

Do Investors Value Sustainability? **A Natural Experiment Examining** **Ranking and Fund Flows**

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Harvard Global Corporate Governance Colloquia
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The University of Chicago Booth School of Business

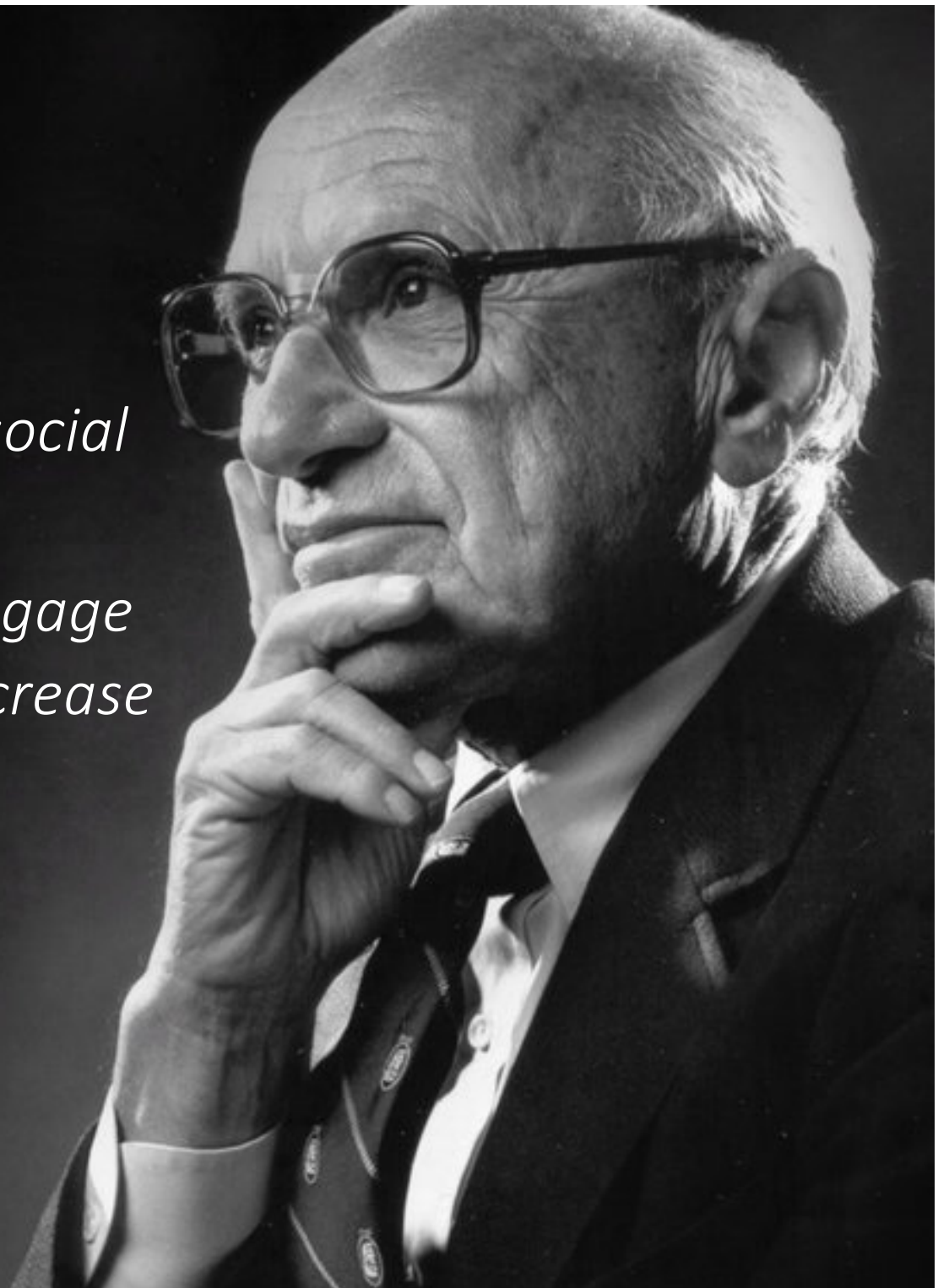
Should firms be investing in sustainability?

- Depends on the preferences of their investors (Hart and Zingales 2017)

Some investors believe:

- Sustainability is bad
 - Belies the primary goal of maximizing profits

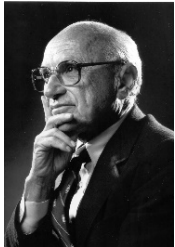
*there is one and only one social
responsibility of business
to use its resources and engage
in activities designed to increase
its profits*



Should firms be investing in sustainability?

- Depends on the preferences of their investors (Hart and Zingales 2017)

Some investors believe:



Sustainability is bad

- Belies the primary goal of maximizing profits
- Sustainability is good
 - Pecuniary: Because it maximizes profit

*There's a long-run
advantage in ethical
businesses.*

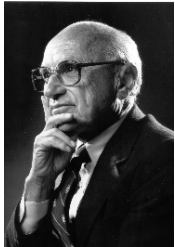
*They have a good chance
of outperforming.*



Should firms be investing in sustainability?

- Depends on the preferences of their investors (Hart and Zingales 2017)

Some investors believe:



Sustainability is bad


- Belies the primary goal of maximizing profits



Sustainability is good

- Pecuniary: Because it maximizes profit

- Sustainability is good
 - Non-pecuniary: Worthwhile beyond simple value maximization



Investments of this sort are meant to have positive social repercussions.

The financial return for investors tends to be more moderate than in other types of investment.

Should firms be investing in sustainability?

Do investors collectively view sustainability as
a positive, negative, or neutral attribute of a company?



?

Do investors *collectively* value sustainability?

Extremely difficult question to answer in most settings

- Hard to identify who the average investor is
 - Potential for silent majority
- Everything viewed in equilibrium
 - Investors have sorted into certain firms
 - Coal firms don't become solar power firms without shifting fundamentals
- Lack a clean measure of demand
 - Have to rely on prices since fixed supply of securities

Do investors *collectively* value sustainability?

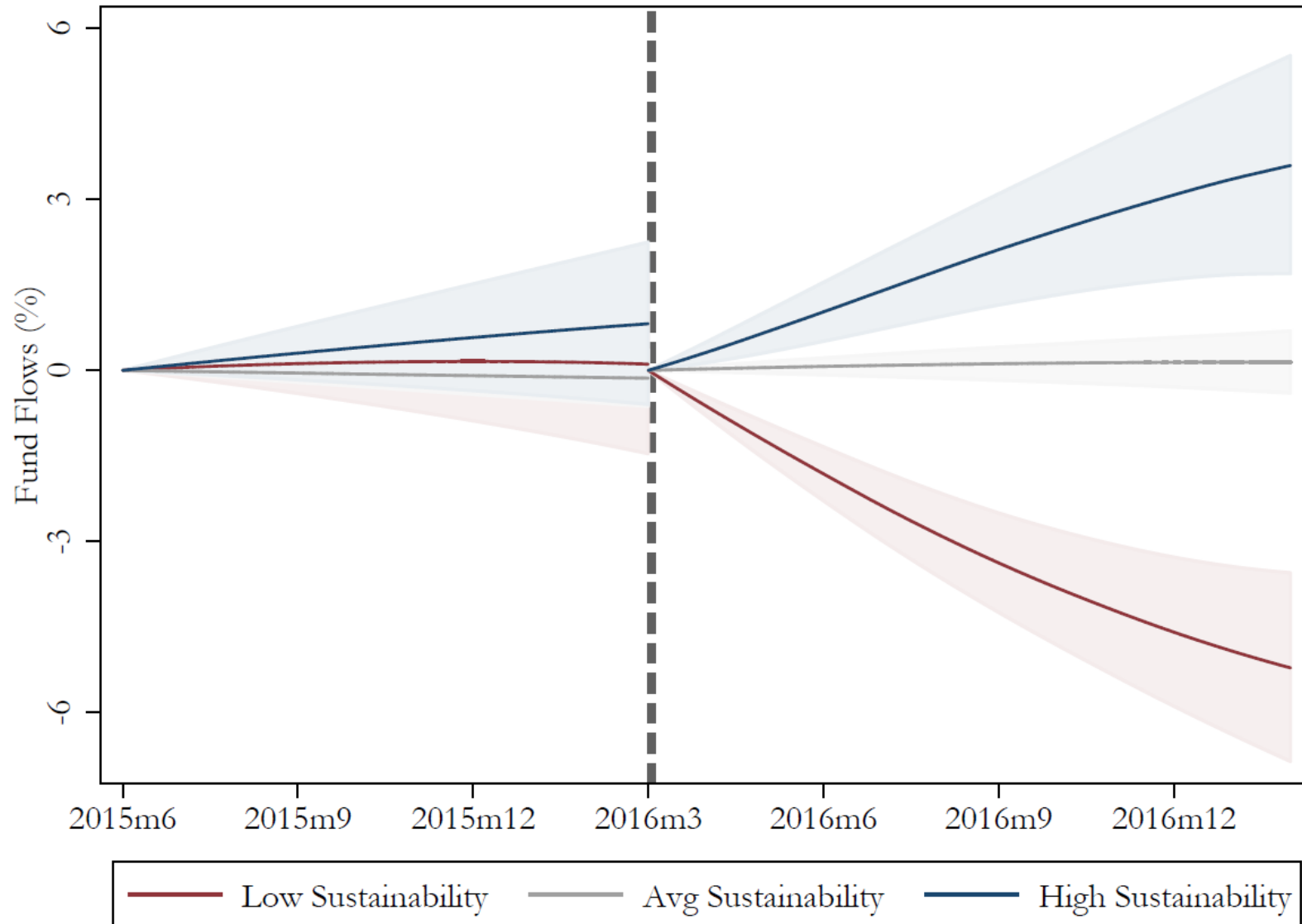
Ideal experiment

- Take all investments and randomize how sustainable they are
 - Without impacting other fundamentals
- Observe how demand change based on this randomization

This paper

- Examine a shock to the salience of sustainability
 - Publication of Morningstar sustainability ratings in March 2016
- Impacts roughly \$8 trillion of assets held by mutual funds
 - Most of the US mutual fund universe
- Based on publicly available information
 - No fundamentals impacted and no new information produced
- Mutual fund setting allows us to examine flows to measure demand
- Complement with survey data to determine why

The paper in one picture



Main Results

- Investors collectively place a positive value on sustainability
 - Causal impact of sustainability rating
 - High sustainability funds gained more than **\$22** billion in flows
 - Low sustainability funds lost more than **\$12** billion in flows
- Investors respond to extreme discrete ratings
 - One and five globe ranks largely ignoring those in the middle
 - Not the underlying detailed measures
- Why do investors value sustainability?
 - Not driven solely by institutional investors
 - Experimental evidence that investors think ratings predict future returns
 - No evidence of significantly higher returns in the data
 - Experimental evidence consistent with non-pecuniary motives

SPECIAL REPORT

Morningstar Sustainability Rating


Morningstar.com ✓ 24 Aug 2016








The Morningstar Sustainability Rating for Funds provides a reliable, objective way to evaluate how investments are meeting environmental, social, and governance challenges. In short, it helps investors put their money where their values are.


Construction of sustainability ratings

Environmental, Social and Governance (ESG) Rating

1. Individual company ratings from  SUSTAINALYTICS
2. Holdings weighted average of the Sustainalytics scores
3. Rate within each Morningstar category to ascertain percentile rank

Distribution	Score	Descriptive Rank	Rating Icon
Highest 10%	5	High	
Next 22.5%	4	Above Average	
Next 35%	3	Average	
Next 22.5%	2	Below Average	
Lowest 10%	1	Low	

No new information from ratings

1. Individual company ratings from  SUSTAINALYTICS
 - Publicly available (e.g. on Bloomberg)
2. Holdings weighted average of the Sustainalytics scores
 - Weights publicly reported
3. Rate within each Morningstar category
 - Morningstar categories publicly known

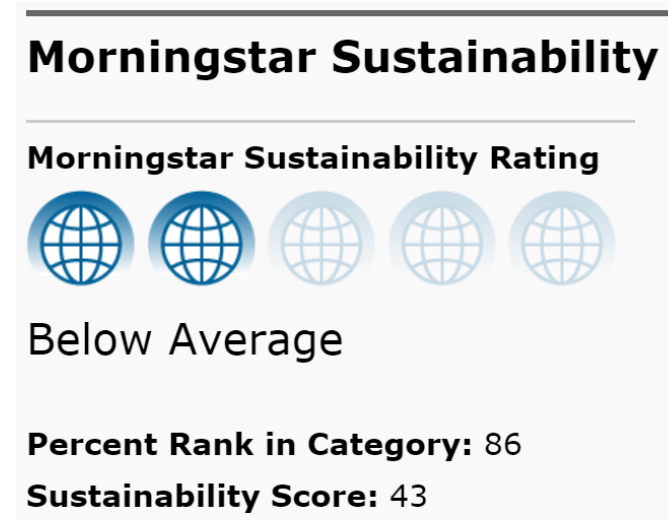
Morningstar Sustainability Ratings

Morningstar Sustainability	FMAGX	More...
Morningstar Sustainability Rating	Category	
	Large Growth	
Below Average	Sustainability Mandate	
	No	
Percent Rank in Category: 86		
Sustainability Score: 43		
Based on 96% of AUM		
<p>Sustainability Score as of 07/31/2017. Sustainability Rating as of 07/31/2017. Sustainability provides company-level analysis used in the calculation of Morningstar's Sustainability Score. Sustainability Mandate information is derived from the fund prospectus.</p>		

Did sustainability measures impact fund flows?

$$Flow_{i,t} = \alpha + \beta(Sustainability\ Measure)_{i,t} + Controls$$

- Sustainability measures
 - Raw sustainability score
 - Percentile ranks within category
 - Globe rating
- Data provided by Morningstar
 - 11 months post rating publication (March 2016 – January 2017)



Baseline results

Raw sustainability score and percentile rank
had insignificant impact on flows

	(1)
Sustainability Score	0.0744 (1.27)
Category Percent Rank	0.000983 (0.32)

Diff: 5 Globe-1 Globe	
P-value: 5 Globe=1 Globe	
Cat by YM FE	Yes
Other Controls	No
R ²	0.0505
Observations	34106

Baseline results

Negative flows into 1 Globe -0.44% per month (~6% per year)
 Positive flows into 5 Globe of 0.30% per month (~4% per year)

	(1)	(2)
Sustainability Score	0.0744 (1.27)	
Category Percent Rank	0.000983 (0.32)	
1 Globe		-0.441*** (-3.57)
2 Globes		0.0964 (1.17)
4 Globes		-0.0353 (-0.57)
5 Globes		0.297** (2.48)
Diff: 5 Globe-1 Globe		0.737
P-value: 5 Globe=1 Globe		0.000370
Cat by YM FE	Yes	Yes
Other Controls	No	No
R ²	0.0505	0.0513
Observations	34106	34106

Baseline results

Insignificant differences between 2, 3 and 4 Globes

	(1)	(2)
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Observations	34106	34106

Baseline results

Similar effects after controlling for:
size, returns (1 month, 1 year, 2 year), star rating, age, expense ratio

	(1)	(2)	(3)	(4)
Sustainability Score	0.0744 (1.27)			
Category Percent Rank	0.000983 (0.32)			
1 Globe		-0.441*** (-3.57)	-0.457*** (-4.17)	-0.352*** (-3.68)
2 Globes		0.0964 (1.17)		0.134 (1.59)
4 Globes		-0.0353 (-0.57)		0.0440 (0.65)
5 Globes		0.297** (2.48)	0.281** (2.66)	0.379** (3.13)
Diff: 5 Globe-1 Globe		0.737	0.738	0.731
P-value: 5 Globe=1 Globe		0.000370	0.000370	0.000759
Cat by YM FE	Yes	Yes	Yes	Yes
Other Controls	No	No	No	Yes
R ²	0.0505	0.0513	0.0512	0.0911
Observations	34106	34106	34106	32475

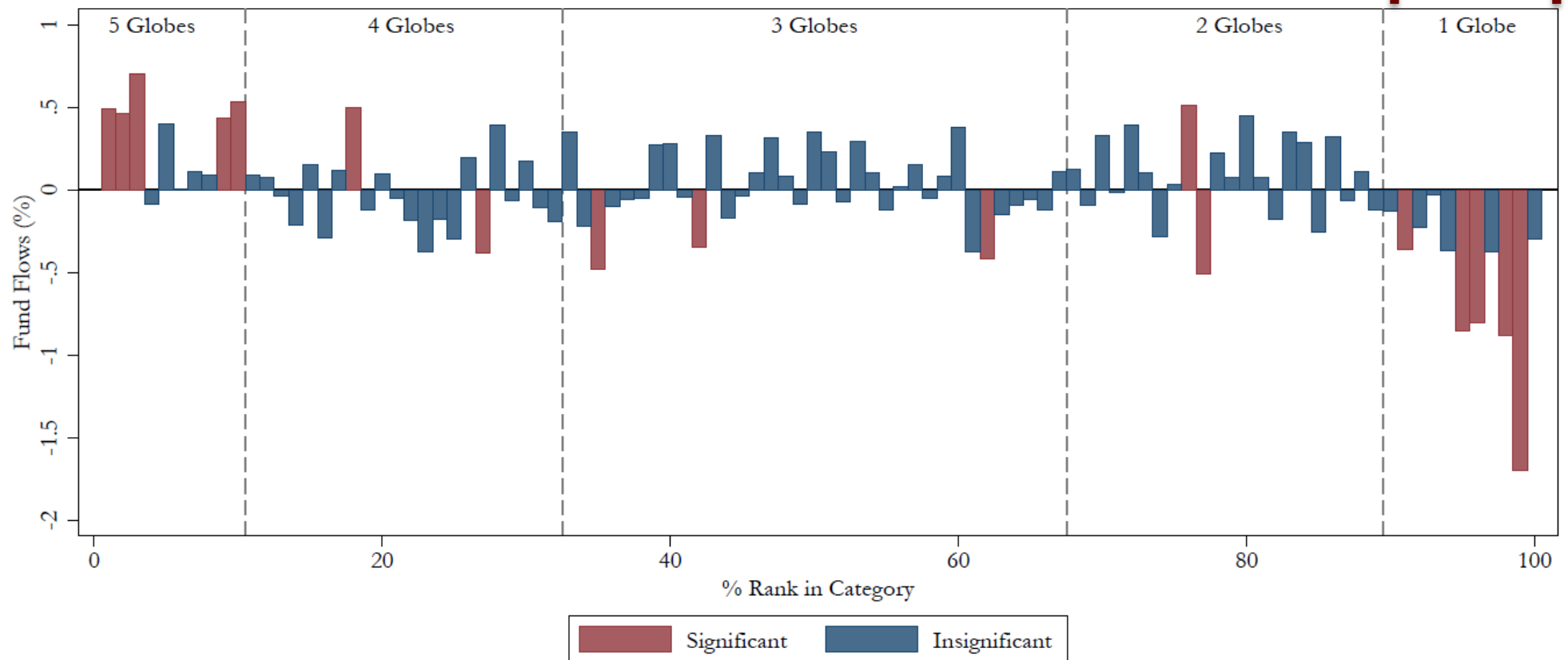
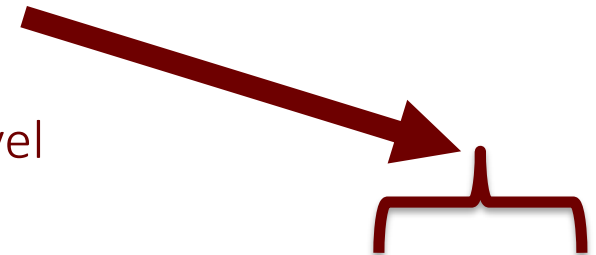
Impact of Focus on Globe Display

- Regression suggests that it is discrete globe rating driving flows
- Variation should be mainly across - not within globe rating
 - If it is the globe rating itself which matters
- Flow discontinuities around rating breakpoints
 - Funds that are very similar in terms of sustainability will see distinct flow response if they are assigned to different globe categories
- Examine average flow into each category percentile rank
 - After removing monthly fixed effect to control for aggregate trends

Flows by percentile rank

1 globe funds received outflows

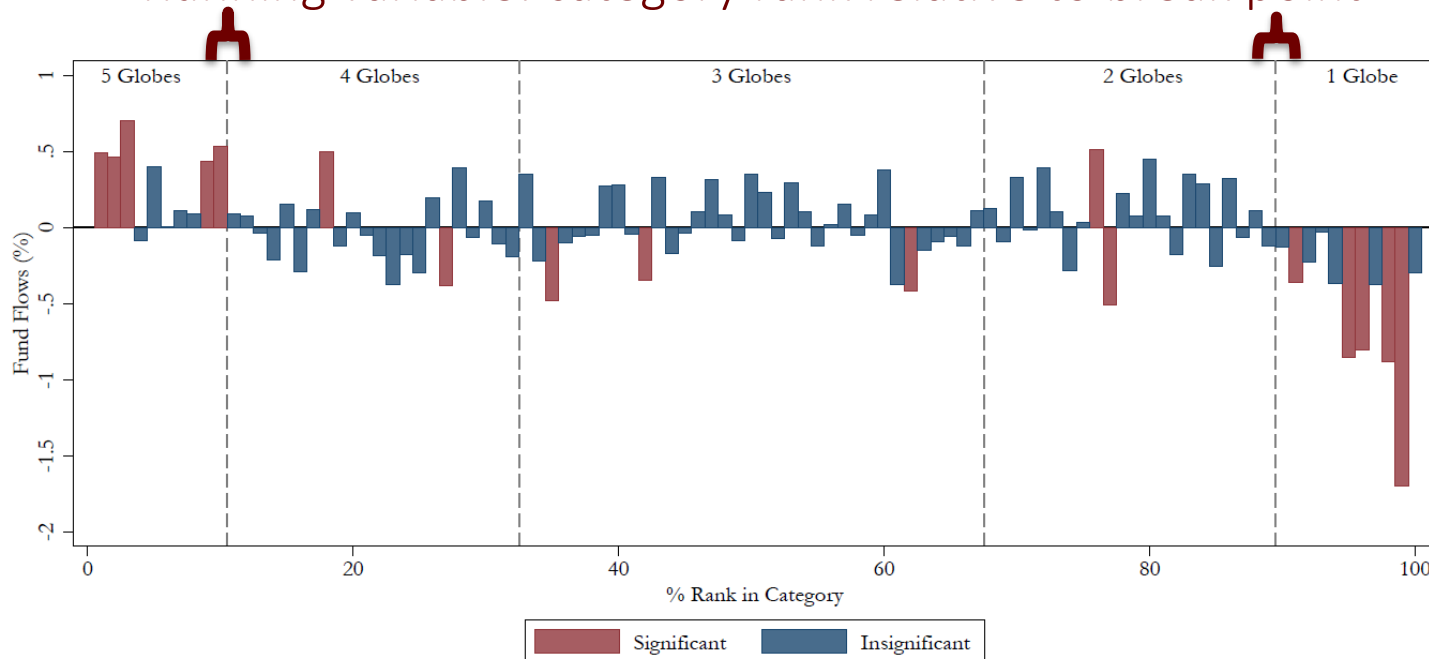
- 11/11 negative
- 5/11 significant at the 10% level



Flows by percentile rank

Formal tests of discontinuity consistent with discontinuities

Running variable: category rank relative to break point



	1 Globe		5 Globes	
	(1)	(2)	(3)	(4)
Conventional	-0.427** (-2.40)	-0.366** (-2.26)	-0.727*** (-2.91)	-0.484** (-2.47)
Bias-corrected	-0.493*** (-2.77)	-0.442*** (-2.73)	-0.798*** (-3.19)	-0.555*** (-2.84)
Common Cutoff	Yes	No	Yes	No
Separate Cutoff	No	Yes	No	Yes
Observations	31668	31668	32241	32241

Additional results

- Back of the envelope magnitude
 - 1 globe funds lost \$12-\$15 billion
 - 5 globe funds gained \$24-\$32 billion
- Similar results matching based on pre-period size, age, expense ratio, Morningstar star ratings and factor loadings
- Effect concentrated in months that fund is actually rated one or five globe rather than months that it switches to another rating
- Increased web traffic for 5 globe funds, decrease for 1 globe funds
- Increased probability of liquidation for 1 globe funds

Why do investors value sustainability?

Potential hypothesis

- Institutional constraints
 - Required to invest for reasons other than total returns

- Positive correlation between expected returns and globe ratings
 - Investors think high sustainability predicts high future returns
 - Could be rational or irrational belief

- Non-pecuniary motives
 - Investors buy high sustainability funds for reasons unrelated (or in spite of lower) future returns

Institutional motivations

- Examine the impact of the globe rating for institutional share classes
- If institutions are responsible for the effect flows should be driven by these institutional observations

$$\begin{aligned} Flow_{i,t} = & \alpha + \beta G1 + \beta G2 + \beta G4 + \beta G5 \\ & + \beta (Institution * G1) + \beta (Institution * G2) \\ & + \beta (Institution * G4) + \beta (Institution * G5) \\ & + Institution \end{aligned}$$

Institutional share classes

Generally insignificant differences between institutional and other share classes

	Flow		Normalized Flow	
	(1)	(2)	(3)	(4)
1 Globe*Institutional	0.0186 (0.08)	-0.0579 (-0.23)	1.035 (0.79)	0.409 (0.31)
2 Globes*Institutional	0.00399 (0.02)	0.0111 (0.07)	-0.00732 (-0.01)	-0.115 (-0.16)
4 Globes*Institutional	0.0528 (0.32)	-0.0924 (-0.57)	1.219 (1.66)	0.512 (0.71)
5 Globes*Institutional	0.320 (1.13)	0.0970 (0.36)	1.524 (1.27)	1.190 (1.08)
1 Globe	-0.484** (-3.10)	-0.219* (-1.85)	-5.311*** (-5.24)	-2.940*** (-3.52)
2 Globes	-0.0430 (-0.43)	0.0279 (0.34)	-0.668 (-1.00)	-0.130 (-0.23)
4 Globes	-0.0945 (-0.92)	0.0594 (0.63)	-0.791 (-1.36)	0.132 (0.27)
5 Globes	0.190 (1.03)	0.347** (2.28)	1.432 (1.17)	2.363** (2.43)

Globe ratings and returns

- A rational ex-ante belief in returns positively correlated with globe rating should be empirically supported with ex-post positive returns
 - Caveat: This is a short time-series of 11 months
- High sustainability rating could **negatively** predict future returns
 - Inflows lead to lower performance e.g. Berk and Green 2004
 - “Sin stock” intuition Hong and Kacperczyk 2009
 - Catering to sustainability could impact underlying valuation
- High sustainability rating could **positively** predict future returns
 - Sustainability not correctly priced by the market Edmans 2011

Globe ratings and returns

- Examine monthly returns by globe category
 - Relative to four different performance benchmarks
- Raw excess returns
- Morningstar category (Pastor, Stambaugh and Taylor 2015)
- Vanguard index fund benchmark (Berk and Van Binsbergen 2015)
 - Fund specific betas on an orthogonalized basis set of Vanguard index funds
- 4-Factor benchmark
 - Fund specific betas on market, size, value and momentum factors

Globe ratings and returns

Low Sustainability outperforms high Sustainability by 21-56 basis points
P-values of 0.06 to 0.26

Weak evidence of high sustainability underperforming low
No evidence of high sustainability outperforming low

Panel A: Value Weighted

	Excess Return	Morningstar Benchmark	Vanguard Benchmark	4-Factor Benchmark
	(1)	(2)	(3)	(4)
1 Globe	0.311 (1.78)	0.0514 (0.44)	0.209** (2.52)	0.159 (1.08)
5 Globes	-0.252* (-2.18)	-0.158* (-2.06)	-0.0995 (-0.76)	-0.193 (-1.33)
Diff: 5 Globe-1 Globe	-0.563	-0.209	-0.309	-0.351
P-value: 5 Globe=1 Globe	0.0645	0.256	0.137	0.211
R ²	0.00144	0.00224	0.000798	0.00149
Observations	34083	34083	33307	33307

Other explanations

- Irrational expectations of future returns
 - Investors think there will be positive returns, but they are wrong
- Non-pecuniary motives
 - Altruism, warm glow, social status
- These two explanations are empirically observationally equivalent
 - Both predict flow response without significant return differentials
- Run experiment to provide some evidence on these

Experiment

- MBA students and Mturk participants rate hypothetical funds
- 3 similar funds with 5 star Morningstar ratings
 - 1, 3, 5 globes
- Randomize globe ratings across these funds
- Randomize order of 3 questions
 - Rate fund based on future performance (1 to 7)
 - Allocate \$1,000 between fund and savings account
 - Rate fund based on riskiness (1 to 7)

3) Vanguard PRIMECAP Inv VPMCX | ★★★★★

NAV \$116.37	1-Day Total Return ↑ 0.06%	TTM Yield 1.14%	Load None	Total Assets \$ 52.3 bil	Expenses 0.39%	Fee Level Low	Turnover 6%	Status Closed	Min. Inv. \$ 3,000
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USD | NAV as of 04 May 2017 | 1-Day Return as of 04 May 2017

30-Day SEC Yield 1.21%	Category Large Growth	Investment Style Large Growth
----------------------------------	---------------------------------	-----------------------------------------

Growth of 10K VPMCX

05/05/2007 - 05/04/2017 Zoom: 1M 3M YTD 1Y 3Y 5Y 10Y Maximum Custom

XNAS:VPMCX: 25,298.09 USD Large Growth: 19,349.99 USD
S&P 500 TR USD: 19,687.43 USD



Morningstar Sustainability

Morningstar Sustainability Rating



High

Category

Large Growth

Sustainability Mandate

No

Percent Rank in Category: 1

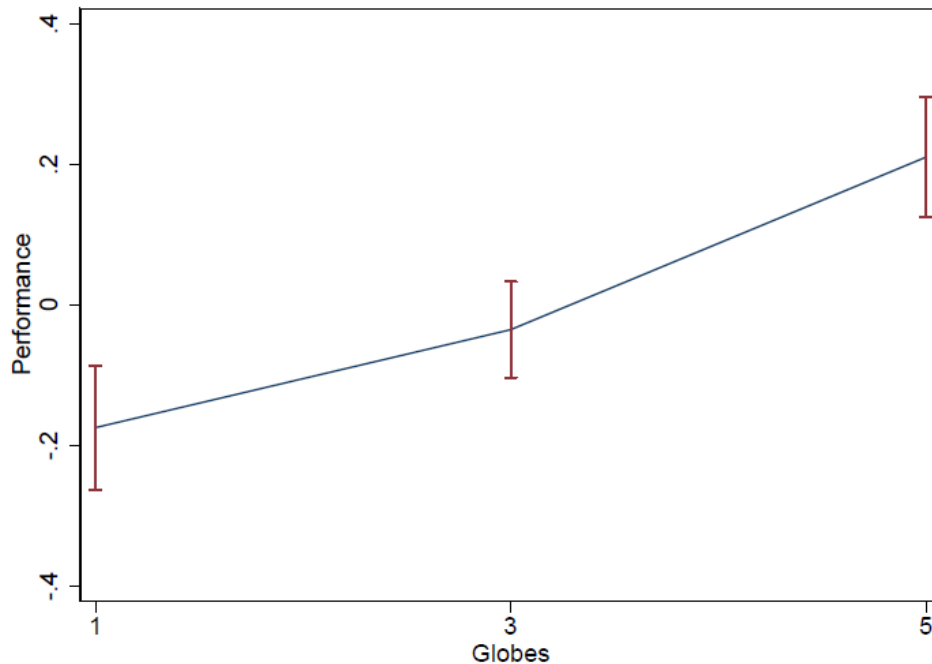
Sustainability Score: 51

Based on 95% of AUM

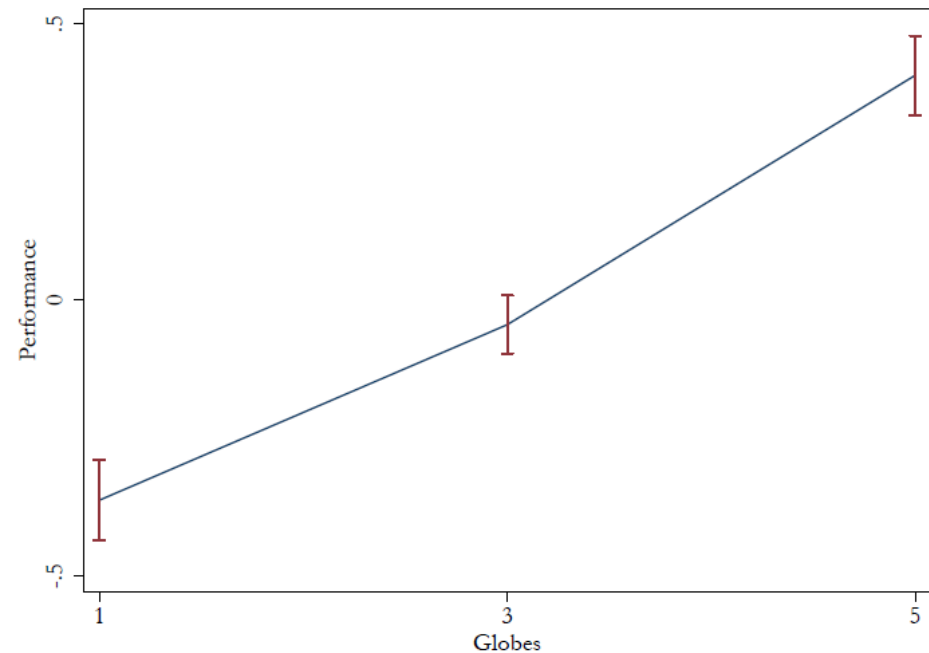
Sustainability Score as of 12/31/2016. Sustainability Rating as of 02/28/2017. Sustainalytics provides company-level analysis used in the calculation of Morningstar's Sustainability Score. This score provides a reliable, objective way to evaluate how investments are meeting environmental, social, and governance challenges.

Experiment: Expectations of performance

Panel A: MBA Students



Panel B: MTurk Subjects



How well do you think this mutual fund will perform over the next year?

1 extremely
poorly

2

3

4

5

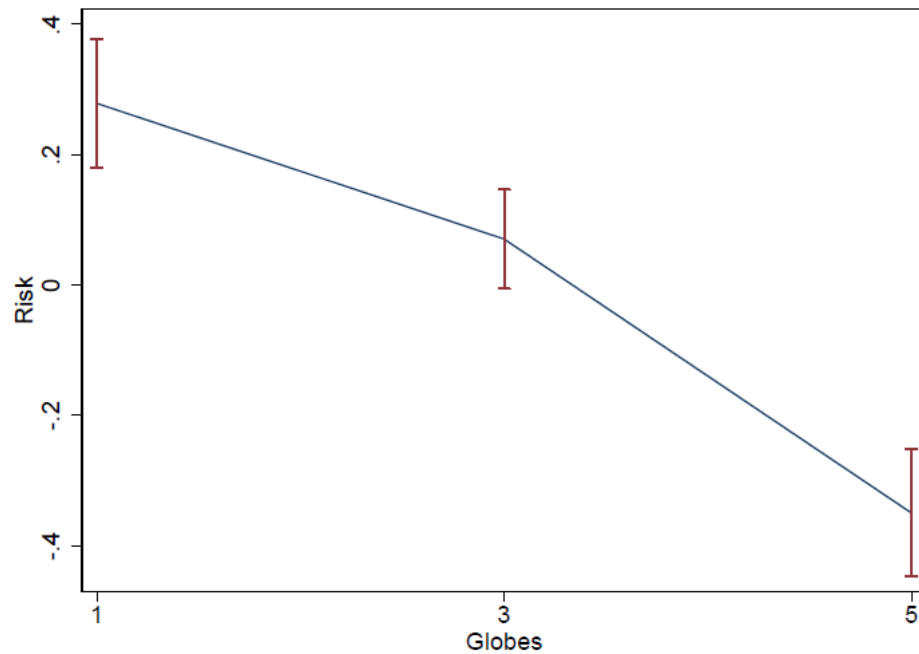
6

7 extremely
well

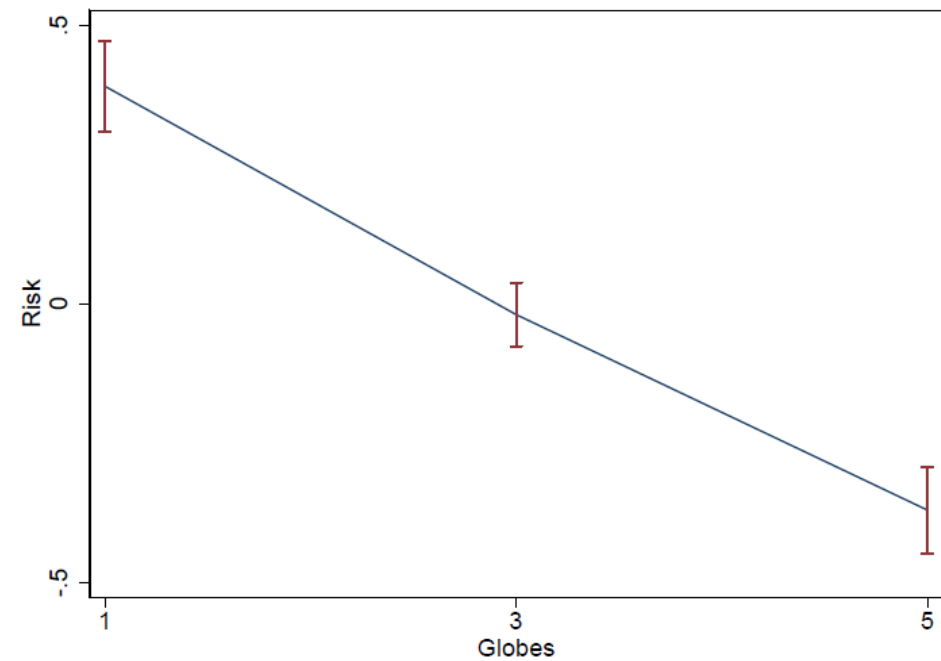
Experiment: Expectations of risk

Performance expectations not driven by belief in higher risk

Panel A: MBA Students



Panel B: MTurk Subjects



How risky do you consider an investment in this fund to be?

1-not at all risky 2 3 4 5 6 7-extremely risky

Allocations based on returns, risk and globes

Panel A: MBA Students

	All			No ESG Consideration	ESG Consideration
	(1)	(2)	(3)	(4)	(5)
Performance	75.14*** (5.44)		71.32*** (5.22)	92.04*** (3.81)	53.92*** (3.44)
Risk	-54.83*** (-4.60)		-49.73*** (-3.99)	-32.67 (-1.52)	-59.70*** (-4.20)
1 Globe		-50.56** (-2.24)	-27.99 (-1.32)	-13.89 (-0.43)	-30.82 (-1.13)
5 Globes		57.36*** (2.78)	20.11 (1.00)	-8.080 (-0.27)	48.51* (1.75)
Diff: 5 Globe-1 Globe		107.9	48.10	5.809	79.33
P-value: 5 Globe=1 Globe		0.0000329	0.0485	0.876	0.0140
Acct FE	Yes	Yes	Yes	Yes	Yes
R ²	0.767	0.718	0.770	0.770	0.773
Observations	807	807	807	354	450

Allocations based on returns, risk and globes

MBA Students allocations increase with expected performance and decrease with risk

Panel A: MBA Students

	All			No ESG Consideration	ESG Consideration
	(1)	(2)	(3)	(4)	(5)
Performance	75.14*** (5.44)		71.32*** (5.22)	92.04*** (3.81)	53.92*** (3.44)
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Allocations based on returns, risk and globes

MBA Students allocate more to high sustainability and less to low sustainability

Panel A: MBA Students

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Allocations based on returns, risk and globes

Consistent with non-pecuniary motives
 MBAs allocate more to high sustainability and less to low sustainability
 controlling for expected performance and risk

Panel A: MBA Students

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	(1)	(2)	(3)	(4)
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Acct FE	Yes	Yes	Yes	Yes
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Observations	807	807	807	354

Allocations based on returns, risk and globes

MBA students who said they did not consider ESG factors:
Do not exhibit evidence of non-pecuniary motives

Panel A: MBA Students

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Observations	807	807	807	354	450

Allocations based on returns, risk and globes

MBA students who consider ESG factors:
Exhibit evidence of non-pecuniary motives

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Acct FE	Yes	Yes	Yes	Yes
R ²	0.767	0.718	0.770	0.770
Observations	807	807	807	354

79.33
0.0140

Allocations based on returns, risk and globes

Panel B: MTurk Subjects

	All			No ESG Consideration	ESG Consideration
	(1)	(2)	(3)	(4)	(5)
Performance	58.29*** (9.38)		51.43*** (8.07)	51.43*** (3.96)	50.54*** (7.06)
Risk	-30.69*** (-5.13)		-25.58*** (-4.31)	-31.42*** (-3.25)	-23.18*** (-3.06)
1 Globe		-65.69*** (-5.02)	-39.28*** (-3.15)	-30.29 (-1.49)	-43.66*** (-2.73)
5 Globes		64.43*** (4.89)	31.74** (2.48)	11.44 (0.53)	42.75*** (2.68)
Diff: 5 Globe-1 Globe		130.1	71.03	41.73	86.42
P-value: 5 Globe=1 Globe		5.26e-16	0.00000210	0.103	0.00000283
Acct FE	Yes	Yes	Yes	Yes	Yes
R ²	0.755	0.719	0.763	0.812	0.725
Observations	1728	1728	1728	624	1101

Allocations based on returns, risk and globes

Consistent with non-pecuniary motives
 Similar results for MTurks who consider ESG factors in decision

Panel B: MTurk Subjects

	All			No ESG Consideration	ESG Consideration
	(1)	(2)	(3)	(4)	(5)
Performance	58.29*** (9.38)		51.43*** (8.07)	51.43*** (3.96)	50.54*** (7.06)
Risk	-30.69*** (-5.13)		-25.58*** (-4.31)	-31.42*** (-3.25)	-23.18*** (-3.06)
1 Globe		-65.69*** (-5.02)	-39.28*** (-3.15)	-30.29 (-1.49)	-43.66*** (-2.73)
5 Globes		64.43*** (4.89)	31.74** (2.48)	11.44 (0.53)	42.75*** (2.68)
Diff: 5 Globe-1 Globe		130.1	71.03	41.73	86.42
P-value: 5 Globe=1 Globe		5.26e-16	0.00000210	0.103	0.00000283
Acct FE	Yes	Yes	Yes	Yes	Yes
R ²	0.755	0.719	0.763	0.812	0.725
Observations	1728	1728	1728	624	1101

Conclusion

- Investors place a positive value on sustainability
 - Causal market wide impact of demand for sustainability
- Experiment suggests sustainability viewed as positive predictor of future returns
 - Some evidence consistent with non-pecuniary motives
 - Institutional share classes behave similarly to others
- Investors respond to the discrete rating system not underlying data
 - Categorization and visualization of information can have significant influence on market wide dynamics
- How are investors interpreting the sustainability rating?
 - What do they want them to represent and is there a disconnect between their construction and this aim?