WHAT DRIVES CAPITAL TO GREEN COMPANIES IN EMERGING MARKETS: EVIDENCE FROM INVESTMENT FUNDS

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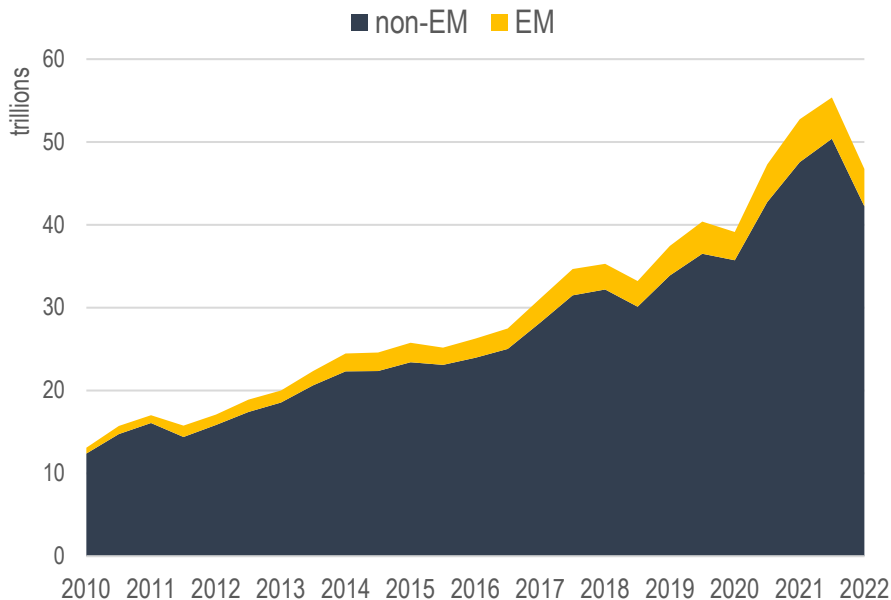OECD
BETTER POLICIES FOR BETTER LIVES

Motivation

- Achieving net-zero requires stronger mobilisation of both public and **private** capital flows

- As **fiscal space is shrinking**, as a result of the COVID-19 crisis and other current geopolitical developments, public finance alone would not be sufficient

- **Investment Funds and capital markets** provide one possible source/avenue of financing (so-called green finance). Also relevant sector from a **transition risk** perspective (fossil fuel holdings)

- Our empirical contribution focuses on a comprehensive portfolio-level dataset of the largest **37 000 investment funds** in the world to provide a precise picture of 1) the current state of play and 2) its drivers
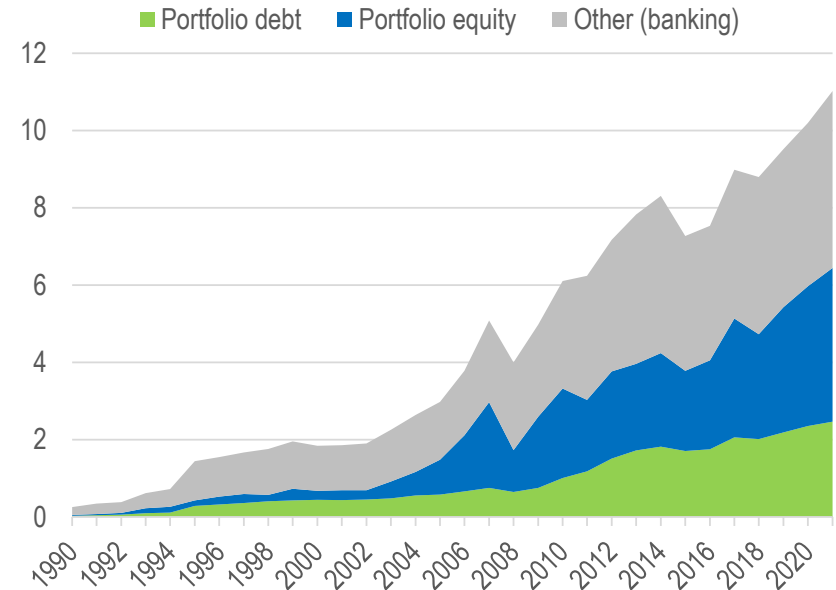
Investment funds provide an increasingly large share of financing to emerging markets

- NBFIs represent:
  - **50% of EMs' financial intermediation**
  - **50% of EMs' external financing**

Assets under management of investment funds (tln USD)

Source: Morningstar, OECD calculations
Note: Sample of the 37000 largest investment funds (AUM> USD 100 mln).

Breakdown of EMs' external financing (portfolio and banking liabilities, tln USD)

Source: External Wealth of Nations Database, OECD calculations
Note: Sample of 19 EMs. Stock of external liabilities of EMs. FDI is excluded.

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"Sustainable" investing boomed the last few years, but only a small part reaches EMs

AUM of sustainable funds (tln USD)

■ non EM ■ EM

[Area chart showing AUM of sustainable funds from 2010 to 2022, with y-axis in trillions from 0.0 to 4.0. The non EM portion (dark blue) grows from approximately 0.7 in 2010 to over 3.0 in 2021, then declines to about 2.7 in 2022. The EM portion (yellow) is a thin band on top, peaking around 3.3 in 2021.]
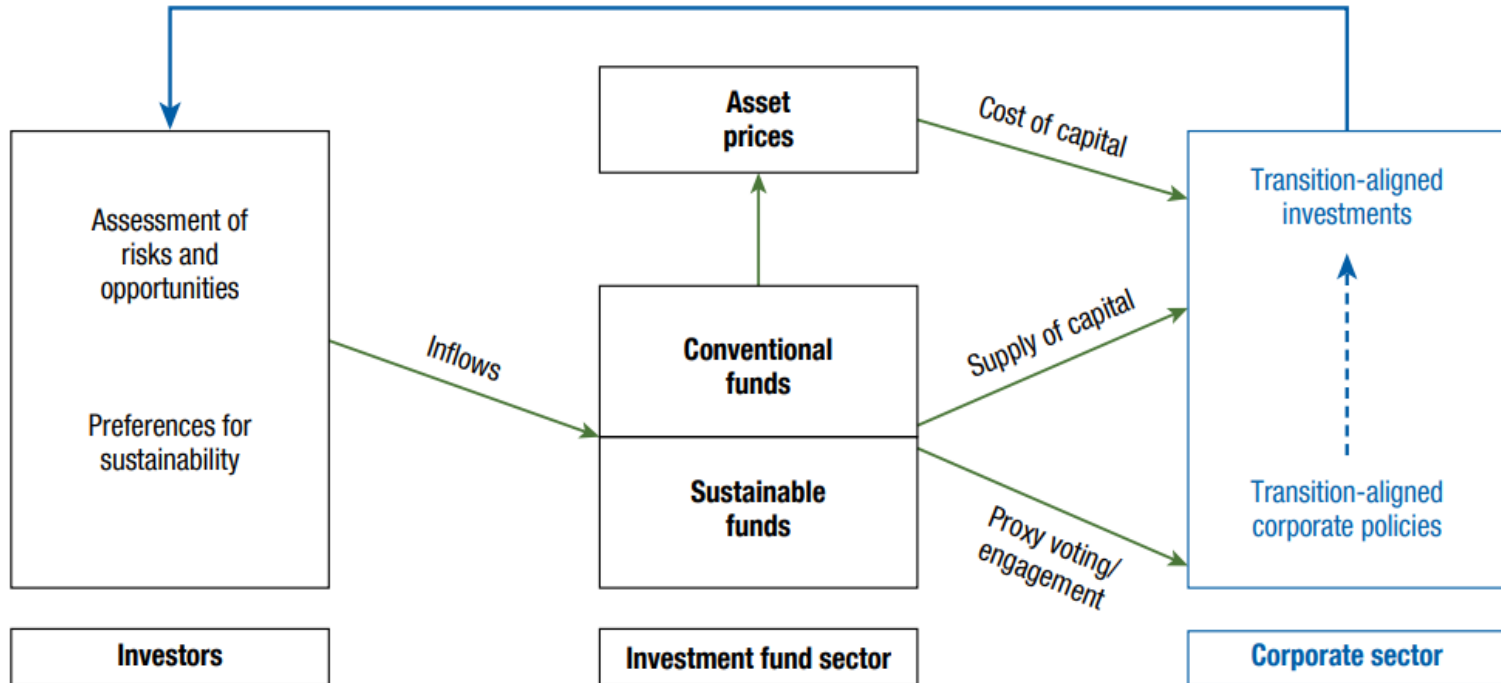
- **Momentum & politicization of the debate**

- **Sustainable funds account for only 6.2%** of global AUM

- **11%** of all funds' investments is allocated to EMs

- Only **6%** of sustainable funds' investments is allocated to EMs

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The role of investment funds in climate impact

- large pool of retail and institutional money (e.g. IMF 2021)

Source: IMF, (2021).

- **Important Limits**: don't invest directly in projects/infrastructure so impact hard to measure, often **secondary market assets** & greenwashing

Literature

- **Financing sources for the green transition**

  - **Private vs. public**: Songwe, Stern, Bhattacharya 2023, IMF 2023, IEA 2021

  - **Monetary architecture**: Murau et al 2023, Guter Sandu et al 2023, Golka et al 2023

- **ESG ratings and measurement of climate impact**:

  - poor performance of ESG or sustainability indicators in quantifying firms' environmental outcomes or their misinterpretation in expecting climate impact (OECD, 2022; Fichtner, Jaspert and Petry, 2023; Boffo, Marshall and Patalano, 2021; Berg, Kölbel and Rigobon, 2022; Curtis, Fisch and Robertson, 2021)

- **Investment fund allocation decisions**

  - Maggiori, Neiman and Schreger, 2020, Converse et al 2023, Brandao Marques et al 2022, Raddatz et al 2017 …

DEFINING "GREEN" ASSETS: GETTING CLOSER TO CLIMATE IMPACT

From "sustainable" to green "assets" and 'funds'

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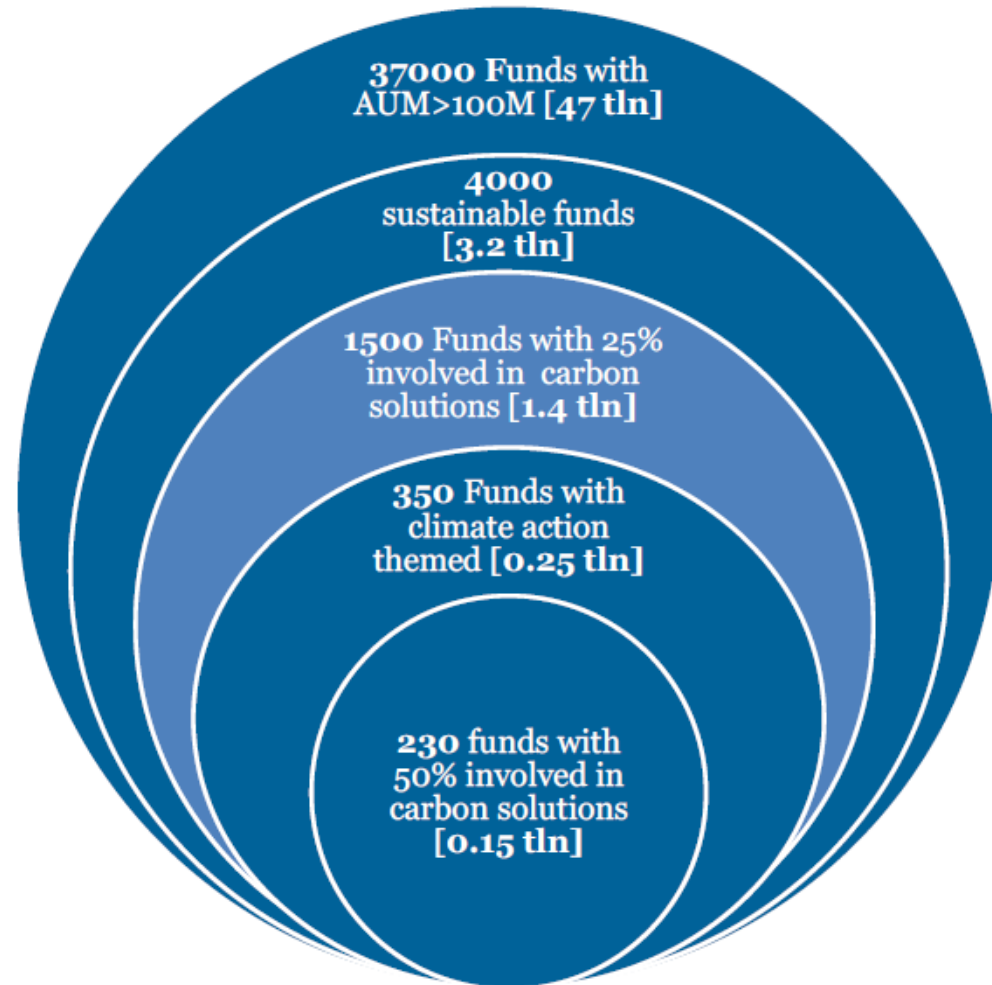
LES DÉCODEURS · BANQUES / FINANCE / ASSURANCE

Ces fonds d'investissement « durables » qui n'ont de vert que le nom

From "sustainable" to green "assets" and 'funds'

Very different definitions and focuses and No common/accepted definition of green

- ✓ Most existing studies look at **sustainable** or **ESG** investments –very different than climate impact (Boffo and Patalano 2020, Fichtner et al 2023)

- ✓ Most existing studies **use names and prospectuses** of funds – this has important limitations (e.g. ESMA 2022)

- ✓ **Low carbon** is also a bad proxy for climate (e.g. tech firms)

- ➢ **Getting closer to climate impact**

37000 Funds with AUM>100M [47 tln]

4000 sustainable funds [3.2 tln]

1500 Funds with 25% involved in carbon solutions [1.4 tln]

350 Funds with climate action themed [0.25 tln]

230 funds with 50% involved in carbon solutions [0.15 tln]

Getting closer to the climate impact: e.g. Involvement in carbon solutions

Morningstar involvement in carbon solutions metric:

"The percentage of the covered portfolio that is exposed to corporations that make any revenue from carbon solutions:

- *Renewable Energy Generation,*

- *Renewable Energy Supporting Products/Services,*

- *Energy Efficiency Distribution and Management, Material, Industrial Systems and Processes, Consumer Products,*

- *Green Buildings Development & Management, Technologies and Materials,*

- *Green Transportation Vehicles, Technologies, Services, Infrastructure."*

- **Good data availability across the sample**

➢ **"Green assets"** defined as companies with revenues in carbon solutions

➢ **"Green funds"** defined as funds with more than 25% of portfolio involved in carbon solutions

ESTIMATING THE GEOGRAPHIC ALLOCATION OF GREEN INVESTMENTS USING SECURITY LEVEL DATA

Dataset construction

Morningstar

- **Morningstar** dataset of mutual funds and ETFs and their holdings, coupled with Sustainalytics data on company-level sustainability

- Morningstar covers the lion's share of the investment fund universe: 52 tln of AUM (vs. 71 tln reported by ICI (2022))
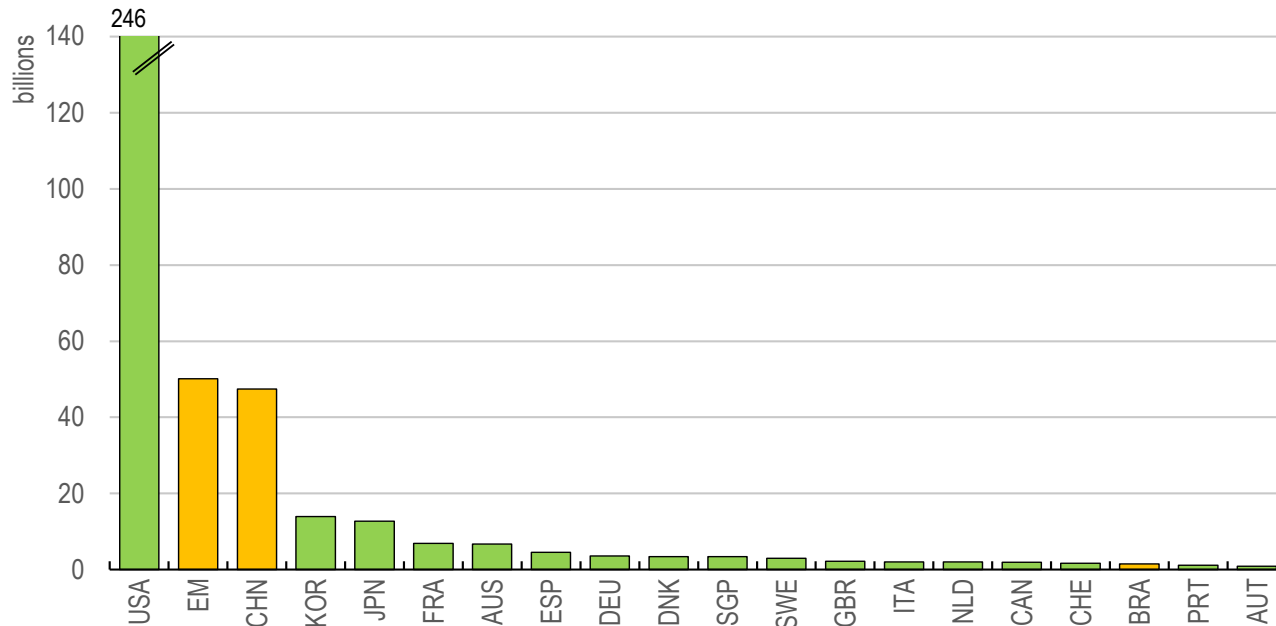
Data construction and cleaning

- Sample of 37 000 largest funds in the world
- Download their detailed portfolio allocation as of March 2023
- Assign each security in the portfolio of each fund to country of parent company and to green/not according to green revenues of the company

Green specialized funds' allocation [in EMs]

- **Investment funds specialised in green investments** (1600 "green funds" investing in 14000 green securities) are mainly domiciled in the US (50% of funds) and mainly invest in the US (70% of AUM)
- **EM companies represent 13% of green investments by such green funds**, a small but higher allocation compared to more generic sustainable funds

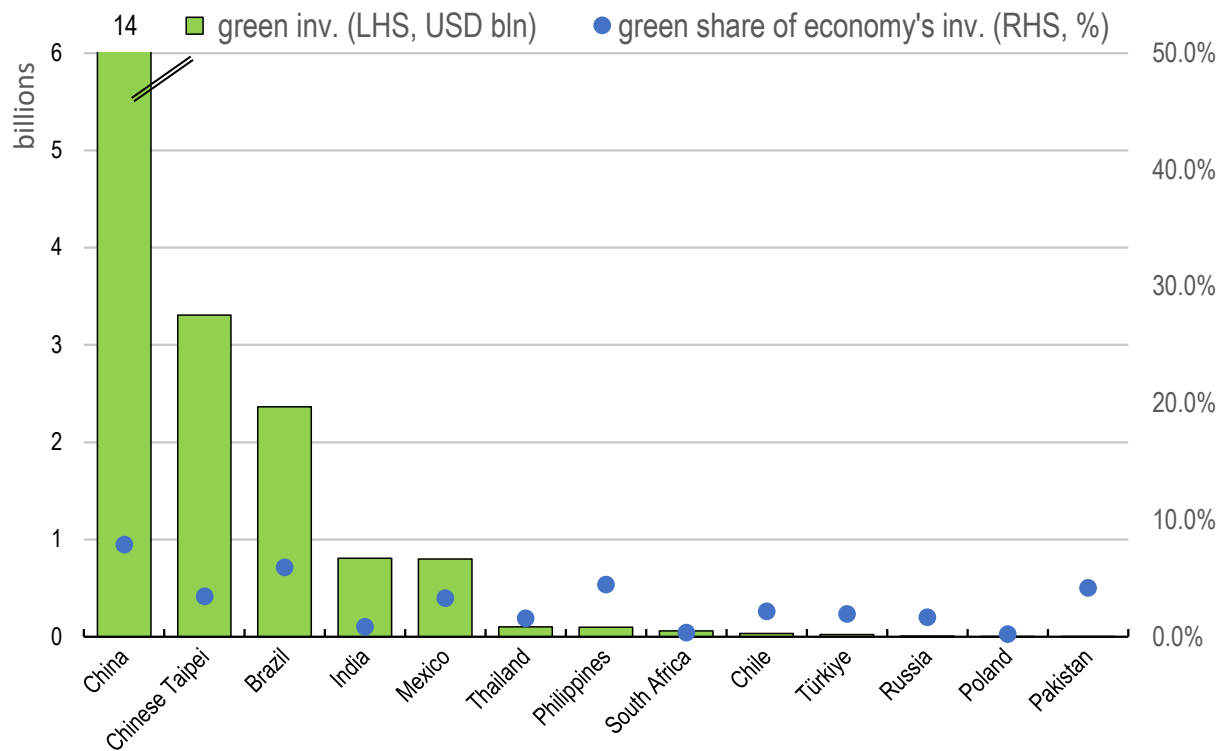**Market value of specialised green funds' positions in green companies* (bln USD) (2023Q1)**

Note: Sample of 14000 "green" securities held by 1600 "green" funds.
Source: Morningstar, OECD calculations. * Green companies are defined as companies with revenues in key sectors involved in climate transition, including renewable energy, transport, buildings, and energy efficiency

EM-specialized funds' allocation [in green]

Market value of global EM equity funds' positions in green companies in EM (bln USD)

Legend: green inv. (LHS, USD bln) ● green share of economy's inv. (RHS, %)

Source: Morningstar, OECD calculations
Note: Sample of 714 global EM equity funds. LHS represents absolute value of green investments in each destination. RHS represents share of green investments (% total investments by global EM funds in this market). Latest portfolio data (retrieved 2023Q1).

- **Global EM equity funds** invest little into green companies (avg of 9.6% of portfolio)

- Green investment allocation is **more diversified**:
  - China remains main destination
  - Other G20 (Brazil, India, Mexico) also important

- A very small share of each market's allocation goes to green companies (less than 10%).

DRIVERS AND BARRIERS TO GREEN AND BROWN INVESTMENT

Which investment funds are more likely to invest in green or in fossil fuel companies ?

- Cross section of 37 000 largest funds

$$Green\_share_i = \beta_x X_i + u_z \qquad (1)$$

$$Fossilfuels\_share_i = \beta_x X_i + u_z \qquad (2)$$

- $Green\_share_i$ is the share of green assets as defined above in the portfolio of fund *i*.

- X_i is a vector of fund specific characteristics such as age, ETF, retail vs. institutional, fund size, passive vs. active, domicile

Which investment funds are more likely to invest in green or in fossil fuel companies ?

Dep Var: VARIABLES	Share of green assets in portfolio				
	1	2	3	4	5
Fund size (log)	-0.042	-0.027	-0.038	-0.037	0.012
	0.04	0.04	0.04	0.04	0.04
Age (log)	-0.807***	-0.701***	-0.758***	-0.776***	-0.573***
	0.07	0.07	0.07	0.07	0.07
Passive/Index funds	0.292*	0.324**	0.330**	0.317*	0.289*
	0.16	0.16	0.16	0.16	0.17
Institutional investors	-0.630***	-0.528***	-0.574***	-0.581***	-0.692***
	0.12	0.12	0.12	0.12	0.13
EM domicile		1.991***			
		0.28			
EM mandate			2.100***		
			0.32		
Domestic EM mandate				1.961***	
				0.31	
Sustainable fund					3.998***
					0.20
Constant	4.449***	1.971**	2.098**	2.421***	2.832***
	0.82	0.90	0.90	0.89	0.86
Global category dummies	Y	Y	Y	Y	Y
Observations	26,121	26,121	26,121	26,121	23,213
Adjusted R-squared	0.233	0.236	0.236	0.235	0.248

- **Younger funds**
- **Retail investor funds**
- **Passive funds**
- **Funds with domestic mandates**
- **Sustainable funds**

Note: the regressions are ran using OLS on funds holdings as of 2023Q1. The dependent variable is the share of green or fossil fuel related assets in the portfolio. All regressions include global category dummies. Robust SE. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Which recipient country characteristics are more likely to drive green investments?

- Cross section of 700 global EM equity funds

$$Green\_share_{ij} = \beta_x X_j [+u_i] \quad (3)$$

- $Green\_share_{ij}$ is the share of green assets invested in country *j* in the portfolio of fund *i;*
- X_j is a vector of country specific characteristics
- and in some regressions u_i is a set of fund dummies.

Number of variables including

i) macro-financial (portfolio account restrictions, exchange rate regime, stock market cap, other financial institutions assets),

ii) investment climate (economic freedom, tax burden, rule of law)

iii) climate related variables (climate policy, share of renewable energy production, exports in green products, ESG country ratings).

Which recipient country characteristics are more likely to drive green investments?

Dep Var:						Green country share								
VARIABLES	1	2	3	4	5	6	7	8	9	10	11	12	13	14
MSCI EM country share	12.666***			8.345***	17.360***	12.512***	9.471***	9.113***	14.704***	10.455***	13.267***	9.458***	11.862***	13.780***
	0.26			0.30	0.41	0.38	0.41	0.34	0.72	0.35	0.57	0.39	0.39	0.60
Concentration of firm ownership			-2.831***											
			0.15											
Green exports		0.621***	0.523***	0.199***		0.545***	0.180***	0.172***	0.553***	0.090***	0.551***	0.174***	0.459***	0.463***
		0.02	0.02	0.01		0.04	0.01	0.01	0.04	0.01	0.04	0.02	0.03	0.03
Portfolio inflow restrictions					-2.302***	-6.381***			-7.422***		-6.659***		-5.010***	-5.691***
					0.14	0.43			0.56		0.50		0.43	0.29
Economic freedom index							1.215***							
							0.37							
Climate vulnerability								-3.150***	6.331***					
								0.56	1.37					
Beyond ratings ESG global score										0.874***	-1.087**			
										0.17	0.43			
Renewable share (% energy generation)												1.453***	0.331***	
												0.12	0.11	
Climate policy														-0.041***
														0.01
Constant	-7.573***	-19.239***	-15.593***	-11.191***	-6.775***	-14.791***	-15.932***	-9.515***	-17.200***	-12.814***	-10.381***	-15.803***	-14.919***	-13.348***
	0.07	0.44	0.44	0.23	0.10	0.51	1.57	0.28	0.85	0.68	1.56	0.70	0.56	0.43
Fund dummies	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Fund-country observations	9,068	8,463	7,863	8,463	8,468	7,863	8,463	7,863	7,863	7,257	7,257	7,863	7,863	7,257
R-squared	0.399	0.388	0.424	0.399	0.443	0.450	0.402	0.440	0.450	0.436	0.447	0.449	0.450	0.447

Note: Dependent variable is the fund level country share of green assets in the portfolio. Poisson regressions. Clustered SE at the fund level. $* p<0.10, ** p<0.05, *** p<0.01$.

Conclusions

- **Micro-level data** on portfolios' allocations towards green assets in EMs, and their drivers both from a supply and demand perspective

- Crucial role of **benchmarks** in driving investment in general, and also green investments, point to the importance of **index inclusion of green companies**
  - structural issues in global capital markets act as barriers for EMs, including the **concentration of firm ownership** and its impact on **free-float levels and biases towards large companies** for inclusion in an index.

- **Common drivers of investment**: absence of portfolio inflows restrictions and the level of openness and economic freedom
- **Green specific drivers**: the renewable energy generation of the country and the country's share in green exports

- **Differences across funds**: Younger funds, retail investor funds, funds with domestic mandates, and sustainable funds more likely to invest in green

THANK YOU