A Greenwashing Index

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7th Annual Research Conference Macroeconomic and Financial Aspects of Climate Change

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November 13, 2024

WHAT THE PAPER DOES

The paper provides new evidence on the phenomenon of greenwashing by:

► i) constructing a news-implied index of greenwashing salience and anti-ESG sentiment;

► ii) studying how the greenwashing index affects anti-ESG sentiment;

► iii) assessing the extent to which greenwashing affects investors preferences.

MAIN RESULTS

► Over the past 5 years, greenwashing has gained significantly more attention.

► Increase in salience tend to be followed by a rise in anti-ESG sentiment.

► Greenwashing impacts investor behavior heterogeneously:

  ► Retail investors invest less in all types of funds.

  ► Institutional investors invest less in "green" funds.

MEASURING GREENWASHING SALIENCE (I)

"We do not claim to be able to identify individual incidents of greenwashing. Our goal, instead, is to measure greenwashing salience. The hypothesis is that investors become aware of greenwashing through the news and integrate this information into their investment behavior."

MEASURING GREENWASHING SALIENCE (II)

- ▶ Proportion of climate-related articles alluding to corporate greenwashing.

- ▶ Approximately 900k articles from the WSJ (no opinions) over the past 35 years.

- ▶ Two-step procedure:
  - ▶ Step 1: Identify articles related to climate risk.
  - ▶ Step 2: identify those specifically related to greenwashing.

- ▶ Extensive work on fine-tuning the algorithm: validation and testing sets created with 1,5k hand labeled articles.

GREENWASHING AND ANTI-ESG SENTIMENT

$$\text{AntiESG}_t = a_0 + \sum_{j=1}^{3} b_j \, \text{GS}_{t-j} + \epsilon_t.$$

"... we transform them into unexpected shocks by taking the innovations of AR(1) models ..."

▶ Shocks refer to unexpected changes in a variable.

▶ If another variable can predict the shock, it loses its unexpected nature.

▶ Why not run a simple LP using the Anti-ESG index directly?

DOES GREENWASHING AFFECT INVESTORS' BEHAVIORS? (I)

- ► Impact of greenwashing on monthly flows of US domiciled funds and ETFs.

- ► Analysis across all share classes + focus on different target investor groups.

- ► Mechanism: greenwashing drives general anti-ESG sentiment, which in turn influences investor trading behavior in these funds.

- ► Key dimensions:
  - ► Share classes with Morningstar's highest Star-rating (performance);
  - ► Share classes with Morningstar's highest Globe-rating (sustainability);
  - ► Funds with ESG-related terms in their names.

DOES GREENWASHING AFFECT INVESTORS' BEHAVIORS? (II)

The partition of the Globe-Star space makes difficult to interpret marginal effects:

"Share classes that have the highest sustainability rating (5G), but not the highest star rating (5S), are denoted as (5G \ 5S). Similarly, share classes that have the highest star rating but not the highest sustainability rating are denoted as (5S \ 5G). Finally, share classes that are both high-performing and sustainable are in (5S ∩ 5G)."

Why not use a dummy variable for the highest sustainability rating, a dummy for the highest star rating, and an interaction term between them?

"Share classes that are 5S attract more capital, whether they are sustainable or not. The effect is statistically significant and holds across retail and institutional share classes."

	Time Fixed Effects		
	All	Retail	Institutional
$D_{5G \setminus 5S}$	0.001	0.001	0.001
	(0.001)	(0.001)	(0.002)
$D_{5S \setminus 5G}$	0.017***	0.015***	0.020***
	(0.002)	(0.001)	(0.002)
$D_{5G \cap 5S}$	0.020***	0.020***	0.020***
	(0.002)	(0.002)	(0.003)
Ad. green $\times D_{5G \cap 5S}$	0.021***	0.010	0.027***
	(0.004)	(0.006)	(0.005)

DOES GREENWASHING AFFECT INVESTORS' BEHAVIORS? (IV)

	Time Fixed Effects		
	All	Retail	Institutional
$D_{SG \setminus \backslash S}$	0.001	0.001	0.001
	(0.001)	(0.001)	(0.002)
$D_{SS \setminus SG}$	0.017***	0.015***	0.020***
	(0.002)	(0.001)	(0.002)
$D_{SG \cap \backslash S}$	0.020***	0.020***	0.020***
	(0.002)	(0.002)	(0.003)
Ad. green $\times D_{SG \cap \backslash S}$	0.021***	0.010	0.027***
	(0.004)	(0.006)	(0.005)
GS_{t-1}			
GS_{t-2}			
GS_{t-3}			
$GS_{t-1} \times D_{SS \setminus SG}$	-0.011	-0.009	-0.016
	(0.021)	(0.017)	(0.032)
$GS_{t-1} \times D_{SG \setminus \backslash S}$	-0.011	-0.004	-0.028
	(0.013)	(0.012)	(0.024)
$GS_{t-1} \times D_{SG \cap \backslash S}$	0.024	0.035	0.005
	(0.025)	(0.027)	(0.037)
$GS_{t-1} \times$ Ad. green $\times D_{SG \cap \backslash S}$	-0.157***	-0.029	-0.238***
	(0.044)	(0.070)	(0.067)
$GS_{t-2} \times D_{SS \setminus SG}$	-0.051**	-0.041*	-0.070*
	(0.026)	(0.021)	(0.036)
$GS_{t-2} \times D_{SG \setminus \backslash S}$	-0.008	-0.006	-0.010
	(0.010)	(0.012)	(0.015)
$GS_{t-2} \times D_{SG \cap \backslash S}$	-0.031	-0.035	-0.034
	(0.037)	(0.039)	(0.051)
$GS_{t-2} \times$ Ad. green $\times D_{SG \cap \backslash S}$	-0.200***	-0.036	-0.324***
	(0.046)	(0.081)	(0.071)
$GS_{t-3} \times D_{SS \setminus SG}$	-0.059**	-0.053***	-0.069**
	(0.024)	(0.020)	(0.034)
$GS_{t-3} \times D_{SG \setminus \backslash S}$	-0.034**	-0.037***	-0.028
	(0.013)	(0.010)	(0.027)
$GS_{t-3} \times D_{SG \cap \backslash S}$	-0.051*	-0.099**	0.017
	(0.026)	(0.043)	(0.048)
$GS_{t-3} \times$ Ad. green $\times D_{SG \cap \backslash S}$	-0.153***	-0.060	-0.258***
	(0.057)	(0.094)	(0.050)
Controls	Yes	Yes	Yes
Observations	543044	386687	155015
R^2	0.030	0.027	0.036

DOES GREENWASHING AFFECT INVESTORS' BEHAVIORS? (V)

▶ Carryover effect from past lags appears to reverse the sign if fund is advertised as "green" and if innovation on greenwashing index is positive.

	Time Fixed Effects		
	All	Retail	Institutional
$D_{SG \backslash SS}$	0.001	0.001	0.001
	(0.001)	(0.001)	(0.002)
$D_{SS \backslash SG}$	0.017***	0.015***	0.020***
	(0.002)	(0.001)	(0.002)
$D_{SG \backslash SS}$	0.020***	0.020***	0.020***
	(0.002)	(0.002)	(0.003)
Ad. green $\times D_{SG \backslash SS}$	0.021***	0.010	0.027***
	(0.004)	(0.006)	(0.005)
GS_{t-1}			
GS_{t-2}			
GS_{t-3}			
$GS_{t-1} \times D_{SS \backslash SG}$	-0.011	-0.009	-0.016
	(0.021)	(0.017)	(0.032)
$GS_{t-1} \times D_{SG \backslash SS}$	-0.011	-0.004	-0.028
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$GS_{t-1} \times D_{SG \backslash SS}$	0.024	0.035	0.005
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$GS_{t-1} \times$ Ad. green $\times D_{SG \backslash SS}$	-0.157***	-0.029	-0.238***
	(0.044)	(0.070)	(0.067)
$GS_{t-2} \times D_{SS \backslash SG}$	-0.031	-0.041	-0.070
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	(0.026)	(0.043)	(0.048)
$GS_{t-3} \times$ Ad. green $\times D_{SG \backslash SS}$	-0.153***	-0.060	-0.258***
	(0.057)	(0.094)	(0.050)
Controls	Yes	Yes	Yes
Observations	543044	386687	155015
R^2	0.030	0.027	0.036

► Mechanism: greenwashing drives general anti-ESG sentiment, which in turn influences investor trading behavior in these funds.

► Why not assess this claim within a Panel SVAR framework, using a Cholesky identification scheme?

$$\begin{bmatrix} a_1 & 0 & 0 \\ b_1 & b_2 & 0 \\ c_1 & c_2 & c_3 \end{bmatrix} \begin{bmatrix} GS_t \\ AntiESG_t \\ FFlow_{i,t} \end{bmatrix}$$

► The chosen ordering of variables reflects the mechanism specified above.

THANK YOU!