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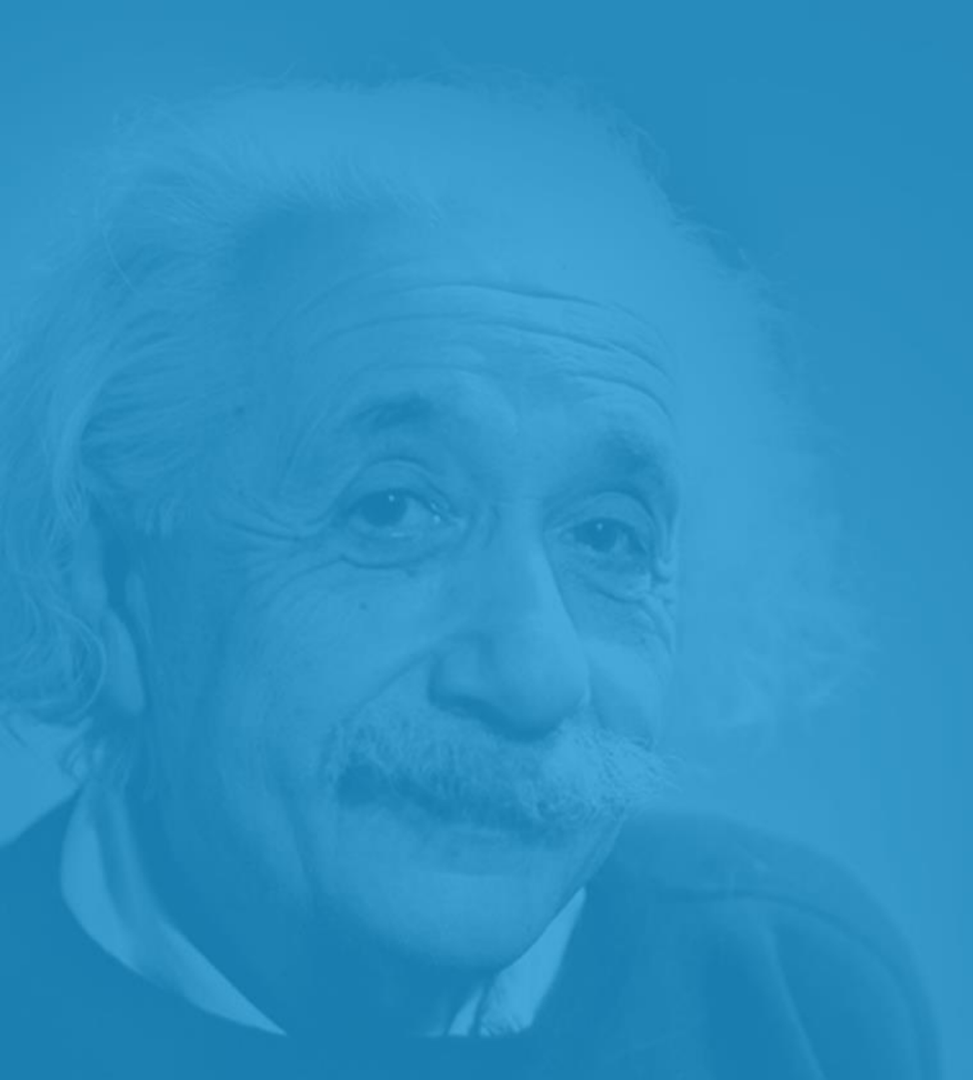
FROM INVESTMENT THEORY TO PRACTICE

David Blitz, PhD

Head of Quantitative Research



"In theory, theory and practice are the same. In practice,
they are not."

- Albert Einstein

TOPICS

Quick Overview

A. **A critical look at passive investing**
(and why a factor-based investment approach is better)

B. **A critical look at generic factor strategies**
(and why enhanced factor strategies are better)

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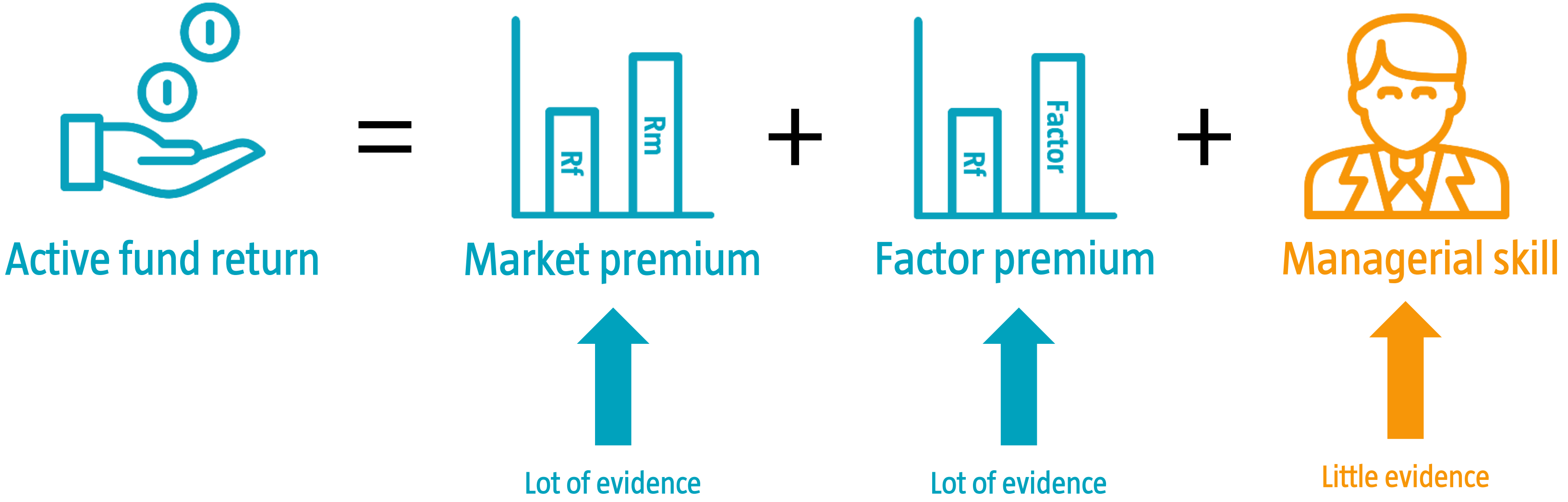
PASSIVE INVESTING

Passive investing ignores factor premiums

Literature really shows that active funds do not add value if you adjust their performance for the part that can be attributed to explicit or implicit exposures towards established factor premiums.



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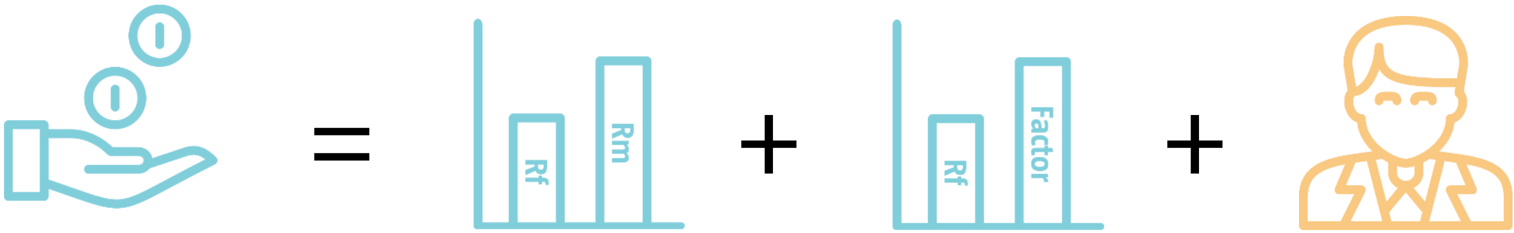

Active fund return = Market premium + Factor premium + Managerial skill

DON'T invest passively and ignore factor premiums!

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NORWEGIAN RESERVE FUND

2009 Case Study: Strategic exposure to factor premiums

Long term investors *should* seek
strategic exposure to factor premiums

A. Ang

Columbia
Business School

W. N. Goetzmann

Yale School of
Management

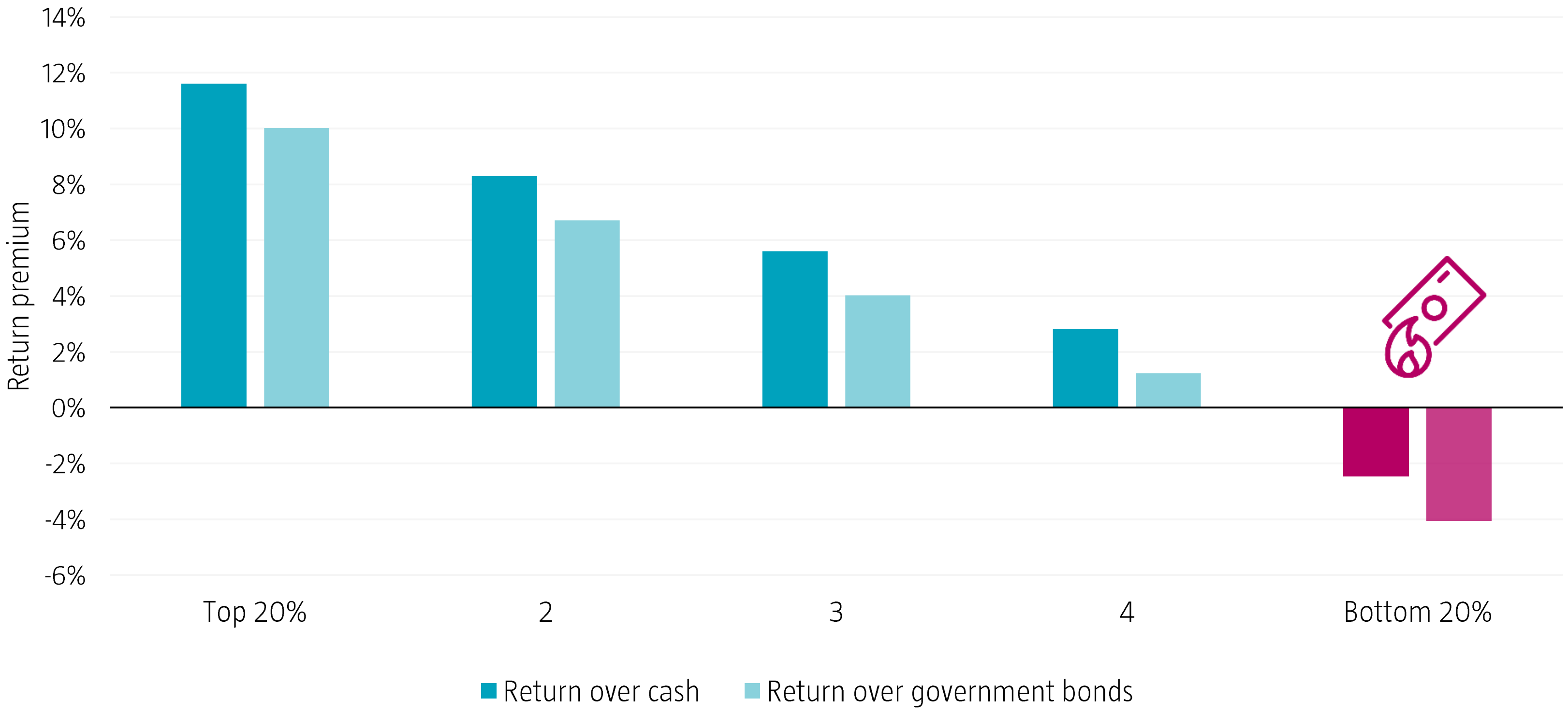
S. Schaefer

London
Business School

NEGATIVE PREMIUM

Passive investing even costs money

Model which ranks stocks on simple value, momentum, quality and low-risk variables indicates at least 20% of stocks have a **negative** return premium



GENERIC FACTOR STRATEGIES

Preferable over passive, however...

Unrewarded Risks

Generic factor strategies contain unrewarded risks

Conflicting Factors

Generic factor strategies often go against other factors

Suboptimal Methodologies

Generic factor strategies have suboptimal methodologies

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GENERIC VALUE STRATEGIES

Value investing works, but why?

Academics

Value Premium is compensation for investing in distressed stocks

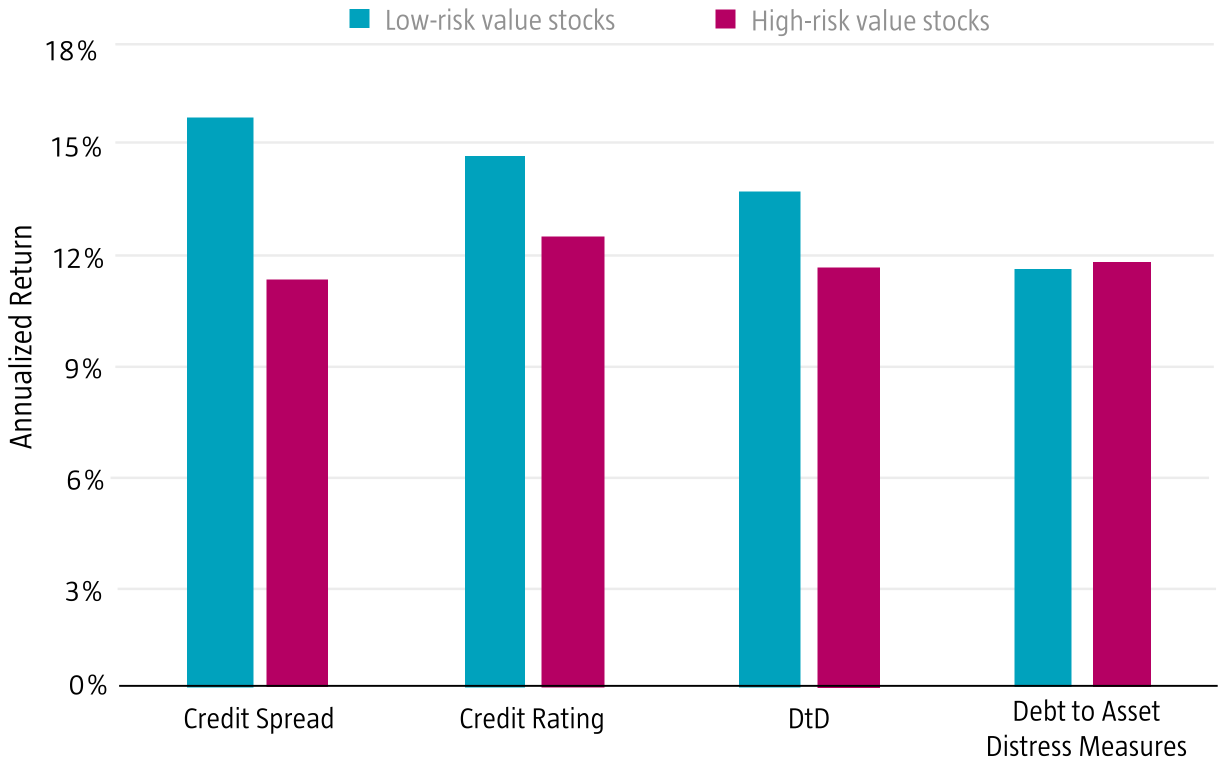
Robeco Research

Distressed value stocks have lower returns than safe ones

GENERIC VALUE STRATEGIES

Generic value strategies buy stocks with high bankruptcy risk

Example: relation between return, value, and distress risk



Robeco Research

Distressed value stocks have lower returns than safe ones

GENERIC VALUE STRATEGIES

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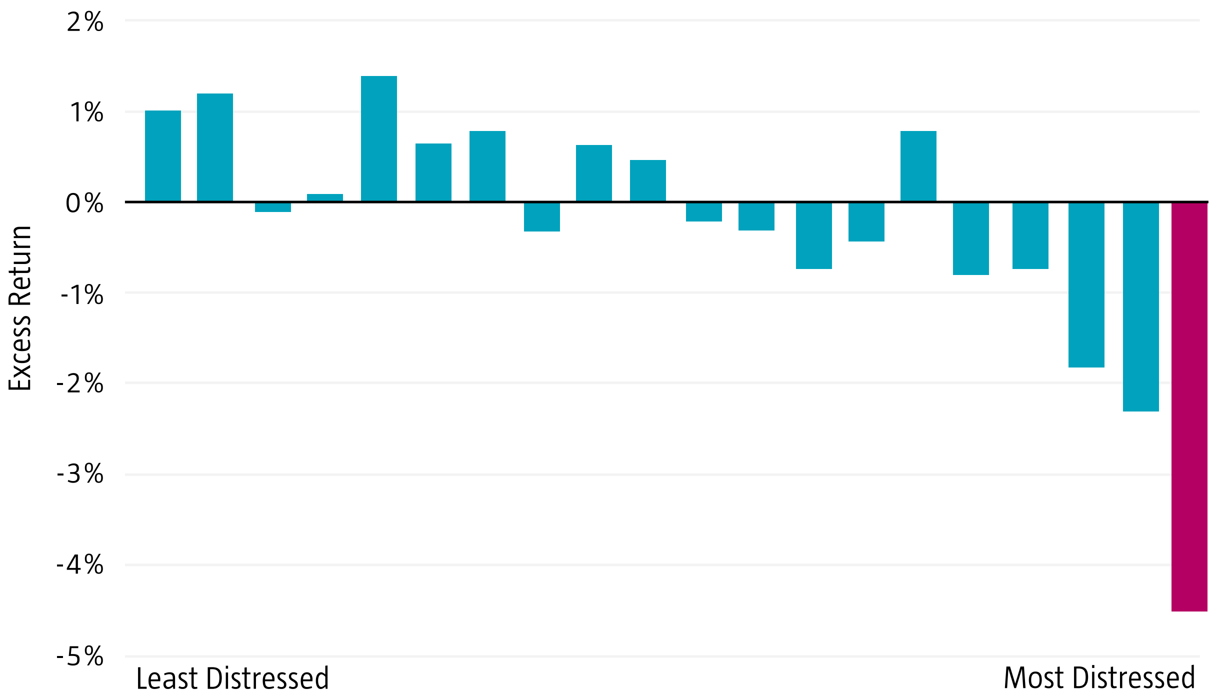
Example: relation between excess return and distress risk



Robeco Research

Distressed value stocks have lower returns than safe ones

ROBECO VALUE STRATEGY

Avoids the pitfalls of the generic approach

Robeco Research

Distressed value stocks have lower returns than safe ones

Application

Robeco Value

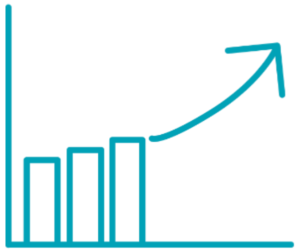
Avoid companies with substantial downside risk

GENERIC MOMENTUM STRATEGY

How to harvest the momentum premium without suffering big losses?

Generic Momentum

Exposed to other risk factors
(beta, size, value)



Robeco Momentum

Strip out unrewarded
momentum risks

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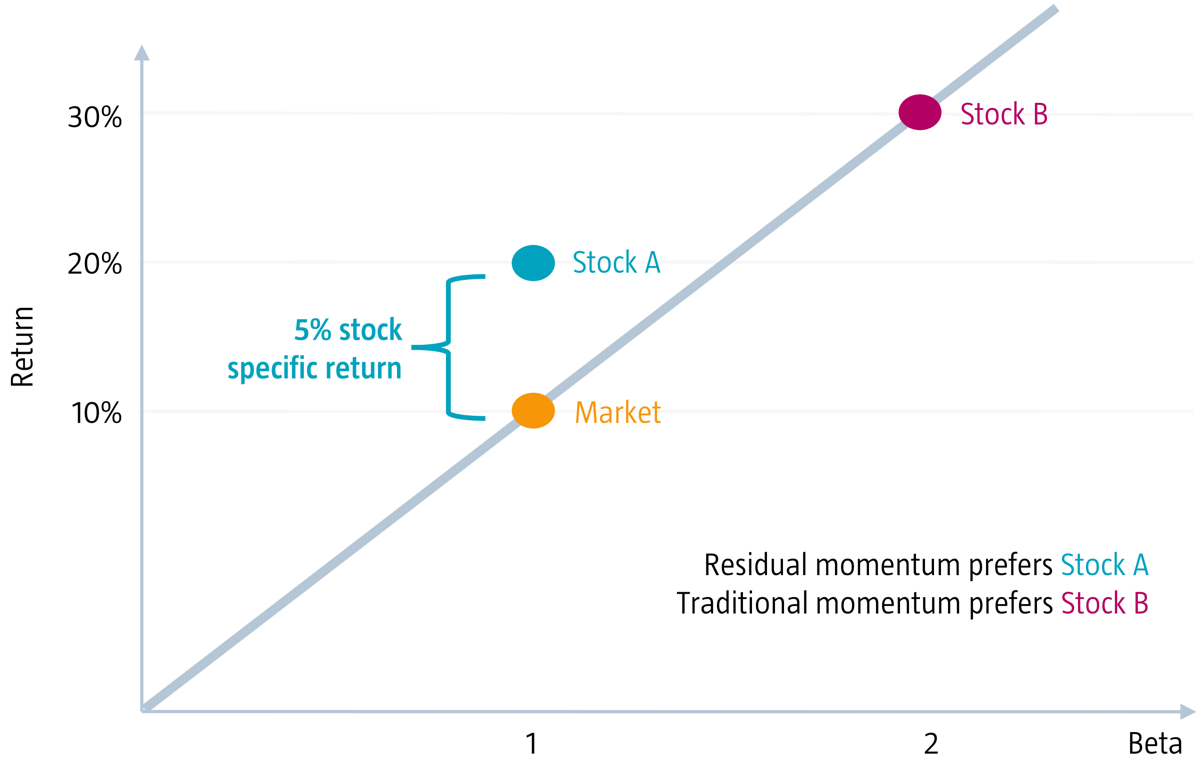
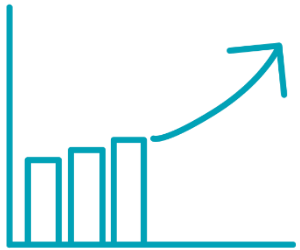
GENERIC MOMENTUM STRATEGY

Generic momentum strategies can suffer huge losses

Example: Residual Momentum uses stock specific returns instead of total returns





Robeco Momentum

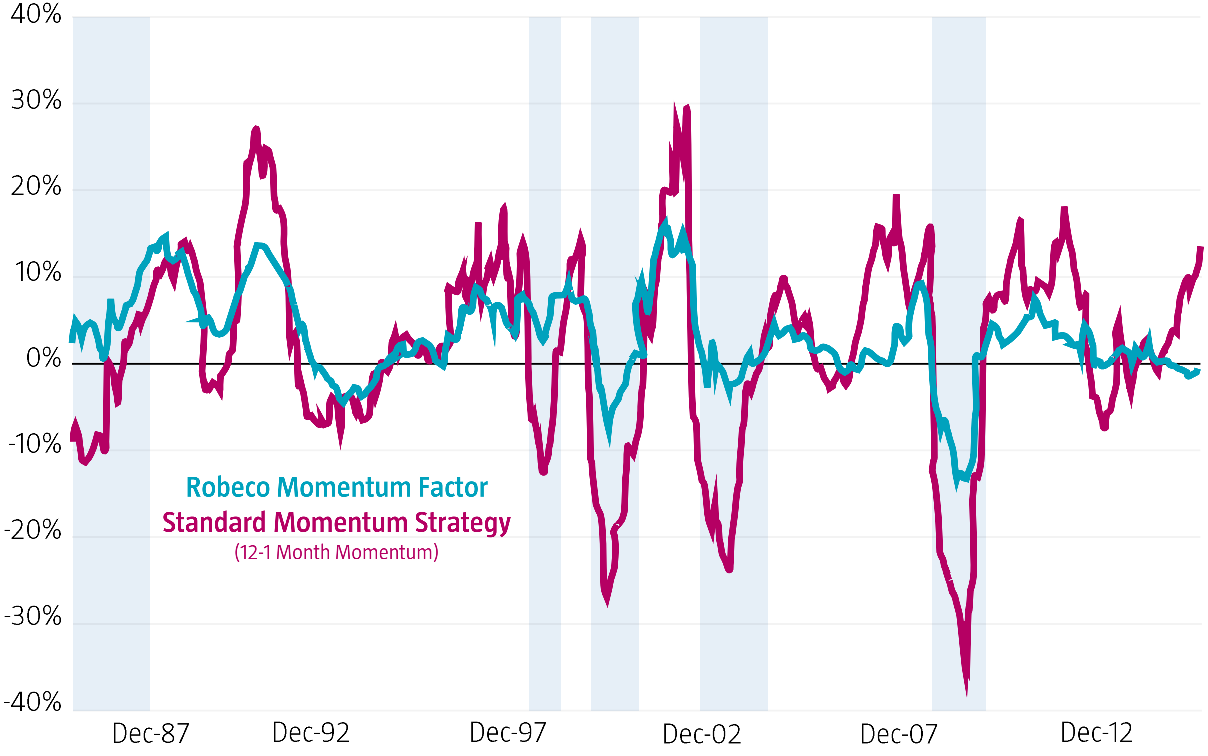
Strip out unrewarded momentum risks

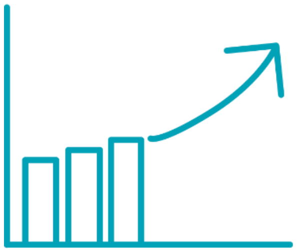
Source: Blitz, Huij & Martens, "Residual momentum", Journal of Empirical Finance, 2011

GENERIC MOMENTUM STRATEGY

Generic momentum strategies can suffer huge losses

Example: 1-Year Rolling Returns Momentum Basket 1986 - 2015





Robeco Momentum

Strip out unrewarded momentum risks

Source: Blitz, Huij & Martens, "Residual momentum", Journal of Empirical Finance, 2011

INEFFECTIVE QUALITY FACTORS

Quality indices use ineffective quality factors

Academic Research

Asset growth, net stock issuance, accruals, gross profitability

Body of evidence*

Industry Quality Factors

ROE, margins, ROE growth, leverage, earnings variability

Much less effective

*Coopers et al, 2008; Pontiff and Woodgate 2008; Sloan, 1996; Novv-Marx, 2013

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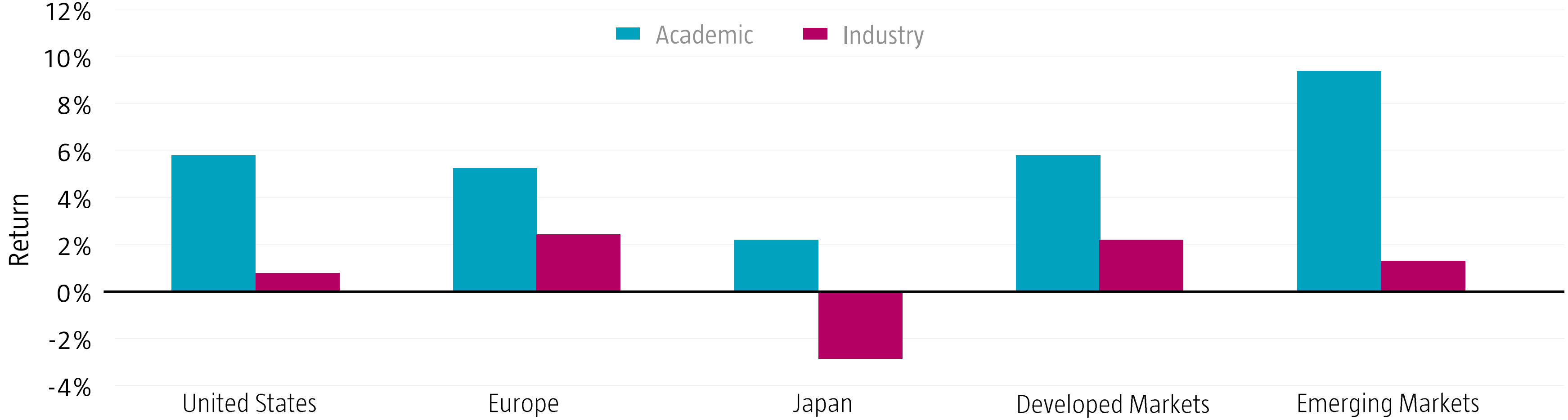

Coopers et al, 2008; Pontiff and Woodgate 2008; Sloan, 1996; Novv-Marx, 2013

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INCOMPATIBLE FACTORS

Generic factor strategies often work against other factors

When single-factor indices are combined, they partly **neutralize** each other

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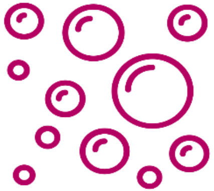
Value Traps

Value Indices tend to buy stocks with poor momentum and poor financial quality



Bubbles

Momentum indices tend to buy stocks with high valuations and ignore financial quality

Ignore Momentum

Quality Indices also tend to buy expensive stocks and ignore momentum

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LOW ACTIVE SHARE

Fundamental indices have low active share

Fundamentally weighted indices:

Set stock weight proportional to fundamental value instead of market value

Source of alpha is classic value exposure

Examples: FTSE/RAFI, MSCI Value Weighted

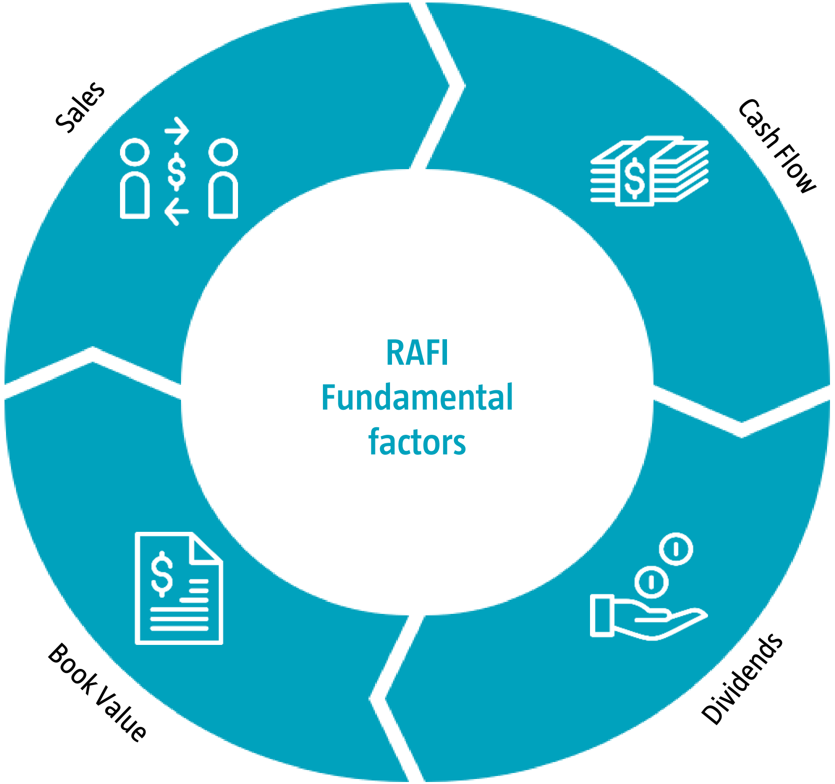
Likely not the best way to get value exposure because:

Value exposure is low

Cost is relatively expensive

Not suitable to combine with other factors

Invests in stocks with poor value features

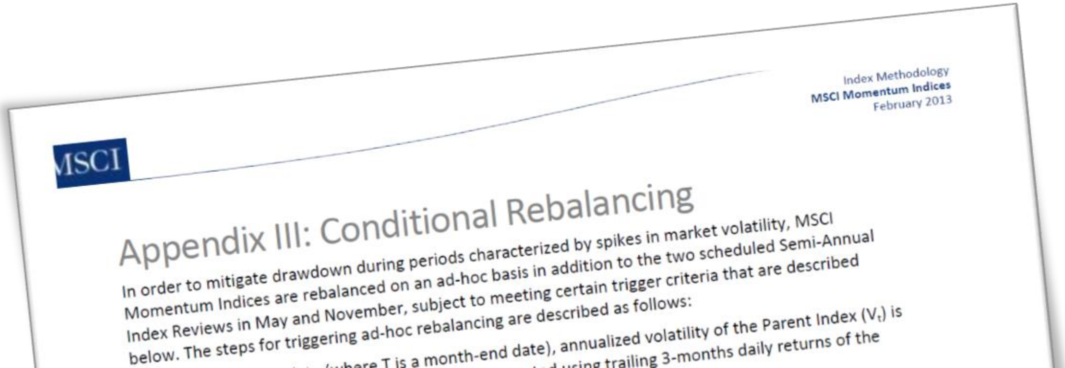


CONDITIONAL REBALANCING

MSCI Momentum index a has dubious special ad-hoc rule

Ad-hoc ‘conditional rebalancing’ rule

Historically kicks in only once, conveniently just when needed


Index Methodology
MSCI Momentum Indices
February 2013

MSCI

Appendix III: Conditional Rebalancing

In order to mitigate drawdown during periods characterized by spikes in market volatility, MSCI Momentum Indices are rebalanced on an ad-hoc basis in addition to the two scheduled Semi-Annual Index Reviews in May and November, subject to meeting certain trigger criteria that are described below. The steps for triggering ad-hoc rebalancing are described as follows:

(where T is a month-end date), annualized volatility of the Parent Index (V_t) is
using trailing 3-months daily returns of the

SCIBETA INDICES

SciBeta indices are heavily influenced by weighting formulas

Start with 6 generic academic factors → Various weighting formulas which all use volatilities and correlations → **Systematic bias** low-volatility and low-correlation stocks

Strategy	Objective	Unconstrained Closed-Form Solution	Required Parameter(s)	Optimality Conditions
Maximum Deconcentration	Maximise effective number of stocks	$w^* = \frac{1}{N}\mathbb{I}$	None	$\mu_i = \mu \forall i$ $\sigma_i = \sigma \forall i$ $\rho_{ij} = \rho \forall i$
Diversified Risk Weighted	Equalise risk contributions under "Constant Correlation" assumption	$w^* = \frac{diag(\sigma^{-1})}{\mathbb{I}' diag(\sigma^{-1})}$	σ_i	$\lambda_i = \lambda \forall i$ $\rho_{ij} = \rho \forall i$
Maximum Decorrelation	Minimise the portfolio volatility under the assumption of identical volatility across all stocks	$w^* = \frac{\Omega^{-1}\mathbb{I}}{\mathbb{I}'\Omega^{-1}\mathbb{I}}$	ρ_{ij}	$\mu_i = \mu \forall i$ $\sigma_i = \sigma \forall i$
Efficient Minimum Volatility	Minimise portfolio volatility	$w^* = \frac{\sum^{-1}\mathbb{I}}{\mathbb{I}'\sum^{-1}\mathbb{I}}$	σ_i , ρ_{ij}	$\mu_i = \mu \forall i$
Efficient Maximum Sharpe Ratio	Maximise portfolio Sharpe ratio	$w^* = \frac{\sum^{-1}\mu}{\mathbb{I}'\sum^{-1}\mu}$	μ_i , σ_i , ρ_{ij}	Optimal by construction

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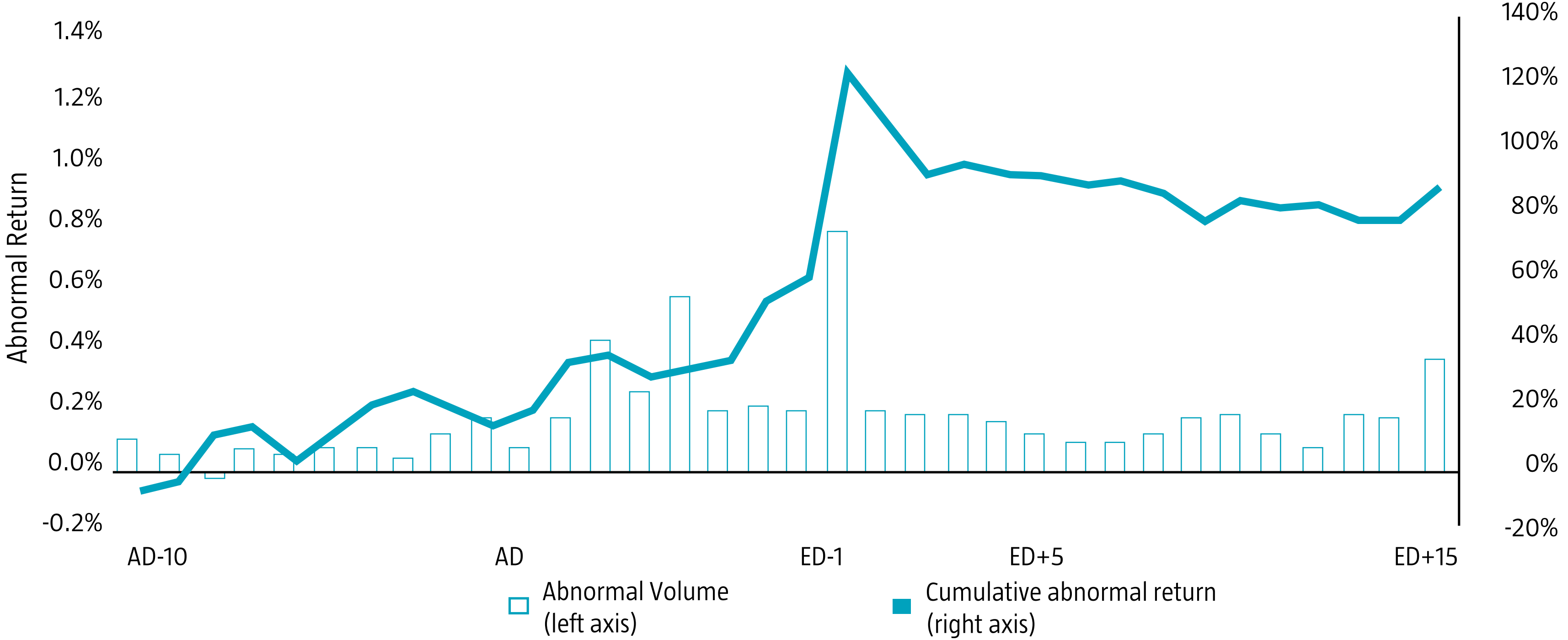
INDEX ARBITRAGE

Factor indices are vulnerable to arbitrage

Event study: Abnormal volume and returns of MSCI MinVol index around rebalancing



Source: Joop Huij and Georgi Kyosev, "Price Response to Factor Index Additions and Deletions", Working paper, 2016.
Results are calculated for MSCI Minimum Volatility USD indexes, returns are in USD. Volatility indexes during Sep-2010 – Dec-2015. AD is announcement day, ED is effective day

CONCLUSION

Quick Overview

Passive investing is likely to do better than a randomly chosen active fund, but….

- Passive investing **ignores half a century of evidence** on which factors drive stock returns
- At least 20% of all stocks have a **negative expected return premium**
- Generic factor strategies are **likely to do better** than a passive approach
- Enhanced factor strategies **improve upon the pitfalls** of generic factor strategies

Important Information

Additional Information for investors with residence or seat in the United Kingdom