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ESG Principles and Green Finance: How Venture Capital Drives Innovation and Promotes Sustainable Investing

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Introduction

Nowadays, businesses are under increasing pressure to develop innovative solutions for a sustainable future. Environmental, Social, and Governance (ESG) principles are entering in the mainstream when it comes to contemporary market practices, with an array of enterprises leading the way towards reduction in greenhouse gas emission, the promotion of ethical stakeholders' treatment, and the implementation of transparent policy to improve corporate governance well-being. The realm of finance, with its intrinsic mechanisms of investment, risk management and capital allocation, works as the lifeblood of economies worldwide. In a world with pressing environmental challenges and social inequities, the integration of sustainability principles into financial decision-making strongly advocates for long-term value creation, risk mitigation and regulatory compliance. Financial institutions that are fully embracing ESG factors will be better positioned to overcome market frictions that are very present in the context of responsible investing: the lack of a standardized framework for ESG reporting, greenwashing, asymmetric information are slowing down the shift toward a more substantial market share occupied by sustainable practices. Regulatory pressures are also accelerating the process of sustainable considerations within businesses. Agreements like the Sustainable Development Goals (SDGs)[1] and the 2015 Paris Agreement[2] established the groundwork for ESG awareness and objectives. This thesis will delve deeper in the Environmental, Social, and Governance principles and how they have become a robust framework for ethical and sustainable investing, highlighting the relationship between such factors and financial performance.

In this ever changing yet still at an early-stage scenery, the role of venture capital cannot be understated. Venture capital represents the maximum expression of finance, efficiently reallocating resources towards start-ups and enterprises with productive investment opportunities. It is evident that current venture capitalists are starting to recognize the importance of ethical and environmentally responsible investment strategies, as more and more clean tech startups are making a difference in their corresponding industries. An in-depth analysis of how venture capital implement ESG objectives in their investment strategy will be displayed in the second part of the thesis, including the various challenges and barriers venture capitalists face in this delicate area, as well as possible developments for the future practice of responsible investing.

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[1] See United Nations. (2023). *The Sustainable Development Goals Report 2023: Special Edition*. https://unstats.un.org/sdgs/report/2023/The-Sustainable-Development-Goals-Report-2023.pdf

[2] See United Nations Framework Convention on Climate Change. (2015). *The Paris Agreement*. https://unfccc.int/sites/default/files/english_paris_agreement.pdf

1: Unpacking ESG and Sustainable Finance: Principles, Frameworks, and Ratings

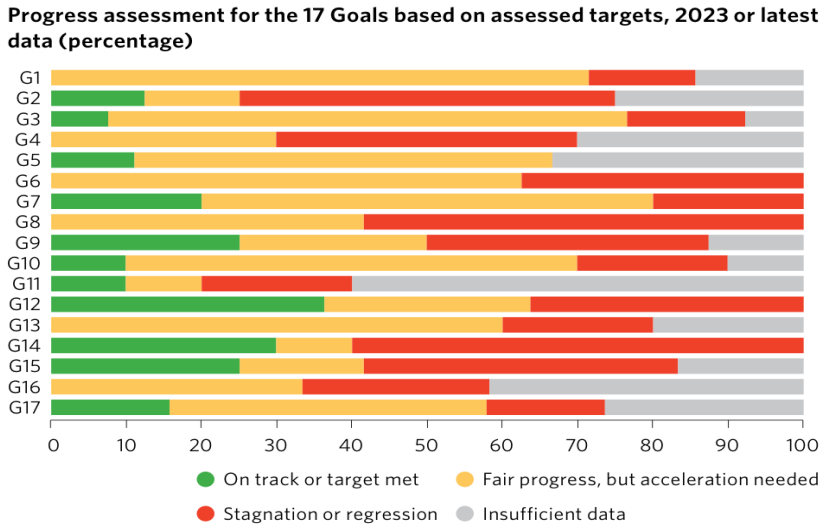
1.1: ESG Principles and Their Impact on Modern Business

Businesses worldwide are motivated to generate and pursue innovations for a more sustainable future. Environmental, Social, and Governance (ESG) principles have emerged as solid platforms toward incorporating sustainability in corporate and investment strategies. A better understanding of ESG principles will enable enterprises to handle emerging modern markets' issues more effectively while ensuring long-term profitability and societal well-being[3]. The concept of ESG dates back to 2004 and was coined and proposed by the former Secretary-General of the United Nations Kofi Annan, who invited leading financial entities to promote low carbon and sustainable operating standards to mitigate the risk of global degradation. This initiative lead up to the "Who Cares Wins" report, recognizing for the first time environmental, social, and governance factors as major thrusts in financial market considerations[4].

ESG principles have become highly relevant across businesses as they realize that such pillars hold the key to significantly improve sustainability, risk management, and lead to long-term value creation. Several international agreements on the matter have emerged, such as the UN 2030 Agenda, the Sustainable Development Goals (SDGs)[5] and the Paris Climate Agreement[6], setting a solid foundation for the development of ESG-oriented frameworks committing to align financial flows with low-carbon and climate-resilient practices. The 2030 Agenda for Sustainable Development, however, continues to have a huge financing gap pegged at five to seven trillion of US dollars annually until 2030. More than halfway through the Agenda, the Special Edition of the SDG Progress Report shows that over half the global population is already off track, with progress on over 50% of the SDGs being inadequate while 30% is roaming around zero, stalling or even regretting. [7]

[3] See Shapsugova, M. (2023). *ESG Principles and Social Responsibility*, 10.1051/e3sconf/202342006040
[4] See United Nations Global Compact. (2004) *Who Cares Wins: Connecting Financial Markets to a Changing World*. https://www.unepfi.org/fileadmin/events/2004/stocks/who_cares_wins_global_compact_2004.pdf
[5] See *supra* note at 1
[6] See *supra* note at 2
[7] See *supra* note at 1

Figure 1: Progress Assessment for the 17 goals based on assessed targets, 2023



Source: Sustainable Development Goals, UN

The COVID-19 pandemic severely deteriorated the economic landscape, further worsened by Russia's invasion of Ukraine, which raised food and energy costs, as well as the prices of financing, to culminate in a worldwide cost-of-living crisis worth billions[8]. Developed countries have approximately resumed their growth to pre-pandemic levels, while many developing countries find themselves on the edge of currency collapse with huge financing gaps.

The increasing attention toward sustainability practices is visible in changing strategies among enterprises worldwide, with a growing number of companies integrating ESG considerations into their core missions, problem statements, and business models right away. Such early integration of ESG principles into corporate culture and operations holds the potential to enhance the effectiveness of sustainability strategies as they grow[9]. The ongoing transition towards ESG-driven strategies represents a pivotal shift in the company's modus operandi and overall relationship with its stakeholders, acting not only under external pressure but also recognizing the intrinsic value that sustainable practices bring to both companies and society at large.

[8] See supra note at 1

[9] See Sheth, S., Watt, M., Yoon, S. (2022), "ESG Pulse Check: Getting the Basics Right for Start-Ups and Venture Capital Firms", World Economic Forum, Cologny/Geneva, https://www3.weforum.org/docs/WEF_ESG_Pulse_Check_2022.pdf

Environmental Factors

The environmental dimension of ESG takes a critical look at how a company's operations may impact the surrounding environment, as well as how its management is efficient in terms of mitigation. This includes an assessment of a firm's utilization and disposal of natural resources, its environmental footprint, and efforts to reduce negative effects such as pollution and gas emissions. High levels of emitted greenhouse gases, especially carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), significantly accelerate both global warming and climate change. This has sharply increased the level of scrutiny on companies about their ability to quantify, report, and eventually mitigate their greenhouse gas emissions. Effective emission practices are of utmost importance for minimizing climate-related risk and strengthening compliance with the regulatory standards[10].

On the other hand, sustainable waste management aims to reduce the volume of waste generated and encourage recycling and repurposing. Businesses are legally required to practice waste minimization, which in return reduces the amount taken in landfills and incinerators. This reduction will ensure less degradation and lower the release of toxic substances into the environment, preserving the quality of soil, water, and air. Biodiversity conservation, therefore, is intricately linked to waste management; improper waste disposal causes habitat destruction and contamination in ecosystems, posing major threats to biodiversity. Conversely, incineration may emit toxic substances contributing to air pollution and climate change, and thus further increasing the burden on ecosystems and species[11].

Social Factors

Social factors in ESG encompass the relationships and treatment of crucial stakeholders, from workforces to communities as a whole. Compared to environmental and governance issues, social factors have always been a bit neglected and have attracted less attention because of the difficulty in quantification; nevertheless, their importance in sustainable and ethical business practices is increasingly recognized. Key considerations in the social domain revolve around working conditions; the COVID-19 pandemic has accentuated such problem, pressuring corporations to

[10] See Bolton P., Kacperczyk M.T. (2020), "Do Investors Care about Carbon Risk?" Columbia Business School Research Paper Forthcoming, Journal of Financial Economics (JFE), Forthcoming, European Corporate Governance Institute – Finance Working Paper 711/2020. https://deliverypdf.ssrn.com

[11] See Bax K.,Broccardo E.,Paterlini S.(2024), Environmental, social, and governance factor and financial returns: what is the relationship? Investigating environmental, social, and governance factor models. https://pdf.sciencedirectassets.com

place employee health and safety at the forefront by ensuring safe working environments and flexibility in offering work-from-home options, mitigating concerns around mental health and the promotion of a healthy work-life balance. Gender balance is essential for fostering innovation and achieving equitable outcomes; thus, companies are also evaluated on their efforts to ensure gender diversity, equal opportunities for all employees, and fair compensation practices[12].
Businesses should also make sure that their operations and supply chains are not infiltrated by child labor and other human rights violations, imposing strict labor standards together with regular audits to uphold ethical practices. Additionally, customer data protection, product safety and quality are essential when it comes to social responsibility. Tackling these social factors, businesses can enhance their relationship with stakeholders, reduce reputational risks while contributing to positive societal outcomes.

Governance Factor

The governance pillar covers criteria and issues concerning the structures, policies, and practices through which organizations exercise control and direction, ensuring transparency, accountability, and ethical management. These are imperatives in order to build investor confidence and attenuate the risks associated with corporate wrongdoing. Key considerations within the governance domain include corporate governance, which builds upon fair and transparent practices, including the composition and independence of the board of directors; companies are evaluated for their observance of the governance standards set by organizations such as the OECD, advocating for autonomous and legally empowered boards. Strong leadership and clear accountability represent the core of effective governance; leaders must demonstrate integrity, show informed judgment, and be answerable to all stakeholders[13]. Maintaining company integrity and avoiding fraud require putting in place for companies accuracy and transparency in their financial reporting through rigorous control systems and independent audits. Companies should provide all shareholders with accurate information and ensure that they participate in the decision-making processes, so that the problems raised are openly discussed at any time, promoting shareholders' rights and equitable treatment. To build trust, it is important to structure corporate operations and conduct business transactions transparently. Procedures and decisions must be clear, with material information on company's performance and ESG practice in a straightforward and timely manner.

[12] See Camilleri M.A.,Troise C.,Strazzullo S. (2023), "Creating shared value through open innovation approaches: Opportunities and challenges for corporate sustainability", https://deliverypdf.ssrn.comdelivery
[13] See supra note at 3

1.2: ESG Frameworks and Disclosure

While the reporting of financial information by companies is quite regulated through national and international accounting standards, the disclosure of non-financial data, mainly ESG information, is extremely chaotic. Yet, interest in non-financial reporting is rising rapidly, notably for responsible, impact or ESG investing purposes[14]. A testament of such growth is represented by 59 trillion US Dollars of assets under management by signatories to the United Nations' Principles for Responsible Investment[15]. Stakeholders and regulators are becoming increasingly interested in companies' ESG practices due to fast-growing concerns over social injustice and climate change. Even when it is infeasible to regulate underlying activities directly, pressure from investors and stakeholders can persuade corporations to change their operations to one that is more desirable from an ESG or cash-flow standpoint[16]. That, in turn, has led to standards being set for corporate ESG reporting by governments, trade associations, and now businesses. For example, BlackRock's ESG integration framework relies on three key pillars: investment processes, material insights, and transparency. In active funds, the investment process heavily relies on ESG data, necessitating that managers address ESG risk and show evidence of their scrutiny[17]. BlackRock collaborates with third-party providers to develop benchmarks featuring sustainability factors for index portfolios. Additionally, it ensures transparency through the disclosure of ESG practices in fund documentation, complying with industry-recognized standards such as the PRI[18].

[14] See Krueger P.,Southern Z.,Yongjun Tang D.,Zhong R. (2024), "The Effects of Mandatory ESG Disclosure Around the World". European Corporate Governance Institute – Finance Working Paper No. 754/2021, Swiss Finance Institute Research Paper No. 21-44, https://deliverypdf.ssrn.com

[15] See Principles for Responsible Investment (PRI). (2021) Principles for Responsible Investment: An Investor Initiative in Partnership with UNEP Finance Initiative and the UN Global Compact. https://www.unpri.org/

[16] See Friedman H.L.,Heinle M.S.,Luneva I. (2021), "A Theoretical Framework for ESG Reporting to Investors". https://deliverypdf.ssrn.com

[17] See BlackRock (2023) *ESG Integration Statement*. Revised March 2023. https://www.blackrock.com/corporate/sustainability/pri-report .

[18] Id.

Global Reporting Initiative (GRI)

The Global Reporting Initiative (GRI), established in 1997, is a leading framework for sustainability reporting, with the main purpose of encouraging business transparency and accountability for their ESG effects[19]. Environmental performance, labor practices, human rights, and governance best describe the GRI principles that assist in disclosure on key ESG issues linked to company operations and stakeholders. This comprehensive framework will assist the stakeholders in measuring ESG performance and making informed decisions; moreover, the worldwide acceptance of GRI improves the reliability and comparability of reports generated from various sectors and regions. Since the key purpose of GRI Standards is to provide transparency on how organizations contribute to sustainable development, it defines it as "meeting present needs without compromising the ability of future generations to meet theirs"[20]. Organizations improve transparency and accountability by revealing major economic and environmental effects. Based on authoritative intergovernmental instruments like the OECD Guidelines and UN Guiding Principles, the GRI Standards ensure consistent and credible reporting without setting performance benchmarks. In the GRI framework, "impact" refers to the various effects, differentiating in nature and scope, an organization has on the economy, environment, and people, including human rights. These impacts determine an organization's drive toward sustainable development. Companies must identify material topics that represent their significant impacts through continuous assessment and engagement with stakeholders, material factors like anti-corruption and occupational health and safety[21]. All these procedures are aimed to ensure that the most prominent issues are put at the front plate and reported coherently.

Sustainability Accounting Standards Board (SASB)

The Sustainability Accounting Standards Board (SASB) was established to develop a set of standards under which material sustainability information could be reported[22]. SASB's approach focuses on the identification and reporting of ESG factors likely to affect financial performance and investor decision-making. Ultimately, SASB seeks to deliver a framework for companies looking to disclose material sustainability information in a securities filing to investors[23].

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[19] See Global Reporting Initiative (2024) *Consolidated Set of the GRI Standards.* https://globalreporting.org/standards/global-sustainability-standards-board/

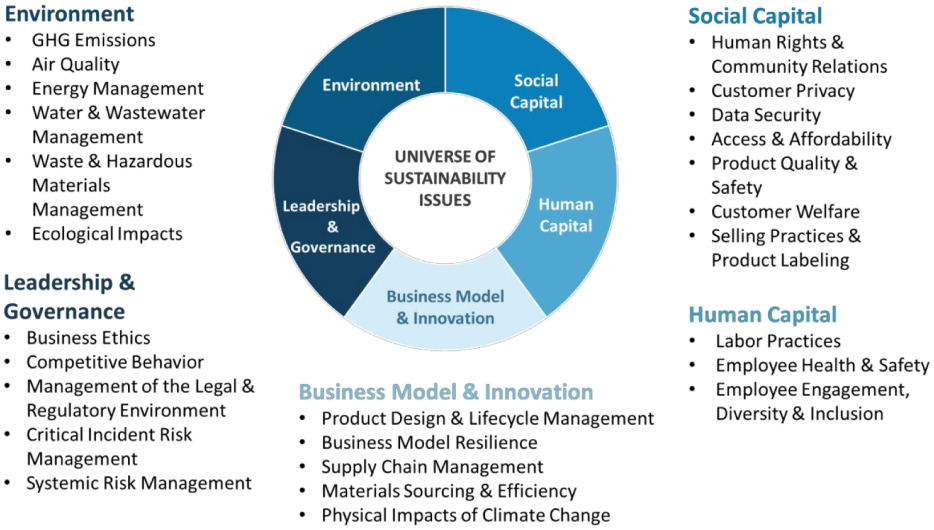
[20] Id.

[21] Id.

[22] See SASB (2017), Sustainability Accounting Standards Board Conceptual Framework, February 2017, https://www.sasb.org/wp-content/uploads/2019/05/SASB-Conceptual-Framework.pdf

[23] See Boffo, R., and R. Patalano (2020), "ESG Investing: Practices, Progress and Challenges", OECD Paris. https://www.oecd.org/finance/ESG-Investing-Practices-Progress-Challenges.pdf

Fig.2: SASB materiality map



Source: OECD

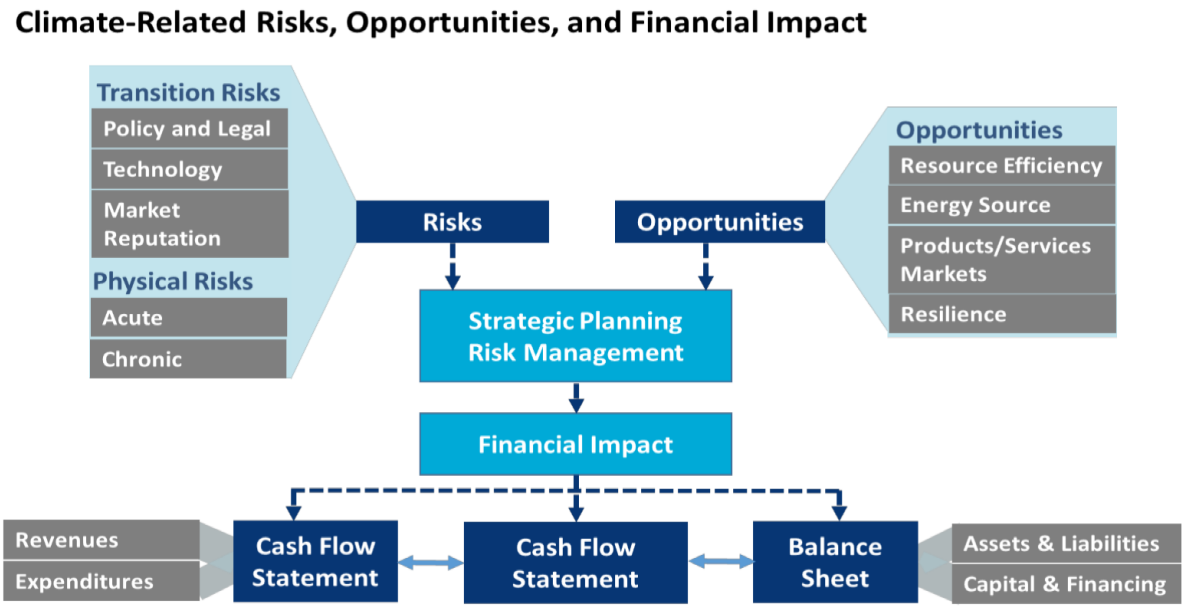
Designed with cautious, the Standards are tailored to be industry-specific. SASB emphasizes materiality, focusing on ESG factors that are likely to have a significant impact on a company's financial performance. Companies and investors have increasingly adopted SASB standards to help them understand what ESG risks and opportunities are financially material. The specific standards of SASB are industry-specific, which basically means that companies will have customized direction, hence allowing disclosures that are more meaningful and comparable[24].

Task Force on Climate-related Financial Disclosures (TCFD)

The Financial Stability Board established the Task Force on Climate-related Financial Disclosures (TCFD) in 2015 with the mandate to develop recommendations for adoption in the disclosure of climate-related financial risks[25]. The aim of the recommendations by the TCFD is to increase understanding and management of climate-related risks and, above all, to give a consistent and transparent framework for disclosure. The fundamental objective of the TCFD is to elaborate upon and foster an improved understanding and management of climate-related risks by organizations in line with the goal for improved disclosures using an approach that would be comparable over time.[26]

[24] Id.
[25] Id.
[26] Id.

Fig. 3: TCFD materiality framework



Source: OECD

In this regard, TCFD encourages companies to provide information about governance around climate-related risks and opportunities, approaches used for risk management as well as metrics and targets used to manage climate-related risks. Such guidelines by TCFD have received enormous support in companies, investors, and regulators around the globe. The framework has been a. benchmark to support organizations in making their exposure to climate-related risks more understandable and communicable in financial terms[27].

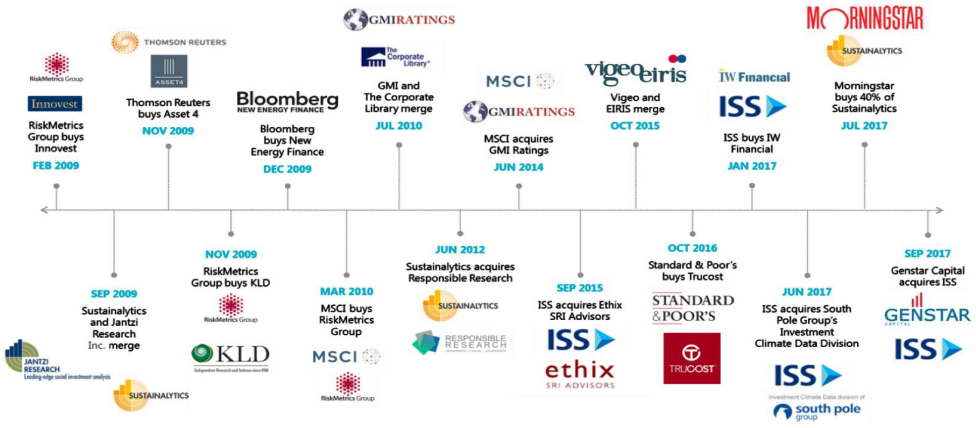
1.3: ESG Ratings and Rating Providers

ESG ratings have become cornerstones in appraising and benchmarking corporate sustainability performance over the past few years. Such ratings provide investors with knowledge of a company's environmental practices, social responsibilities, and governance structures. ESG ratings display a systematic assessment of parameters, such as carbon footprint, resource management, waste management, and energy efficiency.[28]

[27] Id.

[28] See Boffo, R., C. Marshall and R. Patalano (2020), "ESG Investing: Environmental Pillar Scoring and Reporting",OECD Paris, https://www.oecd.org/finance/ESG-Investing-Environmental-Pillar-Scoring-and-Reporting.pdf

Fig. 4: Recent History of ESG ratings provider



Source: Brown Flynn (2018)

On the social front, these ratings scrutinize labor practices, human rights and inclusion initiatives, ensuring that companies advocate for social responsibility. Governance is examined critically through executive compensation and transparency exercises, which lead to ethical leadership and effective management practices; using this more comprehensive type of assessment, investors may be able to identify the risks and possibilities of sustainability in their investment portfolios and act because of this information.

It is also through ESG ratings that investors can find companies that are resilient, committed to sustainable development, and with the capacity of delivering value in an increasingly conscious market. Furthermore, these assessments contribute to the diminution of risk in areas such as social unrest, potential governance and environmental scandals that could impair reputation, and financial performance. As it stands now, the ESG rating market is completely different from what it looked like 20 years ago[29]; early participants in the ESG assessment market were small NGOs, business growth advocacy groups, specialized for-profit businesses, human rights activists, and environmentalists. Today's leading players have stronger distribution channels, deeper research capabilities, a much wider range of clients and revenue streams, and more comprehensive research coverage resulting from the growing number of ESG rating organizations and significant changes in industry classification[30]. What logically follows from these sustainability assessments are not just different investment strategies but also a sense of responsibility and a tendency to push corporate behavior in the direction of ethical, sustainable conduct. This dynamic tends to generate a virtuous circle in which businesses are increasingly motivated to improve their performance in governance,

[29] See Eccles, R.G. and Stroehle, J.C., 2018. Exploring Social Origins in the Construction of ESG Measures. Working Paper. Saïd Business School, University of Oxford https://ssrn.com/abstract=3212685

[30] See Pagano, M., Sinclair, G. and Yang, T. (2018), "Understanding ESG ratings and ESG indexes", in Boubaker, S., Cumming, D. and Nguyen, D.K. (Eds), Research Handbook of Finance and Sustainability, Edward Elgar Publishing, Cheltenham, pp. 339-371. https://www.researchgate.net

social, and environmental dimensions to meet the growing stakeholder expectations. By balancing business objectives with social and environmental purposes, these assessments are critical for the progress of sustainable development; they empower investors and allow them to promote and reward companies working in the line of global goals for sustainable development and thus advance the transition to a more just and sustainable economy.

Methodologies of ESG Ratings

ESG ratings scoring methodologies are multi-dimensional and widely ranged, depending on the provider. The comprehensive process of such ratings ranges from data collection, criteria and weighting, to scoring and ranking. Each step is necessary to ascertain that an ESG rating is reliable and pertains to what investors and other stakeholders will make their decisions through.

Data collection forms the backbone of ESG ratings. A rating agency has, therefore, to gather information from the most varied number of sources to fully understand the ESG performance of companies, including but not limited to company disclosures, regulatory filings, news articles, third-party reports, and increasingly real-time data reports on environmental sensors and social media analytics. In addition, company disclosures—which are typically made through sustainability reports and annual financial statements—provide direct insights into their ESG policies and practices[31]. Therefore, regulatory filings ensure that the data meets the legal standards, while news articles and third-party reports offer independent views and verification. For example, MSCI ESG Ratings are based on over 1,000 different data points for each company, including direct company reporting, government databases, and media sources. MSCI's intensive data-collection process makes their assessments exhaustive and up to date. On the other hand, Sustainalytics adds numerous forms of data, from published company data, NGO reports, and its own solicitation efforts to reflect a more complete company ESG risk and performance profile. Once the data is collected, ESG rating agencies then apply a set of criteria to evaluate performance. Rating providers usually categorize those criteria into environmental, social, and governance pillars, where each criterion would have specific metrics[32]. Another crucial aspect that differs between rating providers is the weighting of these criteria. When certain weight is given to a particular criterion, it decides its importance in the overall rating. For example, the environmental factors would get more weightage with the various providers for an industry where the environmental impact would be more pronounced, such as energy or manufacturing. Conversely, with regard to a financial institution where the level of regulation and ethical management is high, the governance factors may be given more weight.

[31] See supra note at 14

[32] See supra note at 22

This means, for example, that Sustainalytics will apply different weights to different ESG issues, since it operates in a materiality-focused manner toward the specific industry. This ensures the ratings capture the most critical risks and opportunities of each company.

The next step focuses on scoring the companies based on how well they performed against the various ESG lenses. These scores are aggregated to provide some overall ESG reporting rating, typically on some scale. For example, MSCI has AAA (Leader) through to CCC (Laggards), which is very revealing about where a company stands with respect to peers. On the contrary, Sustainalytics provides a risk score denoting the level of unmanaged ESG risk a company faces: negligible, low, medium, high, and severe.

Normally, this process of scoring is carried out by sophisticated algorithms and statistical models to ensure accuracy and comparability. The implementation of big data and artificial intelligence in these methodologies has constantly increased and enables the analysis of large volumes of information to show patterns and trends that would not be practically recognized by manual analysis. While some of the ESG rating systems are heavily quantitative, most of their analysis is qualitative[33]. Quantitative metrics give the measurable and comparable data points, but the qualitative assessment zeroes in on the quality underpinning a company's ESG management and strategic direction, say, by the company's governance structures in terms of independence and diversity of the board, policies around executive compensation, and mechanisms for shareholder engagement. This may include feedback mechanisms, transparency in communication, responsiveness to concerns from different stakeholders, among others. These social insights are critical to understanding an ESG performance dimension corresponding to a company's commitment to be socially responsible beyond a level of compliance with the regulations.

Key ESG Rating Providers

Several large organizations dominate the ratings' landscape; each applies very different methodologies and foci. Among the most influential providers, MSCI ESG Ratings, Sustainalytics, and Institutional Shareholder Services (ISS) distinct themselves for their different approaches.

MSCI Ratings

MSCI ESG Ratings are a key tool to help evaluate how well a company manages its exposure to, and management of, environmental, social, and governance risks and opportunities[34]. The ratings are on an AAA (leader) to CCC (laggard) scale and are among the most used by investors in

[33] See supra note at 30

[34] See MSCI (2019), MSCI ESG Ratings Methodology, MSCI ESG Research, September 2019, https://www.msci.com/documents/1296102/14524248/MSCI+ESG+Ratings+Methodology++Exec+Summary+2019.pdf/2dfcaeee-2c70-d10b-69c8-3058b14109e3?t=1571404887226

guiding their decisions. The methodology in this scenario encompasses over 8,500 companies globally and spans across multiple industries, with over 1,000 data points gathered from a myriad of sources, such as corporate disclosures, government databases, and media sources, to offer an ESG rating. [35]The primary objective of MSCI ESG Ratings is to provide an informed opinion on a company's capability to manage financially relevant ESG risks and opportunities. The ratings are relative to industry peers, and they consider the company's exposure to ESG risks, the quality of management systems its governance structures as well as its capacity to meet a rising market demand with more products and services beneficial to society and the environment. The three basic major dimensions of the assessment include: Environmental, Social and Governance and it is also categorized into ten themes and thirty-three key issues. The process of analysis initially identifies relevant ESG themes which are based upon their allotment to each industry as per the Global Industry Classification Standard (GICS). All companies will be judged on universal governance metrics. [36]A sample of industry and company-related topics will also be selected based on their relevance to company operations. The weights for these metrics are determined based on the environmental or social externalities that are likely to result as well as the expected time scale for these risks to become material. Risk management is assessed based on a company's strategies, governance, initiatives, programs, and performance, with management scores also ranging from 0 to 10[37]. Final ratings are the result of the calculation of weighted averages of key issue scores after they are adjusted with reference to industry peers. This process ensures that the ratings offer a comprehensive assessment of the ESG performance of a certain company in relation to their risk exposure and their ability to manage them. Committee review ensures consistency and accuracy of the ratings.

Sustainalytics

Sustainalytics undertakes full ESG risk analysis to help investors in the evaluation of a certain firm's environmental, social, and governance challenges and its capability to encounter such type of risks. The firm screens companies based on material ESG issues relevant to their industry, providing scores reflecting the degree of ESG risk exposure on a company level. The method of data analysis by Sustainalytics is confined to companies' reports and non-governmental organizations' papers, with additional data collected by them[38]. In this sense, Sustainalysis uses a

[35] Id.
[36] Id.
[37] Id.
[38] See Sustainalytics, 2020. *Sustainalytics ESG Risk Ratings: Issuer Backgrounder*. https://connect.sustainalytics.com/hubfs/SFS/Sustainalytics%20ESG%20Risk%20Ratings_Issuer%20Backgrounder.pdf

risk-based approach targeted to assist investors in identifying, comparing, and understanding the ESG risks in their respective portfolios' context in relation to such risks' impact on long-term equity and fixed income investments. The importance of such an all-encompassing assessment process can hardly be undermined when ESG considerations are assuming increasing importance in the selection of investment opportunities for sustainable growth. Corporate governance ratings are also a fundamental building block of these assessments, with enhanced analyst views on narratives supporting the increased identification of areas of corporate risk

Institutional Shareholder Services (ISS)

ISS (Institutional Shareholder Services) is one of the world's leading providers of ESG ratings and research regarding governing, environmental and social issues. It ascribes performance to ESG issuers through its rating methodology, using a systematic approach in delivering scores and rankings for users to identify risks and opportunities. The ISS ESG Corporate Rating methodology is based on international norms and frameworks, such as the UNGC Principles, OECD guidelines for multinational enterprises, and the UN Sustainable Development Goals[39]. It covers evaluation across a wide range of indicators, including governance structures, board practices, shareholder rights, all together with environmental and social factors: climate change policies, labor practices, and community impact. The evaluation process at ISS is multispectral, taking into account not only the standard indicators but also industry-specific ones. The whole design of the ratings is for a holistic and forward-looking evaluation, with emphasis on long-term value creation ability of companies from a double materiality lens[40]. This procedure invoked an interconnectedness approach on financial and impact materiality since impacts of the operations of a company can affect the economic value of the operations over time and the stakeholders and the environment. Overall, the ESG Corporate Rating process relies on approximately 700 indicators, with each company assessed on about 100 indicators relevant to its specific industry. They are then graded differently based on the prioritization, and their realization comes through the material risks and opportunities pertaining to any given industry. Moreover, the ISS's methodology fosters a highly stringent derivation of performance. This keeps the ratings as objective, reproducible, and comparable across companies and industries as possible. Regularly review and update of the methodology takes place to reflect changes in regulations, advances in technology, and any changing stakeholder expectations[41].

[39] See ISS ESG (2023) *ESG Corporate Rating: Methodology and Research Process*. Version 1.0. https://www.issgovernance.com/esg/ratings/corporate-rating/

[40] Id.

[41] Id.

Significance and Impact of ESG Ratings

ESG ratings are not just monuments to be looked at; indeed, they underpin investment decisions, corporate strategies, market perception, and regulatory compliance. More formally, investors are likely to look to their ESG ratings to find an opportunity for sustainable investment on the one hand and manage risks that could nullify the possibility of more favorable returns on the other. High ESG attracts more investments from sustainability-oriented funds, while low ratings are increasingly averting investors concerned with those risks. These ratings, in a relative sense, support the integration of sustainability such that investors can screen potential investments, evaluate portfolio risks, and engage in dialogues with companies on ESG issues as a way of sharpening their investment strategies. Such an attitude shift toward sustainable investing may be credited to the realization that companies with good ESG practices are more capable of managing risk and seizing opportunities. Studies have suggested that they would, on average, have lower volatility, but at the same time higher long-term returns, which are attractive for more conservative investors. Additionally, ESG data will influence the strategies of corporations by pointing out areas of improvement and, hence, the switchover to increasingly sustainable practices. Companies with strong ESG assessments are viewed as sustainability leaders, enhancing their reputation and competitiveness. Such assessment provides benchmarks that can therefore be used to set gauge performance vis-a-vis peers in the adoption of best practices and tools to engage stakeholders by making a demonstration of the firm’s commitment to sustainability. Companies with high ESG scores will attain cheap borrowing costs, as lenders and investors measure companies with good ESG practices to be low-risk borrowers. For example, a company with a low score in the environment category can invest, timewise or financially, in cleaner technologies to lower its carbon footprint, raise its overall sustainability rating, and please investors who care about the environment. Similarly, a company that has weak governance may improve its board structure and increase its transparency to get its governance rating up. This will encourage more number of institutional investors who want a better governance system in place. Stock prices and valuations are other two factors that are largely impacted by ESG rating. When a firm has high ESG rating, then there is likely to be more demand for its shares from the market. On the other hand, a low performance company will attract more scrutiny, and eventually there may be a tendency among investors to divest. ESG ratings could be key when it comes to a company's access to capital as investors and financial institutions take into account ESG performance in the investment and lending decisions.

2. The relationship between ESG and Finance

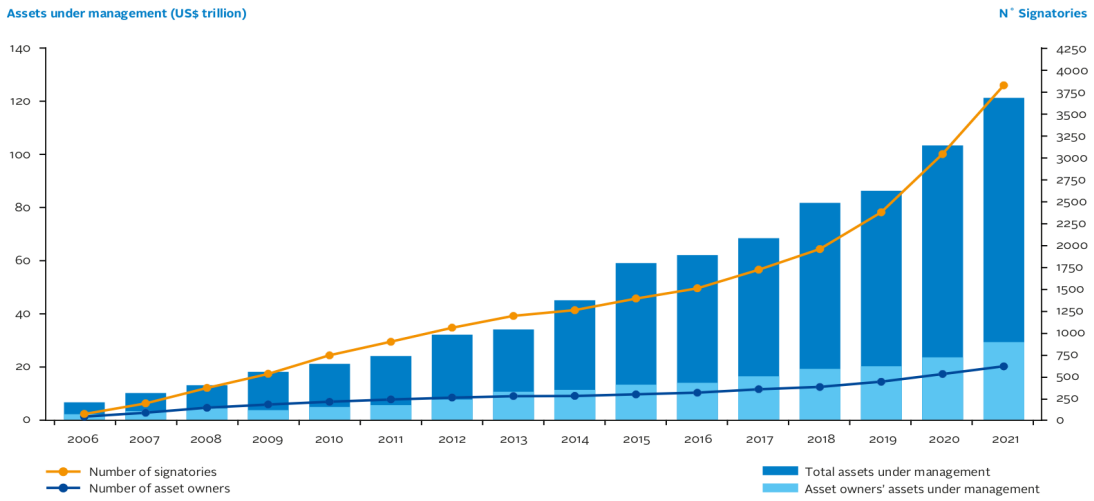
2.1: Evaluating the Impact of ESG Practices on Financial Performance

Investment approaches have evolved from occasionally incorporating ESG criteria to being a central feature of contemporary finance. The ingredients for such a shift are the following: dramatically raised recognition of the long-run benefits that this form of investing carries, regulatory requirements, and increased demand from investors for ethical and responsible investment options. The Global Sustainable Investment Review 2020 has come out with strong growth to $35.3 trillion in assets around the world, accounting for 36% of all professionally managed assets across major financial markets[42]. This rapid expansion underscores that sustainability is now higher on the agenda and that it is a fundamental change regarding the measurements of capital markets for value-creation. Sustainable finance is becoming very competitive when it comes to financial returns, yet at the same time it is able to create positive social and environmental outcomes. Incorporating ESG principles into the investment strategy may reduce potential risks and discover emerging opportunities to create long-term value. With the inclusion of the ESG dimension, the lowered risks lead to a less problematic and smoother accumulation of profits for investors. In addition, an investment strategy based on ESG principles supports broader societal goals, according to the vision given by the United Nations Sustainable Development Goals (SDGs) and by the Paris Agreement. According to the Principles for Responsible Investing (PRI) reports, as of April 2021, more than 4,000 signatories from over 60 countries are collectively managing assets exceeding $120 trillion and have committed to implement ESG factors into their investment and ownership decisions[43]. This broad adoption underlines that ESG integration will become a part of the mainstream and indispensable for responsible investment practices.

[42] See Global Sustainable Investment Alliance (GSIA). (2021) Global Sustainable Investment Review 2020. https://www.gsi-alliance.org/

[43] See supra at 15

Fig: 5: PRI outline on number of signatories and total assets under management



Source: Principles of Responsible Investment

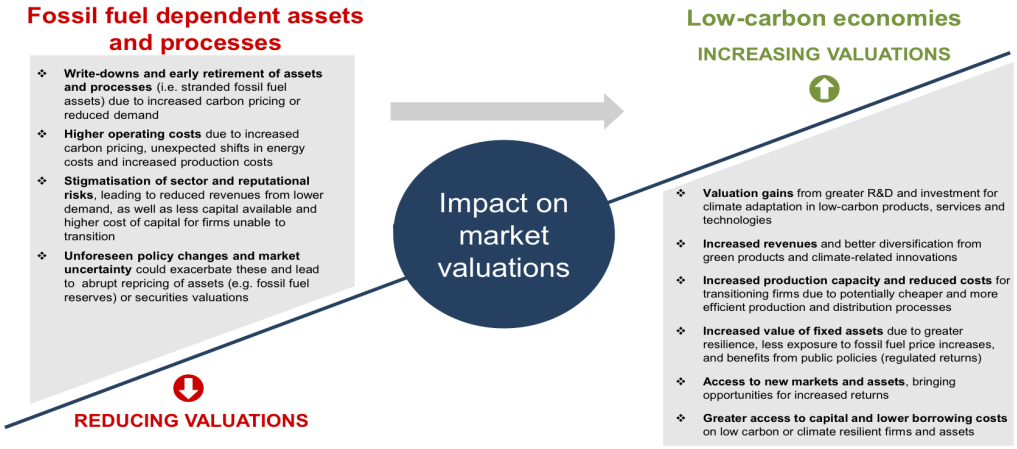
The ESG factors materially affect the financial performance of an organization through its cost of capital, stock market value, revenue generation, and risk management[44].

Investors view companies with low ESG performance as more risky, which translates into higher capital costs. On the other hand, firms with high ESG scores experience decreased capital expenses. For instance, in a study conducted by McKinsey & Company in 2023, evidence showed that capital costs had a decrease of 10-20% due to reduced perceived risks[45]. These companies are considered to have a lower probability of facing regulatory obstacles, legal actions, and damage to their brand, which ultimately increases their long-term value. There are large numbers of risk-averse investors whose presence does help to further reduce the cost of funding for the company. ESG criteria play a big role in stock valuation; high performance in ESGs gives a good name to the business as well as customer loyalty and high operational effectiveness, hence leading to higher stock prices[46].

[45] See McKinsey & Company. (2023) 2023 ESG Report: Accelerating Sustainable and Inclusive Growth for All. https://www.mckinsey.com

[46] See OECD (2021), "ESG Investing and Climate Transition: Market Practices, Issues and Policy Considerations", OECD Paris, https://www.oecd.org/finance/ESG-investing-and-climate-transition-market-practices-issues-and-policy-considerations.pdf

Fig. 5: Framework to capture material climate disclosure factors on market valuations



Source: OECD

During a market volatility period—like the one we experienced with the COVID-19 pandemic—firms that have been positively performing across the ESG spectrum exhibit more durability and preserve better stock valuations in comparison to their less sustainable competitors. In contrast, negative ESG events result in significant drops in stock prices because of expected financial and reputational harm. Empirical evidence has consistently shown that environmental, social, and governance considerations integrated in the strategies of the company reduce risks and improve market valuations, which in turn sustain long-term investor confidence[47]. Companies that prioritize ESG principles are thereby better positioned to benefit from sustainability trends deriving from market-driven demands for products that are eco-friendly. Responsible investing practices improve market positioning and increase customer loyalty. Companies that position their products and services in accordance with the Sustainable Development Goals become sustainability leaders and attract investors concerned about the environment; hence, they have high returns on investments in the long run[48]. This is because the integration of ESG factors will allow comprehensive risk management strategies whereby the organization would effectively work through environmental constraint risks, social conflict risks, and governance deficiencies. By the organization addressing the shortfalls proactively, it will help avoid costly interruptions and legal liabilities, preserve investors' confidence, and establish the stability of the organization. Investors are thus increasingly turning to ESG information in an attempt to mitigate risks that could threaten the sustainability and continuation of their business over the long term. By integrating environmental, social, and

[47] See Derrien F.,Krueger P.,Landier A.,Yao T. (2022), "ESG News, Future Cash Flows, and Firm Value". Swiss Finance Institute Research Paper No. 21-84, HEC Paris Research Paper No FIN-2021-1441, https://deliverypdf.ssrn.com

[48] See supra note at

governance (ESG) factors within the company's risk management framework, it enables the firm to be better prepared to anticipate and reduce prospective hazards building better risk management against future uncertainty. This approach promotes sustainable expansion and the generation of value, while also bolstering the resilience and durability of the business.

Sustainable Investment Strategies

Investment strategies incorporating ESG principles vary widely, each adopting a unique approach to integrating sustainability into financial decision-making, thereby embedding these factors into traditional financial analysis and ensuring investment decisions reflect both financial metrics and considerations related to environmental impact, social responsibility, and corporate governance. ESG integration, therefore, fundamentally embeds these factors into financial analysis at its core; it goes beyond the classical narrative about metrics like revenue, profit margins, and return on equity to take cognizance of non-financial matters like carbon emissions and labor practices. This is what allows investors to evaluate not just the financial health of a firm but also its sustainability and ethical impact[49]. This long-term view opens up the possibility for a more far-sighted appraisal of the viability and risk a company faces, with best-in-class investment poised to become even more dominant in terms of selecting companies leading their industry in managing sustainability issues, rewarding those exemplary businesses and encouraging broader improvement within the industry. The MSCI World ESG Leaders Index, which tracks these best-in-class companies, has shown an annualized return of 12.3% over the past five years, outperforming the MSCI World Index by 10.5%, demonstrating that prioritizing responsible leaders in their respective industries yields superior financial returns while also promoting sustainability advancements[50].

Impact investing emerged as another unique strategy that aims for investments generating measurable social or environmental impact, alongside financial returns. It usually consists of direct investments in the projects or companies that deal with critical issues such as poverty, education, and climate change, in which impact metrics play a crucial role in tracking these kinds of investments. The Global Impact Investing Network (GIIN) published a report stating that the impact investing market size is expected to reach $1.16 trillion in 2023, with 88% of impact investors either meeting or exceeding their expectations for financial performance and 82% achieving their

[50] See MSCI Inc. (2024). MSCI World ESG Leaders Index (USD) Factsheet. https://www.msci.com/documents/10199/db88cb95-3bf3-424c-b776-bfdcca67d460

impact performance goals, highlighting the feasibility of aligning financial objectives with meaningful societal and environmental outcomes[51].

Another investment strategy resembling impact investing is positive screening, where companies that have thrived in sustainability practices are chosen to form the investment portfolios; parallelly, negative screening excludes companies or industries that do not meet defined sets of sustainability criteria to invest in only those aligning with moral or social standards or either offer a risk-averse investment approach.

Momentum ESG strategies focus on investing in issuers who intend to materially increase their sustainability scores, engaging with corporate executives to realize possible benefits from the known momentum strategy that could be captured. On the other hand, thematic investing is focused on specific sustainability themes, ranging from low carbon emissions or social equity to custom investments in accordance with certain environmental, social, and governance standards. Finally, alpha investing integrates sustainability factors with conventional financial metrics in order to produce better results, which are operationalized into decision-making while considering market fundamentals, technical systems, and sustainability—all incorporated into the macro-economic cycles. With alpha investing, the information dominantly turns out to be quantitative and not qualitative, highlighting the potential for sustainability considerations to enhance financial performance and uncover hidden risks and opportunities, providing a robust foundation for achieving superior financial performance.

Empirical Evidence

Extensive research consistently shows that a robust relationship does exist between sustainable practices and financial performance. This suggests that companies with strong environmental, social, and governance (ESG) frameworks often achieve higher risk-adjusted returns when compared to others. Bax, Broccardo, and Paterlini (2024)[52] identified a positive correlation between high sustainability ratings and improved long-term returns and decreased volatility. This advocates that the adoption of sustainable policies may enhance financial performance through the mitigation of risks associated with insufficient environmental and social governance. Furthermore, this perspective is reinforced by the Principles for Responsible Investment, which emphasize the significant impact that ethical factors have on the interplay between return and risk.

[51] See Global Impact Investing Network. (2023). GIINsight 2023: Impact Investor Demographics. https://thegiin.org/assets/documents/pub/2023-GIINsight/2023-GIINsight-Impact-Investor-Demographics.pdf

[52] See supra note at

In recent history, the BP Deepwater Horizon oil spill is an evident example in which the cost of failing to respect sustainability requirements can be tremendous, proving that economic risks arise from unethical behavior and lax governance[53]. Empirical studies point towards the fact that among the available portfolios, those that incorporate sustainability factors tend to perform better than traditional portfolios during periods of market instability, such as the COVID-19 pandemic.

Teti et al., (2023)[54] found that portfolios focusing poorly on sustainability were registering a declining performance during the pandemic, whereas those strongly focusing on ethical factors realized remarkable gains. Furthermore, a number of studies are supportive of the fact that firms with the highest ethical ranking tend to have lower capital costs as a result of diminished risks and favorable market views, especially during times of increased climate awareness, as highlighted by Ardia et al. (2022)[55]. International research by Auer and Schuhmacher (2016) states that responsible investing does not consistently outperform passive investments in all locations. Specifically, European investors frequently encounter decreases in performance as a result of industry-specific sustainability criteria[56].

2.2: Market Perception and Investor Behavior

The growing relationship between the market perceptions of environmental, social, and governance issues and investor behavior shows a better understanding of how sustainability affects financial performance. According to academic researches such as Amel-Zadeh and Serafeim (2018)[57], sustainability criteria are becoming more significant in investor decision-making. This is because the public recognizes the need of responsible behavior for long-term financial well-being. As a result, the concept of sustainable investing has progressed from being merely an ethical decision to one that is intelligently invested[58]. This trend provides a more promising view of what may be accomplished through responsible marketplace investing, reflecting society's tendency toward

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[53] Cherry, M.A. and Sneirson, J.F., 2011. Beyond Profit: Rethinking Corporate Social Responsibility and Greenwashing After the BP Oil Disaster. *Tulane Law Review*, 85(4), pp.983-1038. https://ssrn.com/abstract=1670149

[54] See Teti, E., Dallocchio, M. and L'Erario, G., 2023. The impact of ESG tilting on the performance of stock portfolios in times of crisis. *Finance Research Letters*, http://www.sciencedirect.com/science/article/pii/S1544612322006985

[55] See Ardia, D., Bluteau, K., Boudt, K., & Inghelbrecht, K., 2022. Climate change concerns and the performance of green versus brown stocks. https://doi.org/10.1287/mnsc.2022.4636

[56] See Auer, B.R. and Schuhmacher, F., 2016. Do socially (ir)responsible investments pay? New evidence from international ESG data. https://pdf.sciencedirectassets.com

[57] See Amel-Zadeh, Amir and Serafeim, George (2017), "Why and How Investors Use ESG Information: Evidence from a Global Survey". Financial Analysts Journal, Volume 74 Issue 3, pp. 87-103, https://deliverypdf.ssrn.com

[58] See Pedersen, L.H., Fitzgibbons, S., Pomorski, L. (2021), *Responsible investing: The ESG-efficient frontier. Journal of Financial Economics*, 142(2), 572-597; https://www.sciencedirect.com/science/article/pii/S0304405X20302853

ethical business practices and mindful purchasing. Climate change and social injustice, among other key aspects, are becoming more widely acknowledged as significant threats to long-term economic stability, accelerating the current revolution[59]. As a result, investors are realizing that real action can be taken to mitigate the risks associated with environmental degradation and social turbulence by implementing concrete factors to address such issues through sustainable investments, as well as tapping into this new market for sustainable products and services. Awaysheh et al., (2020)[60] found a persistent positive association between ethical investments and financial performance, debunking the misconception that organizations must compromise profitability to preserve ethical responsibility.

Kölbel et al. (2021)[61] argue that the availability and dependability of information are critical in determining investor behaviors linked to responsible investment. This is shown by the fact that the majority of investors now base their investment decisions on sustainability data. The investor's primary goal would be to create a balance between pursuing financial advantages and social and environmental benefits. Impact investments and green bonds are becoming increasingly popular: aggressively marketed, but with thoroughly proved positive outcomes in addition to cash incentives. Green bonds and impact investments are two examples of novel investment products that fit the requirements outlined above. However, there is a basic issue that exists to this day: generic criteria for responsible investment have been set, and reporting is standard and open, preventing investors from assessing their performance in terms of sustainability. Furthermore, investors will react based on market sentiment regarding sustainability.

It is a mindset cultivated by a well-informed and conscious clientele, who increasingly expects firms to act responsibly and sustainably. Market pressure motivates many investors to actively seek out firms that adhere to rigorous ethical standards. This has a big impact on their investment decisions. Companies with strong sustainability credentials have a better market value, as shown in stock performance. With this understanding, it is easy to claim that sustainability investing is both ethical and financially wise. As a result, collective interactions that raise public awareness, recognition of the fact that sustainability affects long-term financial well-being, and the direct link

[59] See Roundy, P., Holzhauer, H. and Ye, D. (2017), “Finance or philanthropy? Exploring the motivations and criteria of impact investors”, Social Responsibility Journal, Vol. 13 No. 3, pp. 491-512. https://deliverypdf.ssrn.com
[60] See Awaysheh, A., Heron, R.A., Perry, T. and Wilson, J.I. (2020), “On the relation between CSR and financial performance”, Strategic Management Journal, Vol. 41 No. 6, pp. 965-987. https://doi.org/10.1002/smj.3122
[61] See Kölbel, J., Heeb, F., Paetzold, F. and Busch, T., (2021). Can Sustainable Investing Save the World? Reviewing the Mechanisms of Investor Impact. https://deliverypdf.ssrn.com

between responsible performance and financial benefits all influence changes in market behavior and attitudes toward responsible investing.

2.3: Policy Developments

There have been significant policy advancements in the area of sustainable finance and investing, fueled by such growing recognition of the need to address challenges arising from environmental and social issues through financial means. There are a wide set of legislative and regulatory measures oriented towards implementing, in a comprehensive way, considerations related to sustainability in the processes of financial institutions[62]. One instance is the Sustainable Finance Disclosure Regulation, or SFDR, enacted by the European Union in 2019[63]. It promotes transparency among the players in financial markets regarding the sustainability of their investment decisions. The regulation requires market participants to disclose how they assess and manage the negative impacts their decisions may have on sustainability factors, fostering transparency and preventing greenwashing. To ensure the validity of claims on green investments, all assertions must be backed up by concrete evidence. Furthermore, in 2020, the EU Taxonomy Regulation laid down a robust framework for the classifications of economic activities that can be termed as environmentally sustainable[64]. The system establishes clear criteria on when an activity can be termed environmentally sustainable. Finally, taxonomy is an important tool to direct investors toward projects that are truly sustainable, rather than wasting money on projects that do not head them toward real sustainability goals. The United States Securities and Exchange Commission (SEC) has proposed amendments that would standardize climate-related disclosures for investors at an all-over level. Such changes reflect a more general move toward greater accountability and transparency for businesses about how their operations impact the environment[65]. The SEC stated in their 2020 revisions to Regulation S-K that a company's human capital resources should be given the highest priority in terms of disclosure, being a significant aspect in understanding its operations. This amendment enables the incorporation of much broader and extensive sustainability factors into corporate reporting practices. [66]Several institutions have been active in response to these changes,

[62] See OECD (2022), "Policy guidance on market practices to strengthen ESG investing and finance a climate transition", *OECD Business and Finance Policy Papers*, No. 13, OECD Publishing, Paris, https://www.oecd-ilibrary.org

[63] See European Union (2019), “Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector”, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019R2088

[64] See supra note at 22.

[65] Id.

[66] Id.

absorbing them into the core of their investment strategies. However, such organizations have reservations on the increased administrative burden and its likely effect on profits.

There has been a string of different initiatives emerging with regulatory measures to foster sustainable finance, and the growing numbers of signatories to the PRI worldwide underscore this further advance in sustainable investing[67]. Central banks and financial authorities around the world are increasingly aligning towards sustainability as a crucial part of their mandates. The Network for Greening the Financial System (NGFS), a coalition of central banks and supervisors, is actively working for an increased role of the financial system in managing climate and environmental risks.

For its part, Europe has taken some proactive steps, putting in place mandate requirements on transparency, green bonds, and ESG investments' risk assessment as well as fostering the harmonization at national level of supervisory practices concerning ESG factors. The European Securities and Markets Authority (ESMA) has drafted and published its Strategy on Sustainable Finance to make sustainability a core dimension of all its activity[68]. The Technical Expert Group on Sustainable Finance of the European Commission has established taxonomies related to sustainable investment, enabling the development of a pan-European ecolabel for financial products. All these initiatives are part of the EU Action Plan on Sustainable Finance, designed to establish a regulatory framework that makes sustainable investments the norm in the EU[69].

Changes in policy, together with the evolving relationship between regulatory requirements and market-driven efforts, may lead to staggering progresses in integrating sustainability into the financial sector. This would, therefore, be an important sign of a shift toward an economic architecture which is both resilient and inclusive at the same time. Financial markets play a pivotal role in sustainable development issues, promoting the establishment of a financial system that builds upon transparency, accountability and sustainability, thereby aligning with sustainable development goals.

[67] See supra note at 15

[68] See supra note at 22

[69] See European Commission, 2018. *Action Plan: Financing Sustainable Growth*. Brussels: European Commission. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0097

3. ESG Integration in Venture Capital

3.1: Overview of ESG in the Venture Capital Industry

Venture capital is an important vehicle for innovation and economic development as it finances and supports early-stage companies expected to achieve substantial growth. Traditionally focused on rapid returns, the venture capital industry is now increasingly recognizing the importance of sustainable practices; this advancement reflects a paradigm shift in investment practices, where ethical considerations are becoming increasingly important. Although this trend of investing with an eye toward ESG considerations can be seen across a wide range of asset classes, venture capital has traditionally lagged behind due to its inherent emphasis on high-risk, high-reward investment models. Because the traditional venture capital paradigm focuses on rapid growth and high returns, sustainability and ethical considerations are frequently overlooked. Despite this, the venture capital industry has begun to recognize the critical role of environmental, social, and governance factors in recent years[70].

Regulatory frameworks play an important role in guiding the adoption of environmental, social, and governance principles in venture capital. To give one example, the European Sustainable Finance Disclosure Regulation (SFDR) requires transparency about the risks and impacts of sustainability. This mandate requires venture capitalists to include comprehensive ESG considerations in their investment processes. Organizations such as VentureESG[71] are taking proactive steps to incorporate environmental, social, and governance principles. VentureESG has facilitated the development of specific environmental, social, and governance (ESG) definitions and practices tailored to the unique dynamics of early-stage investments. Their framework addresses ten distinct problem areas that are relevant across the venture capital value chain. These issues range from report creation and portfolio management to investment decision-making and internal fund administration. The purpose of this initiative is to avoid the pitfalls of "green-washing," which is the practice of attempting to ensure that environmental, social, and governance (ESG) considerations are truly integrated into business practices rather than serving as superficial compliance measures. Such frameworks seek to cultivate a culture of genuine sustainability in order to foster long-term value creation and risk mitigation.

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[70] See Antarciuc, E., Zhu, Q., Almarri, J., Zhao, S., Feng, Y., & Agyemang, M. (2018) 'Sustainable Venture Capital Investments: An Enabler Investigation', Sustainability, 10(4), 1204. https://www.mdpi.com/2071-1050/10/4/1204

[71] See Lenhard, J. and Lutz, E. (2021) What ESG means for Venture Capital. VentureESG White Paper #1. https://www.ventureesg.com/wp-content/uploads/2024/05/VentureESG-Whitepaper-1.pdf

As previously addressed, a variety of standards for evaluating and reporting ESG performance have helped to enrich the ESG landscape in venture capital. The Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB)[72] are two organizations that help provide comprehensive metrics for assessing environmental and societal impacts. Particular sectoral approaches, such as those developed for Software as a Service (SaaS) companies, emphasize the importance of cultivating diverse and inclusive environments, which are critical for addressing social issues in the industry. These frameworks make it easier to measure and benchmark sustainable practices, allowing venture capital firms to make more informed decisions and promote long-term growth in their portfolio companies. Furthermore, companies that incorporate ESG principles tend to have stronger and more resilient financial performance than those that don't.

Venture capital firms require strong risk mitigation strategies due to the high risk of their investments. Because of the nature of their investments, venture capital firms benefit particularly from these advantages. Businesses can protect themselves from regulatory sanctions and reputational damage by proactively incorporating environmental, social, and governance factors, resulting in more sustainable and profitable investment outcomes.

The Importance of Sustainable VCs

Venture capitalists go far beyond just providing financing, they also engage in strategic guidance, industry connections, and important resources to develop and commercialize innovative sustainable technologies[73]. Sectors such as clean technology and renewable energy are very important in this role, for instance, where VCs have played a big part in financing and scaling ventures in focused areas of renewable energy solutions, energy-efficient technologies, and sustainable agricultural practices[74]. It has been a gradual process: venture capital investments in various renewable energy sectors, for example clean technology, have surpassed $10 billion globally in 2020[75]. These efforts contribute to broader environmental and social objectives, underscoring the vital role VCs play in promoting long-term sustainability. In addition, VCs help startups navigate the intricate regulatory landscapes of sustainability compliance, shielding them from potential sanctions or administrative penalties. This proactive engagement ensures that startups are in compliance with existing

[72] See supra note at 22

[73] See Bocken N.M.P. (2015), Sustainable venture capital e catalyst for sustainable start-up success? Https://doi.org/10.1016/j.jclepro.2015.05.079

[74] See Mrkajic, B., Murtinu, S. & Scalera, V.G. (2019), "Is green the new gold? Venture capital and green entrepreneurship". *Small Bus Econ* 52, 929–950 (2019). https://doi.org/10.1007/s11187-017-9943-x

[75] See Dunbar, P. (2020), "Starting up: responsible investment in venture capital", https://www.unpri.org/download?ac=15607

regulation and are forward-looking to adapt to the evolving legislative frameworks, which are much more stringent in high-impact sectors like cryptocurrency mining and biotechnology. For instance, in recent years, VCs have taken a lead role in pressuring startups involved in the mining of cryptocurrencies to lower their carbon footprints by adopting energy sources that are inherently more sustainable, such as geothermal or hydroelectric power, in an effort to offset some of the large carbon footprints these start-ups exhibit globally.

Apart from guiding through the regulations, VCs' engagement in the governance structures of these early-stage firms also contributes towards inspiring a level of transparency and ethical behaviors that are fundamentally centered within the scope of responsible business conduct[76]. In most scenarios, VCs establish stringent corporate governance policies to include proper reporting, equality among workers, and responsible business engagements. This governance oversight makes institutions more operationally effective while building investors' confidence. This drives accountability and high standards of ethics. A VC presence can lead to a setup throughout company operations that adopts good corporate governance practices, extends to routine audited financial reporting that is operationally effective, and is driven by ethics, all for the benefit of all stakeholders[77]. VCs also have a critical role to play in fostering diversity and inclusion within startups, a key social component of responsible investing.

VCs, by encouraging diverse hiring and inclusiveness in the companies' workplaces, ensure ready access to quality talent with a constant rise in innovation and productivity. Social engagement enables a start-up to create goodwill in the community and with all stakeholders, creating growth in a sustainable way. Above financing, VCs' influence extends to strategic decision-making and long-term planning, so that such enterprises remain resilient in the face of market fluctuations and environmental challenges. VCs would equally offer to startups their identification and mitigation expertise in sustainability-associated risks, hence ensuring that typical pitfalls are avoided and emerging opportunities in the sustainable economy are indeed capitalized on. This may be especially important nowadays, given that the market demand for sustainable products and services worldwide is set to skyrocket[78].

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[76] See Lange, E.M. and Banadaki, N.G (2023), "ESG consideration in venture capital: drivers, strategies and barriers", Studies in Economics and Finance. https://www.emerald.com/insight/content/doi/10.1108/SEF-06-2023-0380/full/pdf?title=esg-consideration-in-venture-capital-drivers-strategies-and-barriers

[77] Id.

[78] See Jeong, J., Kim, J., Son, H., & Nam, D. (2020) 'The role of venture capital investment in startups 'sustainable growth and performance: Focusing on absorptive capacity and venture capitalists' reputation', Sustainability, 12(8), 3447. https://www.mdpi.com/2071-1050/12/8/3447

Governance and Policy Development

Governance and policy frameworks play a crucial role in steering venture capital (VC) businesses toward adopting sustainable and responsible investing practices. Other ways by which this transition is possible include developing well-defined ESG indicators in place for development and implementation, promoting uniformity and transparency among the various players in the venture capital industry. For instance, projects like ESG_VC have provided a general ESG survey and a framework, while other initiatives established standards for environmental, social and governance evaluation[79]. All these standards are intended to demonstrate that business practices are in line with the global sustainability level, making them more appealing to sustainable investors.

One of the most significant legislative developments affecting venture capital is the 2021 European Union's Sustainable Finance Disclosure Regulation (SFDR)[80]. This regulation requires investment firms, including venture capitalists, to make comprehensive disclosures of their sustainability strategies in order to establish market transparency regarding various investment products, including sustainability. The SFDR also requires disclosing the negative implications of their investment decisions on sustainability criteria such as greenhouse gas emissions, biodiversity, water, and waste, as well as social and employee concerns. These regulatory frameworks further encourage venture capital firms to fully incorporate ESG within their strategic and operational system.

Furthermore, governance structures in VC-backed business are being adapted to include ESG considerations. Venture capitalists are increasingly tending to have a more active policy to ensure adherence to effective standards of sustainability and best practices of corporate governance. This extends to the most proactive measures of board involvement in better diversity, inclusion, and improved decision-making process. These challenges are yet very present in the corporate world, given for example the underrepresentation of women on boards of directors. Other regulatory frameworks, such as the Corporate Sustainability Reporting Directive (CSRD)[81], are supposed to raise the level of attention and requirements around sustainability disclosure. CSRD enlarges the SFDR requirement for large companies to disclose their activities and how they manage social and environmental issues, extending it further to establish a more all-encompassing system for

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[79] See ESG_VC (2023), "ESG_VC framework", https://www.esgvc.co.uk/wp-content/uploa

[80] See European Commission, 2021. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Strategy for Financing the Transition to a Sustainable Economy. https://ec.europa.eu/info/publications/210707-sustainable-finance-strategy_en

[81] See Deloitte, 2022. *Corporate Sustainability Reporting Directive: The Future Landscape of Sustainability Reporting*: https://www2.deloitte.com/mt/en/pages/audit/articles/corporate-sustainability-reporting-directive.html

sustainability reporting. The newly proposed SEC rules aim to standardize climate-related disclosures for investors, requiring companies to report on governance, the business impact of climate change, and their procedure when it comes to identifying, assessing, and managing the risks and opportunities associated with climate risks[82]. This will therefore require collaborative efforts among all industry bodies, governments, and venture capital firms in designing an implementation structure that would enable good governance models that promote long-term investment.

Quantifiable data indicates a growing focus on sustainable financing within the venture capital sector. The last annual report of ESG_VC[83], based on data and work output from over 450 organizations, showed tangible progress in terms of ESG considerations in venture capital investments. In 2021, venture capital investments in the United States alone reached $26 billion, awarding early-stage companies that have immense potential for ESG impact. Other examples include the formation of sustainability-focused venture funds like the Amazon Climate Pledge Fund, which allocates $2 billion towards companies developing sustainable products and services[84]. This fund exemplifies how major corporations are leveraging venture capital to drive innovation in sustainability. Moreover, there has been an increasing inclusion of ESG criteria in venture capital due diligence, as stringent checks are done on all accounts; Sequoia Capital is a testament of such practice, given its rigorous evaluation of potential investments based on ESG factors, ensuring that startups not only promise high returns but also adhere to sustainable and ethical business practices[85].

Sustainable Investing in Venture Capital

Sustainable venture capital investment is the incorporation of a new paradigm financial returns to the environmental, social, and governance outcomes that put an address on the growing global imperative for attaining sustainability in development. Since it is a holistic investment strategy, familiarity with distinct phases in the lifecycle of VC investment, namely fundraising, investment, and exit, can incubate long-term sustainable benefits for sustainable startups, whose outcomes cannot be measured using only traditional financial metrics.

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[82] See supra at 15

[83] See supra note at 73

[84] See Amazon Staff. (2020) 'Amazon launches a $2 billion Climate Pledge Fund', *About Amazon*. https://www.aboutamazon.com/news/sustainability/amazon-launches-a-2-billion-climate-pledge-fund

[85] See Sequoia Financial Group. (n.d.). ESG and Sustainable Investing. https://sequoiafg.com/esg-and-sustainable-investing/

Fund Raising Period

This is the most critical and complex part of the whole investment process, especially in the ESG landscape. During this phase, VC firms raise funds from limited partners, institutional investors, pension funds, insurance companies, and high-net-worth individuals. Generally, fundraising can start once the VC firm has created an investment thesis, outlining the strategic, targeted industries, geographic focus, and projected ROI[86]. This will include making a detailed pitch deck for their fundraising needs with financial models and due diligence documents. The fund-raising process is very long and demanding; it requires many back-and-forth meetings, presentations, and negotiations, which sometimes take months and years to conclude. What puts additional difficulty on sustainable VC fundraising is that they are seeking capital committed by investors who strongly consider ESG criteria. Unlike traditional VC funds, which focus on short-term profits, sustainable VC funds aim for long-term value by carefully selecting startups that adhere to ESG principles[87]. They devise responsible investment policies, which outline their commitment to ESG and how they implement these issues in the investment process. Beneficial roles can be played by government support at the fundraising stage. This may take the form of tax incentives, subsidies, or regulatory reforms that render it easy to invest in ventures for institutional investors. Governments can define and standardize terms about sustainable investments, cleaning up the marketplace.

Investment Phase

Once the funds are successfully raised, the investment phase begins. During this stage, VC firms carefully deploy the capital into startups that meet strict ESG criteria. This becomes a necessary process to attain the highest level of impact and the implementation of sustainable business practices. Sustainable VC funds invest in startups that are lock-ins for the long term so that they have the time horizon and the resources to innovate and be successful.VC firms bring more than just money to the table: technical know-how, business contacts, and strategic guidance top the list of value-adding services. Such services may help a startup fine-tune its business model for better efficiency and negotiate burdensome regulations[88]. They can also link the startup with players who might be very useful in partnering, customer acquisition, and market entry strategies. These

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[86] See Winterberg S.,Manley L.,Ejiofor K.,Jayanti A.,Fridman J.,Lambert S.,Zwierz M. (2020), “Responsible Investing in Tech and Venture Capital: Advancing Public Purpose in Frontier Technology Companies”. https://www.belfercenter.org/sites/default/files/2020-09/ResponsibleInvesting.pdf

[87] See Möller, E. and Öquist, S., (2019). Investing for a sustainable future - drivers and barriers for sustainable venture capital investment decisions. Master’s Thesis. Uppsala University, Department of Business Studies. https://www.diva-portal.org/smash/get/diva2:1333031/FULLTEXT01.pdf

[88] See Lin, Lin (2021), “Venture Capital in the Rise of Sustainable Investment”. European Business Organization Law Review 2021, NUS Law Working Paper No. 2021/014, NUS Centre for Banking & Finance Law Working Paper 21/02, https://deliverypdf.ssrn.com

frameworks aids are very critical for the success and growth of any venture. In particular, the startups must have a monitoring system to ensure they keep meeting sustainability milestones. Impact investors often tend to focus on companies that offer evident social and environmental benefits. The most operative way that these investors engender growth in vital industries is by investing in areas like clean energy, sustainable agriculture, and green building technology, guaranteeing that the startup will stay on track as far as its sustainability objectives are concerned.

Exit

The exit phase occurs once startups are mature enough to seek more funding or pursue liquidity events like an Initial Public Offering or a M&A. Planning an exit strategy involves negotiating the valuation of the business, making candid disclosures regarding the issues surrounding it. This has to involve an excellent ability to monitor the market dynamics and—very transparently—articulate the current financial status, growth possibilities, and what is the non-replicable unique value proposition of the startup[89]. Sustainable enterprises must be prepared to showcase their ESG efforts and outcomes, which has become very relevant to investors. The exit phase requires a thorough preparation startups for scrutiny facing an IPO or merger, ensuring that appropriate ESG disclosures are attained. Thoroughly prepared startups with strong ESG credentials often get higher valuations and smoother exits. Specialized stock market boards, such as China's STAR Market and Hong Kong's Sustainable and Green Exchange (STAGE), provide easier exciting possibilities for companies focused on sustainability. It is also regulatory reform that reduces the profitability threshold for sustainable start-ups and, at the same time, can bring an increased potential to attract investors where successful exit is the result, further assisting in developing a supportive environment for sustainable start-ups in the public market[90].

3.2: Empirical Evidence

Recent surveys, such as those directed by the European Investment Fund (EIF)[91], have shown a significant rise in venture capitalists using or investing with environment friendly practices. Up to seventy percent of venture capitalists currently use ESG criteria during investment decisions. This trend can be explained through different reasons, internal and external to organizational frameworks, that incorporate the perception of an added value on investment performance, pressing

[89] See supra note at 80
[90] See supra note at 84
[91] See Botsari A., Lang F. (2020), "ESG considerations in Venture Capital and Business Angel investment decisions/ Evidence from two pan- European surveys", https://www.eif.org/news_centre/publications/eif_working_paper_2020_63.pdf

limited partners to address these issues and regulatory pressures. During the due diligence phase, a notable percentage of venture capitalists, particularly those in Nordic countries, the United Kingdom, Ireland, and France, employ ESG screening to mitigate related risks, primarily through negative screening strategies[92]. However, ESG factors have not yet been completely integrated into the investment process, mainly because of the lack of a standardized framework or tools for continued monitoring and reporting.

Further empirical evidence supports this positive correlation between ESG and performance. For example, one such study found that investors using impact strategies realize higher financial yields than ever were possible with exclusionary approaches of the past. In this regard, active ownership and impact investing strategies have been credited with phenomenal success, considering that they have been viewed as most successful in their practical application to 71% and 63% of the participants surveyed by EIF, respectively[93]. This evidence points out that active ownership and impact investing are two of the strategies that show success financially, as a matter of fact, among much other evidence in ESG engagement against enhancements in operational performance and market valuation by portfolio companies. Venture capitalist play a significant role in corporate governance and information disclosure, leading to a substantial improvement in the ESG performance of their portfolio companies. For example, venture-backed companies that were surging with strong ESG practice revealed huge financially positive impacts of ESG integration. The prime example is Bloom Energy, a green-technology industry leader that makes and sells solid oxide fuel cells to produce clean, on-site power using various fuels, including natural gas, biogas, and hydrogen. The core product of the company is the Bloom Energy Server, more commonly known as the Bloom Box, based on solid oxide fuel cell technology[94]. This technology generates electricity from fuel by an efficient electrochemical process with emissions of pollutants much lower than those originating from currently applied methods of power generation. With flexibility in terms of the type of fuels that could be used, the Bloom Box could be seen as a highly sustainable and dynamic energy solution. Among other operational measures, therefore, the performance of Bloom Energy stands as a perfect reflection not only of growing interest in sustainable technologies but also of improved stock price, rising from $7.88 recorded at the beginning of 2020 to an incredible $28.66 at the end of that year, reflecting robust market confidence in the innovative

[92] Id.
[93] Id.
[94] See Bloom Energy (2024) *Clean, Reliable and Affordable: The Bloom Energy Server*. https://www.bloomenergy.com/technology/

solutions and strategic positioning developed within the green energy sector[95]. In 2021 alone, the company made revenues of close to $972 million, an indication that it has highly penetrated the market[96]. In the long term, Bloom Energy has been strategic in the forging of several partnerships aimed at increasing market reach and increasing technology capabilities through working with utilities and energy providers in the deployment of its technology across various uses, including data centers and large industrial facilities crucial for scaling operations and integrating Bloom solutions into mainstream energy infrastructures. The impact of the Bloom Energy technology on the environment is substantial since it reduces emissions of greenhouse gases by a significant amount and increases efficiency of energy. The ability to utilize biogas and hydrogen further strengthens its sustainability credentials, diminishing reliance on fossil fuels and lowering overall carbon footprints. In looking ahead, Bloom Energy continues to grow with the demand for clean energy solutions that increase around the world and its technologies are used well in greater environmental goals toward the reduction of emissions of carbon oxides and ensuring that energy is used efficiently. Anticipated government policies and incentives favoring green technologies shall further time rise in growth initiatives by Bloom Energy underlining long-term sustainable success in a dynamic business environment.

Additional empirical evidence confirms that venture capitalists adhering to ESG principles also practice active monitoring and reporting, instilling transparency and accountability within the businesses they oversee. The VentureESG white paper show how half of the venture capital firms were ramping up the use of full-scale ESG due diligence questionnaires in an attempt to measure sustainability metrics of potential investments[97]. Another important finding reported by EIF is the 20% risk mitigation in VC firms practicing ESG relative to regulatory compliance and reputation, which underlines the role of ESG practices in risk management and sustainable investment[98]. They find from their broad literature that integration of ESG factors in venture capital is most advanced for Western Europe and the Nordics, motivated largely by regional-level regulatory frameworks that foster ESG disclosure and transparency in line with SFDR and CSRD. Additionally, industry-specific analyses opine that while technology and software companies are ambitious in the venture capital space, they do well on social and governance metrics but often lack when it comes to the environmental criteria. An example of this is cited in the ESG_VC framework, where submissions

[95] See Bloom Energy (2024) *Historical Price Lookup*. https://investor.bloomenergy.com/stock-information/historical-price-lookup/default.aspx

[96] See Bloom Energy (2022) *Bloom Energy Announces Fourth Quarter 2021 and Full Year 2021 Financial Results and Updates Long-term Growth Prospects*.https://www.bloomenergy.com

[97] See supra note at 67

[98] See supra note at 84

increased two-fold from 2021 to 2022, with Software as a Service (SaaS) companies at the helm in the creation of diverse and inclusive work environments. However, only about five percent of them have developed full-fledged carbon footprint monitoring programs, signaling room for improvement in sustainability practices[99].

Breakthrough Energy Ventures (BEV), founded by non-other than Bill Gates with a very substantive investors team, including Jack Ma, Michael Bloomberg, Richard Branson, and Jeff Bezos, is a vivid example of venture capital directed at brand-new innovations with the intention of assuring net-zero greenhouse gas emissions by the middle of the twenty-first century[100]. This company is aimed at promoting early-stage companies that push forward important advances in the areas of clean energy, agriculture and transportation in an attempt to offer comprehensive solutions for ever-pressing climate change challenges. The mission of BEV is to bring global greenhouse gas emissions down from to net-zero, fostering a sustainable future through technological innovation. BEV has an all-around investment strategy where target businesses are cut across many industries with a high probability of leaving great environmental footprints. From Viridos, an algae bioengineering company that develops sustainable bioproducts and strains for production of biofuels[101], to the likes of Stratus Materials—an industry leader in material science, both for energy efficiency and storage[102]. This broad approach to investment aligns with BEV' goal to drive down the cost of abundant electricity in transportation, advanced manufacturing processes, building systems with insulative materials, and sustainable agriculture. Financially, BEV has proven to be a remarkable success, backed by an initial capitalization of $1 billion, evidence of the very high level of confidence and commitment coming its esteemed founders[103]. The firm's investment philosophy also provides large early-stage funds that help promising technologies, which may take a long time in maturation, to scale up. For instance, BEV's focus on long-term value creation has enhanced the market penetration and impact for its set of portfolio companies.

A venture capital firm such as Khosla Ventures, under the leadership of Vinod Khosla, positions itself as a remarkable combination of financial expertise with a steadfast commitment to environmental sustainability[104]. This is the reason behind the company's dedication toward

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[99] See supra note at 74

[100] See Breakthrough Energy (2023) 'BEV Board and Investors', *Breakthrough Energy*. https://breakthroughenergy.org/our-work/breakthrough-energy-ventures/bev-board-and-investors/

[101] See Viridos (2023) 'Our Company', *Viridos*. https://www.viridos.com/about-us/#ourCompany

[102] See Stratus Materials (2023) 'Technology', *Stratus Materials*.https://www.stratusmaterials.com/technology/

[103] See Murray, J. (2016) 'Bill Gates, allies launch $1 billion Breakthrough Energy Ventures', *GreenBiz*, 12 December. https://www.greenbiz.com/article/bill-gates-allies-launch-1-billion-breakthrough-energy-ventures

[104] See Khosla Ventures (n.d.) 'About', Khosla Ventures. https://www.khoslaventures.com/about/

groundbreaking technologies, investing in many businesses that have their focus on sustainable materials, energy storage, and renewable energy space as a way of finding solutions to some of the world's most pressing global environmental problems. A very good example that attests to the power of this investment strategy is Impossible Foods. Its meat replacement products have significantly impacted the food industry. To be noted, in 2019 the company was able to close its Series E round for $300 million: an amazingly positive market signal, and a very impressive growth so far[105]. The firms' investment strategy comprehends both early-stage and late-stage companies, providing them with important financial resources and strategic advices to expand efficiently with leading technologies. The implementation of such approach enabled the empowered organizations to record remarkable profit gains. Significant market entry has equally followed.

Octopus Ventures is another example of venture capital that has been successful in terms of sustainable investment. The company is dedicated to fitting early-stage and growth-stage (reminiscing of Khosla's strategy) companies with high potential into technological development and market impacts[106]. Notably, Octopus Ventures has raised and managed substantial funds, reflecting high investor confidence in the firm's vision. For example, OV has recently closed a £100 million fund targeted at scaling European start-ups, indicative of a strong capital base and strategic intent to back up companies that will be game changer[107]. Among its notable successes, the company invested in Zoopla, a leading online property technology firm, realizing $2.2 billion from the sale, providing significant returns to its investors. Octopus Ventures centers its investment strategy on fintech, health, and deep tech companies, emphasizing impact-driven investments. This strategic focus is in line with global trends toward sustainability and technological innovation and places the firm in an advantageous position to capture opportunities emerging in these markets.

Octopus Ventures collaborates with industry leaders, academic institutions, and other investors to offer resources, domain expertise, and market opportunities that will help equities portfolio companies grow. As global markets are rapidly changing, led by sustainability and technological advances, Octopus Ventures is well-positioned to continue growing and impacting within the accumulation of experience, focused strategy, and high financial pragmatism while driving innovation toward creating lasting value[108].

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[105] See Impossible Foods (2019) 'Impossible Foods Announces $300 Million Funding Round To Accelerate Growth', Impossible Foods. https://impossiblefoods.com/media/news-releases/2019/05/series-e-300-million-round

[106] See Octopus Ventures (2024) *About Us*. https://octopusventures.com/about/

[107] See UKTN (2021) *Octopus Ventures to launch £100m health tech fund*. https://www.uktech.news/news/octopus-ventures-healthtech-fund-20210125

[108] See supra note at 102

4. What's Next for Sustainable Venture Capital: Challenges, Barriers, and Future Practice

4.1: Challenges and Barriers for Sustainable VCs

With high stakes and a need for quick decision-making, navigating the complex world of venture capital (VC) investments is a daunting obstacle that must be overcome. By including environmental, social, and governance issues, an additional layer of complexity is added to the situation, which leads to newer barriers to defeat in order to efficiently reallocate capital towards productive sustainable investment opportunities.

The absence of a standardized framework for monitoring metrics related to environmental, social, and governance factors presents a significant challenge in venture capital investments. Without these metrics, it becomes difficult to evaluate an organization's context and its diverse portfolios. This complicates the assessment of the ESG principles in real-world scenarios, particularly considering the broad scope of activities and stages of business development in which venture capital funds operate. An additional obstacle is the confusion which arises from differing criteria used in implementing and interpreting ESG factors. These inconsistencies, detailed further in subsequent paragraphs, stem from the lack of universally agreed-upon definitions for ESG factors, which not only confuse but also undermine the reliability and comparability of associated data, essential for making informed investment decisions. Addressing these disparities is crucial for making sound investment choices.

Smaller venture capital firms face greater challenges when it comes to integrating ESG issues into their investment strategies. According to Lang (2023), these firms are disadvantaged because they lack the resources, such as tools and investor teams, needed to conduct comprehensive assessments[109]. The ESG_VC framework highlights this issue: it requires significant financial and time investments to meet the growing demands for reporting and compliance with strict ESG standards[110]. Unfortunately, smaller businesses often lack these resources, creating an imbalance in the competitive landscape and making it difficult for them to keep up. This challenge increases the risk of these companies not meeting ESG requirements, which are increasingly important for business operations. Start-ups, for example, encounter challenges when incorporating ESG practices into their operations, even if they make up a substantial portion of venture capital

[109] See supra note at 87

[110] See supra note at 75

investments[111]. These enterprises perceive such practices as impediments due to the significant upfront investment they necessitate. Given the start-ups' emphasis on rapid growth and product development, ESG implementation may appear to impede their progress.
However, despite these challenges, businesses are committed to earnestly prioritizing ESG considerations but with a short-term focus, which often conflicts with the typically long-term nature of ESG programs, which are designed for sustained impact over time. Consequently, venture capitalists may not be inclined to prioritize the criteria mentioned earlier.

The VentureESG Whitepaper (2021)[112] highlights this misalignment between financial returns and the realization of long-term ESG benefits, presenting a formidable obstacle. It's widely acknowledged that sustainable investments often carry heightened perceptions of risk and uncertainty, adding a compelling dimension to the investment landscape. This holds particularly true for rapidly growing industries still shaping their distinct technologies. The challenge intensifies when past performance data is lacking, a common scenario, leading investors to hesitate in allocating funds to environmentally friendly technologies. Addressing this information asymmetry, Holtslag et al. (2021) conducted a study which effectively reveals the aforementioned reluctance, specifically for startups[113].

The complex relationship between Limited Partners (LPs) and General Partners (GPs) within venture capital firms makes incorporating ESG factors more complex than in other scenarios. LPs pressure GPs to integrate ESG considerations into their investment strategies, creating tension. GPs often resist, preferring to prioritize short-term financial results over perceived ESG responsibilities. However, aligning financial sustainability with broader ESG goals requires a comprehensive approach to integrating ESG issues. This necessity arises from the dynamic nature of the situation. To address this effectively, an agreed-upon and widely accepted framework for evaluating environmental, social, and governance factors is essential. To this scope, the VentureESG initiative is working to develop a tailored definition of ESG, specifically for venture capital[114].

[111] See Zhang, Ye (2021), “Fundraising Barriers for ESG Startups: Experimental Evidence”. http://dx.doi.org/10.2139/ssrn.3959117
[112] See supra note at 67
[113] See Holtslag, M., Chevrollier, N., & Nijhof, A. (2021) 'Impact investing and sustainable market transformations: The role of venture capital funds', Business Ethics, the Environment & Responsibility,30(4), pp. 522-537. https://onlinelibrary.wiley.com/doi/10.1111/beer.12371
[114] See supra note at 67

This initiative seeks to bridge the gap and establish a framework that meets the unique needs of venture capital firm, and it is also advocating for the development of industry specific ESG materiality maps, as recommended by KfW Capital and BCG (2022)[115]. Through these maps, investors can pinpoint financially significant ESG factors that vary widely across industries and stages. The aim is to streamline investors' identification and focus on these factors, supporting venture capital firms at grassroots levels, facilitating information exchange and resource sharing. Potential programs could streamline access to resources for enhancing ESG capabilities among companies. Additionally, regulatory and public policy organizations can incentivize small businesses to develop ESG competencies through training, grants, and incentives. Such efforts aim to raise environmental awareness among smaller enterprises. Educational campaigns and capacity-building programs are essential for venture capitalists and startups to grasp the long-term benefits of adhering to ESG principles. By fostering a deeper understanding of these principles, perceptions can shift from viewing ESG as mere compliance to recognizing it as a strategic advantage.

4.2: Future Practice

The future of sustainable venture capital promises to revolutionize financial markets, requiring a intricate dance between new trends, strategic innovations, regulatory changes, and the development of sustainable finance frameworks worldwide. Venture capitalists are increasingly urged to embrace ESG investment dimensions, integrating solutions for global challenges like climate change, social injustices, and resource depletion. This shift also responds to stakeholders' demands for responsible and transparent business practices, alongside the growing emphasis on detailed ESG reporting standards.

Historically, the absence of a standardized international framework has led to inconsistency and confusion in venture investment landscapes. The development of frameworks like ESG_VC aims to address this, supporting the creation of a comprehensive list of 57 key questions for ESG due diligence between startups and VCs[116]. Such frameworks will enable companies to measure, enhance, and report their ESG performance, fostering higher credibility, accountability, and transparency in the market. With sustainable VCs in place, the adoption of

[115] See KfW Capital and Boston Consulting Group, (2022). “Growing the Seeds of ESG: Venture Capital, Start-Ups and the Need for Sustainability”. https://www.kfw-capital.de/Dokumente/ESG-Report-ESG-s%C3%A4en-Nachhaltigkeit-ernten-(Nov.-2021).pdf

[116] See supra note at 75

ESG frameworks is expected to become the norm, ensuring not only financial viability but also social and environmental responsibility in investments. More traditional venture capitalists are far more interested in immediate financial returns and can prove to be ultimately unsustainable for companies. However, VCs are now making the choice of possibly lower- and slower-return-on-investments to achieve broad social and environmental gains. This evolution is being guided by the understanding that sustainable practices will lead to long-term value creation, based on empirical data showing that those companies with strong performance in ESG tend to do better than others on operational and market results. The approach exemplifies impact investment—seeking measurable social and environmental outcomes alongside financial returns.

ESG factors have become integral to investment decisions, driven largely by regulatory demands. For example, the EU's SFDR requires investment funds in Europe to disclose the sustainable practices of the businesses they invest in and their own practices[117]. This regulation aims to reduce the risk of greenwashing and improve the credibility of ESG claims, ensuring that investors' interests align with sustainable development goals and that investments genuinely support sustainable ventures. Along with the Corporate Sustainability Reporting Directive, this regulation will significantly influence future practices in sustainable venture capital. Future practices will include developing robust ecosystems that support long-term entrepreneurship through sustainable VC, involving not only financial capital but also providing networks for mentorship, industry connections, and technical expertise. For instance, in accelerator programs that influence sustainable development, early-stage start-ups gain valuable guidance on how to best optimize their business models and strategies for scalability and market validation. VCs nurture such ecosystems, and businesses within it create an environment of sustainability. Business-model innovation is then bound to take place in the sense of firms are well-resourced to foster further and prosper in the long run.

Sustainable startups are exploring new models, such as the circular economy, which focuses on reusing and recycling resources to reduce waste[118]. Venture capitalists need to invest in this area, supporting and validating innovative business models for these startups. By investing in and nurturing these innovative models, eco-conscious VC funds can achieve significant

[117] See supra note at 76
[118] See Mehrabi R. (2023), “Systematic Literature Review of Sustainable Finance: Implications for Entrepreneurial Finance through Venture Capitals (VC)”, https://library.ien.bg.ac.rs/index.php/ea/article/view/1746/1381

environmental and social impacts, promoting sustainable development. What is needed is a coherent strategy among governments, large corporations, and other financialentities to create an enabling environment for sustainable investment. Governments can support sustainable businesses by putting in place innovation-friendly laws, supporting those involved in networking activities, and enhancing public–private collaboration. Large firms can help, either by providing R&D alliances or major contracts to sustainable start-ups, with market access and resources that would allow a start-up to grow its innovations.

Another critical aspect, therefore, will be the challenges to measure and report sustainability performance. What is important in measuring the impact of sustainable investments is that clear, standardized, and understandable metrics be applied. This will allow the investor to not only make well-informed choices but also to regain stakeholder trust by clarifying the social and environmental benefits arising from such investments. Organizations such as GRI (Global Reporting Initiative), or the Sustainability Accounting Standards Board (SASB), provide such metrics and furnish sustainable VCs with adequate tools for both measuring and communicating their impact[119]. The way forward will depend upon an alteration in culture with regard to viewing sustainability as a core value rather than a tangential concern. This is the cultural attitudinal shift required for further sustainable investment practice improvement at each stage of the investment process, from initial due diligence to subsequent management and reporting.

Additionally, integrating technology into responsible investment and sustainability practices is crucial. Technologies such as Artificial Intelligence and Blockchain offer new opportunities for improvement through investment activities by sustainable venture capitalists. For example, AI can analyze big data to identify investments with high potential for positive impact. Meanwhile, Blockchain can enhance transparency and accountability in ESG reporting, thereby improving the efficiency and effectiveness of sustainability efforts by VCs[120]

[119] See supra note at 22
[120] See supra note at 116

Conclusion

Exploring environmental, social, and governance issues in a venture capital investment strategy presents several interesting insights, opportunities and, therefore, challenges. It is clear that responsible investing is gaining attention given the evolving economic landscape. This is due to increasing regulatory pressures and market-demanded business operations that are marked by transparency. Based on the empirical evidence argued in this thesis, it's evident that strong ESG performance correlates positively with robust financial returns. For a company, acting in ESG metrics means managing not only potential risks in regulatory compliance and a loss of reputation but also establishing oneself for long-term success. After considering the case studies and data, it can be inferred that movement toward sustainable practices will boost the valuations of the higher stocks in the companies, reduce their capital costs, and improve their operational efficiencies. However, full ESG integration is more easily said than done. The major challenge at this stage is the lack of standardized frameworks for either measuring or reporting ESG metrics. Such inconsistency, therefore, creates a significant challenge concerning the ability of investors to make informed decisions as well as for companies to be able to meet the varied expectations of stakeholders. For instance, resource constraint is a barrier for small venture capital firms to undertake comprehensive ESG evaluation. In addition, there is a need to draw up widely agreed ESG frameworks, which should be specially developed for the venture capital field. These enabling frameworks will enhance two-way causality, lead to financial performance, and sustainable practices will make the investors make ethically sound and, simultaneously, fiscally wise decisions. Besides, educational campaigns and capacity development may also inculcate a better realization of the long-term benefits of integrating ESG. It is in changing stakeholders' perspectives regarding ESG that we are in a capacity to instill motivation for the stakeholders to embrace sustainable practices fully. With such a new perspective, the company could proceed to discover its creative powers, solidify its market standing, and play an active part in forming a more sustainable and resilient global economy.

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