At the same time, the European Central Bank has also looked with interest at the Green Bond market to support the achievement of the objectives of the Paris Agreement. In July 2021, the ECB announced in the context of the Quantitative Easing program (QE) – an unconventional

---

[5] https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/

expansionary monetary policy – the implementation of new eligibility criteria on private sector assets (Aloui *et al.*, 2023). These requirements will limit access to the asset purchase program based on the company's commitment to environmental sustainability. This effort is symptomatic of the plan to subordinate EBC intervention to the fact that issuing companies are sensitive to climate challenges (Aloui *et al.*, 2023). This new paradigm, which suggests a willingness to adopt a monetary policy called Green Quantitative Easing (Green QE), would have the effect of altering the balance between brown and green investments, driving up Green Bond prices and leading to lower yields. Therefore, the objective of Green QE would be to promote economic growth, limit negative effects on financial stability and reduce carbon emissions (Ferrari & Nispi Landi, 2021).

1.3 GENERAL TRENDS & GLOBAL STATE OF THE MARKET

Global sustainable investing has recorded a growing trend in recent years, which provides quantitative support to the previous reflections on the attractiveness that this type of approach is exerting on investors.
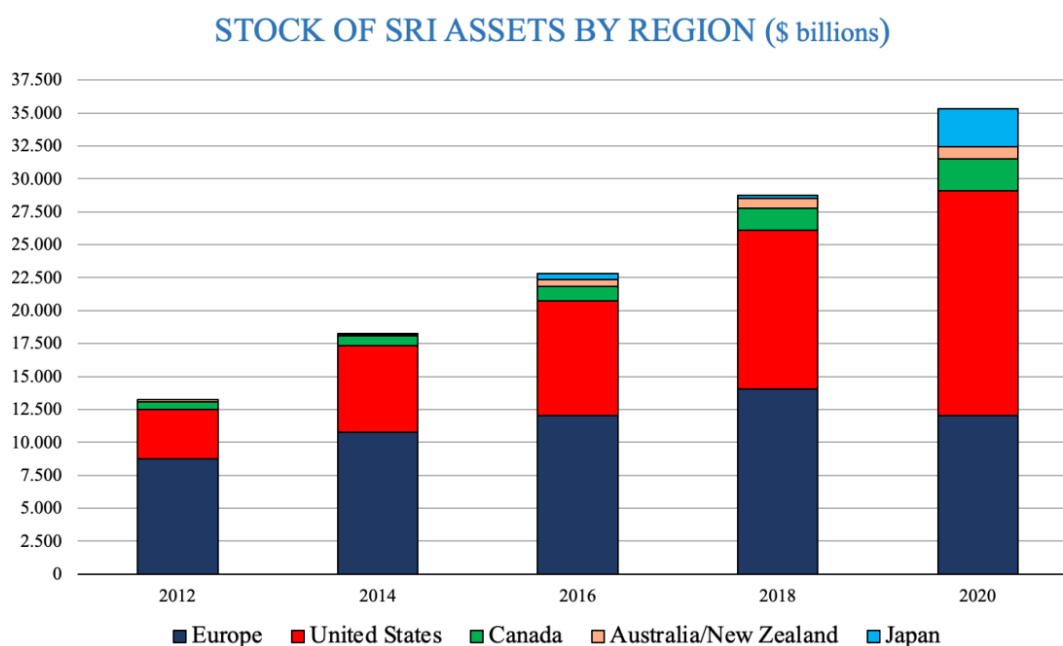

Figure 1 – Source: personal processing of data provided by Global Sustainable Investment Alliance

According to the data collected by Global Sustainable Investment Alliance – an organization promoting sustainable investing through several regional affiliates – at the beginning of 2020, responsible assets reached $35.3 trillion in the five analyzed markets (Europe, United States, Canada, Australia-New Zealand, and Japan). This result translates into a 15% increase from the level recorded in 2018 and a 55% increase over the previous four years (2016-2020). Sustainable assets are continuing to climb globally, with the sole exception of Europe which seems to indicate a decline.

Despite this apparent setback, the European market is still vibrant as the sustainable and responsible investment sector experienced strong demand from retail investors in the first half of 2020, as evidenced by net inflows of €14 billion of ESG equity funds in contrast to net outflows of €77 billion of traditional equity funds. A possible explanation for the 13% decline over the analyzed period can be found in the impact of significant changes in the way sustainable investments are defined under European Union legislation. The measurement methodology, as discussed in *Section 1.2*, has undergone a process of adaptation and development which has constituted an important factor of change, generating a transition period associated with revised definitions of responsible assets that have been incorporated into EU legislation.

With regard to the proportion of sustainable investments relative to total managed assets, Global Sustainable Investment Alliance has highlighted the existence of a similar trend. From 2018 to 2020, there was strong growth in Canada, the United States and Japan, although Australia-New Zealand and Europe recorded a decline in percentage terms. Not surprisingly, the above considerations on the elements that have contributed to the reduction of the stock of SRI assets in Europe can also be extended to this particular context.

![LUISS]

PROPORTION OF SRI ASSETS RELATIVE TO TOTAL MANAGED ASSETS
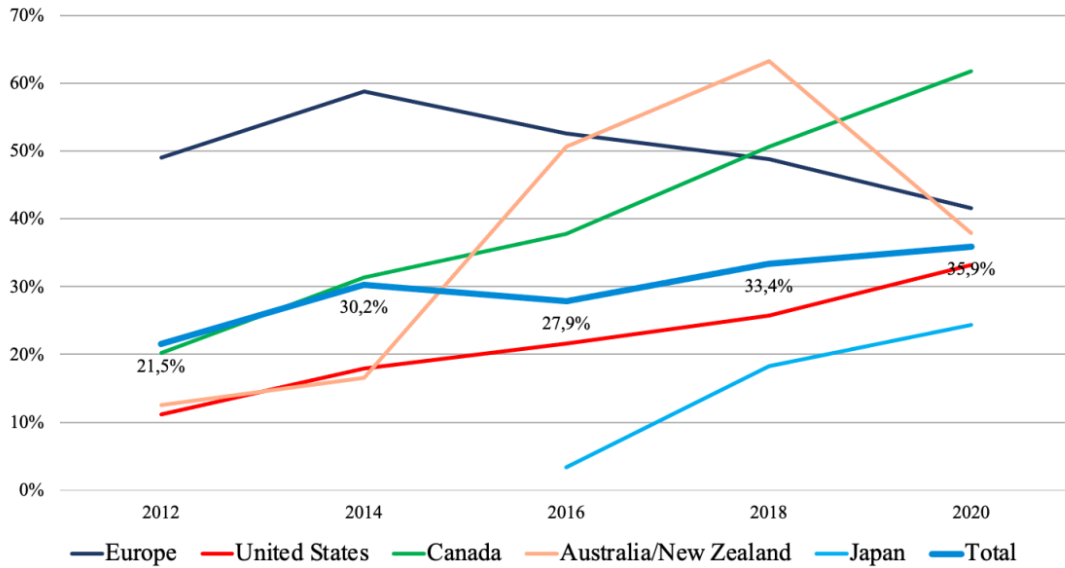
Figure 2 − Source: personal processing of data provided by Global Sustainable Investment Alliance

The United States and Europe continued to be dominant players in the global sustainable investment market during the 2018-2020 period. The global relevance of Canada (7%), Japan (8%) and Australia-New Zealand (3%) remained relatively stable over the past two years.

PROPORTION OF GLOBAL SUSTAINABLE INVESTING ASSETS BY REGION (2020)
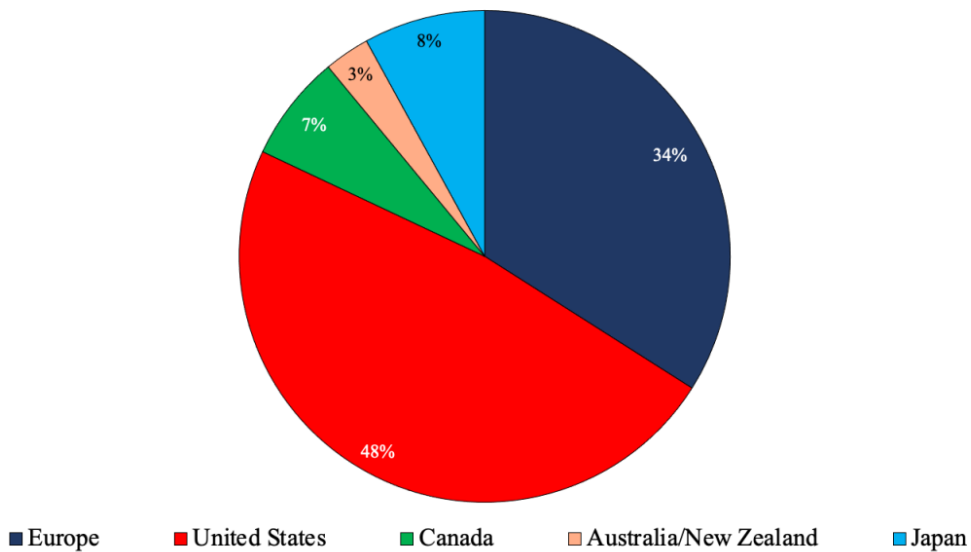
Figure 3 − Source: Global Sustainable Investment Review 2020

LUISS

Turning the attention to debt instruments, the Global State of the Market Report 2022 – the latest of the studies published by Climate Bonds Initiative to monitor the evolution of the sector – depicted an international market whose size was equal to $3.7 trillion. By far the most developed segment was Green, both in terms of volume and number of issuing entities.

	Green	Social	Sustainability	Transition	SLB
Total size of the market (cumulative)	$2.2tn	$653.6bn	$682.0bn	$2.5bn	$204.2bn
Number of issuers	2,457	772	507	39	336
Number of Countries	85	49	57	12	50

Table 1 − Source: Sustainable Debt Global State of the Market 2022

In 2022, the total global issuance across all sectors amounted to $858.5 billion, representing a 24% decrease compared to the $1.1 trillion recorded in 2021. In this context, the Green sector continued to hold its dominant position, contributing 58% of the total issuance. The issuance of Green Bonds witnessed a year-on-year decline for the first time in a decade, amounting to $487.1 billion, which was 16% lower compared to the volumes previously observed. This decrease in debt issuance volumes across all categories of bonds was primarily driven by prevailing market conditions, characterized by a context of high inflation and uncertainty generated by the geopolitical scenario. The Social theme recorded the greatest drop, equal to 41%, showing a lower degree of resilience. This aspect can be explained by the change that has affected the priorities of the issuers, no longer influenced by the need to raise funds to implement COVID-19 measures. As a result, more resources have been dedicated to a combination of social and environmental projects, fostering the development of Sustainability Bonds. Despite the decline, Green Bonds still constituted 3% of the total issuance volumes.

SUSTAINABLE DEBT VOLUMES ($ billions)

Legend: Green · Social · Sustainability · SLB · Transition
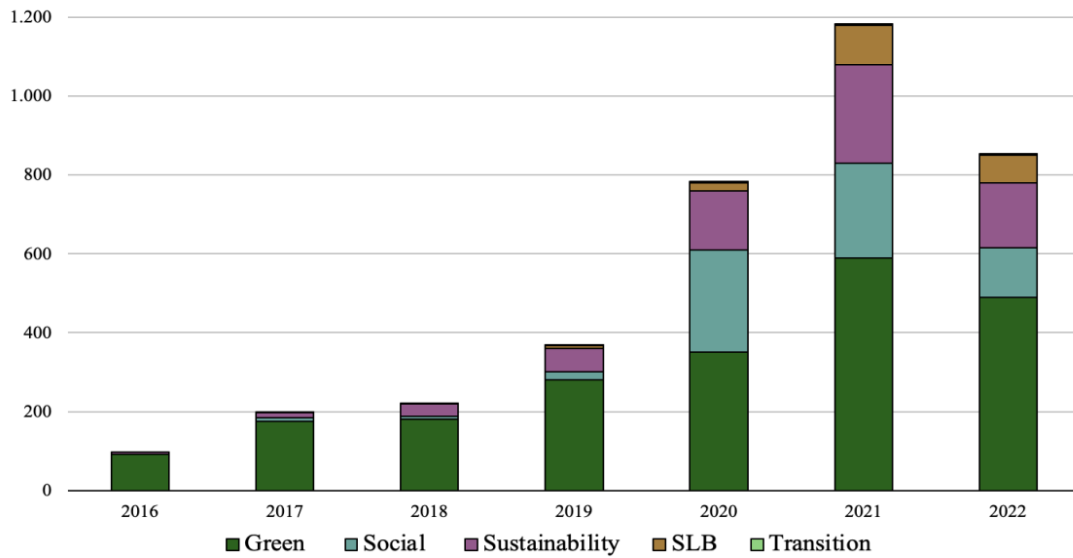
Figure 4 − Source: Sustainable Debt Global State of the Market 2022

Due to its primary relevance, a more in-depth analysis of the Green Bond segment will be provided. Different types of issuers populate the market. Financial firms provided the largest contribution with 29% of volume, while 25% originated from non-financial companies. EU's strong dynamism in the market gave a boost to the share of government-backed entities, which was close to 20%. This category was the only one able to record a year-on-year increase.

TYPES OF GREEN BOND ISSUERS ($ billions)

Legend: Development Bank · Financial Corporate · Government-Backed Entity · Local Government · Non-Financial Corporate · Sovereign

Figure 5 − Source: Sustainable Debt Global State of the Market 2022

Analyzing the geographical distribution of Green Bond issuance in the year 2022, it is clear that China has emerged as the largest contributor, generating the highest volume with a value of $85.4 billion. The top 10 countries in this ranking account for more than 75% of total new Green Bond issuances.
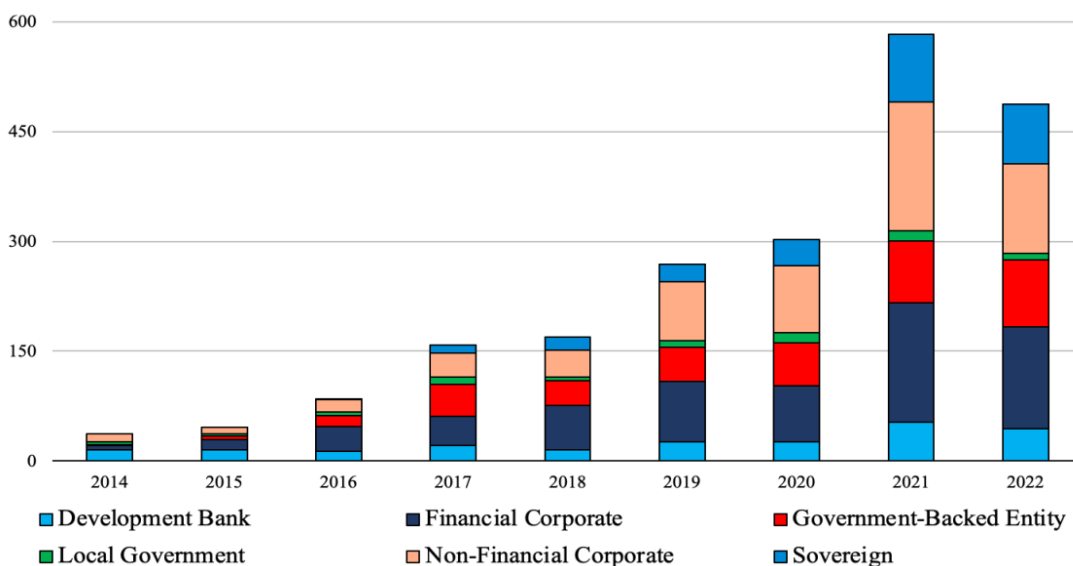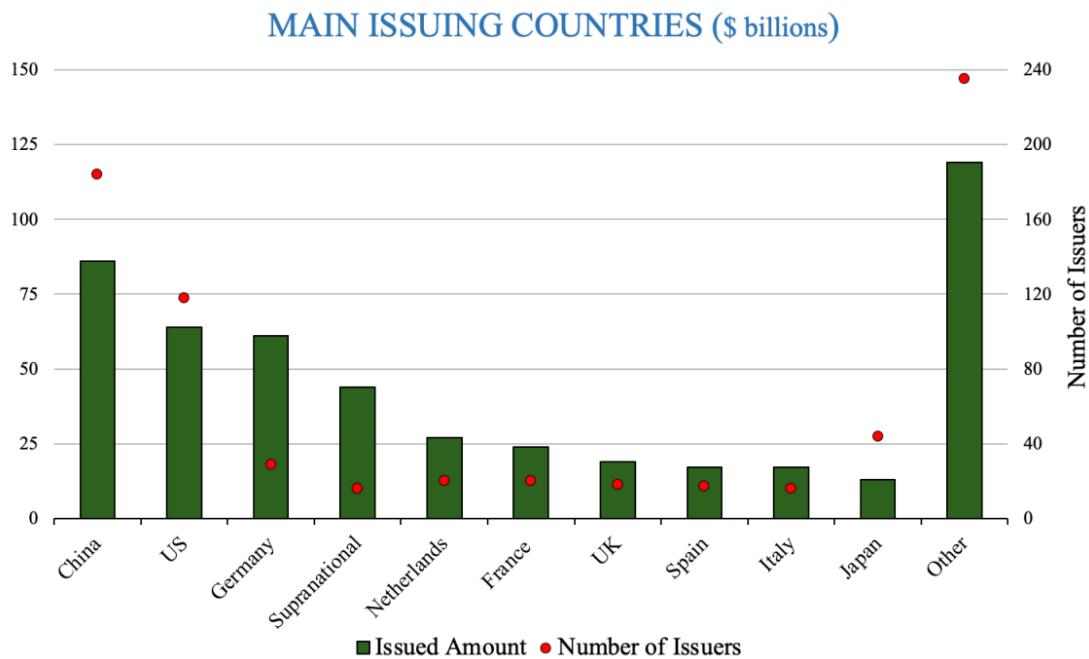

Figure 6 − Source: Sustainable Debt Global State of the Market 2022

1.4 RESPONSIBLE INVESTING STRATEGIES

As previously analyzed in *Section 1.1*, mutual funds might not share the same investment policy and aim to achieve different objectives; this is reflected in the necessity to apply different strategies in the process of selecting companies to be included in the investment portfolio.

Socially responsible investing is largely based on screening, which can be defined as the process of selecting companies based on specific social, ethical, or environmental criteria. This strategy may have two opposing perspectives. Negative screening involves the deliberate removal from consideration of companies that engage in activities that are considered harmful

or detrimental from a social or environmental standpoint; this may include industries such as alcohol, tobacco, gambling, weapons, or nuclear energy. On the other side, positive screening, also known as *Best-in-Class* approach, actively searches for companies that excel in specific categories aligned with social responsibility or environmental preservation (Kawamura, 2002). This approach focuses on identifying companies that contribute positively to society or demonstrate strong environmental practices.

It is possible to identify a wide range of screening criteria and group them into homogeneous macro-classes: sin screens (tobacco, alcohol, gambling, weapons, pornography), ethical screens (animal testing, abortion, genetic engineering, non-marital, Islamic, healthcare), social screens (related to corporate governance, business practice, community, labor diversity, labor relations, human rights, foreign operations) and environmental screens (nuclear, climate and environment, renewable energy) (Renneboog *et al.*, 2008).

In addition, also the mandate of a socially responsible fund can have a significant influence on its strategic decisions, contributing to shape the companies that will be selected to purchase an equity stake. In this regard, two different approaches have emerged to consider the social costs generated by firms. Under a narrow mandate, the primary metric that will drive investment decisions is the absolute level of social costs produced by companies included in the portfolio (Oehmke & Opp, 2023). Consequently, only companies with a positive ESG rating will be subject to investments, while brown companies will be excluded in any case. If the perspective is wider and the SR fund is called upon to operate with a broader mandate, the social costs will be confronted with respect to a counterfactual scenario in which brown firms will not receive the necessary funds for investments. Because avoided externalities matter, it may be efficient to invest in companies that generate substantial social costs, provided that the SR fund's investment is able to bring about a beneficial reduction of these costs (Oehmke & Opp, 2023). Conversely, investments in companies that are clean anyway could be avoided, because such investments would not generate a considerable impact.

Socially responsible investors are forced to restrict their investment universe to those companies that adopt ethical principles, resulting in a suboptimal level of diversification and, consequently, fewer opportunities to reduce idiosyncratic risk (Miralles-Quirós & Miralles-Quirós, 2017). The inclusion of an additional external constraint – which traditional investors

do not have to face while solving a maximization problem in the risk-return framework – could generate a suboptimal outcome potentially detrimental to financial performance. Barnett & Salomon (2006) conducted a research which revealed a curvilinear relationship between screening intensity, quantified by the number of screening criteria used, and financial performance in the context of SRI funds. Their study shows that as the number of screens utilized by an SRI fund increases, there is an initial decline in financial returns. However, as the number of screens continues to rise, there is a subsequent rebound in performance until reaching a peak. It is important to note that performance has not fully recovered to the levels achieved by funds that do not employ screening criteria. In particular, the impact on performance is more pronounced for sectoral screens than for transversal ones (for example the commitment to UN Global Compact Principles or Rights at Work) (Capelle-Blancard & Monjon, 2014). In order to reduce this negative impact, investors can adopt an international diversification strategy that takes into account the cross-market return and volatility dynamics among SRI markets of different geographical areas, as their integration is still not excessively high (Miralles-Quirós & Miralles-Quirós, 2017).

In addition, negative screening could be seen as a way to influence government policy or public opinion and to increase mutual funds' attractiveness, in a context in which responsible investing is becoming progressively popular. In support of this, funds labelled by Morningstar as *Sustainable* or *Low Carbon* experience substantial fund inflows, benefiting from using exclusions as a branding tool to attract investors' savings (Hartzmark & Sussman, 2019). Furthermore, Białkowski & Starks (2016) suggest that funds with a higher number of ESG screens in their investment choices have significantly higher inflows than funds employing fewer screens. Their findings support the hypothesis that non-financial information is an attribute in SRI investors' choice.

ESG investing embraces a perspective that is based on a different approach, which has its fundamental strategic element in the shareholder advocacy. This strategic approach involves directly engaging management on issues pertaining to social and environmental concerns, as well as financial performance (Kawamura, 2002). Additionally, voting rights are exercised during shareholders' meetings as necessary. Overall, institutional investors have the power to enforce transformation by impacting their portfolio firms' ESG policy. However, the strength

of the reaction is not constant across companies. Established companies with high liquidity and strong financial performance do not feel much pressure to comply with mutual funds' guidelines, as they can easily access alternative funding sources (Atta-Darkua *et al.*, 2023). In order to amplify the impact that a mutual fund is able to generate, an effective approach could be to adopt a strategy that takes into account both engagement and negative screening, where the selection of investments is influenced by specific criteria aligned with desired social and environmental outcomes.

Lastly, community investment, also known as targeted investment, involves the provision of financial resources for community development in contexts where conventional financial institutions typically do not extend such support. Investors generally allocate funds at reduced rates – including zero interest – with the aim of facilitating the achievement of a range of goals, such as generating employment opportunities, offering loans to low-income households and small businesses, or providing childcare services (Kawamura, 2002). This form of investment includes activities beyond impact investing, covering various forms of targeted lending practices. Community investment encompasses a wider range of financial initiatives that aim to address social and environmental concerns.

CHAPTER II: Literature Review

2.1 THE DEBATED RELATION BETWEEN ESG AND FINANCIAL PERFORMANCE

Responsible investing has emerged as a significant area of academic interest over the past few decades, leading a substantial body of literature to investigate the impact of ESG considerations on financial performance. However, the diverse range of conclusions drawn from various studies has resulted in considerable heterogeneity, making it challenging to identify a clear and unanimous direction of the relationship between ESG factors and financial performance.

The existing literature reveals several key observations regarding socially responsible funds and conventional funds. SRFs and CFs show different exposure to risk factors, with SRFs generally being more exposed to the small-size risk factor and displaying a preference for growth-oriented investments rather than value-oriented ones (Schröder, 2004).

Regarding the association between high ESG ratings and future stock returns, Borgers *et al.* (2013) demonstrate that the outperformance of stocks with high ESG ratings diminishes as the sample period is extended. Their findings also indicate that the initial high returns observed might be attributed to the market's underreaction to ESG information. Furthermore, four-factor alphas, which represent excess returns beyond what would be expected based on common risk factors, are positive and statistically significant until 2004, but become close to zero and statistically insignificant thereafter.

As for financial returns related to Environmental, Social, and Governance screens, the evidence is inconclusive and mixed. Guenster *et al.* (2011) examine the correlation between eco-efficiency data and equity valuation. They find that eco-efficient firms tend to become relatively more expensive during the sample period. Regarding the relationship between employee satisfaction and future stock returns, Edmans (2012) provides evidence that firms with high employee satisfaction experience higher future stock returns. Specifically, a value-weighted portfolio of the *100 Best Companies to Work For in America* earned an annual four-

factor alpha of 3.5% from 1984 to 2009, outperforming industry benchmarks by 2.1%. Gompers *et al*. (2003) develop a Governance Index based on 24 provisions that weaken shareholder rights. Their research shows that, for a sample of large U.S. firms from 1990 to 1999, a portfolio taking long positions in the 10% lowest G-index firms and short positions in the 10% highest G-index firms yielded an abnormal return of 8.5% per year. However, Bebchuk *et al*. (2013) extend the sample period to cover 1990-2008, finding that the previously observed abnormal returns are no longer statistically significant during 2000-2008. This suggests that the effect identified by Gompers *et al*. (2003) has diminished after the original sample period.

Analyzing the dynamics of French socially responsible investment funds active in the European market, previous research by Leite & Cortez (2015) indicates that the abilities of fund managers are dependent on the state of the economy. Both conventional mutual funds and SRI funds tend to outperform during crisis periods. However, during non-crisis periods, SRI funds significantly underperform conventional funds – especially those employing negative screening strategies – and are able to match the performance of their peers during market downturns. Funds using only positive screening strategies exhibit more consistent performance across different market states. Additionally, managerial abilities between SRI and conventional funds seem to be more distinct during good economic states than during bad ones. Capelle-Blancard *et al*. (2021) examined the impact of the COVID-19 pandemic on financial markets and whether this unprecedented situation favored socially responsible indices over traditional ones. While SR indices showed dynamics similar to their benchmarks, they did not consistently outperform them, except for the SR impact indices, which displayed greater resilience during the crisis.

On the contrary, Omura *et al*. (2021) found that SRI indices outperformed conventional ones both before and during the COVID-19 crisis, even after controlling for other risk factors. However, exchange-traded funds focusing on responsible investments did not achieve superior performance against benchmark indices, possibly due to the mix of positive and negative screening strategies diluting the responsible investment factors.

Becchetti *et al*. (2015) compared the performance of SRFs and CFs, including the period of the 2007 Global Financial Crisis. Their findings indicate that there is no clear-cut dominance

of one investment style over the other during the entire period. However, SRFs generally performed better than CFs in the period following the Global Financial Crisis. The additional costs for SRFs in terms of investment fund management appear to be compensated by the potential benefits of corporate social responsibility on performance.

Concurrently, substantial evidence supports the notion that sin stocks exhibit superior performance compared to various benchmarks. Hong & Kacperczyk (2009) conducted an analysis on U.S. stocks and found that sin stocks – comprising tobacco, alcohol, and gambling firms as defined in their study – are less commonly held by institutional investors and receive lower financial analyst coverage compared to a control group of stocks. Stocks that receive less attention from a significant portion of investors tend to have lower prices, leading to higher future returns. As a result, sin stocks outperform comparable stocks by approximately 3-4% per year. Likewise, Trinks & Scholtens (2017) demonstrated that sin stocks exhibited high returns in multiple international markets from 1991 to 2012. Their analysis focused on individual stock selection rather than excluding entire industries. Among the individual sin stocks, tobacco showed the strongest abnormal returns, with a monthly premium of 166 basis points. Hoepner & Schopohl (2018) investigated the performance of stocks excluded from the Swedish AP-Funds and the Norwegian Government Pension Fund-Global (GPFG) during the period from 2001 to 2015. The screening process was primarily based on norms rather than sectors. The CAPM alphas for the six portfolios were consistently positive, with one alpha being statistically significant at the 1% level, and two additional alphas being significant at the 10% level. Furthermore, empirical findings from a study conducted by Soler-Domínguez & Matallín-Sáez (2016) provide compelling evidence to support the outperformance of the VICEX Fund compared to the market, yielding higher return premiums than socially responsible mutual funds during economic expansion periods. However, during times of economic distress, the VICEX Fund underperformed.

The elevated expected returns granted by sin stocks indicate that these companies face a greater cost of capital. If a limited number of firms experience this higher cost of capital due to being avoided by investors on account of their low ESG scores, such firms may face a competitive disadvantage. However, it is important to note that sin stocks are categorized at the industry level. Consequently, the exclusion of sin stocks from investment portfolios

increases the overall cost of capital for companies within the entire industry, without altering the relative competitiveness of individual firms within that industry (Hvidkjær, 2017).

Additionally, event studies have been conducted to analyze the impact of ESG initiatives on the stock market's response to firms' actions. The findings suggest that the stock market generally does not respond positively to such initiatives. This indicates that agency issues, which refer to conflicts of interest between company management and shareholders, are indeed a valid concern in this context. However, the results also indicate that effective corporate governance practices can help mitigate these concerns. Jacobs *et al*. (2010) conducted a study focused on the stock market reaction to various corporate initiatives, including environmental business strategies, voluntary emission reductions, eco-friendly products, renewable energy, and recycling. Their research mostly yielded insignificant results, implying that the stock market's response to these specific environmental initiatives was not statistically significant. On the other hand, Krüger (2015) examined the stock market response to corporate events related to ESG factors. They found a significantly negative market response to negative ESG events. This result is not surprising, as negative ESG events are often accompanied by unfavorable financial implications, leading to negative cash flows for the company.

Tang & Zhang (2020) conducted a study to investigate the relationship between a company's stock price and the announcement of issuing Green Bonds. Green Bonds serve as an indicator of the commitment to environmentally friendly investments and improvements in ESG profiles. The research reveals that stock prices positively respond to the announcement of a Green Bond issuance. However, the study did not find a consistently significant premium for Green Bonds, implying that the positive stock returns following Green Bond announcements are not solely driven by the lower cost of debt. Furthermore, the study observed a notable improvement in stock liquidity, indicating increased market interest and activity in the firm's shares. Overall, the findings suggest that a company's decision to issue Green Bonds is advantageous to its existing shareholders.

2.1.1 Possible theoretical explanation

The primary rationale supporting the outperformance of ESG-based strategies essentially refers to the stock market's tendency to underreact to ESG information. This means that the positive effects of ESG events are not fully acknowledged or recognized by the stock market, leading to undervaluation of firms associated with such events. Consequently, an investment strategy focused on undervalued firms can yield abnormally high returns. ESG investments made by firms often involve intangible aspects, and it is plausible that the stock market may also underreact to the information conveyed through ESG-related initiatives (Hvidkjær, 2017). However, as time progresses and the benefits of ESG practices become more tangible through improved earnings, market prices tend to correct. Under this hypothesis, it is conceivable that firms with high ESG scores may surprise investors with positive earnings outcomes – the actual earnings of these high ESG firms might surpass the estimates made by financial analysts – leading to higher returns around earnings release periods. This is attributed to the market's gradual realization and recognition of the true value and impact of ESG-related practices on a company's financial performance over time.

Contrarily, demand effects also contribute significantly to the potential underperformance of high ESG stocks compared to low ESG stocks. When a numerous investors disregard low ESG stocks, their price could suffer a sharp decline. This initial undervaluation results in the concrete possibility to experience higher returns in the long run relative to high ESG stocks. Additionally, corporations operating in industries often avoided by ESG investors – such as the tobacco, gambling, and weapons sectors – are motivated to adopt very conservative accounting practices due to stringent regulatory scrutiny within their industries (Hong & Kacperczyk, 2009).

Moreover, certain papers have facilitated the emergence of methodological issues that may have influenced the validity of the conclusions drawn from the studies analyzed in *Section 2.1*. Harvey *et al*. (2016) pointed out that researchers frequently fail to elucidate the underlying economic mechanisms that lead to improved performance, often limiting their analysis to historical data examination. This approach poses the risk of correlation mining,

wherein financial models are overfitted to specific datasets to observe correlations that might not hold when tested out of sample. Another concern lies in the fact that several empirical studies investigating the link between ESG factors and financial performance do not rigorously distinguish between correlation and causality. Oftentimes, a correlation between ESG and financial variables is implicitly interpreted as indicating that ESG causes financial value, although the direction could also be reversed (Krüger, 2015).

2.2 INVESTORS' ATTITUDE TOWARDS RESPONSIBLE INVESTING

Academics have developed various theoretical frameworks to propose an analytical explanation of emerging trends in the responsible investing landscape. Although it is controversial that SRI investing can offer a statistically different performance from traditional practices, there is no doubt that this segment has seen significant and almost uninterrupted growth over the last decade, reflecting both preferences and social signaling (Riedl & Smeets, 2017). Something other than pure maximization of financial returns must have caused investors to radically change their attitude. The hypothesis that, in addition to the generation of financial wealth, positive social externalities may be a factor playing a role in shaping the investor's utility function has started to make its way into dedicated literature.

Barber *et al*. (2021) developed a model to assess the willingness-to-pay among responsible investors, identifying a tendency to accept a reduction in internal rates of return (IRRs) between 2.5 and 3.7 percentage points in order to obtain a positive social or environmental impact alongside financial returns. Their main contribution is to reveal that SRI investors are willing to consciously sacrifice certain expected financial returns for the sake of social or moral considerations. In this framework, WTP refers to the perceived value of investing in SRI assets, while enduring the need to forego a portion of financial gains in favor of issues that similarly affect the investor's utility function. This conclusion is further supported by previous empirical results, such as the fact that SRI fund flows are less sensitive to performance compared to non-SRI flows (Renneboog *et al*., 2011) and that they experience lower volatility of flows (Bollen, 2007). This aspect has the direct effect of lowering the cost

of capital of green companies, improving their valuation, and driving up their share prices (Chava, 2014). As a result, green companies tend to have negative CAPM alphas, as opposed to brown companies whose alphas are generally positive. In this respect, the impact that increased exposure to climate risk has on brown stocks is also a relevant issue.

The willingness-to-pay for impact, which signifies the valuation of the positive social or environmental outcomes generated by investments, varies in magnitude across different types of investors. Development organizations exhibit a high WTP for impact, presumably due to their explicit mission to create direct positive effects. In parallel, also foundations and financial institutions – including banks and insurance companies – demonstrate high WTP, in view of their incentives to support local communities and contribute to their development. Additionally, being subjected to political or regulatory pressure is generally associated with a positive WTP (Barber *et al.*, 2021).

Nevertheless, not all investors share the same level of ESG preferences and the distribution of their willingness to include considerations beyond pure financial wealth maximization in investment decisions is reflected in the proportion of green assets they find optimal to hold.

Pedersen *et al.* (2021) developed a theory whose key point is the implementation of ESG considerations in the investor's portfolio problem, giving birth to the concept of an ESG-efficient frontier. Equilibrium asset prices are determined by an ESG-adjusted Capital Asset Pricing Model, incorporating information on ESG themes to determine the required return of an asset. A savvy investor should choose from the set of possible combinations mechanically provided by the ESG-efficient frontier a portfolio that is in line with his risk aversion. Deviating from the portfolios that lie on the latter would lead to a suboptimal outcome. The ESG-efficient frontier represents the opportunity set when agents take into account risk, financial returns and ESG considerations and provides the highest achievable Sharpe Ratio for various levels of ESG scores. The ESG-SR frontier is hump-shaped because restricting portfolios to have a different ESG score than the tangency portfolio must yield a lower Sharpe Ratio.
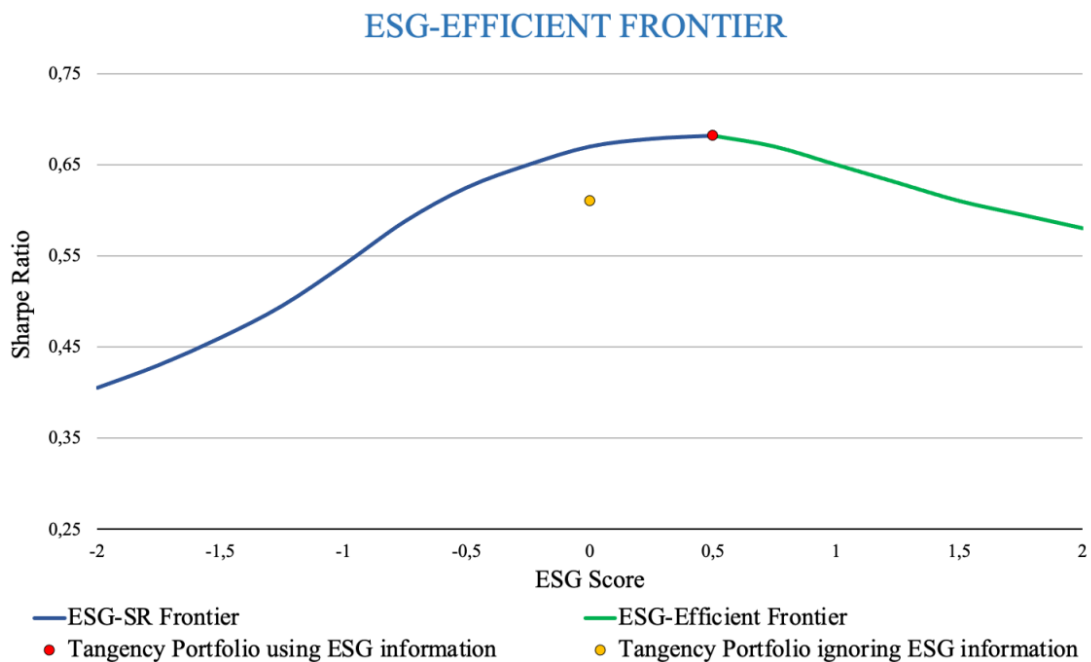
ESG-EFFICIENT FRONTIER

Figure 7 — Source: Pedersen et al., 2021

The study identifies three types of investors: ESG-unaware investors simply ignore the full set of information provided by ESG scores and attempt to maximize their unconditional mean-variance utility; ESG-aware investors, while still having mean-variance preferences, extend their assessment to ESG scores, updating their views on risk and expected returns; finally, ESG-motivated investors decide to look for high ESG scores, deliberately forming a portfolio with an optimal compromise between high expected return, low risk and high average ESG scores. The first type of investors could end up choosing a portfolio below the frontier, because they compute the tangency portfolio with a limited set of information that excludes ESG considerations. ESG-aware investors will definitely choose the portfolio with the highest possible Sharpe Ratio, *i.e.* the tangency portfolio. Conversely, the third type of investors will prefer a combination of assets to the right of the tangency portfolio, on the ESG-efficiency frontier.

Assuming that a high ESG score predicts high future profits, when the market is dominated by ESG-unaware investors high-ESG securities are capable of generating substantial returns, as their price does not increase due to the stronger demand from ESG-unaware investors. Conversely, the prevalence of ESG-aware investors in the economy eliminates the connection between ESG and expected returns because these investors drive up the prices of high-ESG

stocks to reflect their expected future profits. Furthermore, if the economy is characterized by a strong presence of ESG-motivated investors, high-ESG stocks will actually offer low expected returns. This is due to their willingness to accept a lower return for the sake of positive externalities (Pedersen *et al.*, 2021).

Pástor *et al.* (2021) noted in their study that multiple dimensions of ESG tastes are possible and that agents may have a stronger-than-average propensity towards green companies, feeling the need to deviate from the market portfolio by overweighting green assets and largely avoiding brown ones. Conversely, agents with weaker ESG tastes tend to do the opposite, while investors with average tastes come to the conclusion that holding the market portfolio is optimal for them. In the idealized case with no dispersion in ESG tastes, all agents would simply hold the market portfolio. The size of the ESG investment industry – as well as investors' alphas – crucially depends on the dispersion in investors' ESG preferences. This variable contributes to increase the valuation of green companies, through a mechanism that implies the adjustment of the assets' equilibrium prices to ESG tastes.

Their study develops a model based on an ESG factor capable of capturing unexpected changes in ESG concerns, which can result from a shift in the demand for goods and services from green suppliers or from a change in agents' appetite for SRI investments. Green assets are positively affected by the ESG factor – *i.e.* their ESG beta is positive – while the ESG beta of brown assets is negative. The factor has a negative premium that comes from investors' ESG preferences. The ESG factor affects the relative performance of green and brown assets; its positive realizations boost green assets while harming the performance of brown ones. If ESG concerns strengthen unexpectedly and sufficiently, green assets end up outperforming brown ones despite having lower expected returns (Pástor *et al.*, 2021).

This factors could play a significant role in explaining why the relationship between ESG and financial performance has not been unambiguously represented by dedicated studies, with the existing literature reaching opposite conclusions. In light of the theoretical findings presented in this *Section*, hopefully a clearer understanding has emerged of why the divergence in results was so profound.

2.3 ESG RATING DISAGREEMENT: DETERMINANTS & MAGNITUDE

The previous *Sections* have examined the arguments that underscore the increasing significance of ESG considerations and their role in the capital allocation process. In this context, ESG ratings serve as a valuable tool for investors by collecting and aggregating information from various sources and reporting standards. Without these ratings, investors would face substantial challenges in independently evaluating a firm's ESG performance. ESG ratings have a growing influence on investment decisions, exerting significant impacts on asset prices and corporate policies. ESG ratings can perform a significant information intermediary function, mitigating the adverse selection problem and thereby helping investors and other stakeholders choose companies that exhibit their preferred ESG outcomes (Chatterji & Toffel, 2010).

However, a body of literature has recently highlighted that established ESG rating providers differ significantly in their assessments, displaying low convergence. Rating providers are numerous: a survey conducted by Wong *et al*. (2021) revealed that the most influential and widely used are Sustainalytics, MSCI, Bloomberg, and Asset4 (Refinitiv). ESG analysis has emerged only in the last two decades, so it is still in a formalization stage which is impossible to compare with the mature one associated with financial analysis. Furthermore, the information flow of ESG data itself is less institutionalized than the flow of financial data, which is systematized by institutional arrangements such as earnings calls and investor presentations. Such a less formalized field is not consistent in providing clear rules, thereby giving rise to heterogeneity in judgements (Lamont, 2012).

The level of disagreement in ratings among different providers varies based on observable financial and accounting characteristics of corporations. Disagreement tends to be more significant for larger firms and those that lack credit ratings, as well as for companies operating in the consumer durables and telecommunications industries, which are known for their complexity and diversification. On the other hand, firms with higher profitability and with more tangible assets generally experience lower levels of disagreement in ESG ratings (Gibson *et al*., 2021).

This divergence undermines the reliability of ESG ratings and consequently hampers the ability of agents who rely on a firm's ESG performance for their decision-making process to have a solid and coherent empirical foundation. The severe disagreement that has arisen has direct consequences for several agents. Primarily, it reduces the reliability of ESG ratings themselves, as their main purpose of assessing the ESG performance of companies and funds becomes less credible. As a result, markets are less likely to evaluate companies' ESG performance *ex post*. In addition, corporations do not receive homogeneous signals from the markets on the areas in which they show the greatest vulnerabilities; therefore, management could encounter some difficulties in identifying the most suitable actions and corrective measures. Furthermore, not being confident that the implemented improvements will be adequately captured – and thus reflected by market participants in the valuation of the firm – will reduce companies' incentives to align with ESG best practices.

Disagreement in the financial markets generally arises due to individuals having different information sets or alternative models to interpret the elements that have emerged (Cookson & Niessner, 2020). Surprisingly, although ESG disclosure has increased in the last two decades – both through voluntary and mandatory efforts – the level of ESG disagreement for a given company has on average increased over the same period (Christensen *et al*., 2022). In the debt markets, credit rating agencies disagree more about companies that are opaque (Bonsall & Miller, 2017) and firms with greater financial reporting quality are less likely to have split credit ratings (Akins, 2018), suggesting that transparency through disclosure can reduce information asymmetry and mitigate lack of consensus. Christensen *et al*. (2022) provided empirical evidence that the opposite would be true in the context of ESG ratings, as their findings suggest that when a company increases its ESG disclosure it exacerbates ESG disagreement. Being characterized by a high level of subjectivity, wider disclosure is usually associated with greater divergence, as it expands the opportunities for different interpretations of information. This effect is primarily driven by the Environmental and Social pillars of ESG disclosure, rather than Governance (Christensen *et al*., 2022).

According to Chatterji *et al*. (2016), the factors influencing the disparity in ESG ratings can be attributed to two distinct sources: theorization and commensurability. The first element refers to the process of defining the principles of evaluation, clarifying which aspects will be

taken into consideration (Durand *et al.*, 2007). Theorization concerns the beliefs that raters have about what it means to be socially responsible. A common theorization is observable if raters share a common definition of ESG and the individual components that are included in the pillars (Chatterji *et al.*, 2009). Commensurability, on the other hand, reflects the possibility to consistently compare ratings from different providers; in fact, it is high when agencies that measure the same construct arrive at similar results (Espeland & Sauder, 2009). The study highlights that one of the main factors contributing to the globally low level of common theorization is the different approach that providers have towards the normalization of ratings by sector, comparing a company with players operating in the same industry. If the low convergence were entirely due to a lack of common theorization, the validity of the ratings would not be harmed, as market participants may differ in what dimensions of ESG they value and raters could seek to provide a measure for alternative definitions. Conversely, the correlation does not systematically increase when differences in raters' theorization process are excluded from the analysis. Consequently, the empirical results seem to support the hypothesis that raters – in addition to not sharing a common definition of responsibility – might also measure the same construct in different ways, using non-homogeneous methods and variables to evaluate companies' ESG performance. This aspect is particularly evident in the case of the Environmental pillar: it can be alternatively measured with indicators of a firm's environmental processes or outcomes (Delmas & Toffel, 2008).

The study conducted by Berg *et al.* (2022) brought to light additional underlying factors that lead to a lack of consensus among rating providers. They identified three sources that contribute to the emergence of low agreement levels: *scope divergence*, *measurement divergence*, and *weight divergence*. Scope divergence occurs when ratings are based on different sets of attributes, measurement divergence refers to the use of different indicators to evaluate the same attribute, and weight divergence arises from differing opinions on the relative importance of attributes. The findings of the study revealed the relative significance of the causes. Measurement divergence was identified as the primary driver of disagreement, accounting for 56% of the overall divergence. Scope divergence contributed 38%, while weight divergence had a minimal impact, contributing a mere 6%.

LUISS

Another noteworthy aspect highlighted in the study is the *rate effect*, which can further exacerbate measurement divergence. This effect suggests that disagreement in ratings is not solely the result of random noise, but is influenced by rater-specific patterns and structural factors inherent to the internal organization of rating agencies. The rate effect signifies that performance in one category can influence the perceived performance in other categories, thus introducing additional variability in ratings. For the six major rating providers analyzed in the paper, correlations at the ESG level are on average 0.54 and range from 0.38 to 0.71 (Berg *et al*., 2022).

2.4 CONSEQUENCES OF ESG RATING DISAGREEMENT

ESG rating disagreement – and the consequent effect on the ability of investors to correctly evaluate the ESG performance of companies and funds – has been scrutinized by academics to determine whether it is possible to highlight the dynamics that could have an impact on share prices. The conclusion reached by a considerable number of studies is that ESG uncertainty has an impact on the risk-return trade-off, capital allocation, and economic welfare.

The analysis proposed by Avramov *et al*. (2022) describes a scenario where the effect of lack of consensus among rating providers generates implications for the aggregate market through different channels. Primarily, risk-averse investors will perceive that the degree of risk associated with stocks has increased, due to uncertainty about their true ESG profile. The study evidenced that the overall demand for equities suffers a contraction, even in a state where agents with a stronger-than-average propensity towards green companies predominate. ESG ratings are negatively associated with future performance in an environment with low rating uncertainty, while this relationship could become insignificant or even positive when uncertainty increases.

Analyzing market risk premium in equilibrium, if the market is predominantly green, it is not possible to outline a clear relationship, because two opposing forces emerge: on the one hand, ESG investors derive non-pecuniary benefits from holding responsible assets, on the other

hand, ESG uncertainty essentially implies an increase in the market premium. Nevertheless, when the market is green neutral, the equity premium clearly increases with ESG uncertainty (Avramov *et al.*, 2022). This risk-based explanation suggests that higher levels of total or Environmental rating disagreement indicate greater uncertainty surrounding a firm's ESG performance. This uncertainty represents an independent source of risk for which investors, who are risk averse, demand a risk premium. In the cross-section, also alphas and the effective beta vary with firm-level ESG uncertainty. As analyzed in *Section 2.2*, the effective beta is based on the covariance and variance of ESG-adjusted returns. Regarding alphas, when ESG uncertainty is ignored, the CAPM alpha exclusively reflects the willingness to hold green stocks due to non-monetary benefits. Therefore, the ESG-alpha relationship is negative. Taking ESG uncertainty into account, this relationship evidently weakens (Avramov *et al.*, 2022).

Gibson *et al.* (2021) proposed an analysis of the relationship between ESG rating divergence and stock returns. The empirical model they developed revealed that stock returns are positively related to ESG rating disagreement, with the main driver of this phenomenon represented by the Environmental pillar. In terms of economic magnitude, their study quantified that an interquartile range increase in ESG rating disagreement is associated with an increase of 92 basis points in the annual cost of equity.

In line with ESG disagreement creating frictions in the market by introducing uncertainty about a company's long-term sustainability, firms with greater ESG divergence are less likely to obtain external funding and tend to rely more on internally generated financial resources. Greater ESG disagreement is associated with higher stock return volatility and larger absolute price movements (Christensen *et al.*, 2022). Additionally, ESG disagreement among rating agencies is positively associated with larger bid-ask spreads and analyst forecast dispersion (Kimbrough *et al.*, 2022).

Broadening the perspective on the phenomenon to provide a possible theoretical explanation, ESG disagreement constitutes an element capable of generating a dispersion of beliefs, altering the set of information held by investors. A vast literature has analyzed this conceptual framework, reaching crucial conclusions. Heterogeneity in beliefs may also be relevant when it relates to non-financial information, as in the specific case of ESG performance evaluation.

The dispersion has dual consequences: on the one hand, it represents the extra uncertainty that investors bear – in this regard, a higher return will be required to adequately compensate financial players for the additional risk they face – on the other hand, it amplifies optimism, pushing the share price up following positive news. The latter aspect leads to a lower average return in those states (Atmaz & Basak, 2018). The dispersion of investors' beliefs causes stock prices to assume a convex shape relative to cash flow news, indicating that market reactions will be more pronounced in relatively good states. This result implies that the increase in stock price following positive news is greater than the decrease generated by unexpected additional negative information (Xu, 2007). Despite the beneficial effect this property has on investors, the relationship between news and market reaction is moderated by consensus on ESG ratings: it weakens in the presence of high disagreement among rating providers (Atmaz & Basak, 2018).

Parallel to the risk-based explanation, an alternative perspective is that disagreement about a firm's ESG rating serves as a proxy for ESG uncertainty, capturing a specific form of uncertainty known as *Knightian uncertainty*. While risk is associated with uncertain outcomes within a known probability distribution of returns, ambiguity or Knightian uncertainty is linked to uncertainty about the underlying probability distribution itself (Viale *et al.*, 2014). In this context, ambiguity is priced in the cross-section of stock returns and not fully explained by standard risk factors (Viale *et al.*, 2014). Therefore, one possible interpretation for the positive relationship between ESG rating disagreement and stock returns is that the measure of ESG rating disagreement serves as a proxy for uncertainty surrounding ESG information.

LUISS

CHAPTER III: Data & Methodology

3.1 RESERCH QUESTION DEVELOPMENT & HYPOTHESIS FRAMEWORK

The intent of this study is to expand current knowledge on the relationship between disagreement on ESG ratings and equity returns, analyzing whether it is possible to identify the impact of this phenomenon in the Italian context. Accordingly, the starting point of the research was to determine the extent of the divergence of ESG rating providers over the period of interest. Therefore, the first general research question can be proposed as follows:

Research Question I: do rating providers considerably disagree on the ESG performance of listed Italian companies?

To better understand the components that mostly determined the emergence of a low level of agreement among rating providers, the aggregated data were further analyzed. Each pillar (Environmental, Social, and Governance) has been examined to show by which assessment the heterogeneity in judgments is mainly driven, trying to answer the second proposed research question:

Research Question II: which pillar shows the weakest correlation among the analyzed rating providers?

Using an updated dataset and applying a sophisticated financial model to medium and large-cap companies, the purpose of this study is to verify whether the relationship highlighted by Gibson *et al.* (2021) for a sample of S&P 500 Index firms between 2010 and 2017 is still relevant for companies listed on the Italian stock market. The further evidence presented constitutes an attempt to investigate the role of the geographical factor in this phenomenon and to verify that the previously emerged results were not influenced by country-specific factors. Consistent with the body of literature that argues that heterogeneity in assessing ESG performance is associated with higher financial returns, the following research question has been developed:

Research Question III: is it possible to identify a positive relationship between ESG rating disagreement and financial performance?

3.2 DATA COLLECTION

In order to address the primary objectives of this research, it was crucial to gather data that pertained to both the financial and ESG performance of companies listed on the Italian stock exchange. Regarding the financial performance, yearly stock returns were collected from the Refinitiv Workspace platform. Concurrently, certain standard characteristics, regarded as control variables and capable of influencing the cross-sectional variation of stock returns, were also collected. These encompass various factors like momentum, market capitalization, book-to-market ratio, gross profitability, and total volatility. Depending on their availability, the data were collected from Refinitiv or, alternatively, from the AIDA database.

The time period covered by the research is from 2017 to 2022. It is worth noting that ESG ratings are updated annually; therefore, they are not available on a monthly basis. To ensure alignment with established market practices, only the evaluations of the three most influential ESG providers – Bloomberg, Refinitiv ESG, and MSCI IVA – were considered (Wong *et al*., 2021). Due to disparities in the distribution across the statistical support among various rating scales, a basic rescaling approach would prove insufficient for rendering disparate ratings from different providers comparable (Gibson *et al*., 2021). Hence, a subsequent step to establish uniformity across rating sources was necessary and required that at each point in time all stocks were arranged based on the ratings from respective providers. Subsequently, I computed percentile ranks specific to individual ratings and employed these as adjusted scores. These ranks were then normalized to a range between 0 and 100 to facilitate meaningful comparison.

The central element for this research – the independent variable in the model – is the disagreement in ESG ratings, quantified using the standard deviation of ESG ratings from Bloomberg, Refinitiv ESG, and MSCI IVA for a given company at a specific point in time.

As previously analyzed, the influence of ESG-related factors on investment decisions has emerged recently and data availability remains limited both in the cross-section and the time series, particularly outside the United States. Consequently, this has prompted the research to focus on mid and large-cap companies in an effort to maximize the number of available ESG ratings. In line with these considerations, the initial set of companies considered coincided with those included in the FTSE MIB and FTSE Italia Mid Cap indices to address the need of incorporating as many observations as possible while dealing with the restricted availability of ESG ratings for the time frame of the research. Subsequently, I constructed a dataset that requires having at least two distinct assessments for a given company at each specific point in time. Nevertheless, the dataset used seems inevitably open to criticism due to the limited number of observations available.

ESG Data Providers				
Rating Agency	*Rating Scale*	*Time Interval*	*Average number of Companies*	*Pillars*
BLOOMBERG	0-10	2017-2022	64	Total, E, S, G
REFINITIV ESG	0-100	2018-2022	77	Total, E, S, G
MSCI IVA	0-10	2017-2022	68	Total, E, S, G

Table 2

3.3 VARIABLE DESCRIPTION & EMPIRICAL MODEL DEVELOPMENT

The formulation of the empirical model adopted to address *Research Question III*, which constitutes the primary objective of this study, required the recognition that the gathered data is two-dimensional in nature. Consequently, the statistical analysis employed was the panel data regression model, which is used when the research approach involves conducting repeated observations of the same variable over an extended period of time. The fixed-effect model is based on the notion of fixed effects used to account for time-invariant characteristics or unobserved heterogeneity of the firms in the panel (Borenstein *et al.*, 2010).

Within this framework, the principal independent variable (*Dis*) is represented by the disparity in ESG ratings as perceived by various rating providers, while the dependent variable (*Y*) by annual stock returns. Additional control variables have been added to the model.

$$Y_{it} = \alpha + \beta Dis_{it} + \beta_{con1} Con1_{it} + \beta_{con2} Con2_{it} + \beta_{con3} Con3_{it} + \beta_{con4} Con4_{it} + \beta_{con5} Con5_{it} + \varepsilon_{it}$$

The coefficient denoted as β in the equation serves to express the nature of the relationship between the key independent variable and the dependent variable within the model. The statistical significance of β is pivotal: it would facilitate the deduction that the absence of consensus among ESG rating providers has tangible repercussions on the financial performance of Italian corporations. This influence can manifest either positively or negatively. A positive β signifies that discrepancies in evaluations constitute a phenomenon that significantly affects investors' decision-making process, with increased stock returns serving as compensation for exposure to an additional risk factor. Conversely, a negative β value implies that the existence of disagreement in ESG ratings prompts a rise in present stock prices, diminishing the potential returns accessible to investors. Ultimately, an insignificant coefficient would indicate that the variation in ESG rating consensus does not exert a tangible impact on corporate financial performance.

3.3.1 Independent Variable

The research methodology employed in this study centers around a key independent variable related to ESG rating disagreement. Notably, the correlation between ESG ratings is considerably lower than the correlation observed among credit-rating providers, as demonstrated by Berg *et al.* (2020). This finding has sparked a discussion regarding the extent to which heterogeneity in ESG ratings can partially explain the financial performance of companies. In the context of the United States, Gibson *et al.* (2021) discovered that disagreement in ESG ratings has a positive impact on stock returns. Should a similar trend be evident for Italian companies listed on the stock exchange, this phenomenon could be included among the factors influencing the returns that investors are likely to attain.

LUISS

3.3.2 Dependent Variable

The research methodology employed in this study utilizes continuously compounded stock returns as the dependent variable to assess the financial performance of listed Italian companies. Historically, the introduction of the efficient market hypothesis led to the prevailing belief that markets were highly efficient in reflecting information related to individual stocks (Fama, 1970). In an efficient market, investors cannot consistently earn above-average returns without assuming an above-average level of risk. The conventional viewpoint was that when new information emerged, it diffused rapidly and was promptly integrated into security prices. The efficient market hypothesis is closely associated with the notion of a *random walk*, a term employed to describe a price series where price movements are perceived as random deviations from prior prices (Malkiel, 2003). However, because information is unpredictable, the resulting alterations in prices must also be unforeseeable and appear as random fluctuations.

Nevertheless, a body of subsequent research has challenged this concept, uncovering underlying patterns in the stock market that render stock prices at least partially predictable. Many of these patterns are linked to company characteristics and various valuation metrics, such as the Size Effect, Value Stocks, and the Equity Risk Premium Puzzle (Malkiel, 2003). This study aims to investigate whether the disagreement in ESG ratings can reveal a statistically significant predictable pattern in stock returns, even within a sample that differs in terms of the time period covered and geographical scope compared to the study by Gibson *et al.* (2021).

3.3.3 Control Variables

Further control variables were introduced into the analytical model to neutralize the influence that these known attributes exert on the distribution of stock returns across different companies. This approach aims to enhance the clarity of the connection between a company's financial performance and the variability observed in its available ESG ratings.

Relevant factors identified by the existing body of research as elements capable of engendering predictability in returns encompass market capitalization (*Con1*), momentum (*Con2*), book-to-market ratio (*Con3*), gross profitability (*Con4*), and total volatility (*Con5*) (Gibson *et al.*, 2021). The momentum signal is calculated at time *t* as the ratio between the share price at month $(t-2)$ and that at month $(t-12)$. The determination of the book-to-market ratio involves dividing shareholders' equity by market capitalization, both evaluated at the end of each year. Gross profitability is obtained by dividing the difference between total revenues and the cost of goods sold by total assets. Total volatility is calculated referring to the previous 250 daily return observations.

The size factor, as evidenced in empirical observations, indicates that mid and small-cap stocks generally outperform their larger counterparts. This outperformance is attributed to the additional compensation investors require for holding less liquid stocks that are more susceptible to changing business cycles, defaults, and volatility (Fama & French, 1992). Accordingly, β_{con1} is expected to have a negative value.

Furthermore, the momentum effect acknowledges that stocks with superior historical performance tend to continue outperforming those with weaker past performance over time frames ranging from three to twelve months (Jegadeesh & Titman, 1993). Consequently, trading strategies in equities that involve purchasing past winners and shorting past losers yield positive returns. In light of these considerations, β_{con2} is anticipated to be positive.

The book-to-market ratio reflects earnings' persistent traits. A high book-to-market ratio signifies enduring low earnings on book equity and is common among relatively distressed firms, while a lower one characterizes firms with high average capital returns (growth stocks). Low-book-to-market firms might have lower average returns due to weaker-than-expected future earnings growth, while value stocks usually yield high average returns as their earnings growth exceeds expectations (Fama & French, 1995). Different earnings growth rates for low and high-book-to-market stocks usually converge over time. Higher book-to-market values imply that investors typically require higher rates of return (Berk, 1995); therefore, value companies exhibit a tendency to generate higher returns than growth companies. As a consequence, β_{con3} is expected to be positive.

Novy-Marx (2013) emphasized that investment strategies relying on gross profitability tend to produce above-average returns. This is because companies with high levels of profitability tend to generate substantially greater average returns compared to less profitable companies. It follows that β_{con4} should be positive.

Lastly, Ang *et al*. (2006) proposed a study that led to the conclusion that stocks that exhibit high levels of idiosyncratic or total volatility tend to yield abnormally low average returns. As a result, β_{con5} should have a negative value.

For financial research purposes, these observed phenomena present a significant challenge to the weak form efficient market hypothesis (Fama, 1970). Therefore, it is crucial to incorporate these factors into the model to isolate the influence of ESG rating discrepancies on stock returns and prevent a potential contamination of the results.

3.4 EMPIRICAL RESULTS ANALYSIS

The data collected yield interesting findings that align with the broader trends discussed in previous *Chapters*. Notably, there is an overall rise in the average ESG scores – both at the individual pillars level and in the comprehensive evaluations – across nearly all the examined rating providers. This observation testifies the growing awareness among companies in Italy regarding the importance of formulating a clear and effective strategy to position themselves as attractive prospects for investors with ESG concerns. Consequently, there has been a progressive improvement in the ESG assessments.

Moreover, the need to enhance ESG performance is broadly shared among the selected pool of firms involved in the study, as the number of companies with extremely poor ESG performance has significantly decreased and the lowest assessment assigned by each provider has risen over the years. The findings are summarized in *Table 3*.

	Mean	Maximum Value	Minimum Value
	ESG Score by BLOOMBERG		
2022	4.27	6.95	1.28
2021	4.03	6.82	1.44
2020	4.01	6.56	1.81
2019	3.69	6.74	1.53
2018	3.43	6.12	1.43
2017	3.18	6.26	1.26
	ESG Score by REFINITIV		
2022	69.23	95	37
2021	67.59	94	33
2020	65.51	94	21
2019	60.89	94	8
2018	58.54	92	8
	ESG Score by MSCI IVA		
2022	5.42	7.40	3.80
2021	5.08	7.00	3.30
2020	5.13	7.70	3.40
2019	5.01	7.40	3.60
2018	4.94	6.90	3.20
2017	4.84	7.50	3.00

Table 3

In response to *Research Question I*, an analysis of Pearson correlations was conducted between the ratings assigned by Bloomberg, Refinitiv ESG, and MSCI IVA. The obtained results align with the findings of the study conducted by Gibson *et al*. (2021). These results suggest that, in the context of Italian companies, the discrepancies in ESG ratings are even more pronounced compared to S&P 500 companies. The average correlation between these ratings is low, further supporting the idea that ESG considerations introduce significant variability. When considering the average correlations for individual ESG pillars, it becomes evident that these correlations are lower than those observed for the overall ESG rating. This observation suggests that each rating provider employs a distinct weighting scheme, reflecting differing priorities assigned to specific aspects of ESG evaluation.

Regarding *Research Question II*, the analysis reveals that the pillar that most contributes to uncertainty and divergence among ratings is Governance, followed by the Social one. This phenomenon arises because the criteria employed to evaluate Governance tend to be more subjective, making it challenging to establish a quantifiable measure for inherently qualitative aspects. In contrast, the Environmental pillar exhibits a higher potential for measurement of the factors involved. Consequently, it shows the highest average correlation among rating providers, indicating a greater degree of consensus. The findings are summarized in *Table 4*.

Correlations of ESG Ratings			
		Pearson Correlations	
Rating Agency	*Number of Observations*	BLOOMBERG	REFINITIV ESG
Total ESG Score			
BLOOMBERG	384		
REFINITIV ESG	386	0.419	
MSCI IVA	407	0.315	0.300
			AVERAGE CORRELATION: 0.344
Environmental Pillar			
BLOOMBERG	384		
REFINITIV ESG	386	0.321	
MSCI IVA	407	0.245	0.103
			AVERAGE CORRELATION: 0.223
Social Pillar			
BLOOMBERG	384		
REFINITIV ESG	386	0.343	
MSCI IVA	407	0.092	0.211
			AVERAGE CORRELATION: 0.215
Governance Pillar			
BLOOMBERG	384		
REFINITIV ESG	386	0.406	
MSCI IVA	407	0.076	- 0.091
			AVERAGE CORRELATION: 0.130

Table 4

Table 5 serves as a central component of this study, presenting a concise overview of the key variables that enable to effectively address *Research Question III*.

	Independent Variable	Control Variables				
Stock Returns and Disagreement on ESG Ratings						
Dependent Variable: *Stock Returns*						
	ESG Disagreement (Dis)	*Market Cap (Con1)*	*Momentum (Con2)*	*Book-to-market (Con3)*	*Gross Prof. (Con4)*	*Total Volatility (Con5)*
Coefficient	0.001481	5.35e-12	0.871016	- 0.005312	- 0.467611	0.030795
t-statistics	2.19	2.70	36.77	- 0.22	- 4.06	0.42
p-value	0.029	0.007	0.000	0.827	0.000	0.678

Table 5

The findings that have arisen should be interpreted with the understanding of the substantial constraints that have influenced the construction of a dataset for investigating ESG-related phenomena within the context of the Italian stock market. The time interval under scrutiny had to be kept relatively short to ensure the availability of ratings from the three providers. However, this implies that the results could be influenced by specific events or developments that happened during this timeframe.

Additionally, the statistical power of the model used in the analysis may be influenced by these constraints. The test power is the probability that the test correctly rejects the null hypothesis when the alternative hypothesis is true (Hvidkjær, 2017). The ability of the statistical model to detect a meaningful relationship between ESG rating disagreement and stock returns might decrease because of the limitations of the dataset and the relatively short observation period.

It is somewhat unexpected that certain control variables in the fixed-effect regression model (*i.e.* book-to-market ratio and total volatility) do not appear statistically significant or exhibit behaviors that are not in line with what has been highlighted by previous academic studies. A plausible explanation for this phenomenon can be found in the research conducted by McLean & Pontiff (2016). Their empirical findings support the idea that when academic research

draws public attention to the impact of a particular variable on financial performance, it tends to reduce the ability to predict post-publication returns. Additionally, another factor that may have contributed to this observation, as highlighted by Chordia *et al.* (2014), is the decreasing relevance of market anomalies compared to the past. This fact could be attributed to greater liquidity and increased trading activity in today's markets. The choice of a sample composed primarily of highly liquid mid and large-cap companies, might have contributed to make some control variables statistically insignificant within the analysis.

The selection of a fixed-effect model over a random-effect model is supported by the outcome of the Hausman test, a statistical test used for model selection. The use of a random-effect model is justified when the individual effects are strictly uncorrelated with the regressors and there is the need to represent the individual-specific constant terms as randomly distributed across cross-sectional units (Borenstein *et al.*, 2010). The Hausman test involves comparing two sets of estimates. Under the null hypothesis, it states that the model should be specified as a random-effect one, while the alternative hypothesis suggests a fixed-effect model. In this particular case, the Hausman test yields a p-value of 0.000. Therefore, the null hypothesis of a random-effects model is rejected, and the fixed-effect model is considered more appropriate for the research context.

Table 5 presents promising results. Specifically, when applying a fixed-effect model within the context of the Italian stock market, a statistically significant positive relationship is observed between the standard deviation of ESG ratings and financial performance. The findings exhibit a robust level of statistical significance with a 95% confidence interval (p-value is equal to 0.029). The t-statistic's extreme value suggests that the observed data are substantially incongruent with the null hypothesis, thereby justifying its rejection. In the context of the study, the null hypothesis states that there is no difference in average returns when there is a significant level of disagreement in ESG ratings, while the alternative hypothesis proposes that there is indeed a positive difference in returns. Since the coefficient denoted as β in the *Equation* turns out to be positive, the empirical evidence lends support to the hypothesis that stock returns experience a positive influence from ESG rating divergence, affirmatively addressing *Research Question III*.

LUISS

Stock Returns and Disagreement on Individual Pillars					
Dependent Variable: *Stock Returns*					
Independent Variable	Control Variables				
Disagreement (*Dis*)	*Market Cap* (*Con1*)	*Momentum* (*Con2*)	*Book-to-market* (*Con3*)	*Gross Prof.* (*Con4*)	*Total Volatility* (*Con5*)
E Pillar					
Coefficient 0. 000103	4.89e-12	0.873887	- 0.005743	- 0.472833	0.0343922
t-statistics 0.13	2.46	36.61	- 0.23	- 4.08	0.46
p-value 0.897	0.014	0.000	0.815	0.000	0.646
S Pillar					
Coefficient 0.000976	5.12e-12	0.873633	- 0.006436	- 0.467594	0.035750
t-statistics 1.51	2.59	36.80	- 0.26	- 4.05	0.48
p-value 0.131	0.010	0.000	0.792	0.000	0.630
G Pillar					
Coefficient 0.000886	5.01e-12	0.876767	- 0.002912	- 0. 473318	0.034502
t-statistics 1.52	2.54	36.84	- 0.12	- 4.10	0.46
p-value 0.129	0.012	0.000	0.905	0.000	0.642

Table 6

Unlike the previous scenario, decomposing ESG scores to assess the influence that dissent on individual pillars has on the financial performance of listed Italian companies produces inconclusive results, as shown in *Table 6*. The relationship between these disaggregated ESG pillars and financial performance does not exhibit statistical significance. This suggests that investors' main concerns arise from comprehensive ESG evaluations rather than individual pillars and that no Environmental, Social, or Governance assessment alone has a sufficiently tangible impact on investors' behavior to yield repercussions on stock returns.

Exploring the underlying causes behind the latest findings is beyond the scope of the present research; nevertheless, it opens interesting possibilities for future empirical investigations on this topic.

CONCLUSIONS

The purpose of this study is to conduct an empirical investigation into the impact of ESG rating disagreement on financial performance of publicly traded Italian corporations. This research seeks to evaluate whether the observed positive correlation, as identified by Gibson *et al*. (2021) within the United States, is also visible in the Italian context. While the scientific literature has begun to extensively explore themes related to ESG, the primary focus was predominantly on the United States, with limited research pertaining to other geographic areas, notably Italy. This lack of consideration may arise from constraints in data availability, both in terms of cross-sectional and time-series data. The current study aims to extend the perimeter of analysis to Italy to investigate whether geographic factors play a role in this phenomenon and to identify any country-specific trends.

The empirical model employed in this study yields results that align with the prevailing literature on the subject. Specifically, Pearson correlation coefficients helped evaluate the agreement between the ratings assigned by Bloomberg, Refinitiv ESG, and MSCI IVA. The average correlation obtained is equal to 0.344 and this value decreases further considering the individual Environmental, Social, and Governance pillars separately. This finding lends empirical support to the prevailing notion of a significant lack of consensus among ESG rating providers, corroborating the existing body of literature on the topic.

From this perspective, the primary objective of the research is to investigate the influence of ESG rating disparity – measured through the standard deviation of ratings issued by the selected agencies – on stock returns. Using a fixed-effect panel regression model, the analysis reveals a positive and statistically significant relationship between the level of disagreement in ESG ratings and financial performance. This suggests that when there is limited consensus among rating providers, stock returns tend to experience an increase.

Notably, the study reveals a country-specific trend. Unlike the case of global ESG assessment, the disaggregated Environmental, Social, and Governance pillars individually considered do not present statistically significant links with financial performance.

These results are of substantial importance, especially in the context of the strong growing trend observed in responsible investing in recent years and the attractiveness that this type of approach has for investors. First of all, it is crucial for investors to recognize that within the Italian financial landscape, investment decisions that incorporate ESG considerations into the decision-making process may be affected by the limited reliability of ESG ratings. Such phenomenon can generate distortions in the allocation of capital and introduce changes in the risk-return characteristics of a portfolio. In fact, the introduction of a new risk factor makes additional compensation necessary. Furthermore, this effect has direct repercussions on firms, which will have to face an increase in the cost of equity.

Restricting the study to a narrower market, in contrast to prior research that encompassed the broader universe of S&P 500 companies, inevitably introduces substantial limitations. The most relevant are the relatively small size of the sample of companies included in the study and the short time horizon. These restrictions were motivated by the imperative to construct a homogeneous dataset comprising companies with ESG ratings from various providers, thus ensuring methodological consistency.

REFERENCES

Akins, B. (2018). Financial reporting quality and uncertainty about credit risk among ratings agencies. *The Accounting Review*, 93(4), 1-22.

Alessi, L. & Battiston, S. (2022). Two sides of the same coin: green taxonomy alignment versus transition risk in financial portfolios. *International Review of Financial Analysis*, 84.

Aloui, D., Benkraiem, R., Guesmi, K. & Vigne, S. (2023). The European Central Bank and green finance: how would the green quantitative easing affect the investors' behavior during times of crisis? *International Review of Financial Analysis*, 85.

Ang, A., Hodrick, R. J., Xing, Y. & Zhang, X. (2006). The cross-section of volatility and expected returns. *The journal of finance*, 61(1), 259-299.

Atmaz, A. & Basak, S. (2018). Belief dispersion in the stock market. *The Journal of Finance*, 73(3), 1225-1279.

Atta-Darkua, V., Chambers, D., Dimson, E., Ran, Z. & Yu, T. (2020). Strategies for responsible investing: emerging academic evidence. *The Journal of Portfolio Management*, 46(3), 26-35.

Avramov, D., Cheng, S., Lioui, A. & Tarelli, A. (2022). Sustainable investing with ESG rating uncertainty. *Journal of Financial Economics*, 145(2), 642-664.

Barber, B. M., Morse, A. & Yasuda, A. (2021). Impact investing. *Journal of Financial Economics*, 139(1), 162-185.

Bebchuk, L. A., Cohen, A. & Wang, C. C. (2013). Learning and the disappearing association between governance and returns. *Journal of financial economics*, 108(2), 323-348.

Becchetti, L., Ciciretti, R., Dalò, A. & Herzel, S. (2015). Socially responsible and conventional investment funds: performance comparison and the global financial crisis. *Applied Economics*, 47(25), 2541-2562.

Berg, F., Koelbel, J. F. & Rigobon, R. (2022). Aggregate confusion: the divergence of ESG ratings. *Review of Finance*, 26(6), 1315-1344.

Berk, J. B. (1995). A critique of size-related anomalies. *The review of financial studies*, 8(2), 275-286.

Bialkowski, J. & Starks, L. T. (2016). SRI funds: investor demand, exogenous shocks and ESG profiles.

Bollen, N. P. (2007). Mutual fund attributes and investor behavior. *Journal of financial and quantitative analysis*, 42(3), 683-708.

Bonsall, S. B. & Miller, B. P. (2017). The impact of narrative disclosure readability on bond ratings and the cost of debt. *Review of Accounting Studies*, 22, 608-643.

Borenstein, M., Hedges, L. V., Higgins, J. P. & Rothstein, H. R. (2010). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research synthesis methods*, 1(2), 97-111.

Borgers, A., Derwall, J., Koedijk, K. & Ter Horst, J. (2013). Stakeholder relations and stock returns: on errors in investors' expectations and learning. *Journal of Empirical Finance*, 22, 159-175.

Capelle-Blancard, G., Desroziers, A. & Zerbib, O. D. (2021). Socially responsible investing strategies under pressure: evidence from the COVID-19 crisis. *The Journal of Portfolio Management*, 47(9), 178-197.

Capelle-Blancard, G. & Monjon, S. (2014). The performance of socially responsible funds: does the screening process matter? *European Financial Management*, 20(3), 494-520.

Caplan, L., Griswold, J. S. & Jarvis, W. F. (2013). From SRI to ESG: the changing world of Responsible Investing. *Commonfund Institute*.

Chatterji, A. K., Durand, R., Levine, D. I. & Touboul, S. (2016). Do ratings of firms converge? Implications for managers, investors, and strategy researchers. *Strategic Management Journal*, 37(8), 1597-1614.

Chatterji, A. K., Levine, D. I. & Toffel, M. W. (2009). How well do social ratings actually measure corporate social responsibility? *Journal of Economics & Management Strategy*, 18(1), 125-169.

Chatterji, A. K. & Toffel, M. W. (2010). How firms respond to being rated. *Strategic Management Journal*, 31(9), 917-945.

Chava, S. (2014). Environmental externalities and cost of capital. *Management science*, 60(9), 2223-2247.

Chiappini, H., Vento, G. & De Palma, L. (2021). The impact of COVID-19 lockdowns on sustainable indexes. *Sustainability*, 13(4), 1846.

Chordia, T., Subrahmanyam, A. & Tong, Q. (2014). Have capital market anomalies attenuated in the recent era of high liquidity and trading activity? *Journal of Accounting and Economics*, 58(1), 41-58.

Christensen, D. M., Serafeim, G. & Sikochi, A. (2022). Why is corporate virtue in the eye of the beholder? The case of ESG ratings. *The Accounting Review*, 97(1), 147-175.

Cookson, J. A. & Niessner, M. (2020). Why don't we agree? Evidence from a social network of investors. *The Journal of Finance*, 75(1), 173-228.

Dafermos, Y., Nikolaidi, M. & Galanis, G. (2018). Climate change, financial stability, and monetary policy. *Ecological Economics*, 152, 219-234.

Delmas, M. A. & Toffel, M. W. (2008). Organizational responses to environmental demands: opening the black box. *Strategic management journal*, 29(10), 1027-1055.

Dietz, S., Bowen, A., Dixon, C. & Gradwell, P. (2016). Climate value at risk of global financial assets. *Nature Climate Change*, 6(7), 676-679.

Dimson, E., Karakaş, O. & Li, X. (2015). Active ownership. *The Review of Financial Studies*, 28(12), 3225-3268.

Durand, R., Rao, H. & Monin, P. (2007). Code and conduct in French cuisine: impact of code changes on external evaluations. *Strategic Management Journal*, 28(5), 455-472.

Eccles, R. G., Ioannou, I. & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management science*, 60(11), 2835-2857.

Eccles, R. G. & Klimenko, S. (2019). The investor revolution. *Harvard Business Review*, 97, 106-116.

Edmans, A. (2012). The link between job satisfaction and firm value, with implications for corporate social responsibility. *Academy of Management Perspectives*, 26(4), 1-19.

El Ghoul, S., Guedhami, O., Kwok, C. C. & Mishra, D. R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of banking & finance*, 35(9), 2388-2406.

Espeland, W. N. & Sauder, M. (2009). The discipline of rankings: tight coupling and organizational change. *American sociological review*, 74(1), 63-82.

Fama, E. F. (1970). Efficient capital markets: a review of theory and empirical work. *The journal of Finance*, 25(2), 383-417.

Fama, E. F. & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance*, 47(2), 427-465.

Fama, E. F. & French, K. R. (1995). Size and book-to-market factors in earnings and returns. *The journal of finance*, 50(1), 131-155.

Ferrari, A. & Nispi Landi, V. (2021). Whatever it takes to save the planet? Central banks and unconventional green policy. Bank of Italy, *Temi di Discussione (Working Paper)*, 1320.

Gibson Brandon, R., Krueger, P. & Schmidt, P. S. (2021). ESG rating disagreement and stock returns. *Financial Analysts Journal*, 77(4), 104-127.

Giese, G., Lee, L. E., Melas, D., Nagy, Z. & Nishikawa, L. (2019). Foundations of ESG Investing: how ESG affects equity valuation, risk, and performance. *The Journal of Portfolio Management*, 45(5), 69-83.

Gillan, S. L., Koch, A. & Starks, L. T. (2021). Firms and social responsibility: a review of ESG and CSR research in corporate finance. *Journal of Corporate Finance*, 66, 101889.

Gompers, P., Ishii, J. & Metrick, A. (2003). Corporate governance and equity prices. *The quarterly journal of economics*, 118(1), 107-156.

Gregory, A., Tharyan, R. & Whittaker, J. (2014). Corporate social responsibility and firm value: disaggregating the effects on cash flow, risk and growth. *Journal of business ethics*, 124, 633-657.

Guenster, N., Bauer, R., Derwall, J. & Koedijk, K. (2011). The economic value of corporate eco-efficiency. *European financial management*, 17(4), 679-704.

Han, Y. & Li, J. (2022). Should investors include Green Bonds in their portfolios? Evidence for the USA and Europe. *International Review of Financial Analysis*, 80.

Hartzmark, S. M. & Sussman, A. B. (2019). Do investors value sustainability? A natural experiment examining ranking and fund flows. *The Journal of Finance*, 74(6), 2789-2837.

Harvey, C. R., Liu, Y. & Zhu, H. (2016). …and the cross-section of expected returns. *The Review of Financial Studies*, 29(1), 5-68.

Hoepner, A. G. & Schopohl, L. (2018). On the price of morals in markets: an empirical study of the Swedish AP-Funds and the Norwegian Government Pension Fund. *Journal of Business Ethics*, 151, 665-692.

Hong, H. & Kacperczyk, M. (2009). The price of sin: the effects of social norms on markets. *Journal of financial economics*, 93(1), 15-36.

Hvidkjær, S. (2017). ESG investing: a literature review. *Report prepared for Dansif*.

Jacobs, B. W., Singhal, V. R. & Subramanian, R. (2010). An empirical investigation of Environmental performance and the market value of the firm. *Journal of Operations Management*, 28(5), 430-441.

Jegadeesh, N. & Titman, S. (1993). Returns to buying winners and selling losers: implications for stock market efficiency. *The Journal of finance*, 48(1), 65-91.

Kawamura, M. (2002). How socially responsible investment (SRI) could redefine corporate excellence in the 21st century. *NLI Research Institute*, 160, 16.

Kemfert, C., Schäfer, D. & Semmler, W. (2020). Great green transition and finance. *Intereconomics*, 55, 181-186.

Kim, S. & Yoon, A. (2023). Analyzing active fund managers' commitment to ESG: evidence from the United Nations Principles for Responsible Investment. *Management science*, 69(2), 741-758.

Kimbrough, M. D., Wang, X., Wei, S. & Zhang, J. (2022). Does voluntary ESG reporting resolve disagreement among ESG rating agencies? *European Accounting Review*, 1-33.

Krüger, P. (2015). Corporate goodness and shareholder wealth. *Journal of financial economics*, 115(2), 304-329.

Lamont, M. (2012). Toward a comparative sociology of valuation and evaluation. *Annual review of sociology*, 38, 201-221.

Lebelle, M., Lajili Jarjir, S. & Sassi, S. (2020). Corporate Green Bond issuances: an international evidence. *Journal of Risk and Financial Management*, 13(2), 25.

Leite, P. & Cortez, M. C. (2015). Performance of European socially responsible funds during market crises: evidence from France. *International review of financial analysis*, 40, 132-141.

Makuch, K. (2022). How the Paris Agreement is driving ESG regulation and changing how banks and businesses operate. https://coriolistechnologies.com/how-the-paris-agreement-is-driving-esg-regulation-and-changing-how-banks-and-businesses-operate/

Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *Journal of economic perspectives*, 17(1), 59-82.

McLean, R. D. & Pontiff, J. (2016). Does academic research destroy stock return predictability? *The Journal of Finance*, 71(1), 5-32.

McWilliams, A. & Siegel, D. (2001). Corporate social responsibility: a theory of the firm perspective. *Academy of Management Review*, 26, 117-127.

Miralles-Quirós, M. D. M. & Miralles-Quirós, J. L. (2017). Improving diversification opportunities for socially responsible investors. *Journal of Business Ethics*, 140(2), 339-351.

Novy-Marx, R. (2013). The other side of value: the gross profitability premium. *Journal of financial economics*, 108(1), 1-28.

Oehmke, M. & Opp, M. M. (2022). A theory of socially responsible investment. *Swedish House of Finance Research Paper*, 20-2.

Omura, A., Roca, E. & Nakai, M. (2021). Does responsible investing pay during economic downturns: evidence from the COVID-19 pandemic. *Finance Research Letters*, 42.

Pástor, Ľ., Stambaugh, R. F. & Taylor, L. A. (2021). Sustainable investing in equilibrium. *Journal of Financial Economics*, 142(2), 550-571.

Pedersen, L. H., Fitzgibbons, S. & Pomorski, L. (2021). Responsible investing: the ESG-efficient frontier. *Journal of Financial Economics*, 142(2), 572-597.

Riedl, A. & Smeets, P. (2017). Why do investors hold socially responsible mutual funds? *The Journal of Finance*, 72(6), 2505-2550.

Renneboog, L., Ter Horst, J. & Zhang, C. (2011). Is ethical money financially smart? Non-financial attributes and money flows of socially responsible investment funds. *Journal of Financial Intermediation*, 20(4), 562-588.

Renneboog, L., Ter Horst, J. & Zhang, C. (2008). The price of ethics and stakeholder governance: the performance of socially responsible mutual funds. *Journal of corporate finance*, 14(3), 302-322.

Rousseau, S. & Deschacht, N. (2020). Public awareness of nature and the environment during the COVID-19 crisis. *Environmental and Resource Economics*, 76(4), 1149-1159.

Schröder, M. (2004). The performance of socially responsible investments: investment funds and indices. *Financial markets and portfolio management*, 18(2), 122.

Soler-Domínguez, A. & Matallín-Sáez, J. C. (2016). Socially (ir)responsible investing? The performance of the VICEX Fund from a business cycle perspective. *Finance Research Letters*, 16, 190-195.

Tang, D. Y. & Zhang, Y. (2020). Do shareholders benefit from Green Bonds? *Journal of Corporate Finance*, 61, 101427.

Tolliver, C., Keeley, A. R. & Managi, S. (2020). Policy targets behind green bonds for renewable energy: do climate commitments matter? *Technological Forecasting and Social Change*, 157, 120051.

Trinks, P. J. & Scholtens, B. (2017). The opportunity cost of negative screening in socially responsible investing. *Journal of Business Ethics*, 140, 193-208.

Viale, A. M., Garcia-Feijoo, L. & Giannetti, A. (2014). Safety first, learning under ambiguity, and the cross-section of stock returns. *The Review of Asset Pricing Studies*, 4(1), 118-159.

Wong, W. C., Batten, J. A., Mohamed-Arshad, S. B., Nordin, S. & Adzis, A. A. (2021). Does ESG certification add firm value? *Finance Research Letters*, 39.

Xu, J. (2007). Price convexity and skewness. *The Journal of Finance*, 62(5), 2521-2552.

Zaccone, M. C. & Pedrini, M. (2020). ESG factor integration into private equity. *Sustainability*, 12(14), 5725.