Global Sustainable Leadership

Sustainability and Finance

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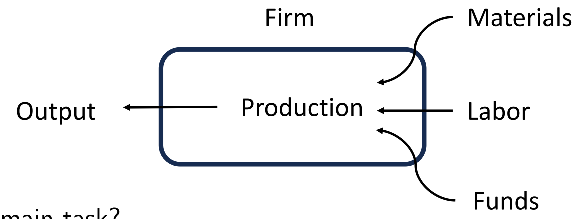
Sustainable Finance

- **Sustainable finance** refers to the process of taking environmental, social and governance (ESG) considerations into account when making investment decisions in the financial sector, leading to more long-term investments in sustainable economic activities and projects (European Commission).
  $\rightarrow$ Environmental considerations might include climate change mitigation and adaptation, as well as the environment more broadly, for instance, the preservation of biodiversity, pollution prevention and the circular economy.
  $\rightarrow$ **Paris Agreement**: "making finance flows consistent with a pathway towards low greenhouse gas (GHG) emissions and climate-resilient development"
  $\rightarrow$ Social considerations could refer to issues of inequality, inclusiveness, labor relations, investment in people and their skills and communities, as well as human rights issues.
  $\rightarrow$ The governance of public and private institutions – including management structures, employee relations and executive remuneration – plays a fundamental role in ensuring the inclusion of social and environmental considerations in the decision-making process.

What is a firm?

- A firm is a combination of different tasks and projects

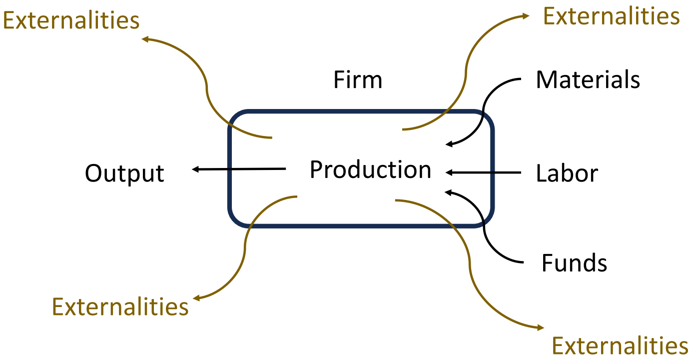


- What is the firm's main task?

$$\underset{\mathbf{p,q,m,l,f}}{maximize}\Big(p \cdot f(m, l, f) - (r \cdot Funds) - (w \cdot Labor) - (p_m \cdot Material)\Big)$$

What about externalities?

- Negative externality: A cost to an uninvolved party generated by another party
  $\rightarrow$ Should negative externalities change a firm's objectives?



Shareholders vs Stakeholders

- **Shareholder view**: A firm's objective should only be maximizing shareholders' value (i.e., profits)
  $\rightarrow$ Friedman: A manager is an employee of the firm's owners, and her main responsibility is to conduct the business in accordance with their desires, which generally will be to make as much money as possible while conforming to the basic rules of the society, both those embodied in law and those embodied in ethical custom.
- **Stakeholder view**: There are negative externalities that a firm does not internalize. Therefore, a firm needs to pay attention to the interests of all the agents who are affected by their decisions.
- Sustainable finance is about the definition of the objectives of firms/projects
  $\rightarrow$, i.e., should firm's objective include ESG-related issues?

Shareholders vs Stakeholders

There are several opposing views!

- Management can almost always rationalize any action by invoking its impact on the welfare of some stakeholder (Tirole, 2001)
- Stakeholder theory expands the power of managers in an unproductive way, increasing the agency costs in the economy (Jensen, 2001)
- Shareholder view depends on the government to handle negative externalities (Hart, Zingales; 2017)
- **Considering all stakeholders in the objective can contribute to firm value (indirectly)!**

Considering Stakeholders

Considering all stakeholders in the objective can contribute to firm value indirectly
→ A better ESG profile implies that the firm cares about its stakeholders

1. A better ESG profile can attract better employees
2. Customers may care about the ESG profiles of the producers
3. A better ESG profile can help a firm against climate change
   → Physical risk
   → Transition risk
4. A better ESG profile can attract cheaper funding opportunities

Firms' ESG profiles and Employees

- Employees may care about their employers' ESG profiles
- Krueger et al. (2023) use employee-employer matched data in Sweden.
- They find that workers earn substantially lower wages in more sustainable firms
  → Workers in the top quintile firms in terms of ESG profiles earn 8.7 percent less than comparable workers in other firms
  → The effect has become larger in recent years and is stronger for high-skilled workers
- Edmans (2011) finds that firms whose workers have higher work satisfaction have more positive earning surprises.

Firms' ESG profiles and Customers

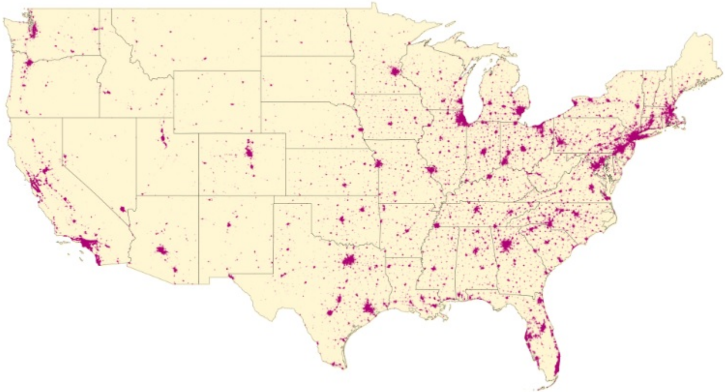
- Customers may care about the ESG profiles of the producers
- Meier et al (2024) use barcode-level sales data in the US and find that customers care about producers' ESG profiles
  → When a product whose producer has a better ESG profile enters the market, the sales of other products decrease
  → When a producer experiences an environmental scandal, its sales decrease
  → Areas that experience a natural disaster become more sensitive to producers' ESG profiles
- These findings suggest that ESG profiles may improve firms' cash flows

Firms' ESG profiles and Climate Change

- Can a better ESG profile provide protection for the firm against climate change?
- There are two main ways that climate change is affecting firms
  $\rightarrow$ Physical risk
  $\rightarrow$ Transition risk

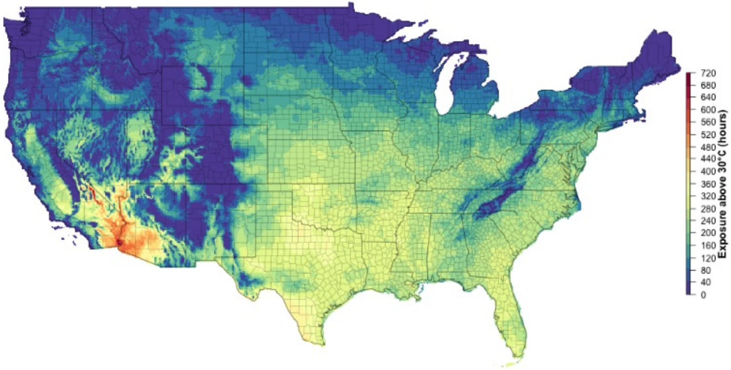
Physical risk

- Physical risk refers to the physical impacts of climate change on firms
  $\rightarrow$ Location of public firms in the US



Physical risk

- Physical risk refers to the physical impacts of climate change on firms
  → Heat



Physical risk

- Physical risk refers to the physical impacts of climate change on firms
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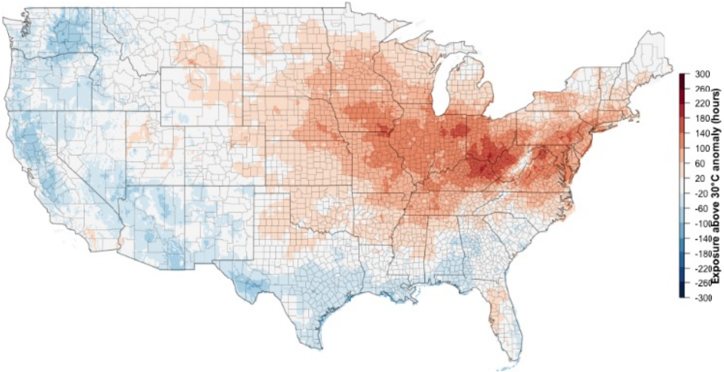
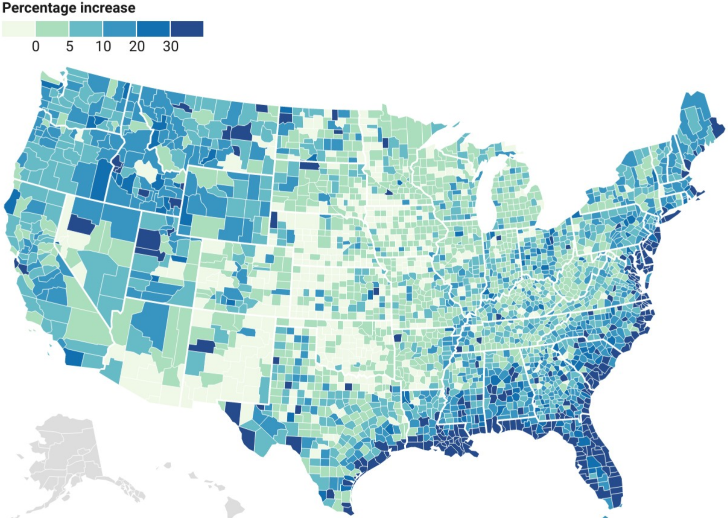


Physical risk

- Physical risk refers to the physical impacts of climate change on firms
  $\rightarrow$ Flood



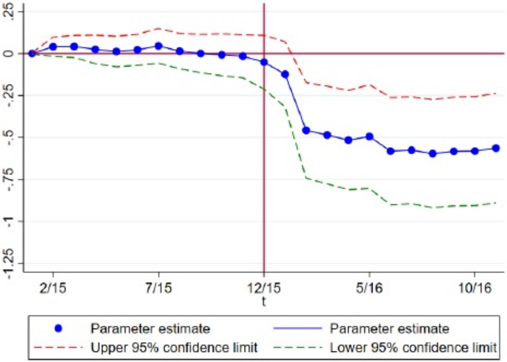
Transition risk

- Transition risk refers to risks that the transition to a low-carbon economy entails
- This transition comes with several binding policies that can affect firms' profits
  $\rightarrow$ EU-ETS
- Transition may require investment in new technology
- Due to the transition, the markets that the firm operates in may change
  $\rightarrow$ Product market, labor market
- Does having a better ESG profile help a firm with transition risks?
  $\rightarrow$ Probably, as this firm has to make fewer changes to comply with the new framework

Firms' ESG profiles and Funding Conditions

- To the extent that it lowers the firm risk, a better ESG profile can lower funding costs
  $\rightarrow$ Lee et al. (2023)

$$EnvProf_j = HighEmissionsInd_j$$



Global Sustainable Leadership

The Role of Investors

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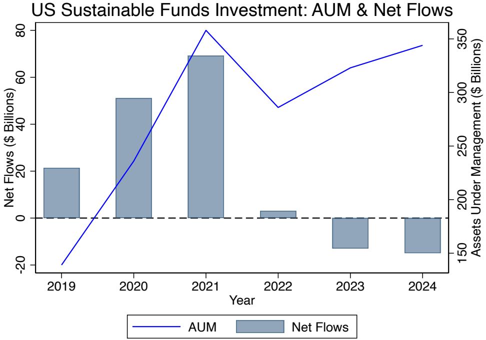
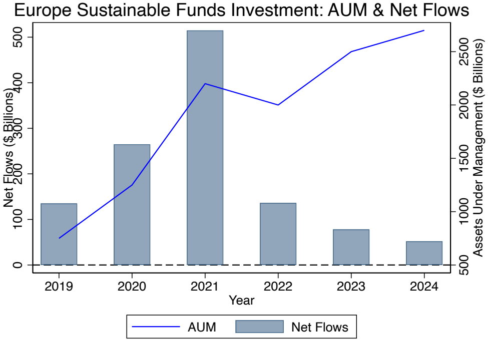
Investors

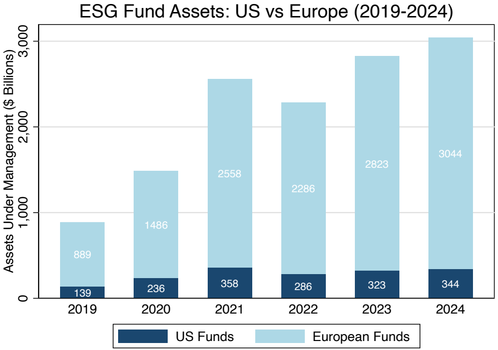
- Investors provide funds and demand a return in turn
  $\rightarrow$ Their preference for the portfolio firms (firms that are funded) is crucial
- There is interest in ESG funds, but it has been weak in the recent years





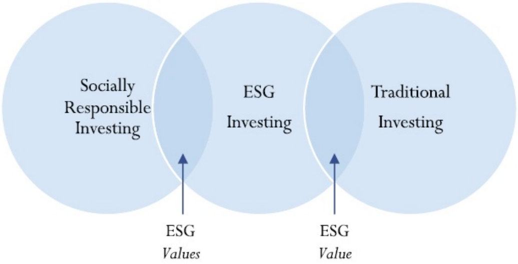
Investors

- Investors provide funds and demand a return in turn
  $\rightarrow$ Their preference for the portfolio firms (firms that are funded) is crucial
- ESG funds are much larger in Europe!



Increase in ESG Investments

- Why is there an interest in ESG-related investments?
  → Two main possible reasons (Starks 2023)
  1. Investors expect that ESG-related investments would yield higher returns
     → Pecuniary reasons
  2. Investors care about ESG-related issues and would like to make an impact
     → Nonpecuniary reasons
     → This preference suggests that investors are willing to accept lower returns



Investors-Pecuniary Motives

- What are the possible channels through which a better ESG profile improves the returns?
  1. A better ESG profile can improve the firm performance
     $\rightarrow$ via better employees
     $\rightarrow$ via customers
     $\rightarrow$ via mitigating climate-related risks
     $\rightarrow$ via cheaper funding
  2. Capital markets might be inefficient and not pricing ESG-related risks
     $\rightarrow$ Physical risks
     $\rightarrow$ Transition risks
- Asset management companies use the pecuniary motive to promote their ESG funds
- This motive suggests that ESG-tilted funds/investments should yield higher returns

Investors-Nonpecuniary Motives

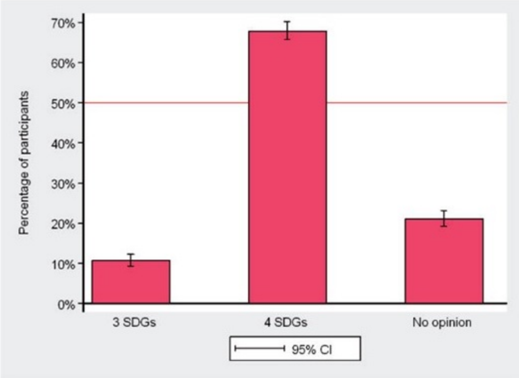
- Investors are willing to accept lower returns if their investments have a better ESG profile
- This does not mean that the investors have a lower utility
  $\rightarrow$ The idea of helping the world can generate higher utility, even though the return is lower
- This motive suggests that ESG-tilted funds/investments may yield lower returns
- Thus, finance can facilitate the needed transition by making the funds cheaper
  $\rightarrow$ How much are investors willing to pay or accept lower returns to have a social impact?
- Issuance of green bonds reflects this motive
  $\rightarrow$ The issuers hope that the return of such bonds would be lower than the suggested market rate

Investors-Nonpecuniary Motives

- Why do investors have nonpecuniary motives?
    1. Social norms (Hong&Kacperczyk, 2009)
       → Investors don't want to make money by using questionable assets
       → Sin stocks: Tabacco, alcohol, gaming
    2. Citizen values (Benabou&Tirole, 2010)
       → Delegated philanthropy
    3. Legal framework (Liang&Renneboog, 2017)
       → Common law prefers private market solutions and ex-post interventions. Civil law tries to fix market failures with ex-ante interventions.
       → If existing laws handle market failures well, firms in civil law do not have to pursue ESG-related activities. If civil law broadens firms' responsibilities to stakeholders from shareholders, firms may engage in ESG-related activities.
       → Firms in civil law countries have higher ESG scores

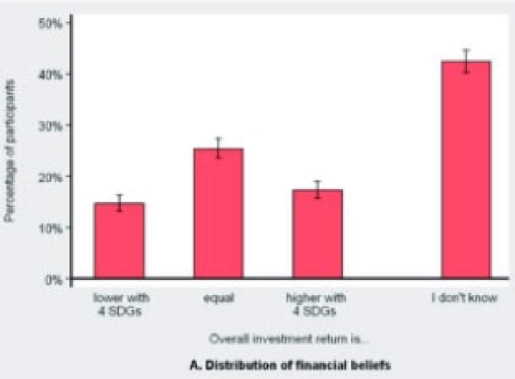
Evidence for Nonpecuniary Motives

- Are pensioners willing to accept lower returns if the fund invests in green assets? (Bauer, Ruof, Smeets 2021)
- Question: Do you want Pensioenfonds Detailhandel to add the fourth sustainable development goal 'Responsible consumption and production'?



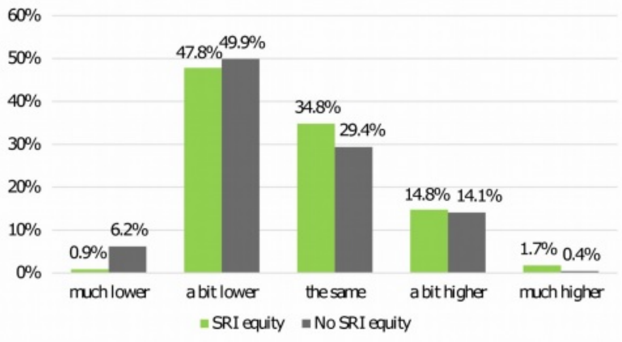
Evidence for Nonpecuniary Motives

- What do pensioners think about the investments of their pension fund? (Bauer, Ruof, Smeets 2021)
- Question: When do you think the investment return is highest?



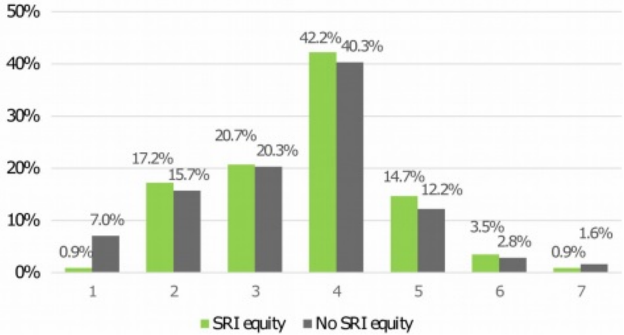
Evidence for Nonpecuniary Motives

- How do Dutch mutual fund investors think about ESG-related investments? (Bauer, Ruof, Smeets 2021)
- Question: I expect that the returns of socially responsible equity funds compared to conventional equity funds are



Evidence for Nonpecuniary Motives

- How do Dutch mutual fund investors think about ESG-related investments? (Bauer, Ruof, Smeets 2021)
- "Socially responsible equity funds are more risky than conventional equity funds," where 1 corresponds to "Fully disagree" and 7 to "Fully agree"



Evidence for Nonpecuniary Motives

- How do American retail investors think about ESG-related investments? (Giglio et al., 2023)
- What is your expected returns of ESG investments?

	Panel A: Expected 10Y Return of ESG Investments & Stock Market (% p.a.)									
	Mean	SD	P5	P10	P25	P50	P75	P90	P95	N
Pooled ESG	5.60	5.58	0.1	2	3	5	7	10	12	18,232
Pooled Market	6.98	3.53	2.5	3	5	7	8	10	12	18,090

Evidence for Nonpecuniary Motives

- How do American retail investors think about ESG-related investments? (Giglio et al., 2023)
- Exposure to climate change and political view

By Flood Risk Exposure	
Low	-1.38
Medium	-1.42
High	-1.41
By Political View in Location	
Democratic	-1.27
Republican	-1.62

Evidence for Nonpecuniary Motives

- How do American retail investors think about ESG-related investments? (Giglio et al., 2023)
- Opinion on ESG investment

Panel C: Expected Excess 10Y Return of ESG Investments (% p.a.) by Other Questions

	Mean	SD	P5	P10	P25	P50	P75	P90	P95	N
By Reasons of ESG Investment										
ESG will outperform	1.39	4.23	-4	-2	0	1	3	5	9	1,214
ESG hedges climate risk	-0.40	4.12	-6	-4	-2	0	1	3	6	3,986
It's the right thing to do	-0.82	3.40	-5	-4	-2	-1	0	2	4	4,503
No specific reason	-2.68	3.87	-10	-7	-4	-2	0	0	2	7,989
By Climate Change Concerns										
Low	-3.35	4.67	-13	-9	-5	-3	-1	0.5	2	2,985
Moderate	-1.64	3.70	-8	-5	-3	-1	0	1.1	3	3,137
High	-0.76	3.77	-6	-4	-2	-0.5	0.5	2	5	6,044

Evidence for Nonpecuniary Motives

- How do American retail investors think about ESG-related investments? (Giglio et al., 2023)
- Actual ESG investment

Panel D: Expected Excess 10Y Return of ESG Investments (% p.a.) by ESG Holdings

	Mean	SD	P5	P10	P25	P50	P75	P90	P95	N
By ESG Investments										
Has no ESG Investments	-1.48	4.04	-8	-5.3	-3	-1	0	2	4	17,137
Has ESG Investments	0.30	3.75	-5	-3	-1	0	2	4	6.5	633

Evidence for Nonpecuniary Motives

- These are retail investors. What about institutional investors?
- Krueger et al. (2020)
  $\rightarrow$ ESG profile is not the main concern!

A. Ranking of importance of investment risks (N = 406)						
	Financial risk	Operating risk	Governance risk	Social risk	Climate risk	Other environ. risk
Percentage top risk	51	15	12	11	10	4
Mean ranking	2.2	2.9	3.3	3.7	4.0	4.6

Evidence for Nonpecuniary Motives

- The importance of reputation for climate risks (Krueger et al. (2020))

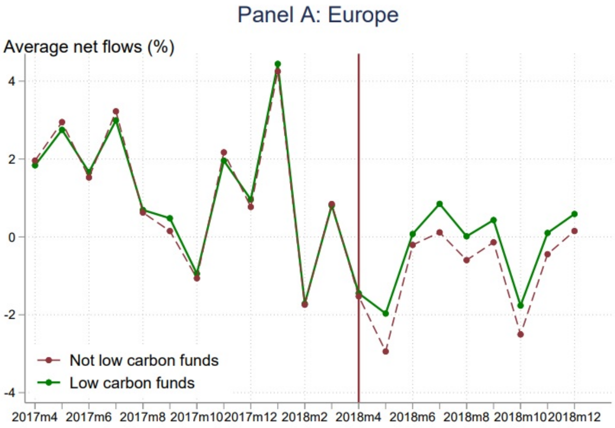
Motivation to incorporate climate risks into the investment process		% with 5 ("strongly agree") score (1)	Mean score (2)
(1)	Protects our reputation	29.7	4.03
(2)	Is a moral/ethical obligation	27.5	3.88
(3)	Is a legal obligation/fiduciary duty	27.0	3.87
(4)	Is beneficial to investment returns	25.2	3.85
(5)	Reduces overall portfolio risk	23.5	3.85
(6)	Reflects our asset owners' investment preferences	22.6	3.88
(7)	Reduces tail risks	21.4	3.81
(8)	Allows us to address negative spillovers	19.7	3.77
(9)	Helps attract fund flows	18.5	3.69
(10)	Is increasingly stressed by proxy voting advisors	18.2	3.68
(11)	Follows the concerns of other institutional investors	15.6	3.68

Evidence for Nonpecuniary Motives

- These are all surveys. Is there a way to assess the motives in the real world?
- Morningstar introduced a mutual fund carbon score for the first time in April 2018.
- How do investors react to this release of new information?
    1. If investors care about carbon scores, they may reduce their investments in high-carbon funds
    2. If investors do not care about carbon scores, nothing will change

Evidence for Nonpecuniary Motives

- Ceccarelli et al. (2023) find that



Evidence for Nonpecuniary Motives

Kontz (2025)

- Does the greenness of a loan affect the investor's demand for that loan, and how does this affect the interest rates?
- Asset-Backed Securities (ABS): A pool of loans. Pooling reduces the riskiness.
- Holding the riskiness constant, auto loans ABSs with better ESG profiles (ESG profiles of their lenders) enjoy a higher price
  $\rightarrow$ Since the riskiness is the same, the returns of green and brown ABSs are the same.
  $\rightarrow$ This implies that investors are happy to earn less if their assets are greener.
- Interesting fact about the ESG scores of auto ABS and actual emissions of the cars
  $\rightarrow$ Investors use the banks' ESG scores to assess the auto ABSs
  $\rightarrow$ However, the auto ABSs of the banks with better ESG scores emit more carbon!
  $\rightarrow$ Thus, investors contribute to emissions while thinking that they are doing something good

Investors-General Equilibrium

- What do these findings suggest for the returns?
- Preference for ESG should increase the price of better ESG stocks, lowering the returns
- But, we need to consider how firms would react
  $\rightarrow$ Value maximizing managers would want to exploit the preference for ESG
  $\rightarrow$ These managers may make the needed investment to make their firms attractive
  $\rightarrow$ If demand and supply increase in tandem, the price may not even change!
- The return difference between good (green) and bad (brown) firms can be given by

$$r_b - r_g = \frac{m}{q}$$

  where r is return, m is the cost of firm transformation to "g", q is Tobin's q (the price of firm capital)

Cost of Capital and ESG Profiles

- Why do we care about the stock price?
- What is the relationship between stock price and cost of capital?

Cost of Capital

- Cost of capital is the cost of raising funds that a firm faces
- The return of a project must be higher than the cost of capital to generate positive yields for the investors
  $\rightarrow$ Cost of capital is also known as the hurdle rate
- Typically, firms use both debt and equity to fund a project (capital). Thus, a firm's cost of capital is a weighted average of the costs of equity and debt
  $\rightarrow$ This is known as the Weighted Average Cost of Capital (WACC)

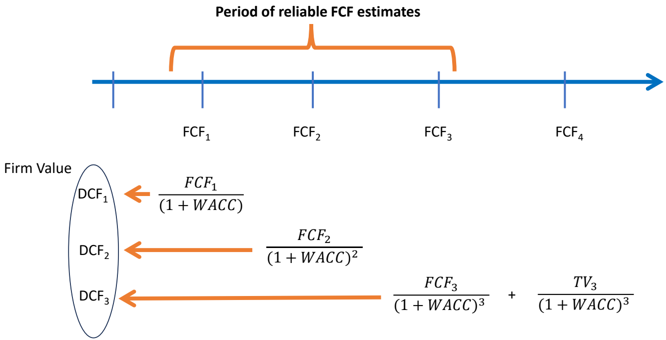
$$WACC = (r_e \times \frac{E}{(E+D)}) + (r_d \times (1-T) \times \frac{D}{(E+D)})$$

  r_e: cost of equity (return), r_d: cost of debt, T: corporate tax rate, E: equity, D: debt
- Lower the r_e, the lower the WACC, and vice versa

Cost of Capital and Firm Value

- Firm value is the sum of the free cash flow (FCF) that the firm will generate
- Due to risk, we need to discount the cash flows with the appropriate risk factor
- WACC is the appropriate risk factor as it reflects the firm risk correctly

  $\rightarrow$ Higher the WACC, lower the firm value, and vice versa



ESG Profiles and Returns

- How is firms' ESG profile related to stock market returns?
- The main finding is that a worse ESG profile is associated with higher returns!
  $\rightarrow$ Different ESG profile proxies: Sin stocks, ESG scores, carbon emissions
  $\rightarrow$ Different samples: industries, regions, time periods
- E.g., Bolton and Kacperczyk (2021) find that firms with high carbon emissions yield 2.3 percent higher stock market returns

ESG and Impact Investors

- Some investors that have nonpecuniary motives would like to change (improve) the invested firm
  $\rightarrow$ Impact investing
- Note that ESG investing aims to invest in good firms. It does not aim at changing the firms
- How can investors impact a firm?
- Does impact investing create value for the shareholders?

ESG and Impact Investors

- Flammer (2015) studies impact investing in ESG framework
- Investors use proposals to impact firms and shareholders vote on these proposals

Company:	Lear Corporation
Meeting Date:	May 11, 2006
Proposal:	(...) [T]he shareholders request that the company commit itself to the implementation of a code of conduct based on the aforementioned ILO human rights standards and United Nations' Norms on the Responsibilities of Transnational Corporations with Regard to Human Rights, by its international suppliers and in its own international production facilities, and commit to a program of outside, independent monitoring of compliance with these standards.
Voting Result:	Rejected (49.8% of the votes)

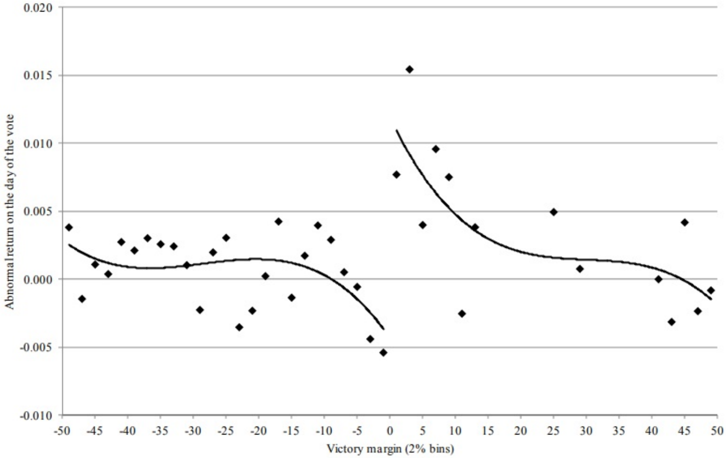
ESG and Impact Investors

- Flammer (2015) studies impact investing in ESG framework
- Investors use proposals to impact firms and shareholders vote on these proposals

Company:	HCC Insurance Holdings, Inc.
Meeting Date:	May 10, 2007
Proposal:	The Shareholders request that management implement equal employment opportunity policies based on the aforementioned principles prohibiting discrimination based on sexual orientation and gender identity.
Voting Result:	Passed (52.2% of the votes)

ESG and Impact Investors

- Flammer (2015) finds that proposals that favor ESG increase firm value
  $\rightarrow$ She uses a regression discontinuity design to show the causal effect



ESG and Impact Investors

- Divestment or exclusion can be used by impact investors
- Main idea: Divestment-exclusion reduces the stock prices. Lower stock prices can alter the firm business, e.g., via managers' compensation.
- Literature finds that excluded assets (i.e., sin stocks) tend to have higher yields
- Divestment/exclusion may not be ideal ways to affect firms
  $\rightarrow$ The negative stock market effect does not last long
  $\rightarrow$ Investors who do not share the same values collect the excluded shares with low prices
  $\rightarrow$ After selling the shares, the investor loses her right to vote, meaning that the investor cannot offer any changes anymore

Asset Managers vs Investors

- Asset managers collect funds from investors and make investments on their behalf. The fiduciary duty of these managers is to generate the highest returns while catering to investors' needs.
- What happens if managers care about ESG profiles of their portfolios but investors don't?
  $\rightarrow$ Climate-focused mutual funds have experienced a 75% decline in investments in the last two years
- Aiming at better ESG profiles could be against the fiduciary duty if better ESG profiles do not translate into higher returns.
  $\rightarrow$ Ex: An employee sues his employer, American Airlines. Blackrock manages American's pension funds and it considers ESG profiles of the portfolio. Judge O'Connor agrees that American violated its fiduciary duty since Blackrock does ESG investment (, which is not profit maximizing).
- Blackrock, JPMorgan, and State Street have left climate-related initiatives recently.

Asset Managers vs Investors

Edmans, Gosling, Jenter (2024)

- Survey 509 equity portfolio managers between Nov 2023 and Feb 2024.
- Managers think that the ES profile is the least important factor for firm performance. The ES could be a good return predictor because it is correlated with other firm-level characteristics.
- Most managers do not sacrifice even one basis point due to poor ES performance because of their fiduciary duties.
- Managers take actions that may improve ES profiles only if their mandates say so.
- Thus, a change in investor demand will affect how managers behave.