

The Alpha and Beta of ESG Investing

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¹The 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 $i = 1, \dots, 5$
- 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

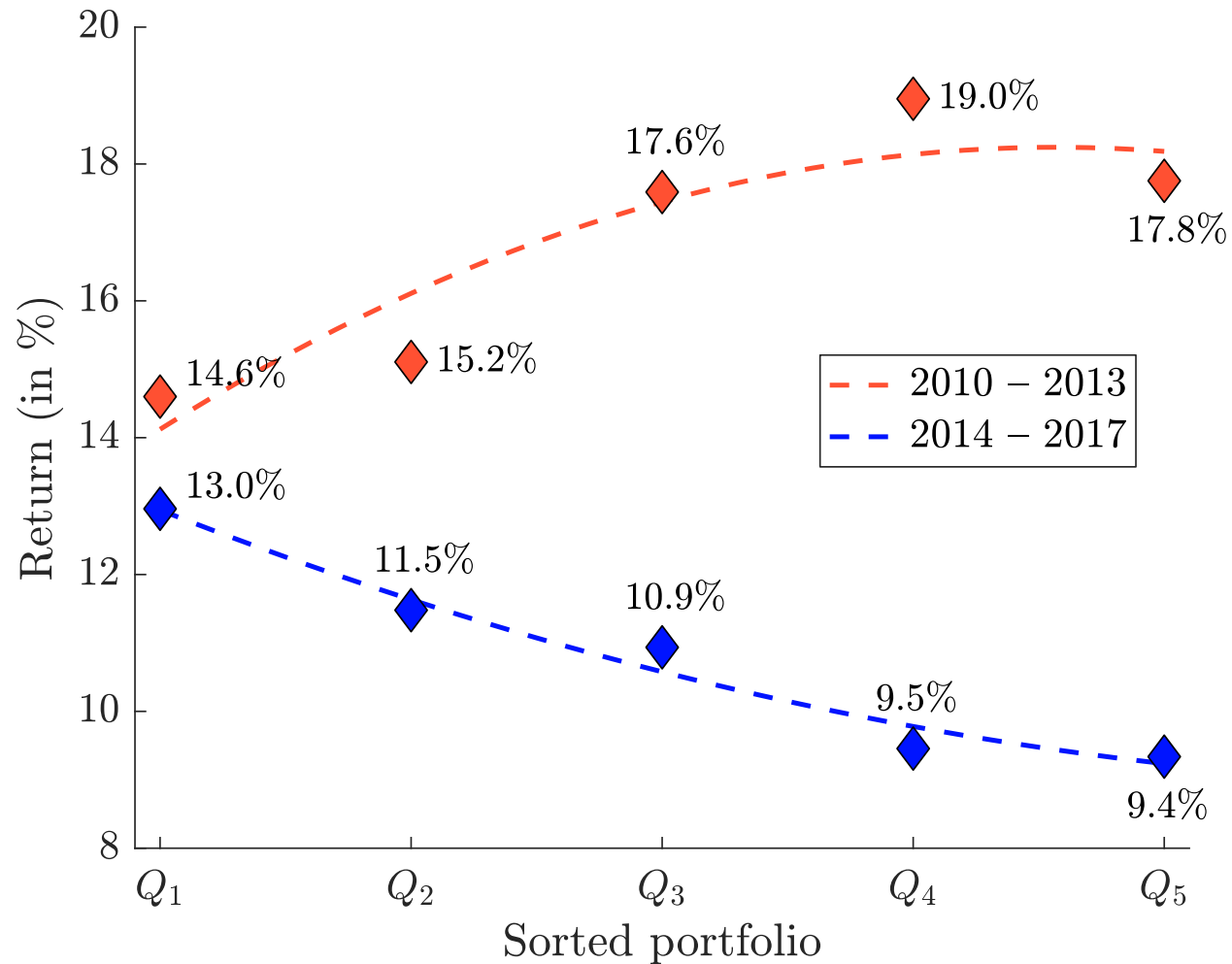
Table: An illustrative example

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%
S_5	-2.9	10	Q_5	+50%
S_6	0.8	4	Q_2	+50%
S_7	-1.4	8	Q_4	+50%
S_8	2.3	2	Q_1	+50%
S_9	2.8	1	Q_1	+50%
S_{10}	-2.2	9	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
 $Q_5 = (S_5, S_{10})$

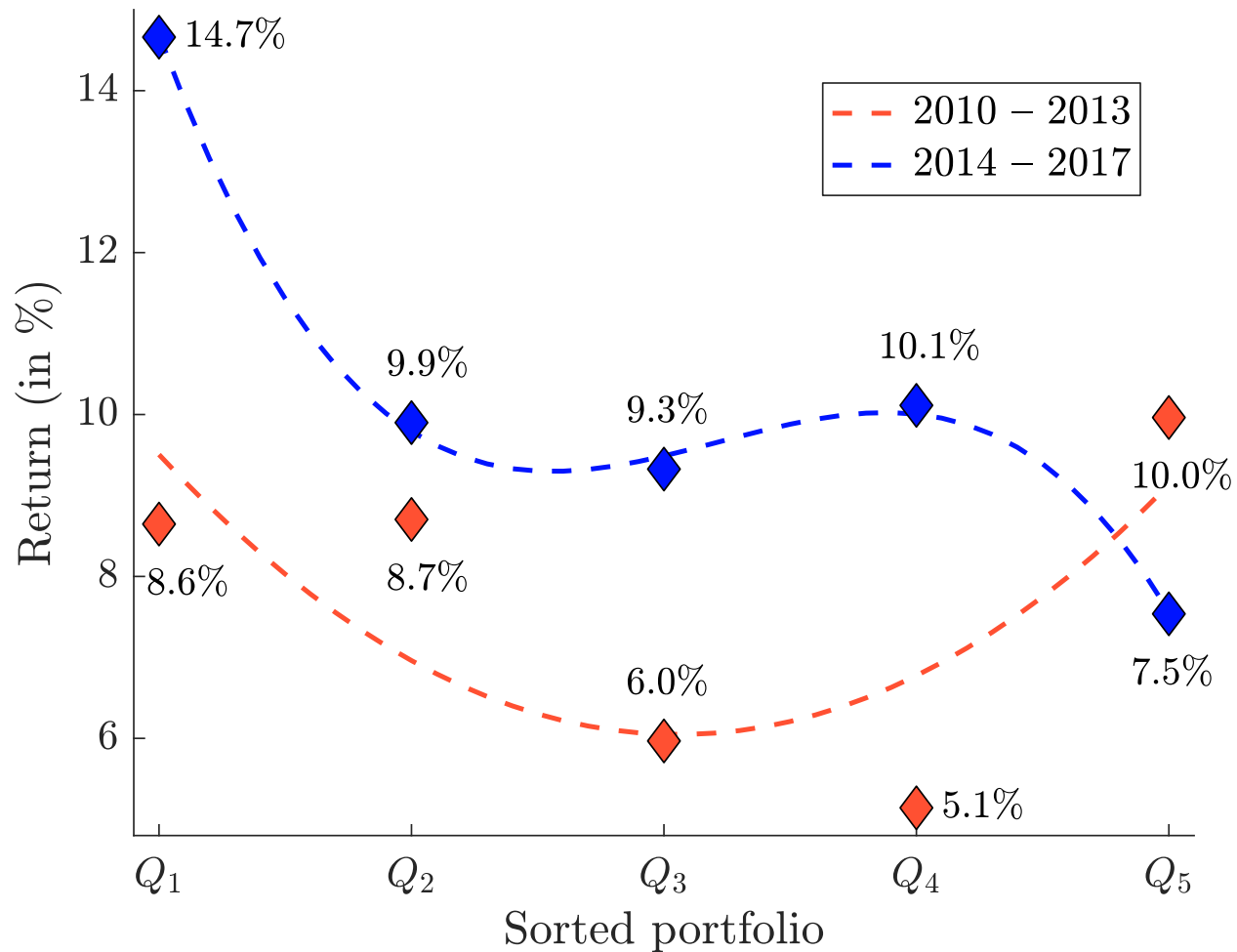
North America

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



Eurozone

Figure: Annualized return of ESG sorted portfolios (Eurozone)



Summary

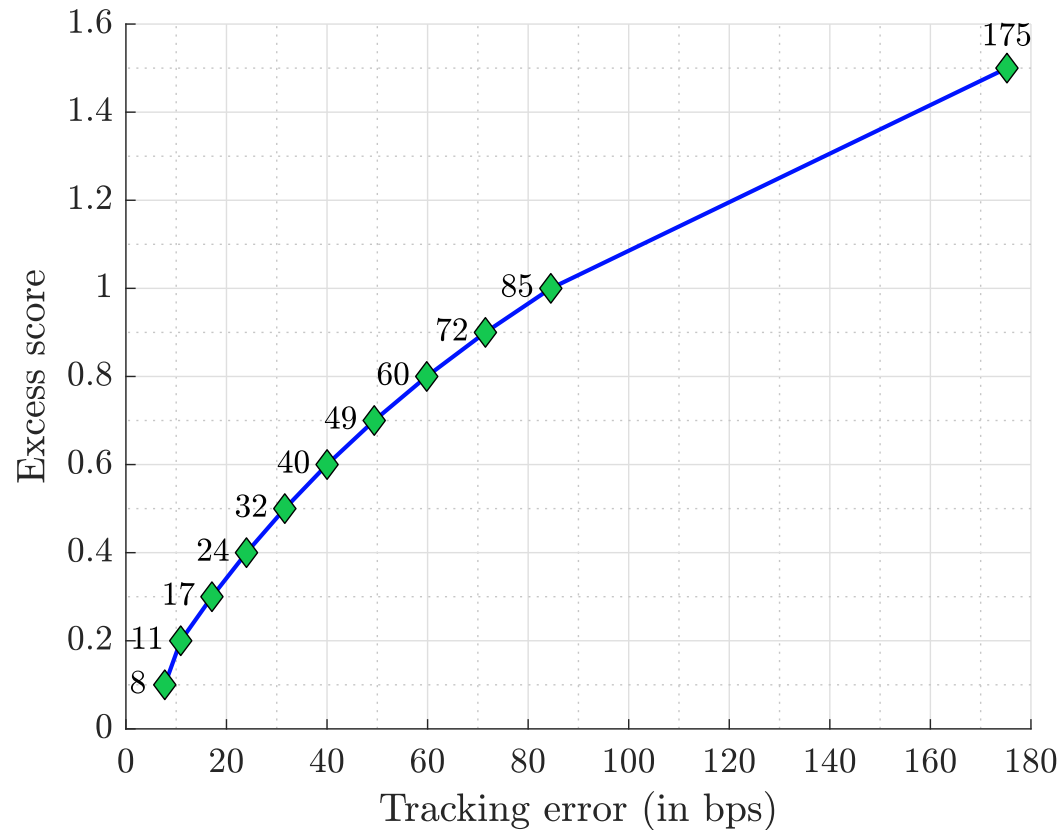
- ESG investing begins to be rewarded by the market, but there is a strong heterogeneity among regions:

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)

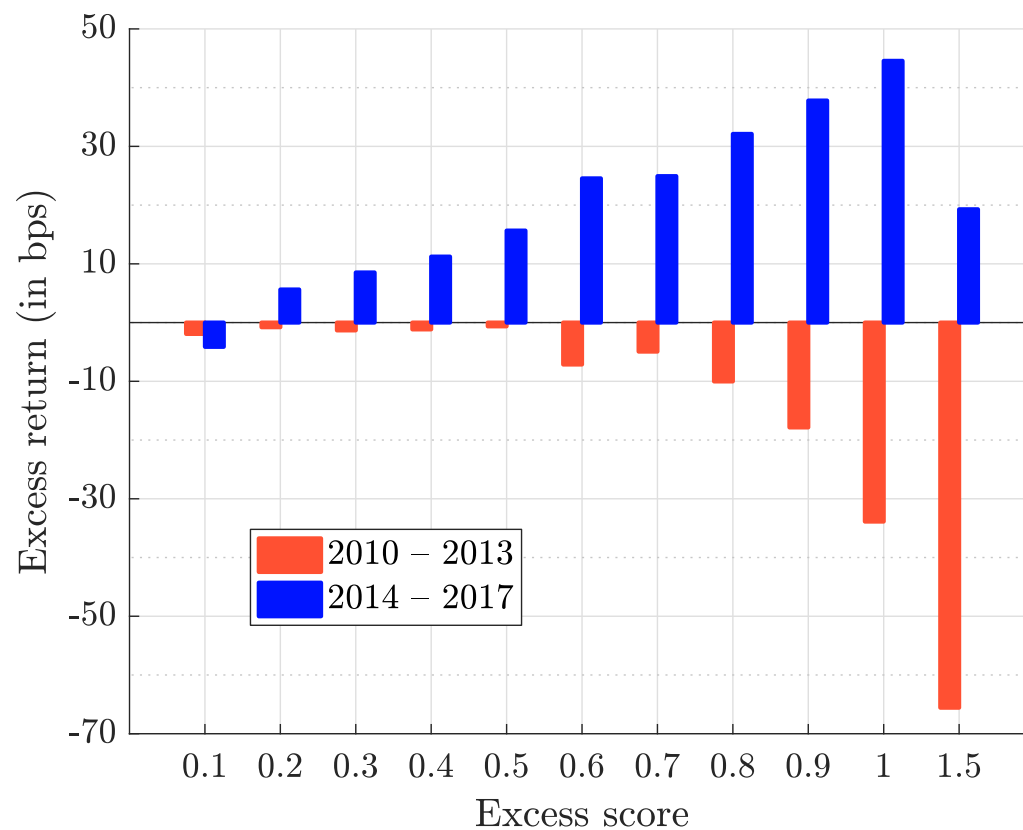


There is no free lunch

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 ... (North America)
 - ESG \succ Quality \succ Momentum \succ Value \succ ... (Eurozone)

Multi-factor model

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

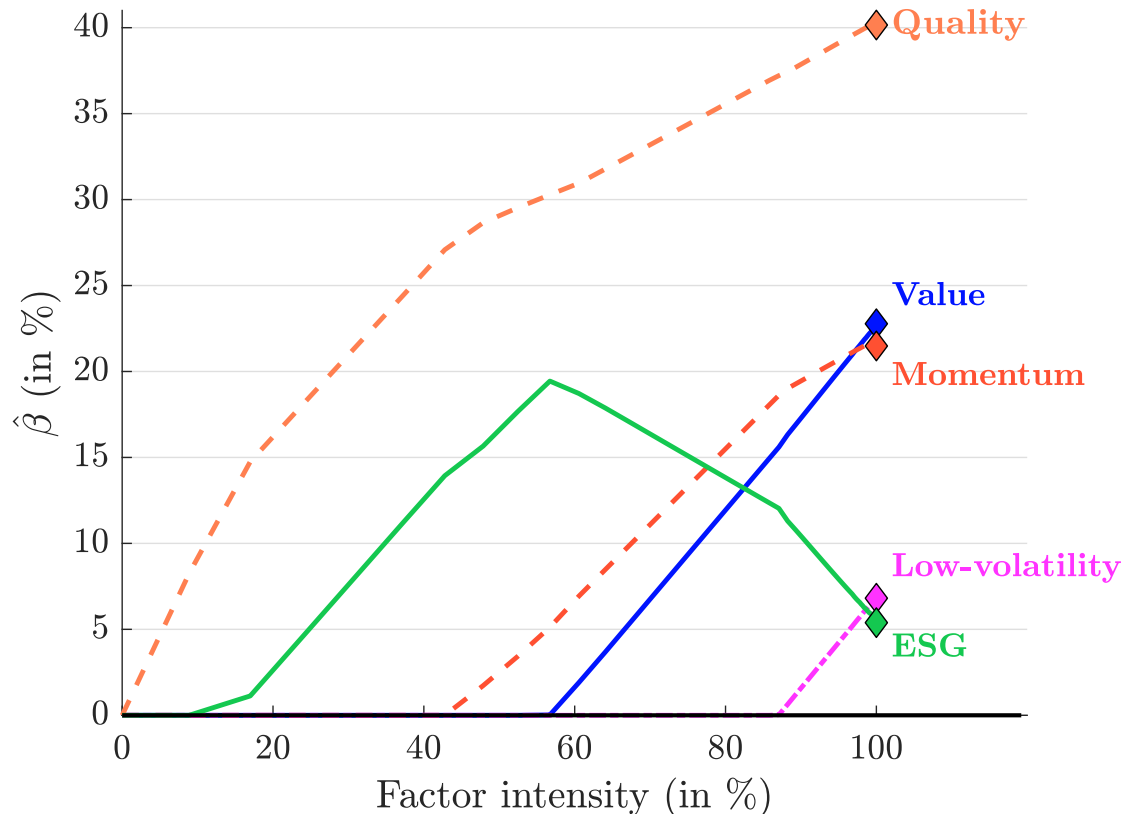
Factor	North America		Eurozone	
	2010 – 2013	2014 – 2017	2010 – 2013	2014 – 2017
Market	40.8%	26.2%	42.8%	37.7%
5F model	46.1%	35.4%	49.5%	45.3%
6F model (5F + ESG)	46.7%	36.8%	50.1%	46.0%

***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)



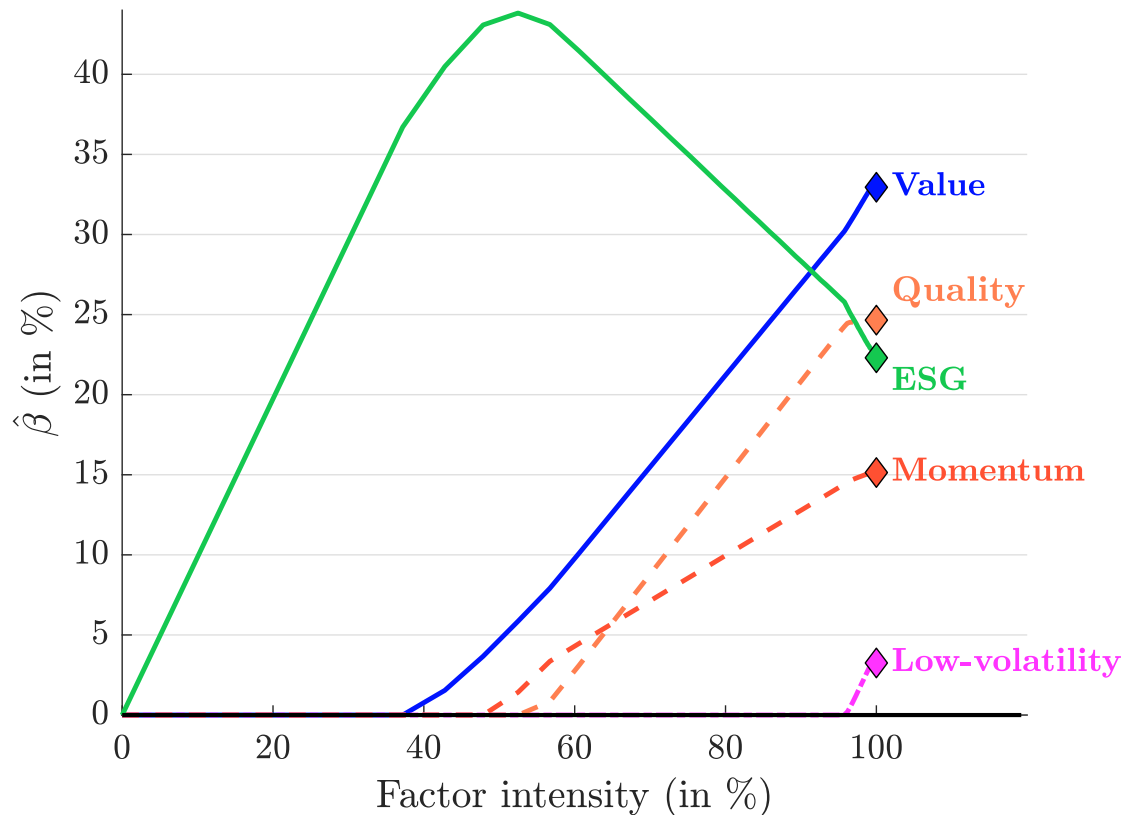
- Active management \neq factor investing
- ESG does really matter for active management!
- The ESG-Value puzzle!

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!

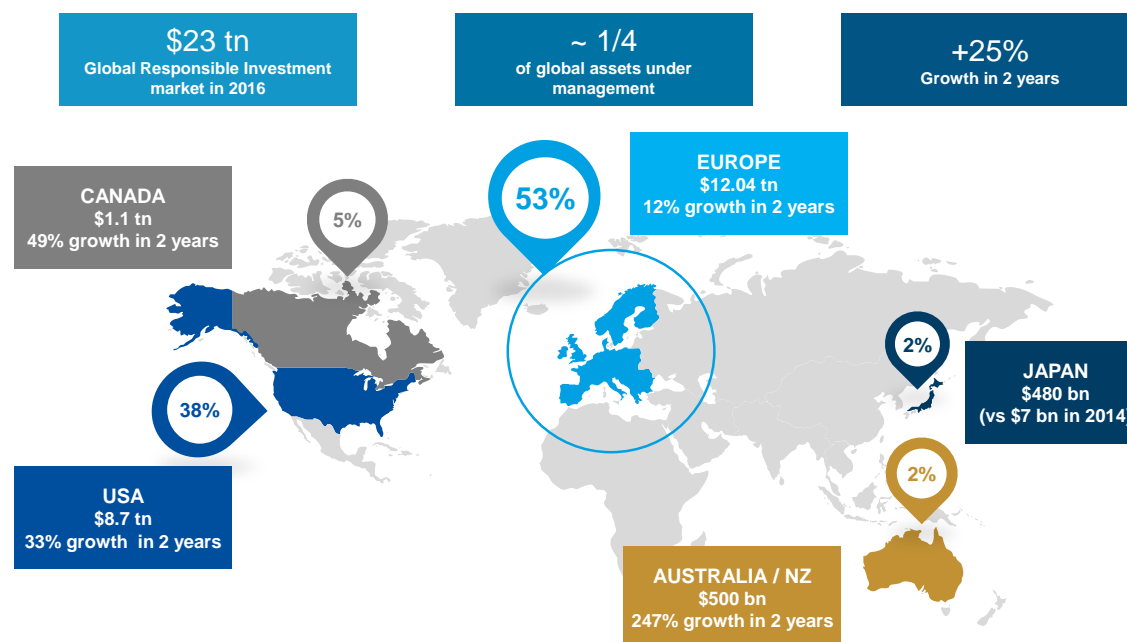
ESG \succ Value \succ Momentum \succ Quality \succ Low-volatility

BUT...

Summary

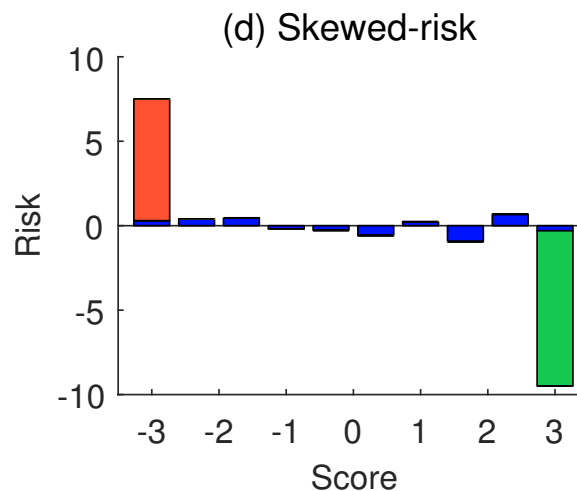
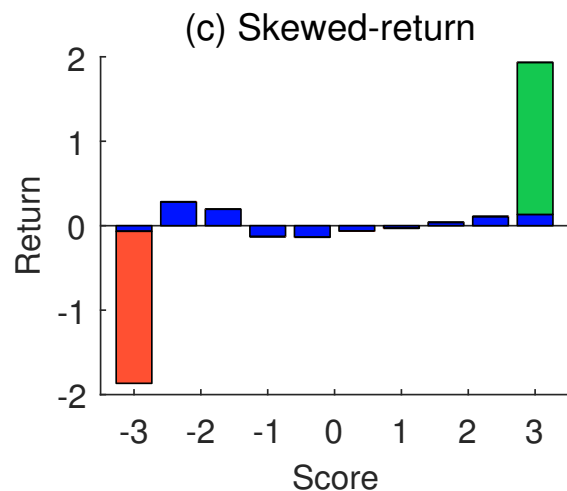
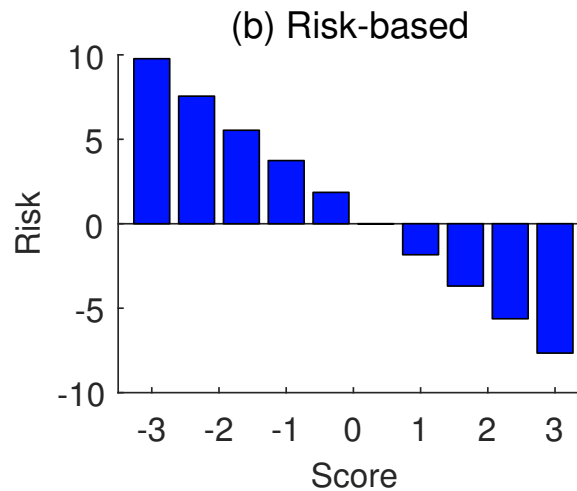
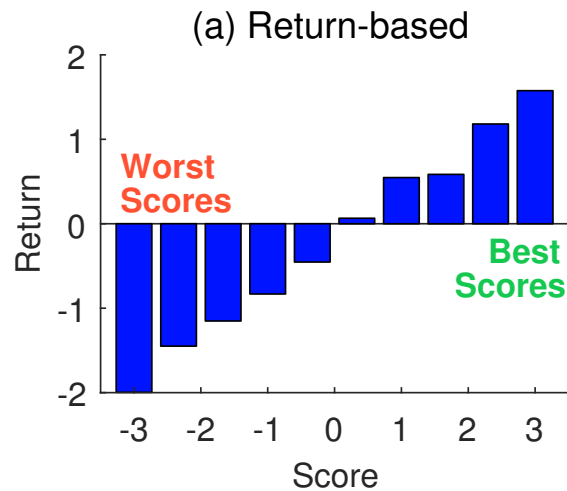
- ESG remains an alpha strategy in North America
- ESG becomes a beta strategy (= risk factor) in Europe

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

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