



The Factors That Matter

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The Conundrum - A Zoo of Factors

Literally hundreds of factors have been identified.

Which of these 100+ exhibits in the zoo matter?



John Cochrane in 2011 presidential address to American Finance Association: “zoo of factors”

Factor Criteria

Factors should help explain portfolio returns and have delivered a historical premium. Additionally, a factor should be:

Persistent



Pervasive



Robust



Investable



Intuitive



Factors That Matter

So ...which factors matter and why?



Market Beta



Size



Value



Momentum



Quality

*Let's apply our criteria to a couple of these factors: **Value and Momentum***

Persistent

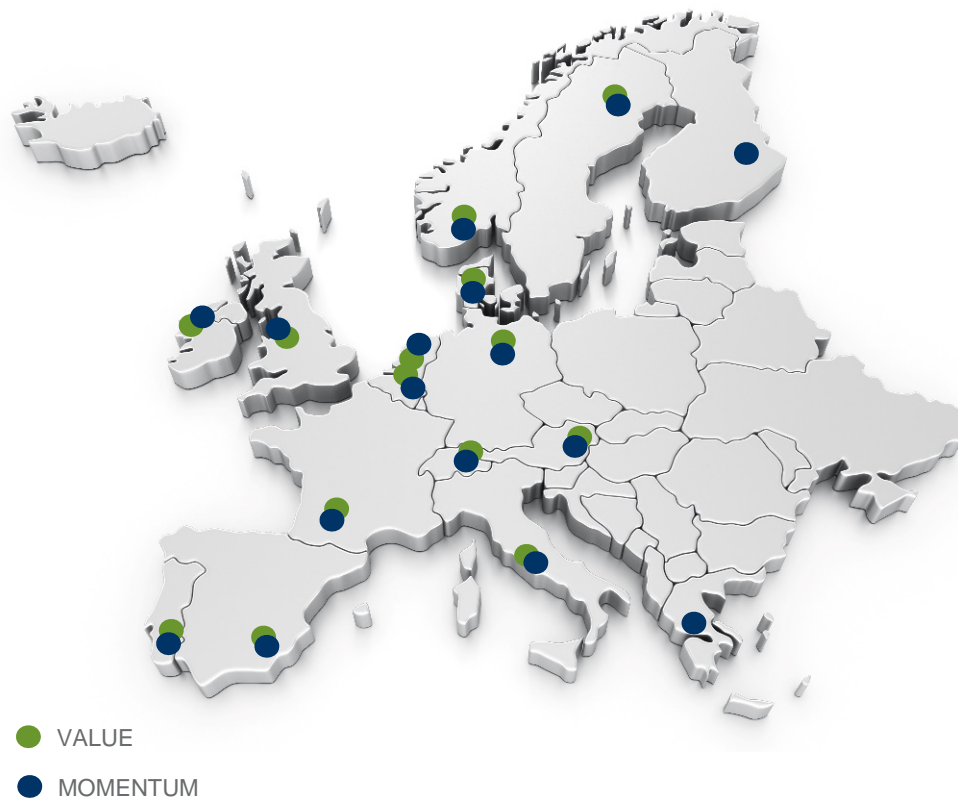
Odds of outperformance (%), U.S. equities 1927-2015

	Value	Momentum
1 Year	63%	73%
3 Year	72%	86%
5 Year	78%	91%
10 Year	86%	97%
20 Year	94%	100%

Source: Berkin A., Swedroe L. Your Complete Guide to Factor-Based Investing: The Way Smart Money Invests Today. St Louis, MO: BAM Alliance Press, 2016

Pervasive

A premium can be found for both across geographic regions



Value has been found:

- In broad international markets: a +5.2% premium¹
- In emerging markets: a +3.7% premium²
- Across individual markets in Europe where premiums ranged from +1.2% to +7.3%³

Momentum has been found:

- In 40 other countries⁴
- Positive in different markets *and* asset classes, statistically significant in all but Japan⁵
- Across different size ranges of stocks⁶

Sources of data provided in the presentation Appendix.

Robust

Value

Most common definition:

- Classical academic definition is Book-to-Market (BtM) ratio

Other definitions:

- Cash Flow-to-Price ratio
- Earnings-to-Price ratio
- Sales-to-Price ratio
- Dividend Yield

Momentum

Most common definition:

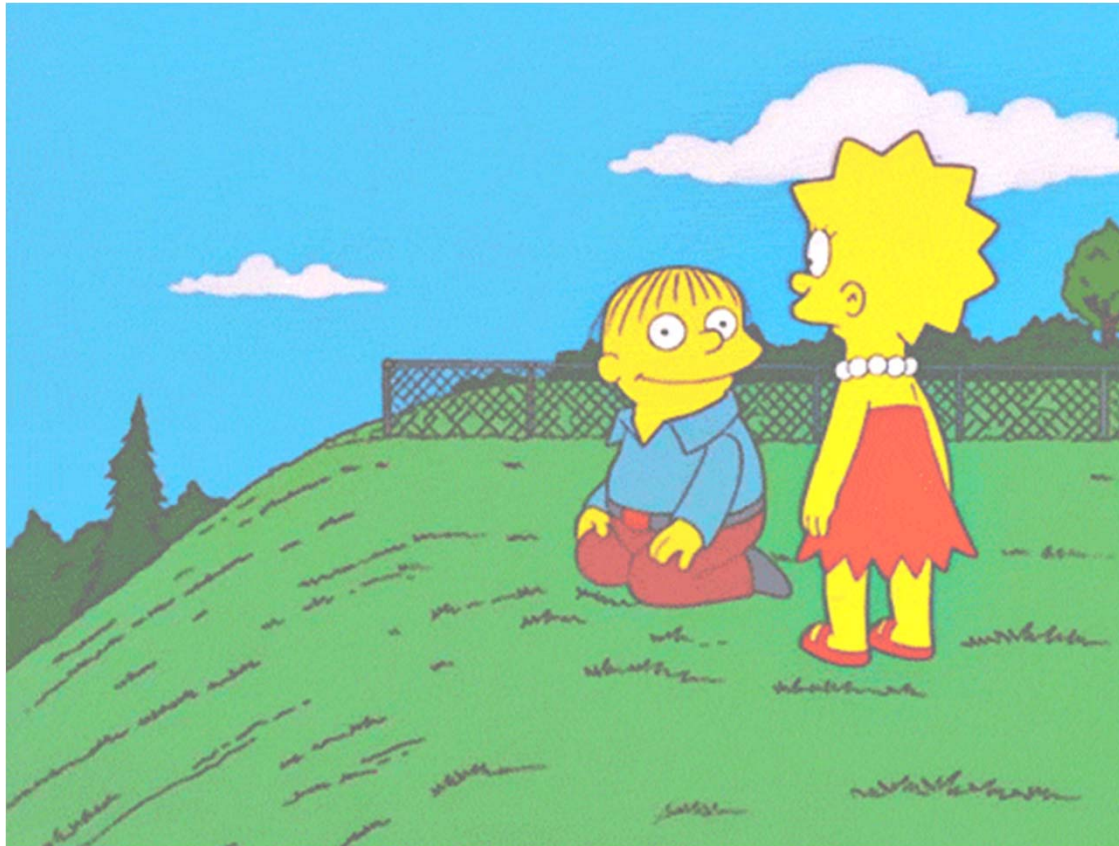
- Return of the past 12 months, excluding the most recent month

Other definitions:

- Returns over other time periods, such as 6 and 9 months
- Residual or risk-adjusted returns (accounting for other factors)
- Measures other than returns
 - Earnings
 - Changes in profit margins
 - Changes in analyst forecasts

Investable

Some have questioned the usefulness of momentum in actual portfolios due to potentially higher turnover and trading costs.



However, momentum can be used to inform trading without an increase in turnover. Moreover, momentum is used by many investors in portfolios.

Intuitive: Risk + Behavior

Value

Behavioral Explanations:

- Extrapolating past growth leads to mispricing
- Confusing familiarity with safety

Risk-based Explanations:

- Distress factor
- Asymmetric risk
- Leverage effect
- Default premium

Momentum

Behavioral Explanations:

- Underreaction and overreaction
- Enhanced by limited attention of investors
- Disposition effect

Risk-based Explanations:

- Momentum stronger among stocks with large growth opportunities and risky cash flow
- Liquidity risk and institutional cash flows

Size Matters

QUESTION: When considering the premium a factor provides, is there an amplifier to returns? *Yes!*



Value



Size



Momentum

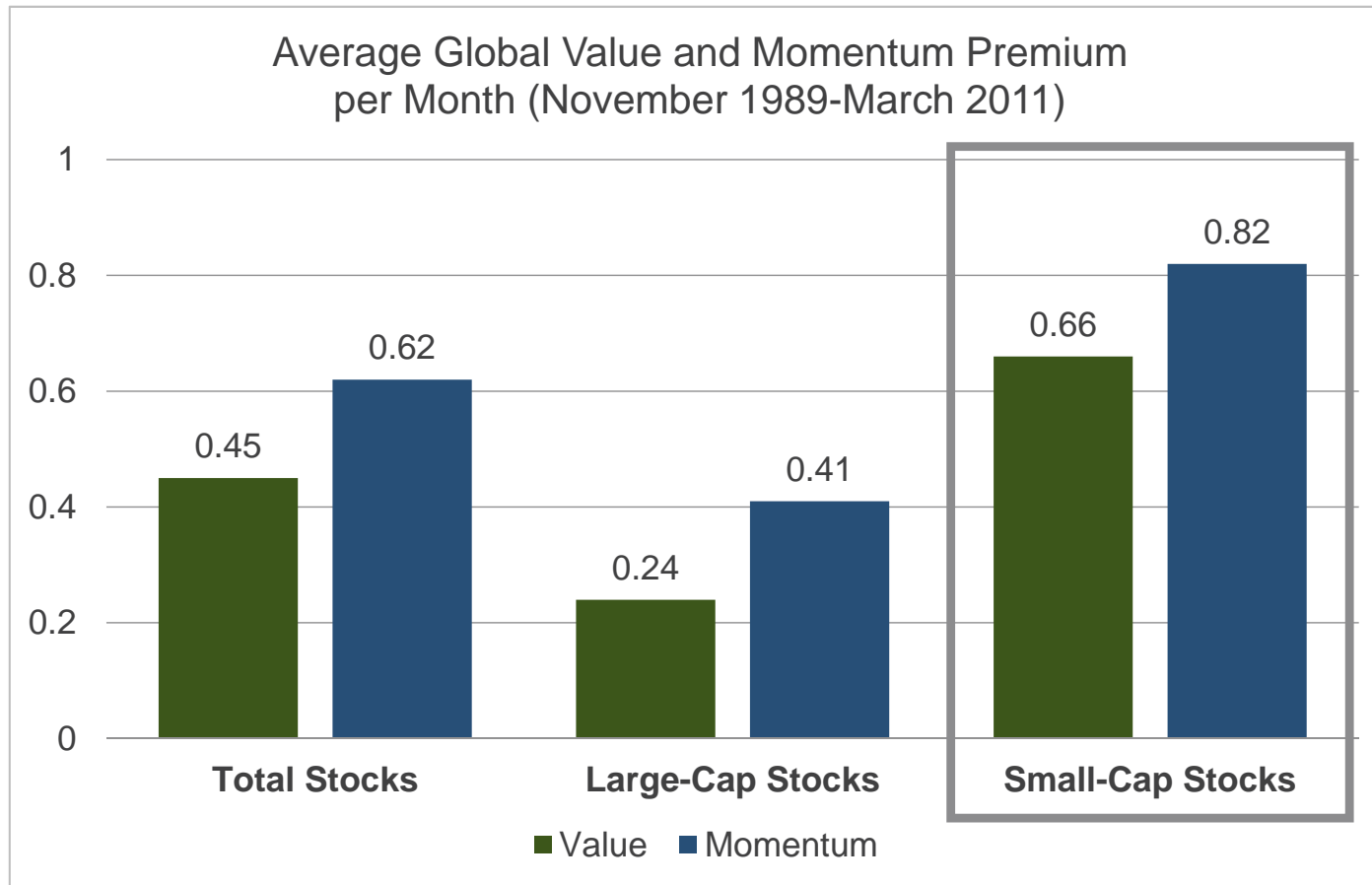


Size



Size As An Amplifier

Evidence shows that value and momentum factor exposure is stronger with the addition of *smaller* size.



Fama, Eugene F., and Kenneth R. French. "Size, value, and momentum in international stock returns." *Journal of Financial Economics* 105, No. 3 (2012): 457-472.

Thinking Differently About Diversification

Historical Correlations, 1964-2015

Factor	Market Beta	Size	Value	Momentum	Quality
Market Beta	1.00	0.29	-0.27	-0.17	-0.52
Size		1.00	0.01	-0.12	-0.53
Value			1.00	-0.20	0.04
Momentum				1.00	0.30
Quality					1.00

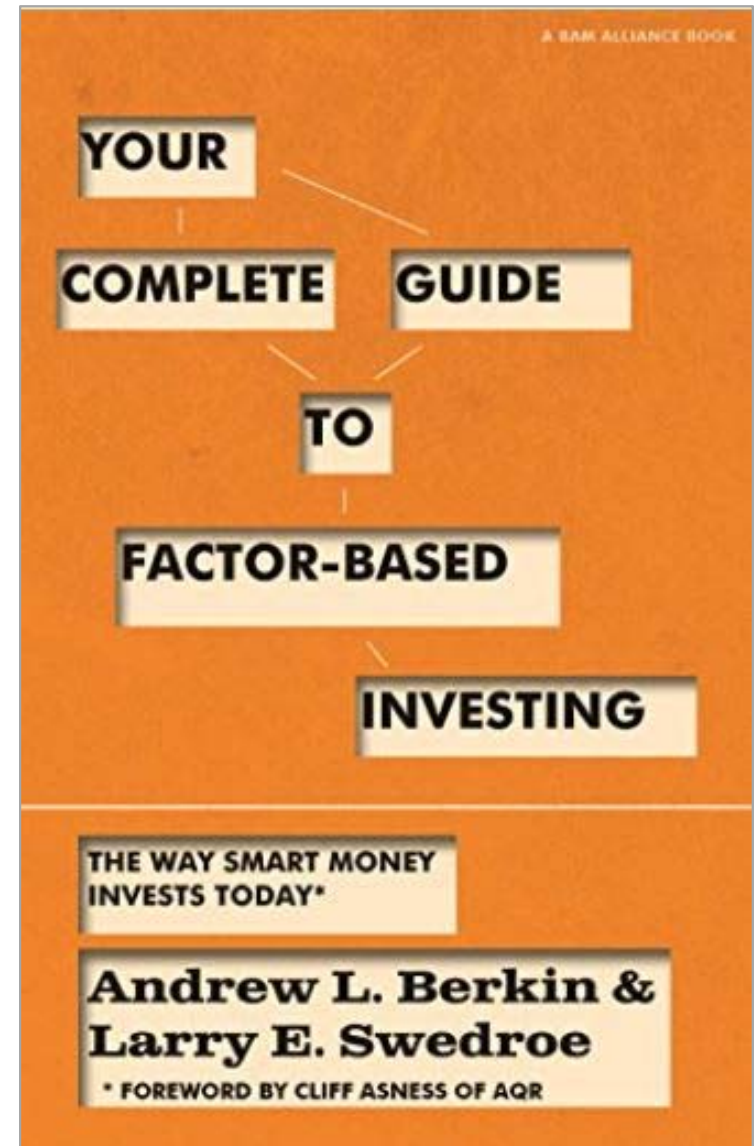
- Traditional way: Diversification by asset class
 - An equity total market fund has exposure only to market beta
- Modern financial theory suggests a new way to diversify
 - Tilt to the factors that determine equity risk and return
 - These factors have low correlation: true diversification!

Contact Us

Please pick up a copy on your way out.

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Appendix

Pervasive

Data Sources

¹ 1975-2015 Fama-French International Value Index minus Fama-French International Growth Index

² 1989-2015 Fama-French Emerging Markets Value Index minus Fama-French Emerging Markets Growth Index

³ Black, Stanley and Meyer-Brauns, Philipp, "Dimensions of Equity Returns in Europe," Dimensional.com, November 2015

⁴ Moskowitz, Tobias, "Explanations for the Momentum Premium," aqr.com, Summer 2010.

⁵ Asness, Clifford S., Tobias J. Moskowitz, and Lasse Heje Pedersen. "Value and Momentum Everywhere." *The Journal of Finance* 68, No. 3 (2013): 929-985.

⁶ Fama, Eugene F., and Kenneth R. French. "Size, value, and momentum in international stock returns." *Journal of Financial Economics* 105, No. 3 (2012): 457-472.

Disclosure

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