The Alpha and Beta of ESG Investing

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[1] The opinions expressed in this presentation are those of the authors and are not meant to represent the opinions or official positions of Amundi Asset Management.

Sorted portfolio methodology

Sorted-portfolio approach

- Sorted-based approach of Fama-French (1992)
- At each rebalancing date t, we rank the stocks according to their Amundi **ESG** score $s_{i,t}$
- We form the five quintile portfolios Q_i for $i = 1, \ldots, 5$
- The portfolio Q_i is invested during the period $]t, t+1]$:
  - Q_1 corresponds to the best-in-class portfolio (best scores)
  - Q_5 corresponds to the worst-in-class portfolio (worst scores)
- Quarterly rebalancing
- Universe: MSCI World Index
- Equally-weighted and sector-neutral portfolio (and region-neutral for the global universe)

Sorted portfolio methodology

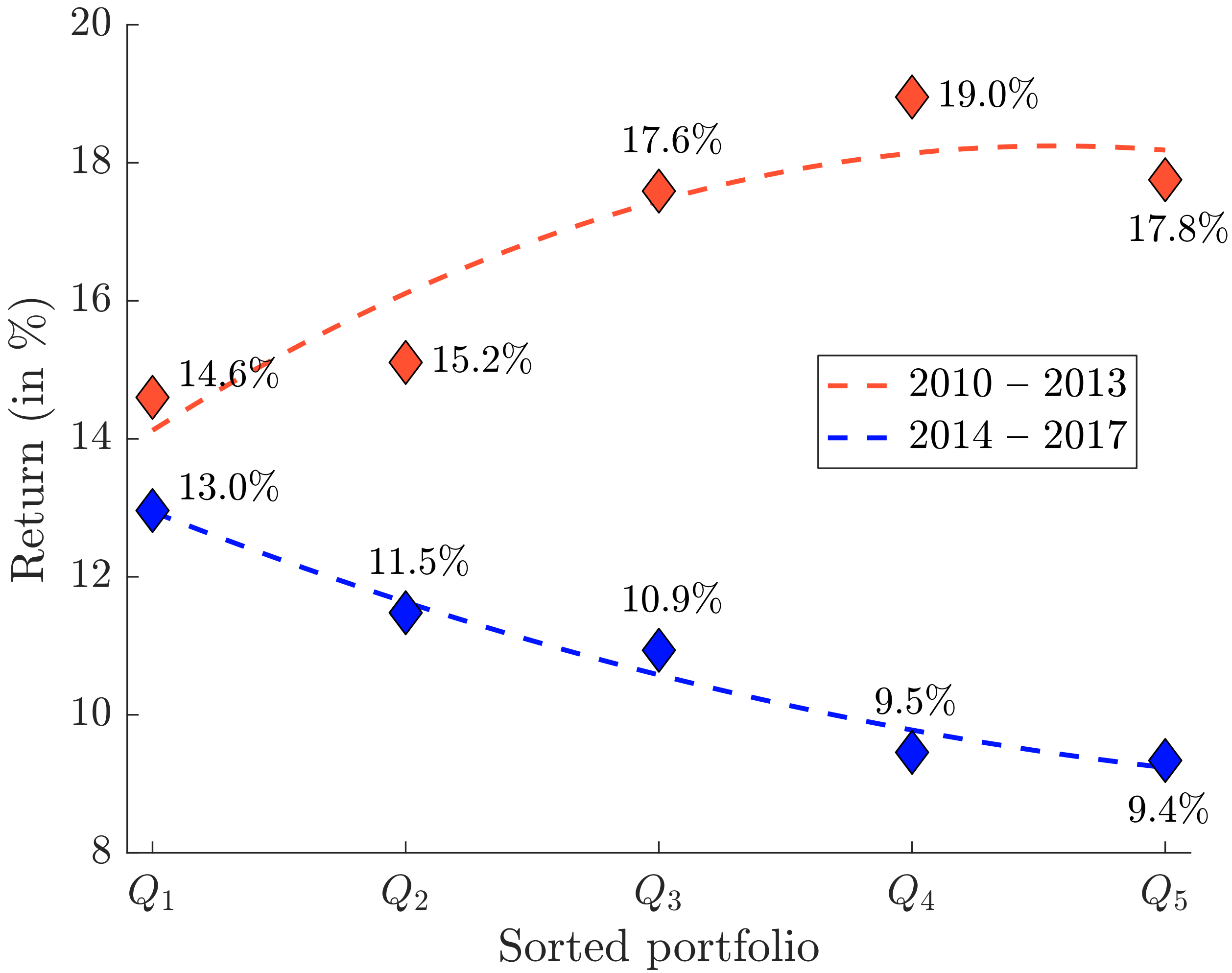
Table: An illustrative example

Stock	$s_{i,t}$	Rank	Q_i	Weight
S_1	-0.3	6	Q_3	$+50\%$
S_2	0.2	5	Q_3	$+50\%$
S_3	-1.0	7	Q_4	$+50\%$
S_4	1.5	3	Q_2	$+50\%$
$\mathbf{S_5}$	-2.9	10	$\mathbf{Q_5}$	$+50\%$
S_6	0.8	4	Q_2	$+50\%$
S_7	-1.4	8	Q_4	$+50\%$
$\mathbf{S_8}$	2.3	2	$\mathbf{Q_1}$	$+50\%$
$\mathbf{S_9}$	2.8	1	$\mathbf{Q_1}$	$+50\%$
$\mathbf{S_{10}}$	-2.2	9	$\mathbf{Q_5}$	$+50\%$

$\Rightarrow Q_1 = (S_8, S_9)$, $Q_2 = (S_4, S_6)$, $Q_3 = (S_1, S_2)$, $Q_4 = (S_3, S_7)$ and $Q_5 = (S_5, S_{10})$

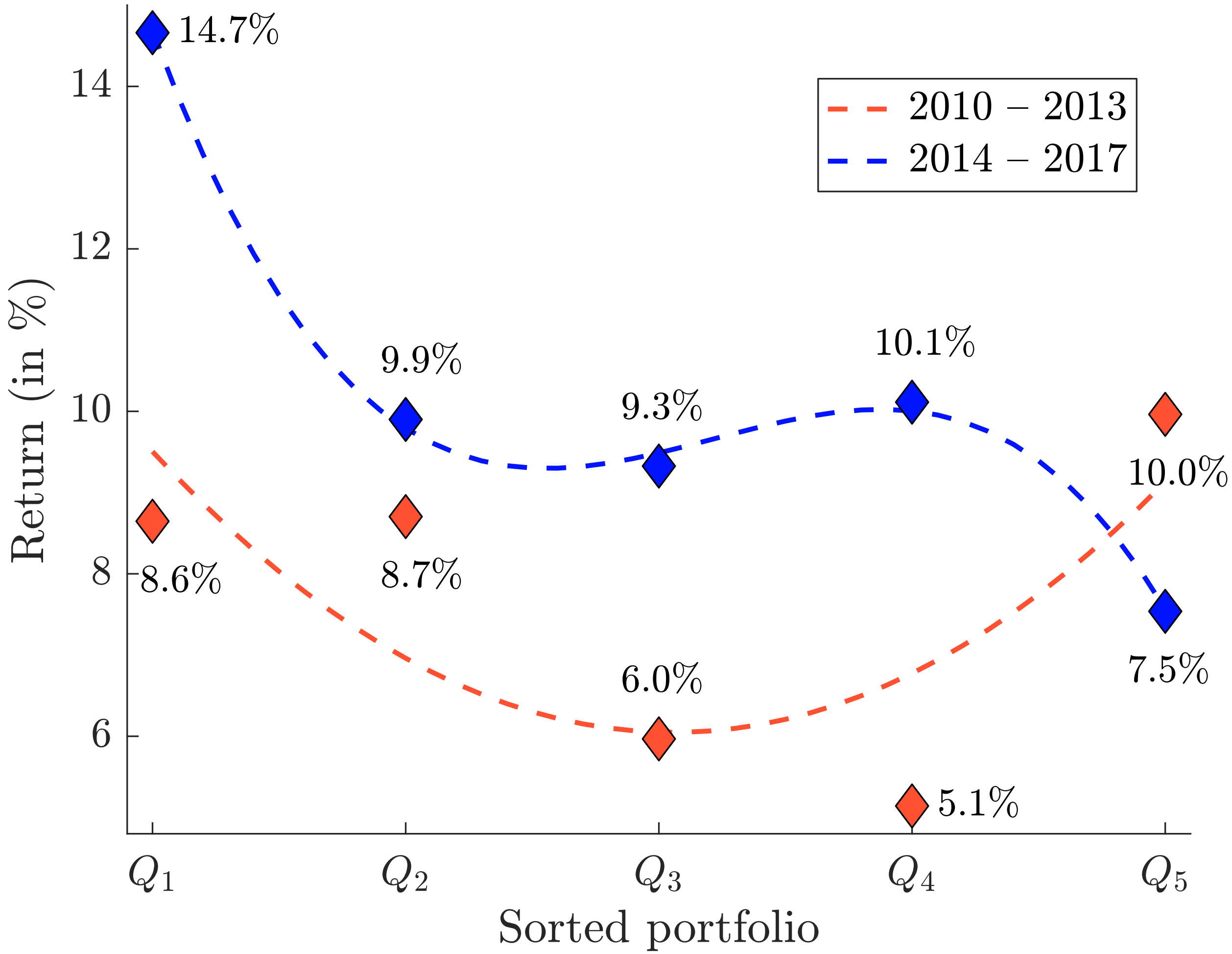
North America

Figure: Annualized return of **ESG** sorted portfolios (North America)



Eurozone

Figure: Annualized return of **ESG** sorted portfolios (Eurozone)



Summary

- ESG investing begins to be rewarded by the market, but there is a strong heterogeneity among regions:

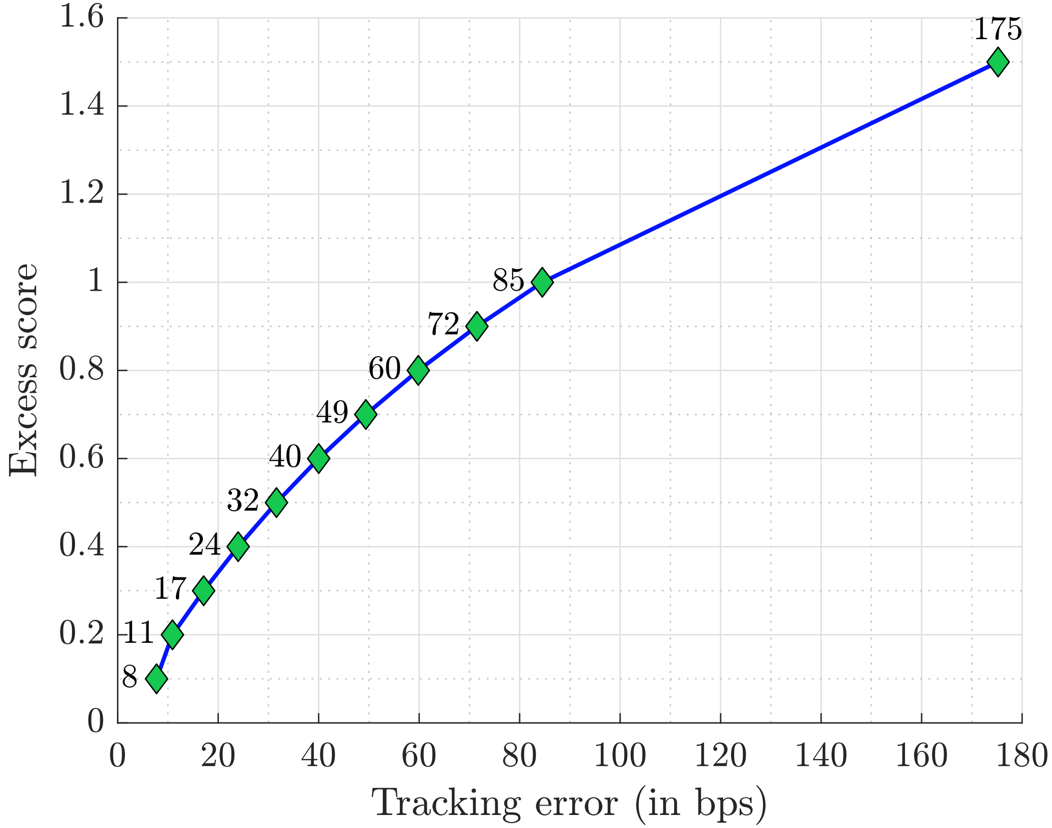
Before 2014					
Factor	North America	Eurozone	Europe ex-EMU	Japan	Global DM
ESG	−−	−	**0**	+	**0**
E	−	**0**	+	−	**0**
S	−	−	**0**	−	−
G	−	**0**	+	**0**	+

Since 2014					
Factor	North America	Eurozone	Europe ex-EMU	Japan	Global DM
ESG	++	++	**0**	−	+
E	++	++	−	+	++
S	+	+	**0**	**0**	+
G	+	++	**0**	+	++

- ESG & ~~long-term~~ tail risk management: not yet confirmed!
- S is the New Black?

Arbitrage between ESG and TE

Figure: Efficient frontier of **ESG** optimized portfolios (Global DM)

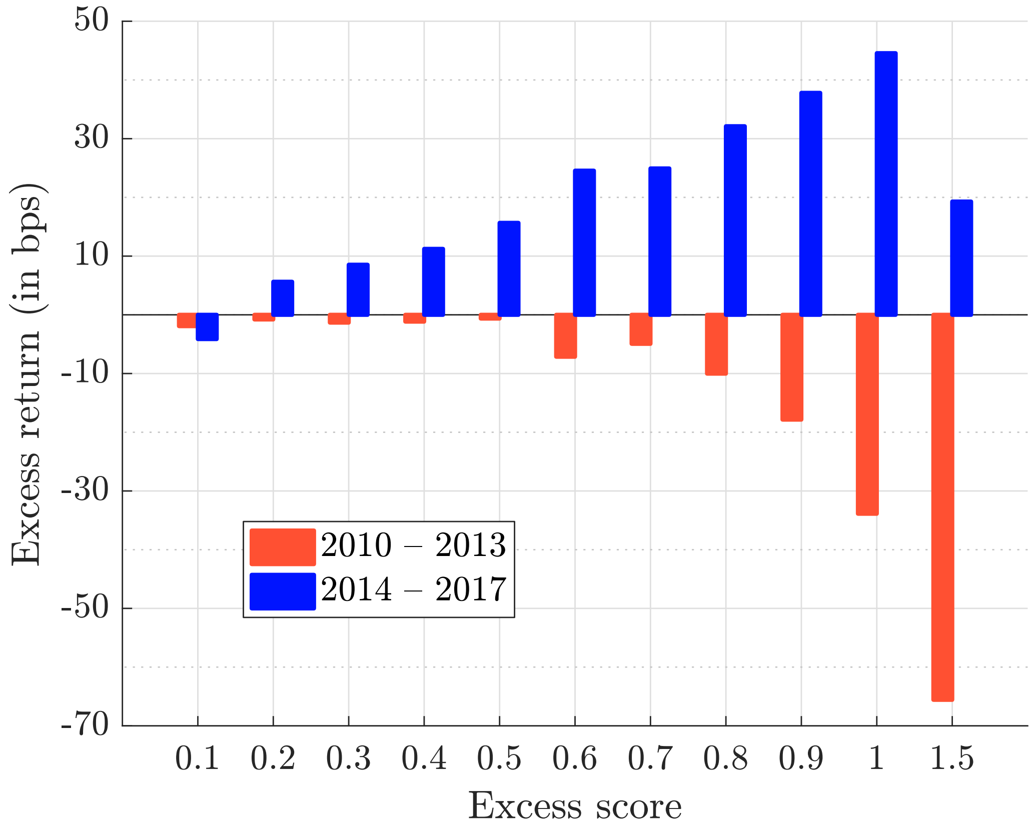


There is no free lunch

ESG investing implies to take a tracking-error risk!

Performance of optimized portfolios

Figure: Annualized excess return of **ESG** optimized portfolios (Global DM)



ESG investing & diversification: Mind the gap

Summary

- Similar results than those obtained with ESG active management
- ESG investing requires to take tracking-error risk $\Rightarrow$ Current SAA policies are not adapted
- **G** generates more tracking error than **E** and **S** ($\approx \times 1.5$)
- Impact of ESG on the diversification (stock picking $\neq$ optimized index portfolios)

Single-factor model

Table: Results of cross-section regressions with long-only risk factors (average R^2)

Factor	North America		Eurozone	
	2010 – 2013	2014 – 2017	2010 – 2013	2014 – 2017
Size	39.3%	23.6%	37.1%	20.9%
Value	38.9%	24.4%	41.6%	35.2%
Momentum	39.6%	23.8%	40.8%	35.8%
Low-volatility	35.8%	22.2%	38.7%	34.9%
Quality	39.1%	24.1%	42.4%	36.5%
ESG	40.1%	25.1%	42.6%	37.3%

- Specific risk has increased during the period 2014 – 2017
- Since 2014, we find that:
  - ESG $\succ$ Value $\succ$ Quality $\succ$ Momentum $\succ \ldots$ (North America)
  - ESG $\succ$ Quality $\succ$ Momentum $\succ$ Value $\succ \ldots$ (Eurozone)

Multi-factor model

Table: Results of cross-section regressions with long-only risk factors (average R^2)

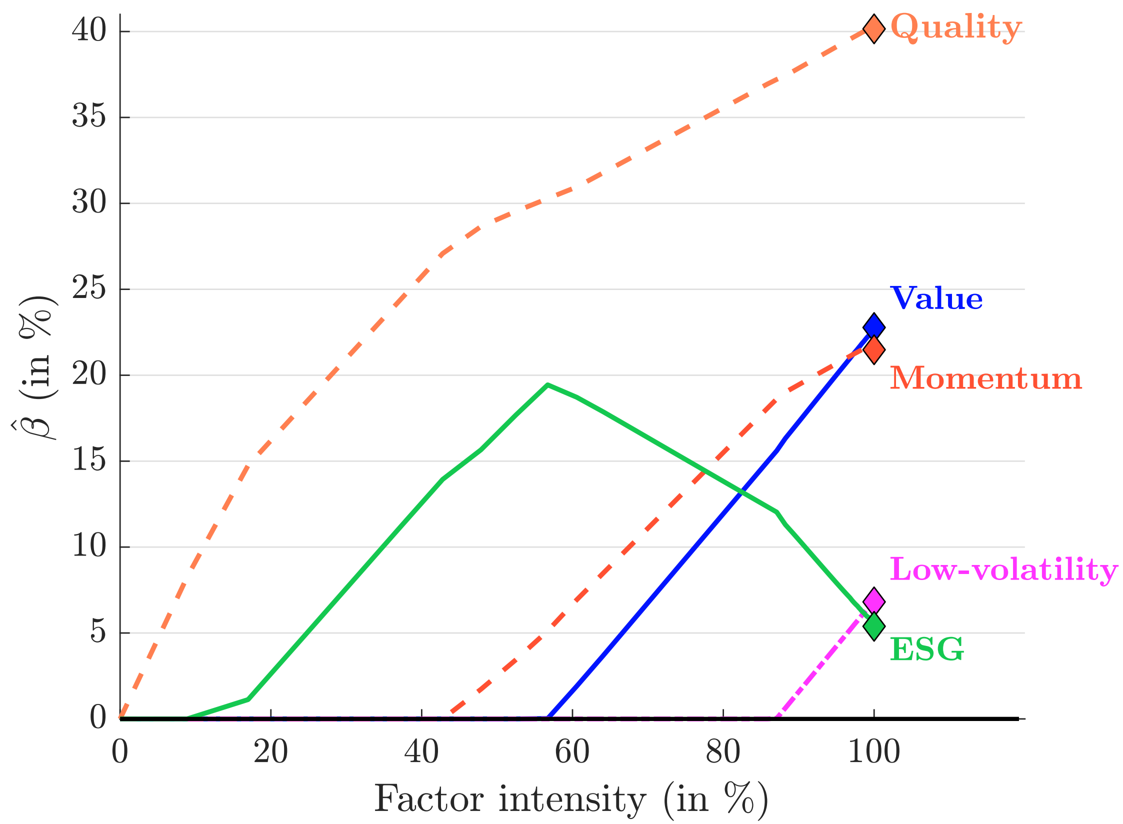
Factor	North America		Eurozone	
	2010 – 2013	2014 – 2017	2010 – 2013	2014 – 2017
Market	40.8%	26.2%	42.8%	37.7%
5F model	46.1%	35.4%	49.5%	45.3%
6F model (5F + ESG)	46.7%	36.8%	50.1%	46.0%

***p-value statistic for the MSCI Index (time-series, 2014 – 2017):

- 6F = ~~Size~~, Value, Momentum, Low-volatility, Quality, ~~ESG~~ (North America)
- 6F = Size, Value, Momentum, ~~Low-volatility~~, Quality, ESG (Eurozone)

Factor picking

Figure: Factor picking (North America, 2014 – 2017)



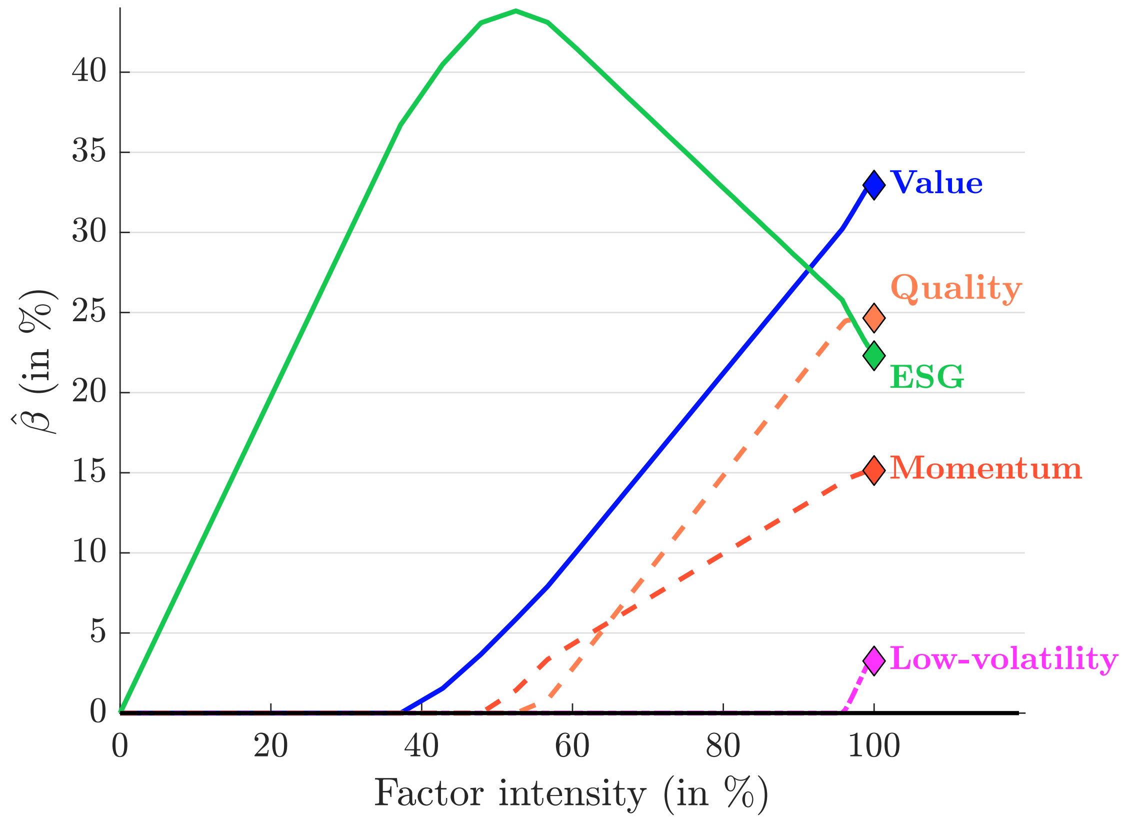
- Active management $\neq$ factor investing
- ESG does really matter for active management!
- The ESG-Value puzzle!

Quality $\succ$ ESG $\succ$ Momentum $\succ$ Value $\succ$ Low-volatility

BUT...

Factor selection

Figure: Factor picking (Eurozone, 2014 – 2017)



- Active management $\neq$ factor investing
- ESG does really matter for both!
- The ESG-Quality puzzle!

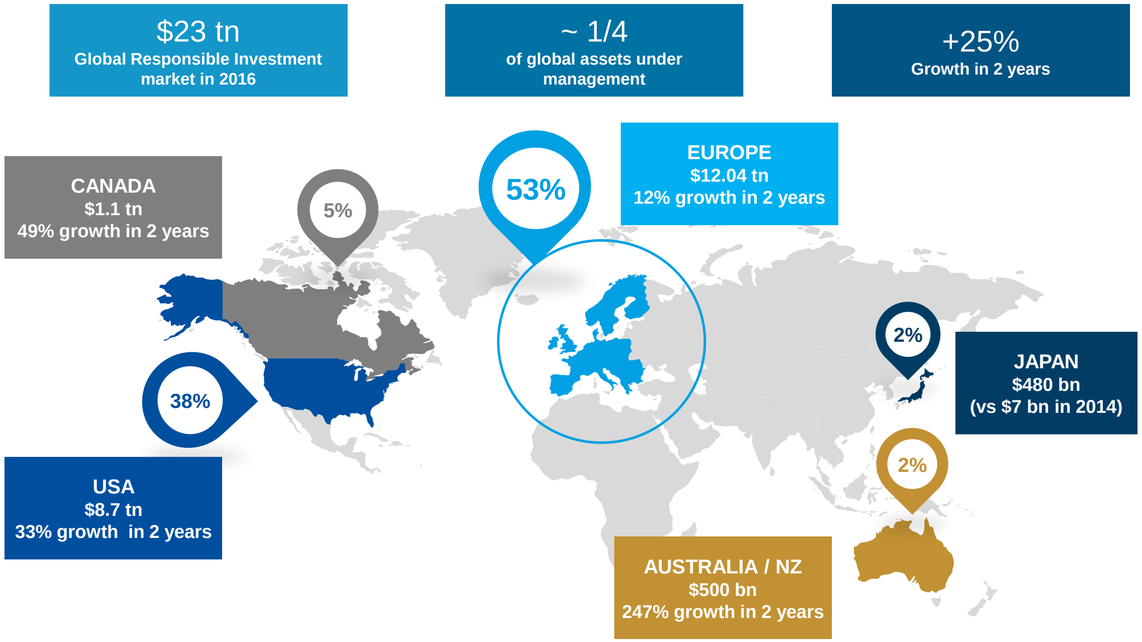
ESG $\succ$ Value $\succ$ Momentum $\succ$ Quality $\succ$ Low-volatility

BUT...

Summary

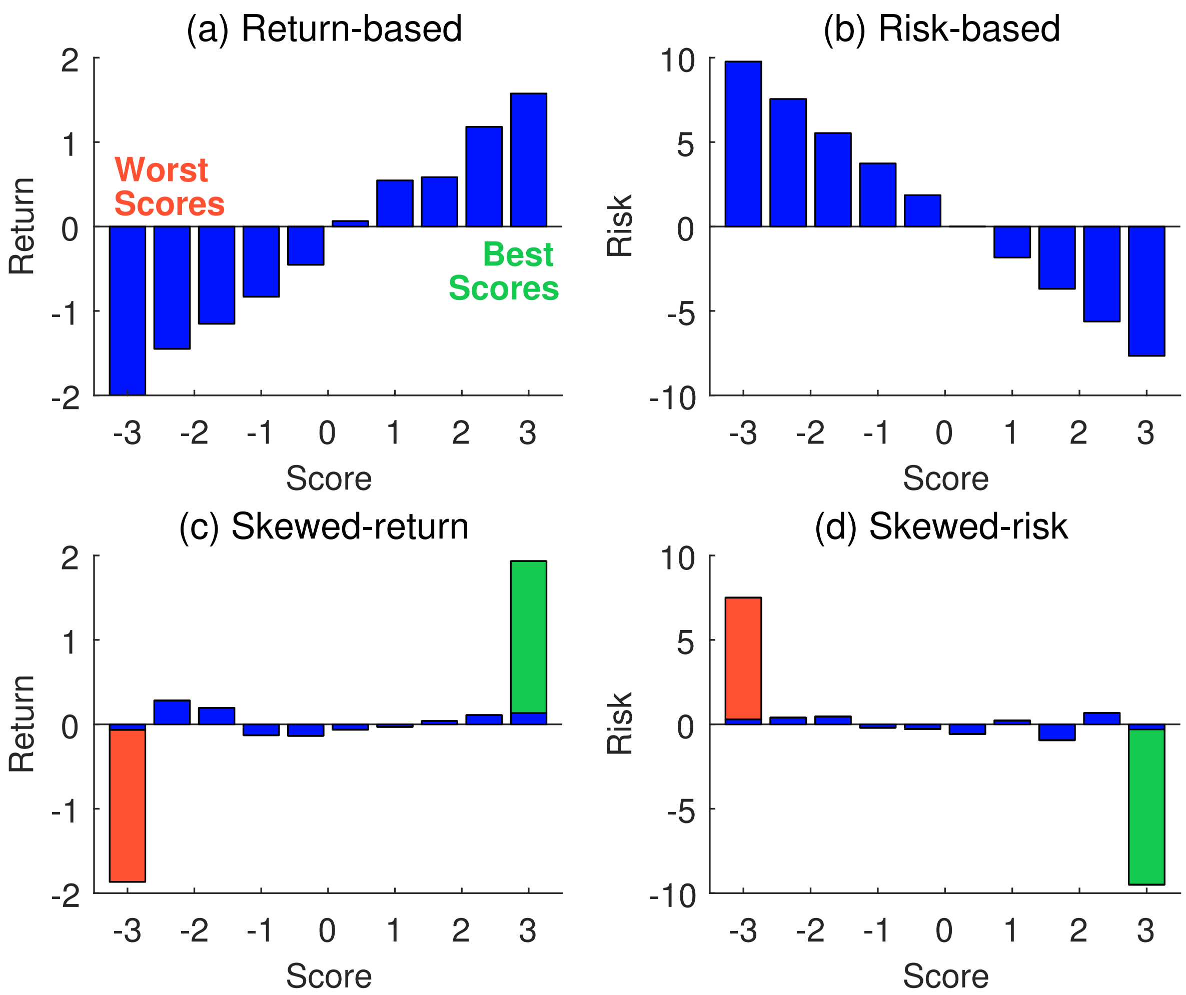
- ESG remains an alpha strategy in North America
- ESG becomes a beta strategy (= risk factor) in Europe

Figure: The market of ESG investing in 2016



Source: Global Sustainable Investment Alliance (2017).

On the optimal design of ESG investing



- ~~Risk-based premium~~
- Return-based premium: **ESG** in North America
- Skewness-based premium: **ESG** and **G** in the Eurozone, **G** in North America
- Exclusion, best-in-class or full integration strategy?

Why is ESG investing different in bond markets?

- Two effects for explaining price formation process
  - Intrinsic effect (risks & return opportunities)
  - External effect (supply/demand balance)
- bonds $\neq$ stocks
- Supply/demand imbalance $\Rightarrow$ structure of credit spreads
- Spread correction is then essential when implementing ESG in the bond market

ESG investing and Impact investing are then more correlated in the bond market than in the stock market

Disclaimer