

MISTRA FINANCIAL SYSTEMS

(MFS)



ANNUAL REPORT 2018

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1. About MFS

The objective of Mistra Financial Systems (MFS) is to investigate how financial systems can contribute to the sustainable development of society. It assesses both possibilities and limitations in this regard, and particularly what changes are needed to make financial systems work more sustainability-oriented. A part of MFS aims to identify sustainability impact of current financial practices. Other projects aim to unveil root causes of unsustainable practices. Yet another group of projects look at the technical challenges to providing, measuring, and identifying sustainable outcomes.

There is no doubt that the financial sector provides essential services for the modern economy. The sector allows households to save and borrow, buy houses and retire. It allows existing firms to invest and grow, and supports the creation of new firms. Without all this, no economy could work. At the same time, observers point out that the financial sector is imperfect. Much recent criticism can be organized under four headings: first, the financial sector generates instability and crises, with large associated effects on unemployment and growth; second, the financial sector is large:

it absorbs human resources that might be better devoted to other activities; third, households and firms may not always get the services they need at reasonable cost; and fourth, the financial system does not produce enough sustainable investment in firms, especially not enough investment that is relevant to the fight against the global threat of climate change.

MFS translates these challenges into research and investigates more thoroughly which structures and behaviors determine the current outcomes and how they could be altered to be more efficient and sustainable. Green investment strategies, for example, turn out to be rather weak tools, in that they only work if many investors act in the same way (for example, divest the same polluting companies). For governments, more direct approaches to controlling emissions, such as taxes are likely to have greater impact and fewer side effects. In the government's domestic tool kit, therefore, sustainable investing probably should not divert attention from more direct policy tools, of which carbon taxation is one of the most prominent. A couple of our projects model the responses of financial markets to carbon taxes and how this impacts technological change via innovation in cleantech. Within this framework, the effectiveness of alternative policies can be evaluated as well.

Then again, MFS research has showcased that large institutional investors like public pension funds can have considerable impact with their investments, but often hold critical assets, for instance of firms in the soy or timber industry, instead of investing in a green transition. Which laws and regulations are most likely to change this? On a more micro-level an important question is how shareholders can influence or discourage companies in CSR activities, and which type of investors, regulations and financial instruments could leverage sustainable innovation, e. g. in renewable energy?

Financial stakeholders often stress the lack of data, but which kind of data is valid and reliable? Many MFS projects have progressed in the area of ESG (Environmental, Social and Governmental) data and their effects on financial performance. Specifically corporate carbon disclosure and related benefits and risks are of interest when it comes to a low-carbon transition. Information and standards are crucial for investment decisions of households as well. What can an environmentally conscious individual investor do to make sustainable financial decisions? Today, many practical hurdles remain to investing sustainably. These hurdles include identifying the right investment

options: the definition of green products must be both comprehensible and trustworthy to households. The MFS project “Industry benchmarking of banks, asset managers and rating agencies on sustainability best practice” explores rating systems and their implementation in investment portfolios, and MFS researchers have recently weighed in on practical proposals for eco-labelling in the Nordic region.

The crux of financial systems is to deal with risk, provide resources for the future and hereby facilitate innovation as well. All of this are key issues for sustainable development, and it is important to avoid over-promising in this respect. Historically, household financial products have often been sold with untenable performance expectations. If green retail products are to exist as a meaningful segment in asset management ten or twenty years from now, the industry must find a way to give honest appraisal of the trade-offs involved. First and foremost, promising higher returns in assets or strategies that are designed to encourage sustainable business practices is not realistic. Firms must be rewarded for green behaviors with a lower cost of capital, and that means lower returns for investors. Not every year for every asset, but in the long run, on average. If the industry does come around to a realistic view of green finance, I believe many investors are willing to face the tough choice of planet vs. returns, making some concessions for the former. My personal prediction is that, if the industry does not come around, disappointed investors may line the path to oblivion, with green funds take their place alongside extinct investment fads of yesteryear.



Professor Bo Becker, Program Director of MFS

2. Research and Insights 2018

Finance is a key issue for each of the United Nation's Sustainable Development Goals (SDGs)¹: ranging from fighting global poverty and the wealth and well-being of each individual, the design of institutions and accounting mechanisms to distribute financial capital in an effective manner, to eventually financing sustainable infrastructure and facilitating innovation. The research of MFS links financial sector studies to sustainable economic growth, renewable energy provision, technical change and innovation, irrational behavior, education, and institutional change. Besides this, the program puts emphasis on concrete environmental impacts of financial activities, which is pioneering in the field of finance.

We assess incentives and hindrances for sustainable investments, the role of big investors, regulators and individual financial literacy and the systematic foundations for long-termism. Research projects address the imperfections of financial markets in reality, which is crucial for appropriate policy design, and discuss which tools can be supportive.

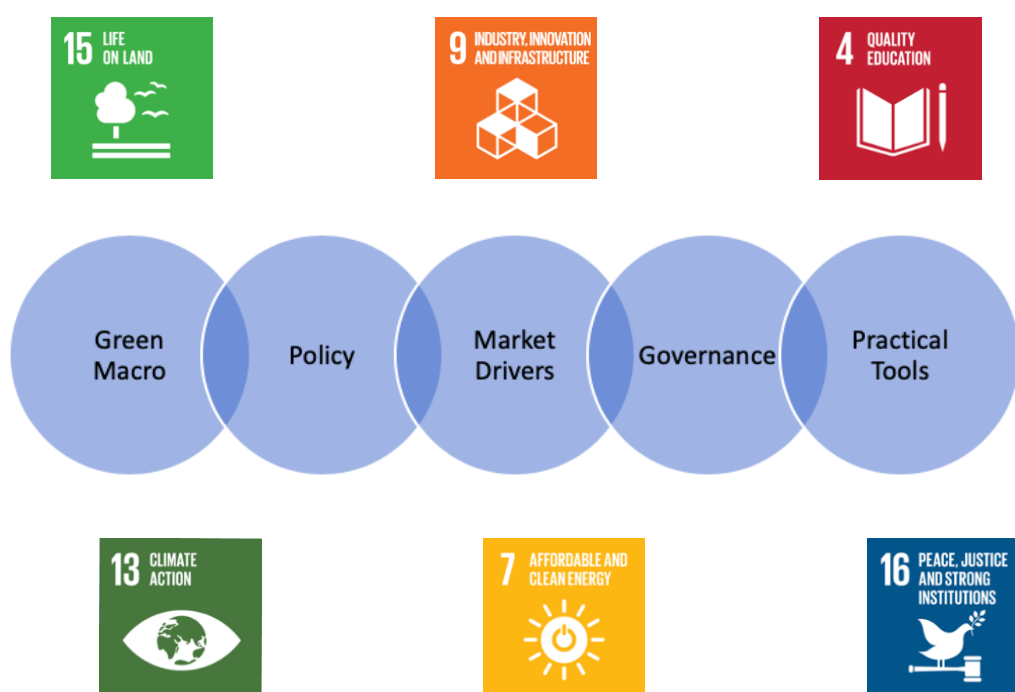


Figure 1. The different areas of MFS research and sustainable development

¹ Cf. <https://sustainabledevelopment.un.org/sdgs>

MFS is structured in five work streams that apply different perspectives and analytical methods: “Green Macro” takes the systemic and long-term point of view on a low-carbon transition, while “Policy” and “Market Drivers” focus on policies and actors facilitating this transition as well as the role of alliances and firms to enable technical change. The “Governance” and “Practical Tools” streams, then again, try to identify root causes of unsustainable practices within the financial sector and develop solutions for its current challenges (see figure 2).

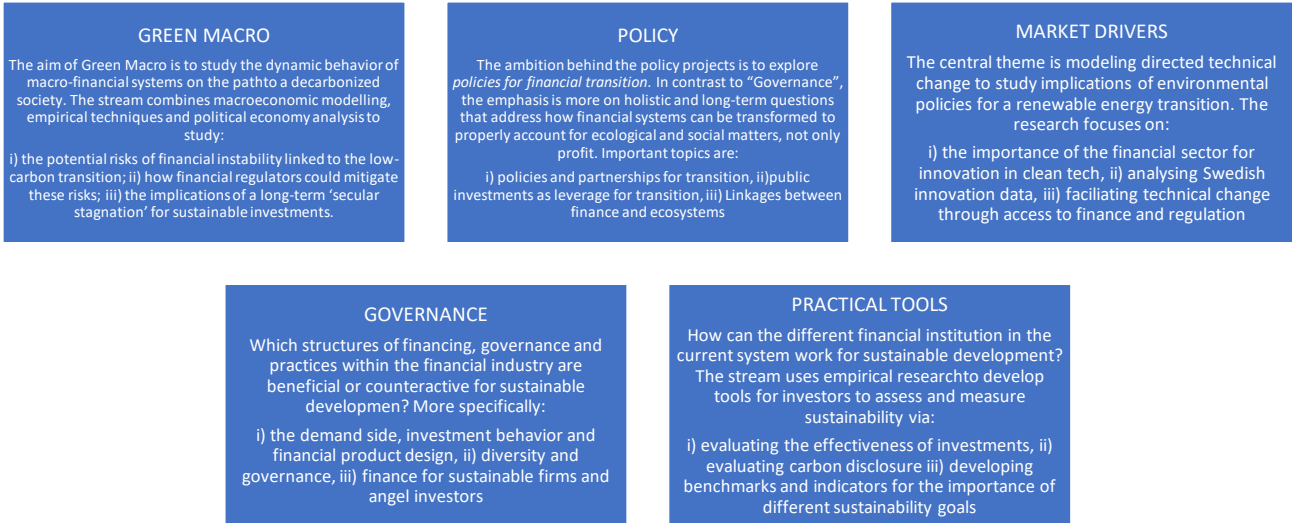


Figure 2. Objectives of the five research streams and key questions addressed in 2018

After laying the foundations in 2016/17, many research projects have matured in 2018 and resulted in publications in prestigious journals of different disciplines. In particular, the article “On the Price of Morals in Markets: An Empirical Study of the Swedish AP funds and the Norwegian Government Pension Fund” by Hoepner et al. has been published in the Journal of Business Ethics, which is included in the Financial Times Ranking of most influential business science outlets². Three more articles are in the review and revision (R&R) process of listed journals. MFS researchers also succeeded in pointing out the importance of financial systems and processes for

² Cf. <https://www.ft.com/content/3405a512-5cbb-11e1-8f1f-00144feabdco>

ecosystem health, and presented their findings in natural science outlets with high scientific impact factor (IF).

MFS 2018 articles and papers in highly ranked journals

- **Hoepner, A. G. F., and Schopohl, L. (2018).** ‘On the Price of Morals in Markets: An Empirical Study of the Swedish AP funds and the Norwegian Government Pension Fund’ *Journal of Business Ethics*, 151 (3), 665-692. (FT50)
- **Baum, C., Lööf, H., Stephan, A. and Viklund-Ros, I. (2018).** Outside Board Directors and Start-Up Firm’s Innovation. *Research Policy* (FT50, in R&R)
- **Beccarini, I., Ferraro, F. and Hoepner, A.G.F., Soothing Whispers (2018).** Shareholder Engagement in Response to Stakeholder Activism’. *Strategic Management Journal* (FT50, in R&R)
- **Brown, J.R., Martinsson, G., Thomann, C (2018).** Environmental Policy and Technical Change: Pollution Taxes, Access to Finance, and Firm Absorptive Capacity. *Review of Financial Studies* (FT50, in R&R)
- **Campiglio, E., Dafermos, Y., Monnin, P., Ryan-Collins, J., Schotten, G. and Tanaka, M. (2018).** Climate change challenges for central banks and financial regulators. *Nature Climate Change*, (IF 7.87)
- **Reyers, B., C. Folke, M.-L. Moore, R. Biggs and Galaz, V. (2018).** Social-Ecological Systems Insights for Navigating the Dynamics of the Anthropocene. *Annual Review of Environment and Resources* (IF 6.025)

In total, journal articles, working papers, and book chapters sum up to 32 MFS publications in 2018 (plus 7 forthcoming ones, see figure 3).

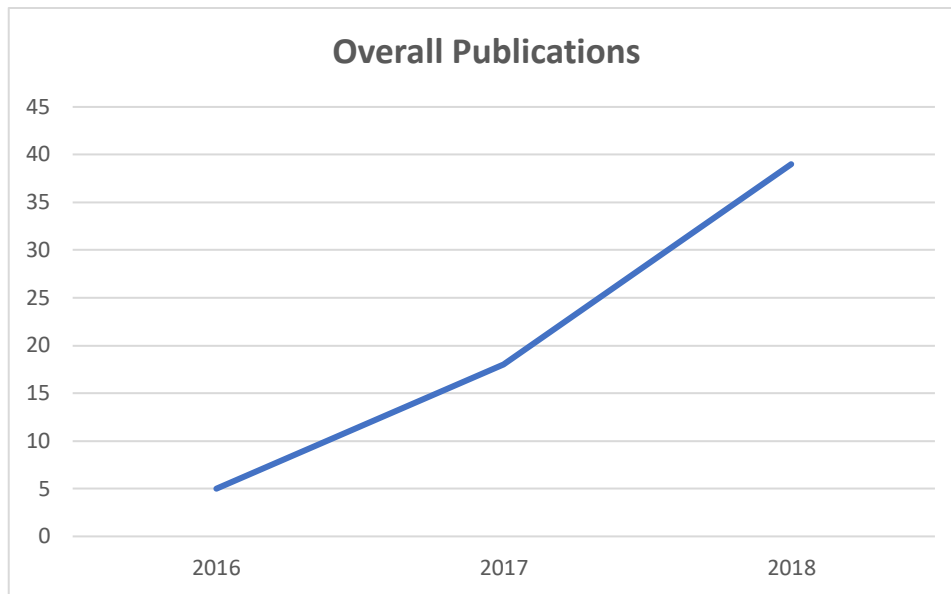


Figure 3. Development of MFS publications 2016 – 2018

Particularly important with regard to the regulatory implications of their findings, the paper by Martinsson et al. (“Environmental Policy and Technical Change: Pollution Taxes, Access to Finance, and Firm Absorptive Capacity”) and Galaz et al. (“Tax havens and global environmental degradation”) are illustrated in the following.

Brown, J.R. & Martinsson, G. (Forthcoming): Does Transparency Stifle or Facilitate Innovation?

(Management Science)

Brown and Martinsson explore how a country’s information environment affects innovation as an activity characterized by high information asymmetries and potentially severe proprietary costs. They use data for long-run cross-country differences in the availability of firm-specific information to corporate outsiders, and investigate the effect of quasi-experimental shocks to the information environment following transparency-enhancing security market reforms. Transparency measures include financial disclosures, auditing activity, the enforcement of insider trading laws, and media development.

The analysis shows significantly higher rates of R&D and patenting in richer information environments. The effects of transparency are strongest in industries that rely on external equity rather than bank debt, indicating that transparency facilitates

innovation by reducing the information costs associated with arm's-length financing. An economy's information environment has important but heterogeneous effects on the nature and extent of real economic activity: The overall impact of a country's information environment on different types of real corporate activities is less clear, in part because the capital market benefits of increased transparency are potentially offset by higher proprietary costs arising from information leakage to competitors (e.g., Bhattacharya and Ritter 1983, Healy and Palepu 2001, Ellis et al. 2012). In particular, improvements to the country's information environment are less important for R&D in profitable firms, as such firms face the costs of information leakage but benefit less from a reduction in the cost of external finance.

Brown and Martinsson assess the first prosecution of insider trading and implementation of EU securities market regulations related to corporate transparency as quasi-experimental shocks. They lead to substantial increases in R&D but have little impact on the rate of fixed capital accumulation, which is consistent with is related to lower information asymmetries related to them. The findings thus contribute to literature on the determinants of innovation (e.g., Manso 2011), the real effects of the accounting and financial reporting environment (e.g., Biddle and Hilary 2006, Francis et al. 2009), and the economic consequences of transparency-related security market reforms (e.g., Leuz and Wysocki 2016).



Galaz, V., B. Crona, A. Dauriach, J.-B. Jouffray, H. Österblom and Fichtner, J. (2018). Tax havens and global environmental degradation.

(Nature Ecology & Evolution)

The paper, published in Nature Ecology and Evolution, reveals that 70% of the known vessels involved in illegal, unreported and unregulated (IUU) fishing are, or have been, flagged under a tax haven jurisdiction. The study also finds that on average 68% of all investigated foreign capital to sectors associated with deforestation of the Amazon rainforest between the years 2000-2011, was transferred through tax havens.

"Our analysis shows that the use of tax havens is not only a socio-political and economic challenge, but also an environmental one. However, financial secrecy hampers the ability to analyze how financial flows affect economic activities on the ground, and their environmental impacts," says Victor Galaz, lead author of the new study.



Victor Galaz presenting his research in Swedish television.

Most previous analyses of the environmental impacts of tax havens have been done by investigative journalists focusing on a few locations. Examples include the links between rainforest destruction in Indonesia and palm oil companies operating through British Virgin Islands, and shell companies involved in destructive diamond mining in West Africa. The study by Galaz et al. takes a more systematic approach to analyze how tax havens influence the sustainability of the ocean and the Amazon rainforest as two

key examples of global environmental commons. "The absence of a more systemic view is not surprising considering the chronic lack of data resulting from the financial opaqueness created by the use of these jurisdictions," says co-author Beatrice Crona. The paper includes the first quantification of foreign capital that flows into the beef and soy producing sectors operating in the Brazilian Amazon – two sectors linked to deforestation. "Our analysis shows that a total of USD 26.9 billion of foreign capital was transferred to these sectors between October 2000 and August 2011. Of this capital, about USD 18.4 billion was transferred from tax haven jurisdictions," they write.

The Cayman Islands turned out to be the largest transfer jurisdiction for foreign capital to the key companies operating in the Brazilian Amazon. The well-known tax haven provides three benefits to investors: legal efficiency, tax-minimization and secrecy. Besides, the role of tax havens in Illegal, Unregulated and Unreported (IUU) fishing activities around the world is analyzed. It revealed that 70% of the vessels found to carry out, or support, IUU fishing and for which flag information is available, are, or have been, flagged under a tax haven jurisdiction, in particular Belize and Panama. Many of these tax havens are also so called flags of convenience (FOC) states, countries with limited monitoring and enforcement capacity that do not penalize vessels sailing under their flag even if they are identified as operating in violation to international law. The most striking example of how this undermines international fisheries law and governance is that the secrecy afforded by combined tax haven and FOCs allow companies to sail fishing vessels with dual identity – one of which is used for legal and the other for illegal fishing activities.

"The global nature of fisheries value chains, complex ownership structures and limited governance capacities of many coastal nations, make the sector susceptible to the use of tax havens," says co-author Henrik Österblom. The authors claim for the regulation of the financial flows, to begin with.

They suggest three issues which they believe should be central in future research efforts and governance of tax havens:

- (1) The loss of tax revenue caused by tax havens should be considered as indirect subsidies to economic activities, sometimes with negative impacts on global commons;
- (2) Leading international fora and organizations, like UN Environment, should assess the environmental costs of these subsidies;

(3) The international community should view tax evasion as not only a socio-political problem, but also as an environmental one.

3. Activities of the Work Streams

Green Macro

During 2018, Green Macro has recalibrated its strategy to address the evolving international academic and policy debates around finance and sustainability. First, in accordance with the EU-level acceleration of policy discussions on sustainable finance, we have developed a political economy and institutional analysis of related regulation. We published an article on Nature Climate Change focusing on the potential role of central banks and financial regulators in smoothing the low-carbon transition, and organised an international conference on the topic together with SUERF and the Austrian central bank. Second, we intensified our work on physical stranded assets, and are in the process of writing two papers using input-output techniques to provide estimates of physical assets at risk of stranding in Sweden and other European countries, and to analyse how the stranding would cascade throughout the economic productive structure. Third, we have kept our macroeconomic modelling work, with a publication on Ecological Economics.

Policy

The Policy projects published several articles in 2018 and were particularly active in the media, with debate articles and reports in Dagens Nyheter, Dagens Industri and Svenska Dagbladet, among others. Besides this, two studies under the lead of Victor Galaz, “Tax havens and global environmental degradation” and “Sleeping financial giants – Opportunities in financial leadership for climate stability”, attracted much attention all over Europe and were cited by e. g. bbc and “The Guardian”.

Market Drivers

During 2018, projects proceeded according to plan. A review of solar energy was presented at four conferences. The paper is submitted. A study of Green Tech start-ups is being developed. An ESG study of listed companies in Sweden, France, Germany, Great Britain and the Netherlands has been initiated and a study of which companies and industries in Sweden meet the new law applicable at European level since 2017, and how much of the carbon dioxide emissions and other greenhouse gases these 1600 companies account for. A course on Green Economics at KTH attracted 80 students.

Governance

2018 has seen continued progress on the academic output side. Paolo Sodini, together with Laurent Calvet, Claire Celerier and Boris Vallee, has completed an impressive paper that deals with which households invest in complex financial products, and if they are beneficial to individual portfolios. This paper was presented at top academic conferences including the NBER Behavioral Finance Meeting, the premier global conference on this type of topic.

Gustav Martinsson's project, together with James R. Brown and Christian Thomann, on how firms can shift corporate investment from dirty to clean production technologies in the wake of pollution taxes has been published as a working paper and presented, amongst other places, at the SHoF-MFS Conference on Sustainable Finance back in August.

Practical Tools

In 2018, Project E, has published a paper titled 'On the Price of Morals in Markets: An Empirical Study of the Swedish AP funds and the Norwegian Government Pension Fund' in the Journal of Business Ethics, published three book chapters for volumes published by the CFA, Gower and Springer, presented a paper on ESG Engagement inter alia at the AFA 2018, as well as other conferences and seminars. Also, the SDG Attention Indices were published for 4 SDGs, and will be updated (see <https://sdg.sociovestixlabs.com/>). Andreas Hoepner was appointed to the EU's Technical Expert Group on Sustainable Finance, advising on European policy.

4. Conference on Sustainable Finance

One of the year's highlights was the conference on Sustainable Finance organized by MFS and the Swedish House of Finance (co-funded by the Torsten Söderberg Foundation), held in Stockholm on August 20-21, 2018. Participants at the conference included industry representatives from Stockholm, Amsterdam, London, and elsewhere, policymakers and public officials, representatives of NGOs as well as a large group of academics.

The first day aimed at presenting scientific insights and practical approaches to the broad public, mainly non-academic audience. Keynotes were given by Laura Starks (University of Texas Austin), Philipp Krueger (University of Geneva), Adair Morse (University of Berkeley) and Alex Edmans (London Business School), who discussed important topics like ESG standards, when sustainable corporate behavior pays off, and "impact investing", drawing a comprehensive picture who invests in sustainable assets and on what terms. The conference program is summarized in figure 4 a and b.

| | |
|---------------|---|
| 08.30 – 09.00 | Coffee and Registration |
| 09.00 – 09.45 | Laura Starks (University of Texas Austin), "Institutional investors and ESG Issues" |
| 09.45 – 10.30 | Philip Krueger (University of Geneva), "The Value Implications of Sustainability" |
| 10.30 – 11.00 | Coffee |
| 11.00 – 12.00 | Panel discussion: "Can Sustainability Generate Outperformance in Public Markets? If not, Should Investors Pursue it Anyway?" with Alexander Bassen (University of Hamburg), Magnus Billing (Alecta), Laura Starks , Javiera Ragnartz (AMF) Moderator: Pehr Wissén (Stockholm School of Economics, SHoF) |
| 12.00 – 13.00 | LUNCH (at conference venue) |
| 13.00 – 13.45 | Adair Morse (University of California Berkeley), "Impact Investing" |
| 13.45 – 14.30 | Alex Edmans (London Business School), "The Business Case for Purposeful Business" |
| 14.30 – 15.00 | Coffee |
| 15.00 – 16.30 | Panel discussion: "The Role of Investors in Building Sustainable Firms" with Alex Edmans , Adair Morse , Åsa Riisberg (EQT), Anna Ryott (Norrskén) Moderator: Bo Becker (Stockholm School of Economics, SHoF) |

Figure 4a. SHOF-MFS Conference August 2018: Day 1

| | |
|---------------|--|
| 09.00 – 09.45 | Karl Lins (University of Utah), "Entrenched Insiders and Corporate Sustainability (ESG): How Much Does the 'G' Matter for 'E' and 'S' Performance Around the World?", discussant Dirk Jenter (London School of Economics) |
| 09.45 – 10.30 | Gustav Martinsson (KTH Royal Institute of Technology and SHoF), "Can Environmental Policy Redirect Technical Change? Pollution Taxes, R&D, and Clean Technology Development", discussant Tania Babina (Columbia Business School) |
| | BREAK |
| 11.00 – 11.45 | Pedro Matos (Darden), "Leviathan Inc. and Corporate Environmental Engagement", discussant Per Strömberg (Stockholm School of Economics, SHoF) |
| 11.45 – 12.30 | Andreas Hoepner (UC Dublin), "ESG Shareholder Engagement and Downside Risk", discussant Jessica Jeffers (Chicago Booth) |
| 12.30 – 13.15 | LUNCH |
| 13.15 – 14.05 | Enrichetta Ravina (Northwestern University), "Investor Ideology" Ryan Bubb (New York University), "The Party Structure of Mutual Funds" |
| | BREAK |
| 14.15 – 15.00 | Oğuzhan Karakaş (University of Cambridge), "Coordinated Engagements", discussant Hannes Wagner (Bocconi) |
| 15.00 – 15.45 | Samuel Hartzmark (Chicago Booth), "Do Investors Value Sustainability? A Natural Experiment Examining Ranking and Fund Flows", discussant Mariassunta Giannetti (Stockholm School of Economics, SHoF) |
| | BREAK |
| 16.00 – 16.45 | Shan Hua (Henley Business School), "How does the stock market reward companies with a lower carbon footprint?", discussant Thummim Cho (London School of Economics) |
| 16.45 – 17.30 | Philipp Krueger (University of Geneva), "The Sustainability Footprint of Institutional Investors", discussant Gustav Martinsson (KTH, SHoF) |

Figure 4b. SHOF-MFS Conference August 2018: Day 2

Many important themes related to sustainable finance were raised on both days. During day 1, prominent finance researchers like Adair Morse and Laura Starks discussed topics like the relation between ESG factors and financial performance and impact investing with financial stakeholders on the panel and in the audience, which resulted in important insights for setting the stage for sustainable finance in practice:

- Sustainable Finance is about a more long-term perspective and the incorporation of environmental, social and governmental standards in investment decisions (Krueger), it can be observed that ESG investors are

more patient with their portfolio firms and don't sell assets immediately in case of low returns (Laura Starks).

- The major motivations behind ESG investments are positive impact, positive returns, reduction of external costs and risk mitigation (Laura Starks)
- Climate change is increasingly perceived as risk, but financial risk keeps on being the most important consideration (Laura Starks)
- Sustainable corporate behavior is not systematically correlated with positive value, but unsustainable corporate behavior is punished by investors, particularly after negative events – hypothesis that the latter is subject to “hard data” while the former is not easy to assess (Philipp Krueger)
- Many investors with an interest in sustainable finance are not clear on their weighting of sustainability outcomes and financial performance. Impact investors, typically in the venture capital sphere, tend to be more explicit. The typical financial return is on the order of 7% p.a. lower for impact than traditional venture capital. (Adair Morse)
- The willingnesses-to-pay for a positive social impact of investments is about 3 % among respective investors (in terms of the trade-off against positive returns), but both financed organizations and the group of investors are limited due to restrictions like fiduciary duty or “home-bias”



Figure 5. *MFS Director Bo Becker on the panel with Åsa Riisberg (EQT), Anna Ryott (Norrskén), Alex Edman (London Business School) and Adair Morse (University of California Berkeley)*

The second day was more scientific, with paper presentations and discussions ranging following a standard academic format with discussants for each paper. Several participants from day one also decided to join the second day.

Andreas Hoepner, head of the MFS sub-project practical tools, underlined the importance of the conference format: “There is a lot of things going on in the field of sustainable finance, but it is so fragmented, there has been no comprehensive platform for this yet.”

The second day contained a large number of important new working papers in the area. The exchange of ideas was as productive as intended. Importantly, the conference raised the academic profile of the Stockholm School of Economics and the MFS researchers who participated and provided important opportunities to connect and develop new projects. The conference also led to a number of collaborations and ideas for further development.

5. International Engagement and Outreach

The need for international political actions on sustainable finance has been acknowledged more and more in the last years. After the big financial crisis, most of the efforts were related to economic and social damage containment, but recently the environmental standards and the role of finance for climate change mitigation have become more prominent.



In May 2018, the European Commission convoked the Technical Expert Group on Sustainable Finance (TEG), to provide consultation for the establishment of legislative frameworks and standards for green finance. Professor Andreas Hoepner, head of “Practical Tools”, was appointed by the Commission as one of 35 experts from financial institutions, NGO’s and selected academia to develop standards and criteria for economic evaluation. More precisely, the TEG is in charge of developing:

1. technical screening criteria for environmentally sustainable economic activities under the EU taxonomy;
2. an EU Green Bond Standard;
3. a category of "low carbon" indices for use by asset and portfolio managers as a benchmark for a low carbon investment strategy; and
4. metrics allowing to improve disclosure on climate-related information.

The rationale is that at the current state, it is first of all the lack of distinct information that forestalls the transition of finance towards a more sustainable development. “In order to meet the EU energy and climate targets for 2030 and to ensure a transition to a low carbon- and more environmentally sustainable economic model, the EU faces an investment gap of €180 billions of additional investment per year to 2030. Attracting private capital to the activities that have the highest impact on climate is therefore key.

However, there is currently no common understanding of which economic activities can be considered environmentally sustainable for investment purposes, which is one of the factors contributing to this investment gap. Financial institutions presently identify sustainable economic activities and sustainable investable assets in-house and on a voluntary basis. This is time consuming and costly, and the result is that different financial institutions use different taxonomies.”³

The taxonomy, once developed, will have to be used by: Member States for the purposes of any measures setting out requirements on market actors in respect of financial products or corporate bonds that are marketed or deemed as environmentally sustainable and by all financial market participants offering financial products as environmentally sustainable investments or investments having similar characteristics.



³ The EU Commission’s information sheet for applicants for the TEG , p. 3

The other metrics that should be developed aim at the same purpose to provide clarity for investors and clear incentives for companies to perform better. Their application is intended to be voluntary. For Andreas Hoepner, the work of the TEG is both, promising and challenging: “A lot needs to be done to facilitate a sustainable transition of the financial system and especially the real economy it helps funding and hence the TEG marks just the start of a long journey towards better data driven technology solutions. That said, it is tremendously important to thoroughly develop reliable frameworks for sustainable development. Furthermore, policies are more likely to succeed if we have scientific evidence about the role of greenhouse gas transparency in enhancing the performance of companies and the system as a whole. Such evidence is provided by the results of some “Practical Tools” research projects (cf. paper by Liesen et al. 2017 exemplified in 4.1). I am very happy to contribute with this research to provide the groundwork for future legislation. With my appointment focused on the task of developing low-carbon benchmarks, I also look forward to sharing my experiences wherever possible with my colleagues and students at UCD and MFS. I am sure that the insights of the TEG will be valuable to develop further research questions and lately the tools for the financial sector to become a better facilitator for sustainable development.”

6. Finances

The MFS program management and administration are located at the Stockholm School of Economics, who also co-funded the Sustainable Finance conference in August (see table 1). The lion's share of the budget is salary costs (FTE) for the researchers of the five work streams and distributed accordingly to their home universities, with Governance and Policy being the most prominent streams (see figure 6).

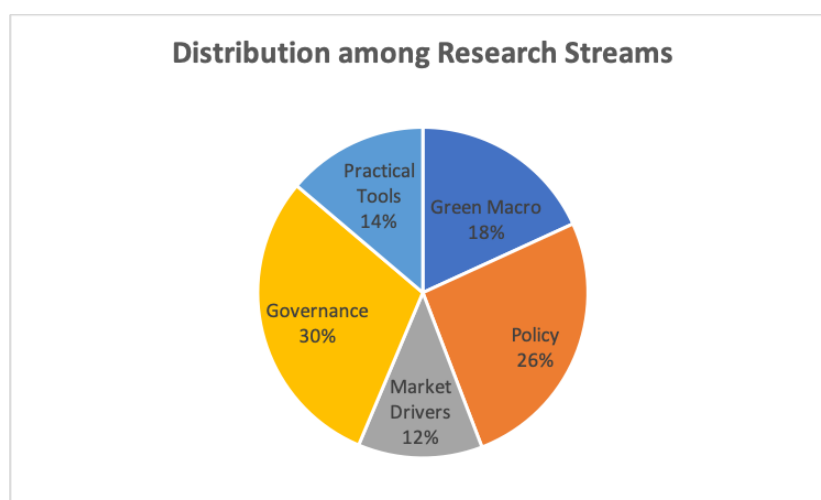


Figure 6. Distribution of the MFS budget 2018 per research topic

| Posts | MISTRA funding | Co funding | Total |
|--------------------------------|------------------|----------------|------------------|
| Salary costs etc. | 817 087 | 260 000 | 1 077 000 |
| Program Board Fees and travels | 350 000 | | 350 000 |
| Conferences and travels | 475 000 | | 475 000 |
| Communications (direct costs) | 100 000 | | 100 000 |
| External services | 100 000 | | 100 000 |
| Strategic reserve | 375 000 | | 375 000 |
| Total | 2 217 087 | 260 000 | 2 477 087 |

Table 1: Costs in 2018 for program management at the Stockholm School of Economics. The table also includes program-wide costs for conferences, travels, seminars, communication and various external services.

7. Looking Ahead

The ambitious work of last three years resulted in some important insights for the future: The interdisciplinarity and internationality of the MFS has inherent value, but requires more direction and coordination, especially with regard to outreach activities. We therefore envision to move closer to the Mistra Center for Sustainable Markets (Misum) and the respective knowledge platform for sustainable finance. Instead of a separate governance structure with program director and a board, we proposed to merge the management and administration with Misum, which is supposed to lead to a more efficient and smooth operation and clarity in communicating with stakeholders, and to produce greater predictability and more effective support for the many researchers involved.

Having this greater Sustainable Finance Platform within the Stockholm School of Economics, we aim to develop and support new work situated at the research frontier of sustainable finance and other disciplines of business and economics. We find means of engaging and collaborating with prominent faculty of other business schools (and universities) as well, accounting for the breadth of the concept of sustainable finance. The ambition is furthermore to provide opportunities for researchers to interact more with each other, industry and other stakeholders. Here, the conference format pioneered by the MFS-SHOF conference in August 2018 can serve as a prototype. The conference was a great success both for outreach and for fostering a productive research environment for sustainable finance. Similarly, the role of SSE and its networks cannot be understated. For example, SSE is one of the founding member institutions of the Global Research Alliance for Sustainable Finance and Investment (GRASFI), and academic network of universities engaging in sustainability work⁴.

⁴ See <https://www.sustainablefinancealliance.org/> for more details. The members, in order of joining, are: University of California, Berkeley, University of Cambridge, Central University of Finance and Economics, Columbia University, École Polytechnique, Frankfurt School of Finance and Management, University of Hamburg, Imperial College London, London School of Economics and Political Science (LSE), Maastricht University, Macquarie University, University of Otago, University of Oxford, Stanford

Finally, we feel opportunistic engagement with policy issues that come up, along the lines of the UNEP report or Svanen brief in MFS Phase 1, is something we hope to build on in the Sustainable Finance Platform. We want to follow-up on successful MFS projects here and include topics that have been missing so far. We see many opportunities to work with new data, in terms of data availability, methodology (e.g., “big data”), and industry needs and issues (e.g., data and analysis of portfolio sustainability and impact).

University, Stockholm School of Economics, University of Toronto, Tsinghua University, University College London, Yale University, University of Zurich.