Discussion: The Greenium Matters

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Praise

- Timely
- State of the art measurement of risk premium (follows Gagliardini et al., 2016)
- Innovative approach to measuring “greenness”
- Applications for financials and for supervisors:
  - Hedging against transition risk
  - Measuring financial stability implications of the energy transition (stress testing)

Questions

- Scope of emissions?
- What is the green factor coefficient? Not shown in paper.
- How does the green factor lead to portfolio losses in MES-approach? Set-up differs from Acharya et al. (2010).

Comments (i/iv)

- **How flexible is the definition of the "greenness"-indicator?**
  - Berg et al. (2019): ESG-ratings diverge substantially between rating agencies, due to reliance on different indicators and aggregation rules.
  - Would results differ much if a different indicator is used?

Comments (ii/iv)

- **What would the risk premium be if you add oil and ETS-prices as additional factors?**
  - Consider table 1: it's based on Jan 2017 to Aug 2018 – a period in which
    - Oil prices ranged from less than 45 USD/barrel to more than 70 USD/barrel
    - The carbon price under the EU Emmissions Trading System ranged from ca. 5 EUR/ton to more than 20 EUR/ton

Portfolio	Mean	Std	Kurt	Skew	Sharpe	t-stat
$\tilde{R}$	1.102	0.497	3.744	-0.391	0.204	2.522
$\tilde{R}^g$	0.943	0.502	4.097	-0.593	0.188	2.315
$\tilde{R}^c$	1.732	0.586	5.210	-0.632	0.296	3.643
$\tilde{R}^b$	1.425	0.638	6.985	-0.909	0.224	2.754

Comments (iii/iv)

- **Can you say that green stocks are "less risky" (ceteris paribus)? Could it be that demand and supply are unbalanced?**
  - Comparison: Green bonds are issued at a premium, which is likely caused by demand exceeding supply (see, e.g., Ehlers and Packer, 2017)

Comments (iv/iv)

- **Are T-bills the right proxy for the risk-free rate in European context?**
  - Why not use a risk-free rate based on European data?

Suggestions for further research

- Is it possible to obtain more specific results?
  - Sector-specific greeniums
  - The “marginal greenium” for becoming slightly more green

- Apply methodology to broader ESG-factors

Practical application: DNB stress test (i)

- DNB transition risk stress test: Vermeulen et al., 2018/2019

- Sector-level equity losses:
  1) Macro-economic model to calculate market return, $f_{m,t}$
  2) Sector-specific loading-factor, TVF (Transition Vulnerability Factor)

$$\Delta Equity\ value_{Sector\ i,t} = TVF_{Sector\ i} \cdot f_{m,t}$$

Practical application: DNB stress test (ii)

- TVF is a hypothetical loading-coefficient, based on embodied emissions
- Could be replaced by a sector-specific "green factor"-loading:

$$\Delta Equity\ value_{Sector\ i,t} = b_{g,Sector\ i} \cdot f_{g,t}$$

- This would "ground" the DNB stress test in market data

References

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Thank you!

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