What you should know about Factor Investing

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About Jason…

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Published more than 40 articles in academic and practitioner journals and contriubted to 7 handbooks on quantitative investing

Won 3 Benstein Fabozzi/Jacob Levy outstanding article awards, 3 William Sharpe Best Research Awards, 2 Graham and Dodd Scroll Award and 1 FAJ readers' Choice award.

Basics

What are Factors?

- Factors are nutrients
- Securities are food ingredients
- Portfolios are meals

Return Decomposition

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Understanding Equity Factors

Traditional Factors

- **FF-4**: Market, Value (HML), Small Cap (SMB), Momentum (WML)

Modern Factors

- **Risk**
  - Market, Skewness (Sell Vol), Illiquidity

- **Behavioral**
  - Value, Momentum, Profitability, Investment, Accrual, Low Vol

Market Risk

- Correlation with global growth shocks

Skewness (Black Swan) Risk

- Selling insurance against extreme market movements

Value Premium

- Investors overpay for growth

Profitability

- Investors overpay for growth firms with no profitability

Profitable Growth		Unprofitable Growth
Microsoft		SpaceX
TSMC	VS	UBER
Apple		Tesla

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Momentum

- Investors over-extrapolate recent price run ups

Investment

- Investors are fooled by firms with aggressive investments

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Firms with Low Accruals Outperform

- Investors are fooled by firms that manipulate accounting

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Low Vol/Low Beta Outperform

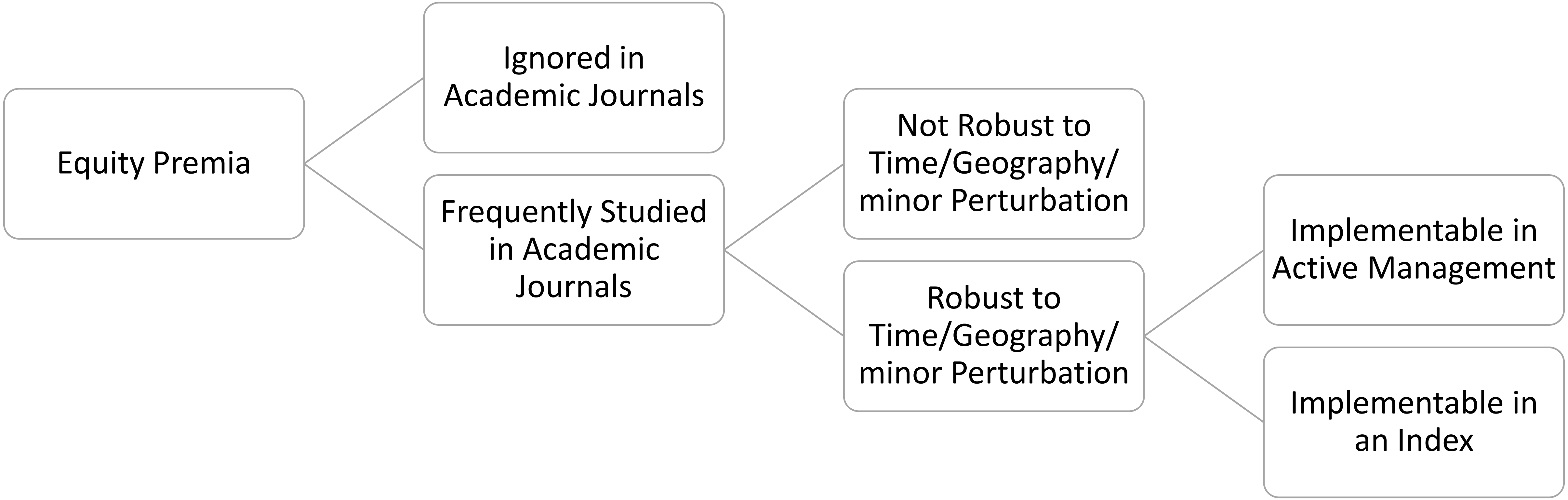
- Investors overpay for speculative high beta stocks

Factor Zoo

A Zoo of Factors

- 400+ investment factors?!
  - Likely data mined

Framework for Identifying Robust Factors



Hsu, Kalesnik and Viswanathan (2015) framework:

Manager Performance

Traditional Stock Picking Strategy

- Concentrated portfolios with high individual stock risk
- Excess return from company level insight

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Quant Portfolio Strategy

- Very diversified portfolio; no single stock risk
- Bets on factor returns

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Outperformance vs. Factor Alpha

- Industry Alpha = Performance over benchmark
- Factor Alpha = Outperformance over factor portfolio

Factor Crowding

Alpha is Zero Sum

- Many factor strategies are well-known, how can they keep working?

Time Weighted vs Dollar Weighted Return

- Dollar-weighted vs. Time-weighted returns
  - **Time-weighted**: Manager performance
  - **Dollar-weighted**: Investor outcome

- Return gap = Dollar-weighted – Time-weighted returns
  - Driven by timing of investor flow

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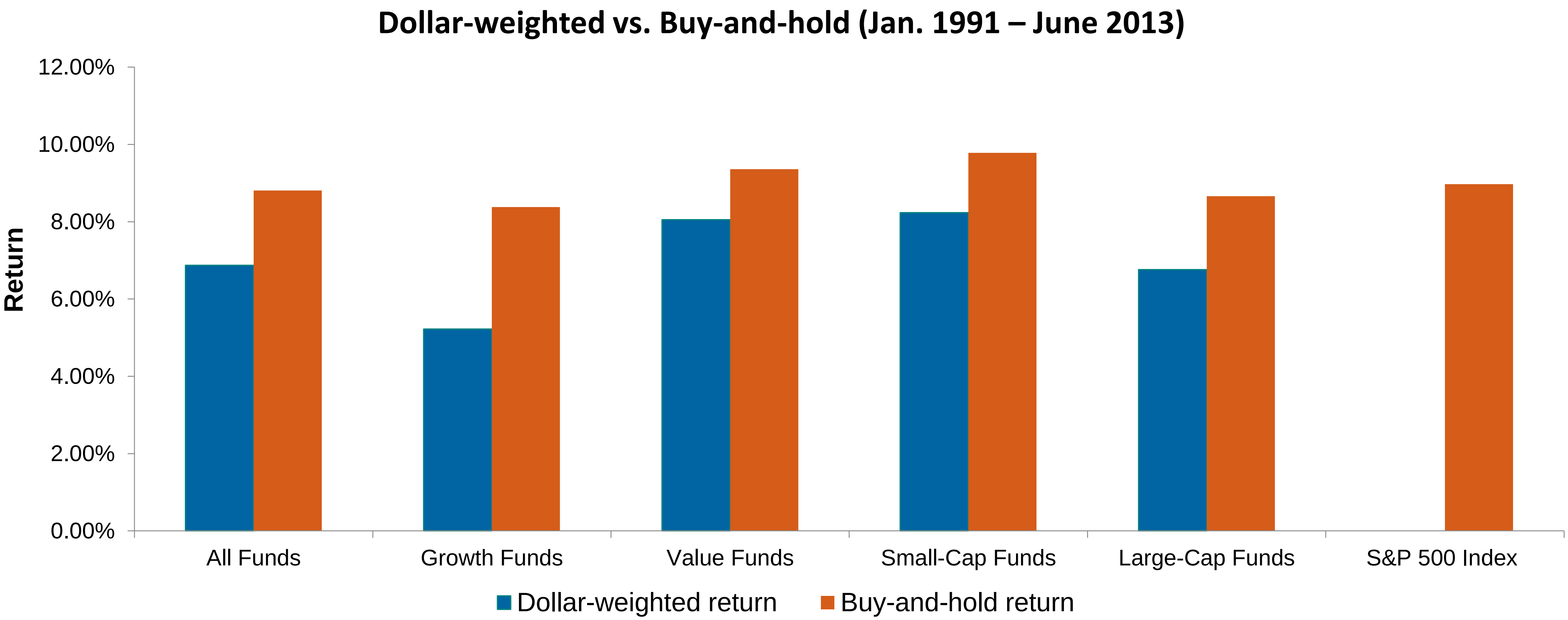
Evidence for Bad Timing?



Source: Jason Hsu, Brett Myers, Ryan Whitby "Timing Poorly: A Guide to Generating Poor Returns While Investing in Successful Strategies," Journal of Portfolio Management, (forthcoming Winter 2016).

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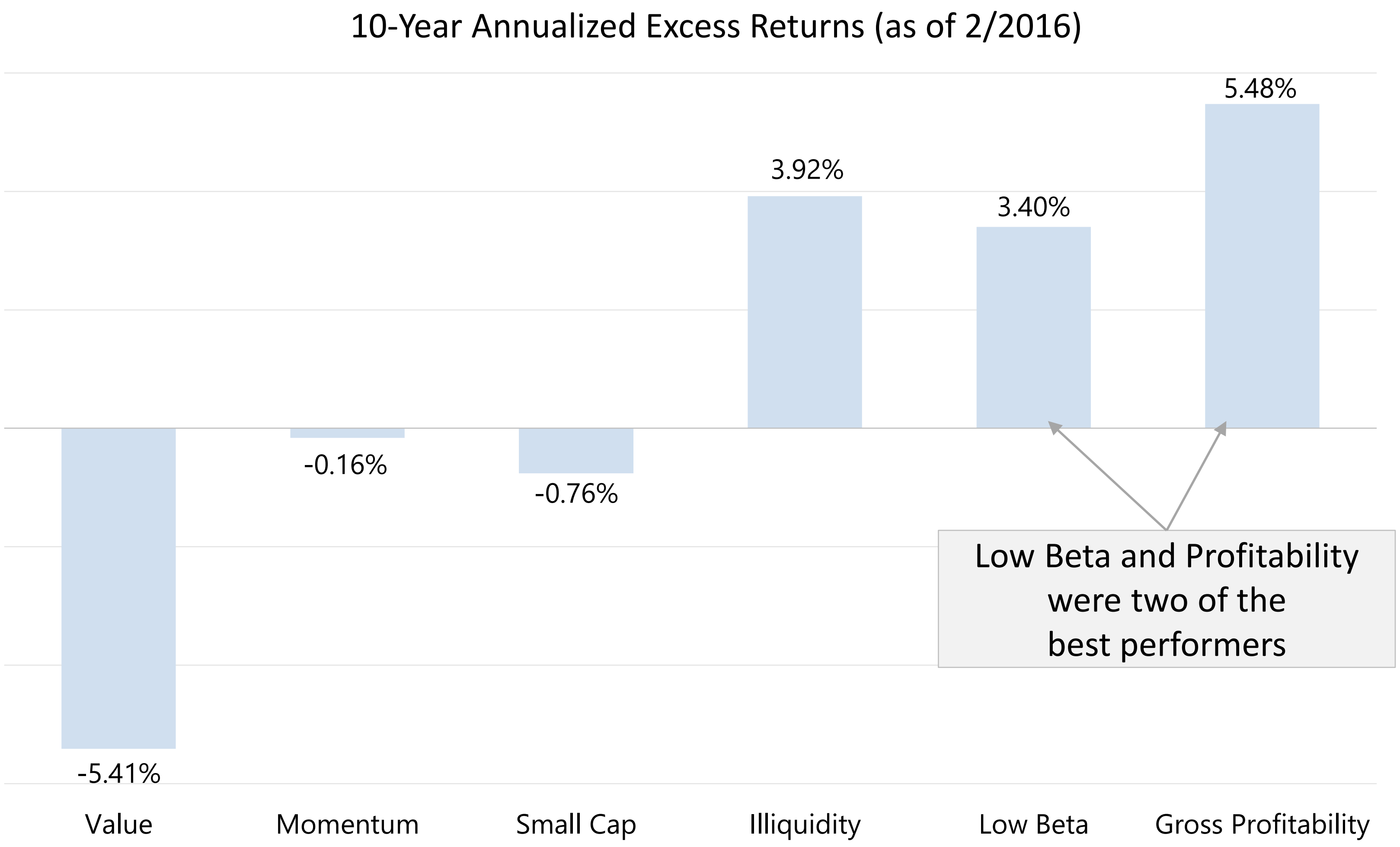
Factor Timing

Which Factor Will Perform?

- We all time the market (but we time it poorly)

Recent Factor Returns



Source: Research Affiliates, LLC. For more information, see full paper at: http://www.researchaffiliates.com/Our%20Ideas/Insights/Fundamentals/Pages/442_How_Can_Smart_Beta_Go_Horribly_Wrong.aspx

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Loser Strategies Subsequently Win

	Winner Strategy	Median Strategy	Loser Strategy
Raw Return	7.43%	8.89%	10.04%

Input data: January 1994 to December 2015. Data source: Morningstar Direct.
Source: Cornell, Hsu and Nanigian (2017), "Does Past Performance Matter in Investment Manager Selection?"

Alpha Decomposition

$$\underbrace{\text{Return due to change in relative valuation}}_{\text{“Cyclical Alpha”}}$$

Portfolio Alpha ≈ *Return due to change in relative valuation* + *Valuation Adjusted Alpha*

$$\textit{Portfolio Alpha} \approx \underbrace{\textit{Return due to change in relative valuation}}_{\text{“Cyclical Alpha”}} + \underbrace{\textit{Valuation Adjusted Alpha}}_{\text{“Persistent Alpha”}}$$

- **Alpha due to change in relative valuation**
  - Is mean reverting and averaging roughly zero in the long run
  - Contributes significantly to strategy performance in the “short run”
    - *“Short run” can mean decades!*
- Alpha adjusted for change in relative valuation is a good measure of **unconditional** expected return of a strategy

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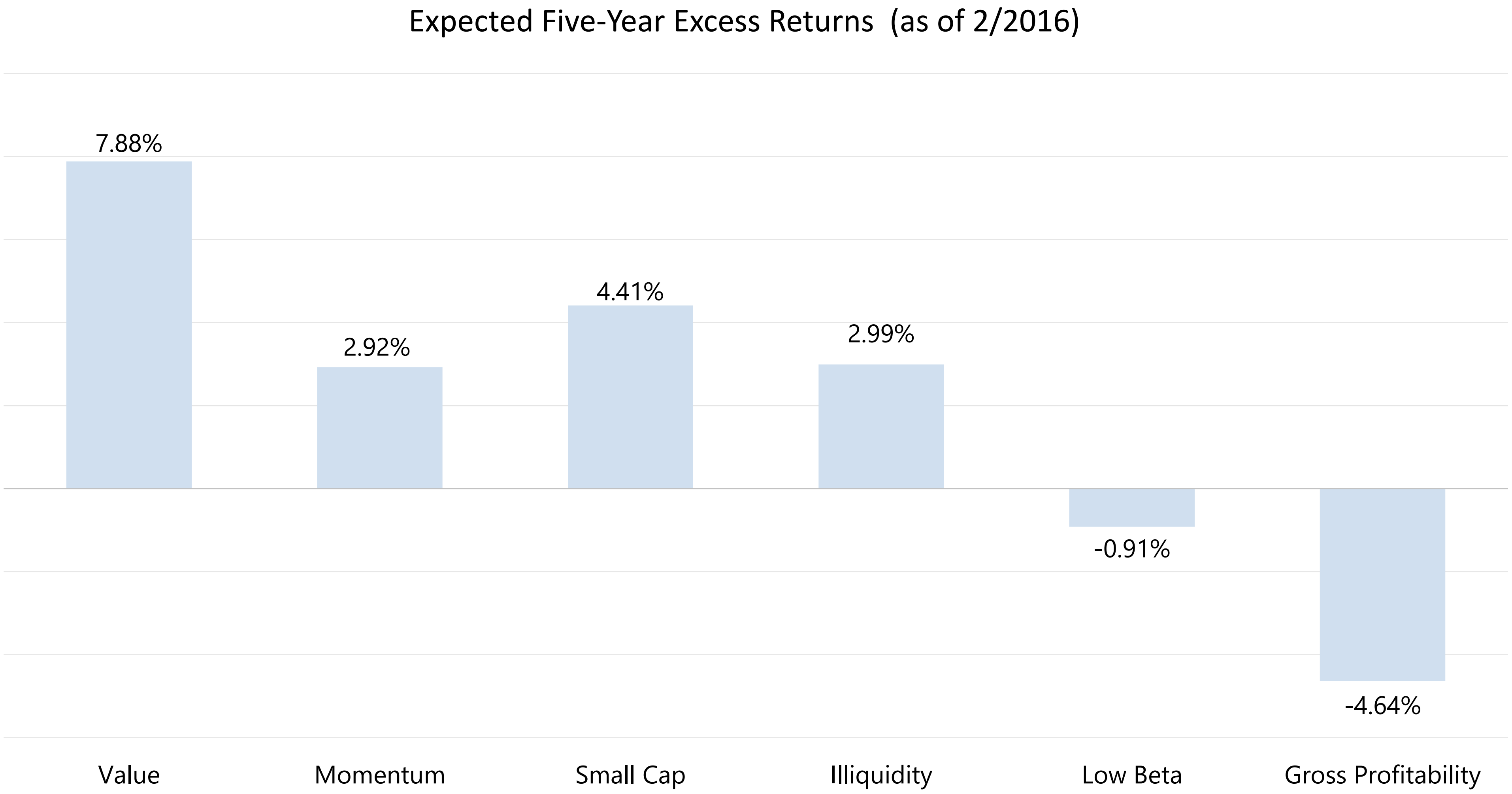
Forward Factor Returns



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