Discussion of Agarwal, Bao, Ghosh, Zhang, and Zhang (2024)

"The Surprising Performance of Green Retail Investors: A New (Behavioral) Channel"

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SFS Cavalcade Asia-Pacific 2024

Recap

Objective

- Are there unexpected benefits to green investing for retail investors?

Approach

- Proprietary account-level trading data from a major Indian bank (2012-2019)
- Diff-in-diff analysis around heat waves as exogenous shocks

Result

- Retail investors with stronger green preferences achieve better risk-adjusted returns
- Outperformance works through reduced behavioral biases (less disposition effect, better diversification)

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Plan for Discussion

1. Expected returns vs. Realized returns
2. Should green preference matter for behavioral biases?
3. Green investors as green consumers?

Point 1. Expected returns vs. Realized returns

Nature of the trade-off in sustainable demand

Literature: Focus on portfolio allocations based on expected returns.

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Example 1. Giglio et al. (2024)

"Four Facts About ESG Beliefs and Investor Portfolios"

- Investors generally expect ESG investments to underperform the market.

Table 1: Expected ESG Returns

	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

- Non-pecuniary motives are reflected in portfolio holdings

	Panel B: ESG Holdings by Other Questions				
		ESG Portfolio Share			
	Has Any ESG	Mean	P95	P99	P99.5
By Reasons of ESG Investment					
ESG will outperform	7.0%	0.8%	4.5%	23.8%	26.8%
ESG hedges climate risk	4.2%	0.4%	0.0%	11.3%	29.6%
It's the right thing to do	6.9%	1.0%	2.8%	32.2%	46.1%
No specific reason	0.9%	0.1%	0.0%	0.0%	2.0%

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Example 2. Aron-Dine et al. (2024)

"Household Climate Finance: Theory and Survey Data on Safe and Risky Green Assets"

- Households with a taste for green (votes for Green party) expect green equity to outperform traditional equity.

Table 2: Average expected returns on traditional and green equity funds

	Traditional Equity	Green Equity	Greenium
Population Weighted	8.39	8.84	−0.44
Financial Asset Weighted	9.67	8.63	1.03
Non-zero Equity	10.03	8.76	1.27
Non-zero Green Equity	9.55	9.76	−0.22
Top Quartile Financial Assets	10.18	8.48	1.69
Bottom Quartile Financial Assets	8.75	9.38	−0.63
Age <30	6.79	6.56	0.23
Age >60	8.82	8.80	0.02
Positive Convenience yield	8.44	9.79	−1.35
Negative Convenience yield	11.28	5.34	5.94
AfD Voter	12.16	4.87	7.28
Bundnis 90/Die Grunen Voter	8.79	10.23	−1.44

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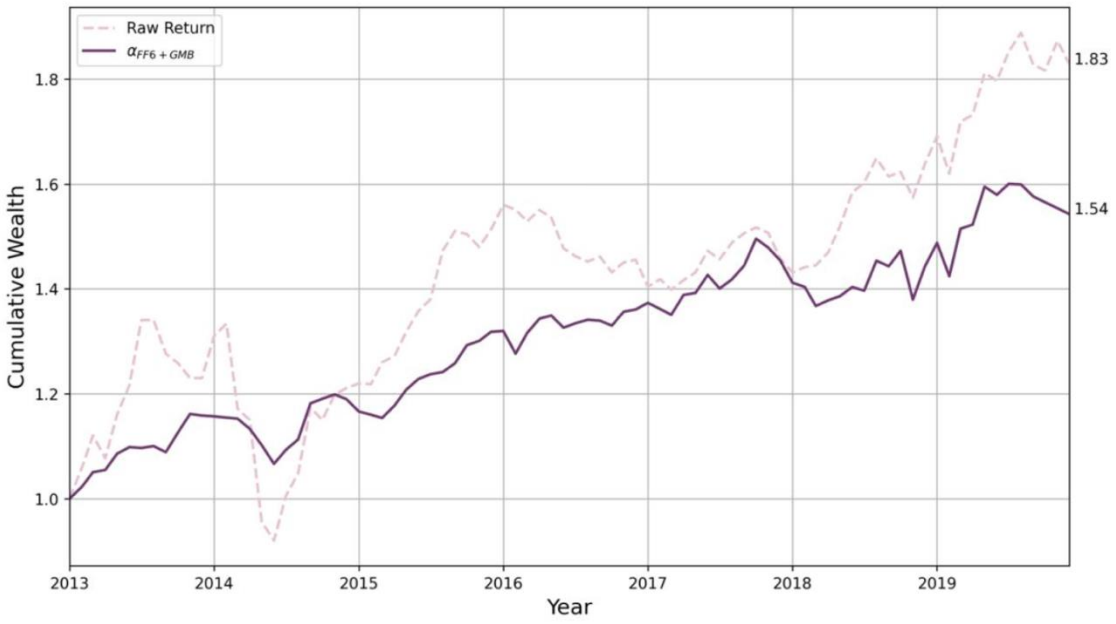
Figure 1 Persistent Outperformance of Green Retail Investors



Authors’ Interpretation:

“Unlike the prevailing view that investors sacrifice performance to earn the non-pecuniary utility from impact investing, we find that greener investors outperform their browner counterparts.”

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"Dissecting Green Returns"

- Green assets can have higher realized returns when agents' demands shift unexpectedly in the green direction
- Purging shocks from climate concerns and earnings leads to negative expected return for green assets

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Example 2. van der Beck (2024)

"Flow-Driven ESG Returns"

- High past realized returns are primarily driven by price impact of large institutional flows towards ESG stocks
- Purging flow-driven price pressure leads to negative realized returns for ESG assets

Expected returns vs. Realized returns

In the context of ESG, the wedge between expected vs. realized returns is non-negligible.

Suggestion 1a: Examine performance of green vs. brown stocks separately

- Current specification masks important heterogeneity:

$$\alpha_{FF6+GMB}^{i,t} = \alpha + \beta \times GreenShare_{i,t} + \gamma \times \text{Controls} + \varepsilon_{i,t}, \qquad (1)$$

Suggestion 1b: Purge the effects of (1) unexpected demand shocks and (2) price impact

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Suggestion 1c: Direct test of whether green investors make better trading decisions

- Each month, form portfolios based on whether stocks were bought/sold by high vs. low GreenShare investors
- Compare performance of stocks bought vs. sold to isolate actual trading decisions

Point 2. Should green preference matter for behavioral biases?

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1. Disposition Effect

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When is this true?

- Consider mean-variance demand but now with constant non-pecuniary benefit θ:

$$D = \frac{E[R] - R_f + \theta}{\gamma \sigma^2}$$

so demand not only depends on expected return and risk but also on θ.

- The sensitivity of D to P remains unchanged by θ.

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- On the other hand, if θ is proportional to the holding value, then you get:

$$D = \frac{E[R] - R_f + \theta P}{\gamma \sigma^2}$$

Then the sensitivity of D to P is dampened by θ.

- **Takeaway**: Requires implicit assumptions about how investors' non-pecuniary benefit (per unit of holding) enters the investor's utility function

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Is it possible that this works in the opposite direction?

- Case 1: Brown stocks have similar risks as green stocks
  - If they simply substitute away from brown (e.g. oil companies) to green (e.g. renewable companies), would this make the investors better diversified?

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Suggestion 2a: Frame this just as test of how the portfolio composition differs post-shock

- Current measure of diversification = # of stocks in each investors' monthly holdings

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Suggestion 2b: Examine reduction in portfolio variance as a measure of diversification

- Approach 1: Realized portfolio variance
- Approach 2: Ex-ante variance (based on portfolio weights and covariance matrix)

Point 3. Green investors as green consumers?

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This is a big deal!

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Suggestion 3: Deeper analysis of “green investors as green consumers”

- How do local environmental shocks affect both consumption and investment behavior?
- Can consumption patterns predict future changes in portfolio greenness?

⇒ Direct evidence on theoretical models linking product and financial markets

Final Thoughts

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  - More explanations on how green preferences may affect behavioral biases

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- **Some questions prompted by the paper for the future:**
  - Can retail investors provide a stabilizing force as ESG/green investing faces political backlash and institutional outflows?
  - Do improved trading behaviors from green stockholdings spill over to how investors trade their non-green stocks?