FROM INVESTMENT THEORY TO PRACTICE

David Blitz, PhD
Head of Quantitative Research

For Professional Investors only
“In theory, theory and practice are the same. In practice, they are not.”

- Albert Einstein
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)
Active fund return $= $\text{Market premium} + \text{Factor premium} + \text{Managerial skill}$

- 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.

Lot of evidence

Lot of evidence

Little evidence
Passive investing ignores factor premiums

DON’T invest passively and ignore 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
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
GENERIC FACTOR STRATEGIES

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Our enhanced factor strategies address these concerns
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Generic Value Strategies

Value investing works, but why?

Academics

Value Premium is compensation for investing in distressed stocks

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Distressed value stocks have lower returns than safe ones
DISTRESSED VALUE STOCKS

Generic value strategies buy stocks with high bankruptcy risk

Example: relation between return, value, and distress risk

- Low-risk value stocks
- High-risk value stocks

**Credit Spread**
- Low-risk: 18%
- High-risk: 15%

**Credit Rating**
- Low-risk: 12%
- High-risk: 9%

**DtD**
- Low-risk: 6%
- High-risk: 3%

**Debt to Asset Distress Measures**
- Low-risk: 0%
- High-risk: 3%

**Annualized Return**

Distressed value stocks have lower returns than safe ones.
GENERIC VALUE STRATEGIES

Generic value strategies buy stocks with high bankruptcy risk

Example: relation between excess return and distress risk

Distressed value stocks have lower returns than safe ones
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
GENERIC MOMENTUM STRATEGY

Generic momentum strategies can suffer huge losses

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

- Stock A
- Stock B

5% stock specific return

Market

10%

20%

30%

1

2

Beta

Residual momentum prefers Stock A
Traditional momentum prefers Stock B

Robeco Momentum

Strip out unrewarded momentum risks

GENERIC MOMENTUM STRATEGY

Generic momentum strategies can suffer huge losses


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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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

**INCOMPATIBLE FACTORS**
Generic factor strategies often work against other factors
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**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
## SciBeta Indices

SciBeta indices are heavily influenced by weighting formulas

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Objective</th>
<th>Unconstrained Closed-Form Solution</th>
<th>Required Parameter(s)</th>
<th>Optimality Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Deconcentration</td>
<td>Maximise effective number of stocks</td>
<td>$w^* = \frac{1}{N} \mathbb{I}$</td>
<td>None</td>
<td>$\mu_i = \mu \forall i$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$\sigma_i = \sigma \forall i$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$\rho_{ij} = \rho \forall i$</td>
</tr>
<tr>
<td>Diversified Risk Weighted</td>
<td>Equalise risk contributions under “Constant Correlation” assumption</td>
<td>$w^* = \frac{\text{diag}(\sigma^{-1})}{\text{tr}(\text{diag}(\sigma^{-1}))} \mathbb{I}$</td>
<td>$\sigma_i$</td>
<td>$\lambda_i = \lambda \forall i$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$\rho_{ij} = \rho \forall i$</td>
</tr>
<tr>
<td>Maximum Decorrelation</td>
<td>Minimise the portfolio volatility under the assumption of identical volatility across all stocks</td>
<td>$w^* = \frac{\Omega^{-1} \mathbb{I}}{\text{tr}(\Omega^{-1})} \mathbb{I}$</td>
<td>$\rho_{ij}$</td>
<td>$\mu_i = \mu \forall i$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$\sigma_i = \sigma \forall i$</td>
</tr>
<tr>
<td>Efficient Minimum Volatility</td>
<td>Minimise portfolio volatility</td>
<td>$w^* = \frac{\sum_i^{-1} \mathbb{I}}{\text{tr}(\sum_i^{-1})}$</td>
<td>$\sigma_i, \rho_{ij}$</td>
<td>$\mu_i = \mu \forall i$</td>
</tr>
<tr>
<td>Efficient Maximum Sharpe Ratio</td>
<td>Maximise portfolio Sharpe ratio</td>
<td>$w^* = \frac{\sum_i^{-1} \mu}{\text{tr}(\sum_i^{-1}) \mu}$</td>
<td>$\mu_i, \sigma_i, \rho_{ij}$</td>
<td>Optimal by construction</td>
</tr>
</tbody>
</table>
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.
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