

Experimental Sustainable Finance

@Nijmegen School of Management, Radboud University, 24 - 26 April 2024



(Authors: Sébastien Duchêne and Sascha Füllbrunn)

Scholarly goals

Our symposium focuses on the utilization of the Experimental Finance methodology, as delineated by Füllbrunn and Haruvy (2022), in the context of contemporary research inquiries within Sustainable Finance. This area has been notably highlighted in esteemed publications such as the special issue in the Review of Finance overseen by Edmans and Kacperczyk (2022) and the Handbook of Green Finance, penned by Sachs et al. in 2019 (for a comprehensive review, refer to Duchêne, 2020). Participating scholars will convey insights from both ongoing and previously published research, thoroughly analyse the methodological strengths and limitations, and contemplate novel applications of this approach.

Relevance

Field: Sustainable Finance

'Sustainable Finance' - often defined as integrating environmental, social and governance ('ESG') issues into financial decisions - has become an important research theme in recent years (e.g. Edmans & Kacperczyk, 2022). Its goal is a movement towards long-term investment in sustainable economic activities to support economic growth while reducing environmental pressures and addressing social and governance aspects (European Commission, 2023).

The **Social** and **Governance** issues of ESG often apply to how companies (or other investment vehicles) treat their stakeholders. While the social aspects address inequality, labour relations or human rights, the governance aspects consider management structure, employee relations and executive remuneration. As such, they directly apply to the UN Sustainable Development Goals (SDGs) for the 'Society', such as *Gender Equality* (SDG 5) or *Peace, Justice and Strong Institutions* (SDG 16), and the 'Economy', such as *Decent Work and Economic Growth* (SDG 8) or *Reduced Inequalities* (SDG 10) (see United Nations, 2023).¹ Some relevant questions in these areas are:

- Should investors (households, funds, companies) finance companies showing inappropriate social and governance practices with ethically questionable (corporate) culture?
- Should regulators interfere in the financial market structure to facilitate investments adhering to higher social and governance standards?
- How can financial market design improve respective Social and Governance structures?
- What are incentives to facilitate '*Impact Investments*' (investments with clearly defined social goals next to seeking financial returns)?
- What executive remuneration systems solve the agency problem while adhering to high governance standards?
- What financial instruments and investment vehicles affect social and governance aspects (e.g. social bonds)?

In contrast, the ESG's Environmental aspect aims to positively affect climate change mitigation, preservation of biodiversity, pollution prevention and the circular economy. These endeavours - also related to '*Green Finance*' - are more related to the '*Biosphere*' in line with the SDGs *Climate Action* (SDG 13), *Life below Water* (SDG 14) and *on Land* (SDG 15) but also to *Responsible Consumption and Production* (SDG12) among others. Some relevant questions in these areas are:

- Should investors finance companies with low pollution standards (that can be measured by Scopes 1, 2, and 3)?
- What is a 'green' company, i.e. should investors focus on the green sectors only, the green companies within an industry, or the companies with the best environmental improvement track record?

¹ The Stockholm Resilience Centre established the SDGs wedding cake that brings together the relevant factors Biosphere, Society, and Economy

- Should we use ESG ratings from data providers or/and focus on the company's environmental impact on society whenever possible?
- How can investors distinguish between greenwashing and green transparency in a complex and dynamic world with information and data overload?
- What financial instruments and investment vehicles foster green finance, and do the related markets compare to traditional instruments (e.g. green vs brown bonds)?
- How to provide relevant information for investors (e.g. Key Investment Document with ESG scores)?
- How to design markets for green instruments?
- How to implement climate change risk management in companies?
- What structures incorporate green finance aspects into corporate finance culture and decision-making?

Sustainable Finance embeds into an existing finance ecosystem with capital seekers and investors (as two sides of the markets) and matching facilitators (Stock Exchanges, OTC, Financial Intermediaries) next to regulators and policymakers, and Third Party Reviewers (e.g. Rating Agencies). The overarching question is how the regulatory environment, norms, culture, and investor preferences influence the interaction between market players to foster Sustainable Finance.

One particular focus in Sustainable Finance is the 'investor'. The special issue on Sustainable Finance (Edmans & Kacperczyk, 2022) in the *Review of Finance* addresses three arguments for sustainable investing. 1) Financial relevance – Companies started incorporating ESG into their businesses to become more attractive for green/social investors, capture green/social business opportunities, and obviate regulatory intervention. Such companies might be able to generate high-risk-adjusted returns such that they also become attractive to traditional investors. 2) Nonfinancial objectives – Pension funds invest for beneficiaries who care about the state of the biosphere when they retire. Hence, such fund investors might support companies with environmental impact even for lower returns. 3) Taste (preferences) – Some investors prefer green over brown bonds. The special issue addresses several questions related to Sustainable Finance, such as how to measure ESG (offered ESG ratings seem to correlate weakly), the effect of ESG performance in asset pricing models, whether signatories of the UN Principles for Responsible Investment (<https://www.unpri.org/>) invest responsibly, climate-related financial risk management or the effect of financial literacy on green investment (among others).

This brief presentation provides an overview of discussions on Sustainable Finance in academia. The importance of sustainable finance in addressing societal challenges – organised via the UN's sustainable development goals – is, as we think, uncontested. The question is how 'Experimental Finance' addresses relevant research questions of Sustainable Finance.

Method: Experimental Finance

'*Experimental Finance*' is a method that applies experimentation to understand financial decision-making and its effect on financial systems. While archival data analysis allows for detecting correlations, carefully designed experiments allow for establishing **causal effects**.

Researchers use the method for verifying empirical patterns, testing and establishing (new) theories, testing policies before implementation (mechanism design), understanding behavioural biases in (financial) decision-making, and training professionals (like a Flight simulator) or improving financial literacy (experiential learning).

In a typical experiment, the researcher randomly allocates participants – such as students or financial professionals – to two (or more) different financial decision-making (e.g., portfolio choice) treatments/scenarios. By changing one treatment variable (e.g., textual vs visual information), the researcher can verify whether participants react to the change (e.g., more efficient choices due to

a better understanding of the visual treatment). Such experiments occur in the laboratory, online, and in the field.

Experimental Finance's main branches aim to understand 1) asset pricing – how trading behaviour and market microstructure affect market performance, and 2) individual financial decision-making – how psychological and emotional factors, choice architecture or financial literacy affect financial decision-making under risk and uncertainty. Recent endeavours consider, for example, multiple asset markets, monetary policy, bank runs, expectation formation, algorithm trading, finance education, financial accounting, corporate governance, or nudging (see Handbook of Experimental Finance (2022), by Füllbrunn and Haruvy). As an established research tool for researchers in finance and economics (and beyond), we think that Experimental Finance provides a valuable tool for better understanding the Sustainable Finance environment.

Contribution of the Symposium

Our symposium contemplates the integration of the Experimental Finance methodology into the domain of Sustainable Finance, positing it as an augmentative instrument in the academic repertoire for elucidating the intricacies of the Sustainable Finance ecosystem. We designate this nexus as '*Experimental Sustainable Finance*'.

Experimental Sustainable Finance Research

Sustainable Finance has recently become relevant in the finance community, but publications in (top) finance journals are still rare. That also holds for experimental research, which in the finance community is still not fully integrated but has a positive trend (Huber and Kirchler, 2023). However, applying experiments to Sustainable Finance has become recognisable even in top finance journals such as *The Review of Financial Studies* (Heeb et al., 2023) or *The Journal of Finance* (Riedl and Smeets, 2017). In the following, we want to showcase some recent findings in *Experimental Sustainable Finance*. In the recent world meeting of the Society for Experimental Finance (experimentalfinance.org), almost 20% of the presentations related to Experimental Sustainable Finance.

The results from Riedl and Smeets (2017) suggest that investors are willing to forego financial returns for investing in sustainable assets. They explain their results through social preferences – elicited with experimental methods. Using a framed field experiment, Heeb et al. (2022) assess the investors' willingness to pay for the green impact – via CO₂ emission statements. It turns out that investors pay more for assets saving CO₂ emission but do not distinguish between shares with different levels of CO₂ emission reduction. The participant's behaviour is primarily driven by an emotional and not a computational response to impact, making them 'warm glow optimizers' rather than consequentialists. In the same vein, Bonnefon et al. (2022) reveal investors to be primarily motivated by investments that are in line with their value (social value impact, deontological ethics) rather than by the asset's impact itself (impact seeking, consequentialism). These two papers suggest manipulation opportunities via greenwashing as investors are willing to contribute to sustainability but cannot foresee the actual impact of the financial instruments. Compared to other research methods, Experimental Finance allows for measuring preferences and behaviour under various information regimes in these cases.

In two field experiments with nearly 5,000 participants, Bauer et al. (2022) find that almost two-thirds of respondents support expanding the fund's engagement with firms on the grounds of certain SDGs, even though they anticipate that the engagement will affect financial returns. Duchêne et al. (2022) report that finance professionals and students accept lower returns for socially responsible assets but are unwilling to take on greater risk. Hartzmark and Sussman (2019) note that participants perceived better ESG-rated products as less risky and more profitable, partly explaining the attraction for this type of investment. These experiments showcase choices and perceptions of Sustainable Finance products.

Siemroth and Hornuf (2023) ran experiments with crowdfunders. They found that investors choose environmental and social impact over higher returns. Combining the experimental data with historical investment, they conclude that investors allocate a larger share of funds to green projects if they value environmental impact more and expect a higher return, but not if they value social impact more, all else equal. Moreover, they introduce new survey measures of impact for future use, which are experimentally validated and predict field behaviour. This article greatly shows the multiple-methods approach of combining experimental and empirical data.

Friedman et al. (2022) take a view on shareholder voting on ESG policies. Using a theory-founded laboratory experiment, they conclude that policy costs affect policy adoption and that ESG policy adoption increases share prices. Their experimental investigation considered governance aspects of companies and their consequences for asset pricing.

We see the experimental framework as ideal for the controlled isolation of certain factors' effects on the Sustainable Finance ecosystem – capital seekers and providers, regulation, market design, and third parties.

Goals

We propose a symposium with international experts to present and discuss the current topics, developments and latest findings in *Experimental Sustainable Finance*. We have received confirmation of planned attendance from a group of highly esteemed international experts who apply or plan to apply Experimental Finance to Sustainable Finance questions. They will report the **latest research results**, compare techniques, and **discuss new approaches** and refinements of standard theory.

In addition, the symposium aims to discuss and coordinate a **research agenda for the coming years**. As far as we know, this would be the **first meeting** on this topic worldwide. The impact of discussing new scientific results and methods is undisputed. The symposium also aims to further strengthen the network of researchers, eventually forming a **research cluster** with mutual benefits for all members and submitting joint research proposals to funding agencies. In addition, the symposium aims for a transdisciplinary approach by inviting relevant industry stakeholders, such as Marie Brière from Amundi Asset Management. We are in contact with two people from the Dutch regulators who might attend when time allows – we were not able to get a commitment before the deadline of the end of August 2023.

References

- Edmans, A., & Kacperczyk, M. (2022). Sustainable finance. *Review of Finance*, 26(6), 1309-1313.
- Sachs, J., Woo, W. T., Yoshino, N., & Taghizadeh-Hesary, F. (Eds.). (2019). *Handbook of green finance: Energy security and sustainable development*.
- European Commission, Overview of sustainable finance, published by Directorate-General for Financial Stability, Financial Services and Capital Markets Union, accessed 18 April 2023, <https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance_en>
- United Nations, The 17 Goals, published by the Department of Economic and Social Affairs (Sustainable Development), accessed 18 April 2023, <<https://sdgs.un.org/goals>>
- Huber, C., & Kirchler, M. (2023). Experiments in finance: A survey of historical trends. *Journal of Behavioral and Experimental Finance*, 37, 100737.
- Füllbrunn, S., & Haruvy, E. (Eds.). (2022). *Handbook of Experimental Finance*. Edward Elgar Publishing.
- Heeb, F., Kölbel, J. F., Paetzold, F., & Zeisberger, S. (2023). Do investors care about impact? *The Review of Financial Studies*, 36(5), 1737-1787.
- Riedl, A., & Smeets, P. (2017). Why do investors hold socially responsible mutual funds?. *The Journal of Finance*, 72(6), 2505-2550.
- Bonnefon, J. F., Landier, A., Sastry, P. R., & Thesmar, D. (2022). The moral preferences of investors: Experimental evidence (No. w29647). National Bureau of Economic Research.
- Duchêne, S., Nguyen-Huu, A., Dubois, D., & Willinger, M. (2022). Risk-return trade-offs in the context of environmental impact: a lab-in-the-field experiment with finance professionals. Working paper available at <https://shs.hal.science/hal-03883121/>
- Hartzmark, S. M., & Sussman, A. B. (2019). Do investors value sustainability? A natural experiment examining ranking and fund flows. *The Journal of Finance*, 74(6), 2789-2837.

Friedman, Daniel and Duffy, John and Rabanal, Jean Paul and Rud, Olga, Trade, Voting, and ESG Policies: Theory and Evidence (January 13, 2023). Available at SSRN: <https://ssrn.com/abstract=4306156>.
 Siemroth, Christoph, and Lars Hornuf. "Why Do Retail Investors Pick Green Investments? A Lab-in-the-Field Experiment with Crowdfunders." Journal of Economic Behavior & Organization 209 (2023): 74-90.

(Envisioned) Schedule

Day 1, 24 April 2024				
18:00	-	20:00	<i>Reception</i>	
Day 2, 25 April 2024				
08:30		- 09:00		<i>Coffee/Registration</i>
09:00	-	09:25	Session 1	Sascha Füllbrunn Opening, Introduction, Questions, Expectations
09:25	-	09:50		Speaker 2 Title 2
09:50	-	10:15		Speaker 3 Title 3
10:15	-	10:40		Speaker 4 Title 4
10:45		- 11:15		<i>Coffee Break</i>
11:15	-	11:40	Session 2	Speaker 5 Title 5
11:40	-	12:05		Speaker 6 Title 6
12:05	-	12:30		Speaker 7 Title 7
12:30		- 13:30		<i>Lunch</i>
13:30	-	13:55	Session 3	Speaker 8 Title 8
13:55	-	14:20		Speaker 9 Title 9
14:20	-	14:45		Speaker 10 Title 10
14:45	-	15:10		Speaker 11 Title 11
15:15		- 15:45		<i>Coffee Break</i>
15:45		- 18:00		<i>Organised discussion: Method meets Research Questions</i>
18:00		- 22:00		<i>Dinner</i>
Day 3, 26 April 2024				
08:30		- 09:00		<i>Coffee/Registration</i>
09:00	-	09:25	Session 4	Speaker 12 Title 12
09:25	-	09:50		Speaker 13 Title 13
09:50	-	10:15		Speaker 14 Title 14
10:15	-	10:40		Speaker 15 Title 15
10:45		- 11:15		<i>Coffee Break</i>
11:15	-	11:40	Session 5	Speaker 16 Title 16
11:40	-	12:05		Speaker 17 Title 17
12:05	-	12:30		Speaker 18 Title 18
12:30		- 13:30		<i>Lunch</i>
13:30	-	13:55	Session 6	Speaker 19 Title 19
13:55	-	14:20		Speaker 20 Title 20
14:20	-	14:45		Speaker 21 Title 21
14:45	-	15:10		Speaker 22 Title 22
15:15		- 15:45		<i>Coffee Break / Farwell & Borrel?</i>
15:45	-	16:10	Session 7	Speaker 23 Title 23
16:10	-	16:35		Speaker 24 Title 24
16:35	-	17:00		Speaker 25 Title 25