Dissecting Green Returns

Ľuboš Pástor, Robert Stambaugh and Lucian Taylor

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Discussion by: Anna Pavlova (London Business School)

Big Picture

- An important and impactful research agenda (this paper + PST, 2021)
- Clarifies some misconceptions in the industry and academia about green firms' expected returns

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Comments:

1. Measurement of ESG or E, S, and G dimensions of it
2. Data limitations
3. ESG fund flows and stock returns: more validation

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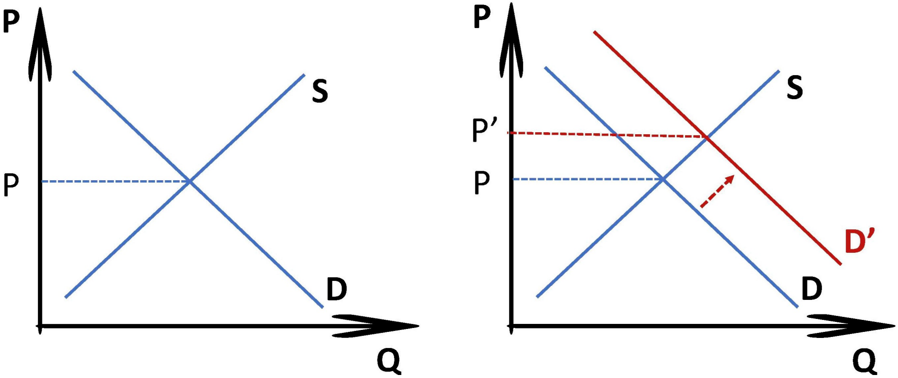
Empirical literature: Expected returns of green firms can be both higher or lower

- Higher: Albuquerque, Koskinen, and Zhang (2019); Lins, Servaes, and Tamayo (2017); Khan, Serafeim, and Yoon (2016); Cheema-Fox, LaPerla, Serafeim, Turkington, and Wang (2019); Edmans (2011)
- Lower: Chava (2014); Bolton and Kacperczyk (2021, 2022); El Ghoul, Guedhami, Kwok, and Mishra (2011)
- Mixed: Larcker, Richardson, and Tuna (2007)

Many practitioners publicly say that green firms have higher stock returns

Cost of Capital Subsidy Explained



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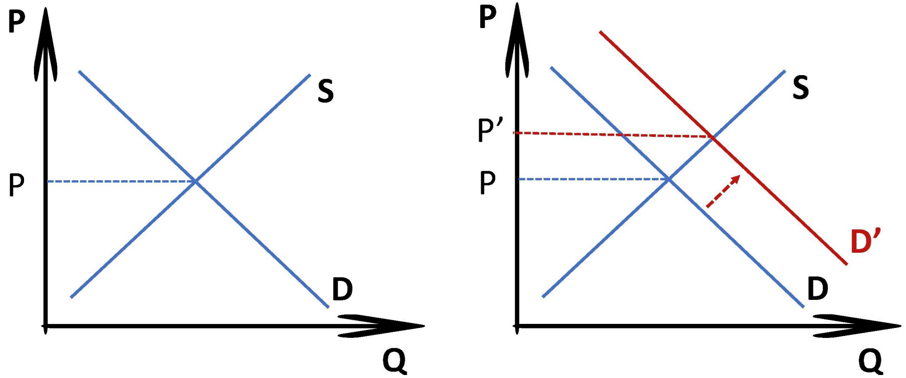

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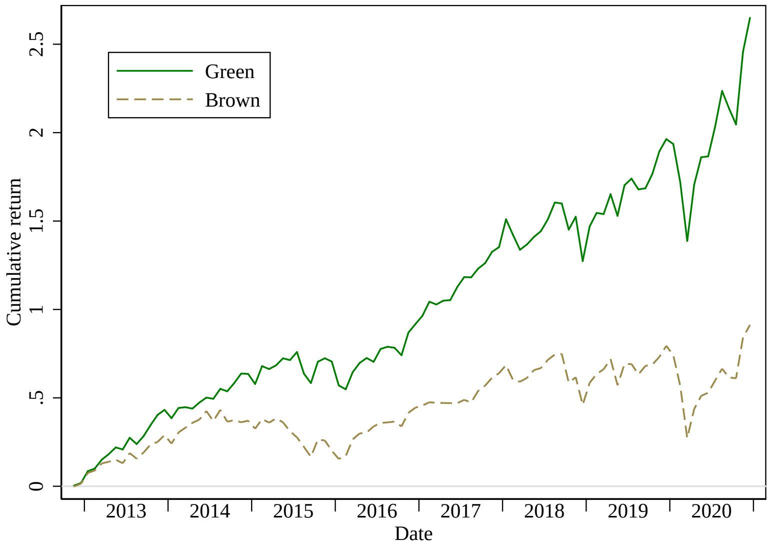
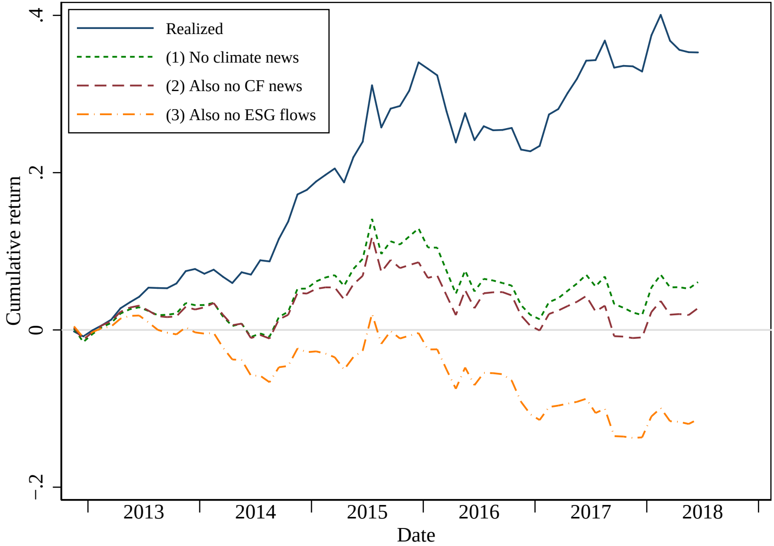
Implicit assumption: stocks are imperfect substitutes in investors' portfolios

The Data Seemingly Suggests the Opposite



Key Figure from the Paper



Comment 1

1. Measurement of ESG or E, S, and G dimensions of it

Correlation matrix of ESG and E ratings

ESG	ISS	MSCI	Refinitiv	RepRisk	SPGlobal	Sustainalytics	Truvalue Labs	Vigeo-Eiris
ISS	1.00							
MSCI	0.43	1.00						
Refinitiv	0.62	0.38	1.00					
RepRisk	-0.34	-0.13	-0.44	1.00				
SP Global	0.60	0.35	0.65	-0.38	1.00			
Sustainalytics	0.13	0.23	0.20	0.08	0.11	1.00		
Truvalue Labs	0.13	0.24	0.07	0.17	0.03	-0.01	1.00	
Vigeo-Eiris	0.72	0.40	0.68	-0.40	0.62	0.08	0.08	1.00

Environmental	ISS	MSCI	Refinitiv	SP Global	RepRisk	Vigeo-Eiris
ISS	1.00					
MSCI	0.26	1.00				
Refinitiv	0.64	0.24	1.00			
SP Global	0.68	0.31	0.72	1.00		
RepRisk	-0.35	0.07	-0.40	-0.36	1.00	
Vigeo-Eiris	0.70	0.32	0.69	0.70	-0.39	1.00

Why are the Correlations so Low?

- Lack of standardization of ESG reporting
- ESG raters rely on different data sources

Source	**CSR Reports**	**Regulatory Filings**	**Media**	**Questionnaires**	**Modelled Data**
Availability	Public	Public	Public	Private	Private
Reporting	Self-reported (Voluntary)	Self-reported (Mandatory)	Third-party (Involuntary)	Self-reported (Voluntary)	Third-party (Involuntary)
Noise Level	Medium	Low	High	Medium	High

- Some raters backfill their data retroactively (Berg et al., 2021)

Measurement Error Problem

- ESG scores are measured with noise
- This noise affects the Green Factor
- Berg, Koelbel, Pavlova, and Rigobon (2021) (BKPR) propose to use an errors-in-variables methodology to de-noise ESG scores:
  - ESG score $=$ True ESG Performance $+$ noise
  - Noise creates attenuation bias
  - Use other noisy measures of same True ESG Performance as Instrumental Variables to correct the bias

Measurement Error Problem (cont.)

- BKPR find big differences between raw rankings of firms and noise-corrected rankings
  - 77% (63%) of firms move up/down one or more decile (quintile) after noise-correction
- Suggestion 1: Robustness check with Sustainalytics scores
- Suggestion 2: Greenness may become significant in individual stock returns decompositions if instrumented with Sustainalytics

Comment 2: Data Limitations

1. Short sample (2012-2020)
   - Risk premium on Green Factor likely time-varying
   - Usually need at least 30-40 years of data to estimate it
   - Would be nice to add 2021 – green stocks underperformed brown

2. Coverage
   - Sample includes around 2200 stocks, out of around 4200
   - Misses smaller companies, but companies in the sample account for most of market value

Comment 3: ESG Fund Flows and Stock Returns

- ESG fund flows are an important force explaining the main result: why green stocks outperformed brown
- Standard asset-pricing factors/characteristics that explain stock returns do not include fund flows
  - Standard view is that fund flows are a reaction, not an explanation
  - To address reverse causality, PST instrument current flows with past flows
  - Add more discussion and guidance
- Is the magnitude of estimated effect of ESG flows on stock returns reasonable?
  - No benchmark in the literature to compare it to
  - Consistency with other methods – e.g., Koijen and Yogo (2019)?

Summary

- ESG investing is a major current trend
- Many open questions, challenges, and opportunities
- An important and thought-provoking paper on ESG investing
- A great area of research!