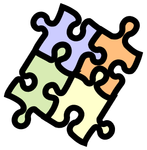
Puzzles, Premiums, & Popularity



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Nomura

9th Annual Global Quantitative Investment Strategies Conference

May 12th, 2015

Yale SCHOOL OF MANAGEMENT

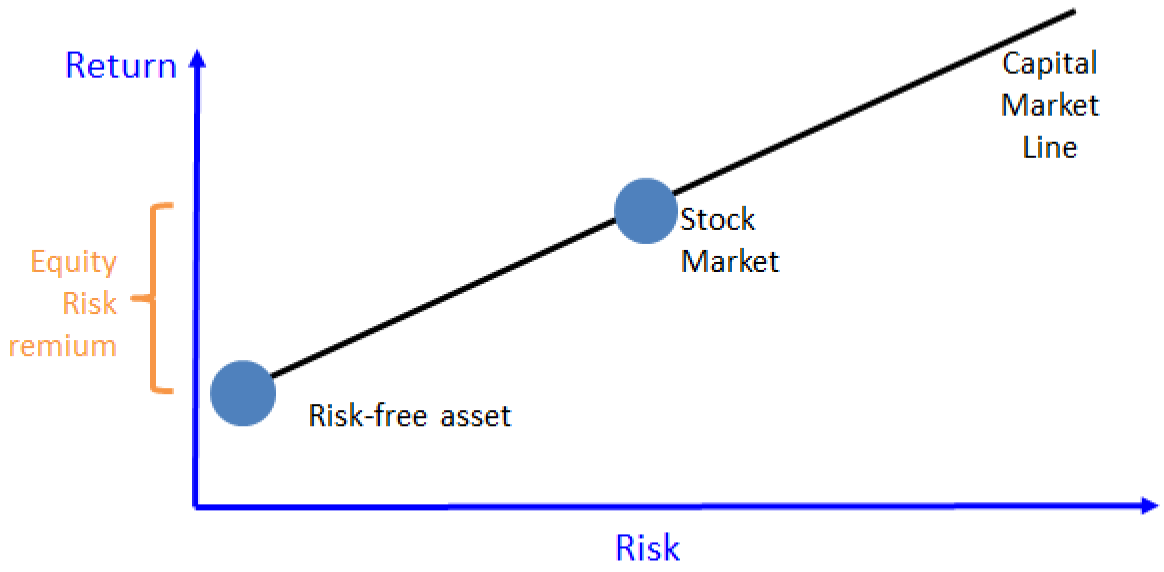
zebra

Outline

- Premiums in Asset Pricing
  - Across asset classes: Risk = Return holds
  - Within equities: Risk = Return oversimplifies
  - Can "Popularity" explain return with less risk?
- What is Popularity?
  - More popular stocks have higher valuations but lower expected returns
  - Explanations in Behavioral Finance
    - Beta, Volatility, Size, Value
- Conclusions

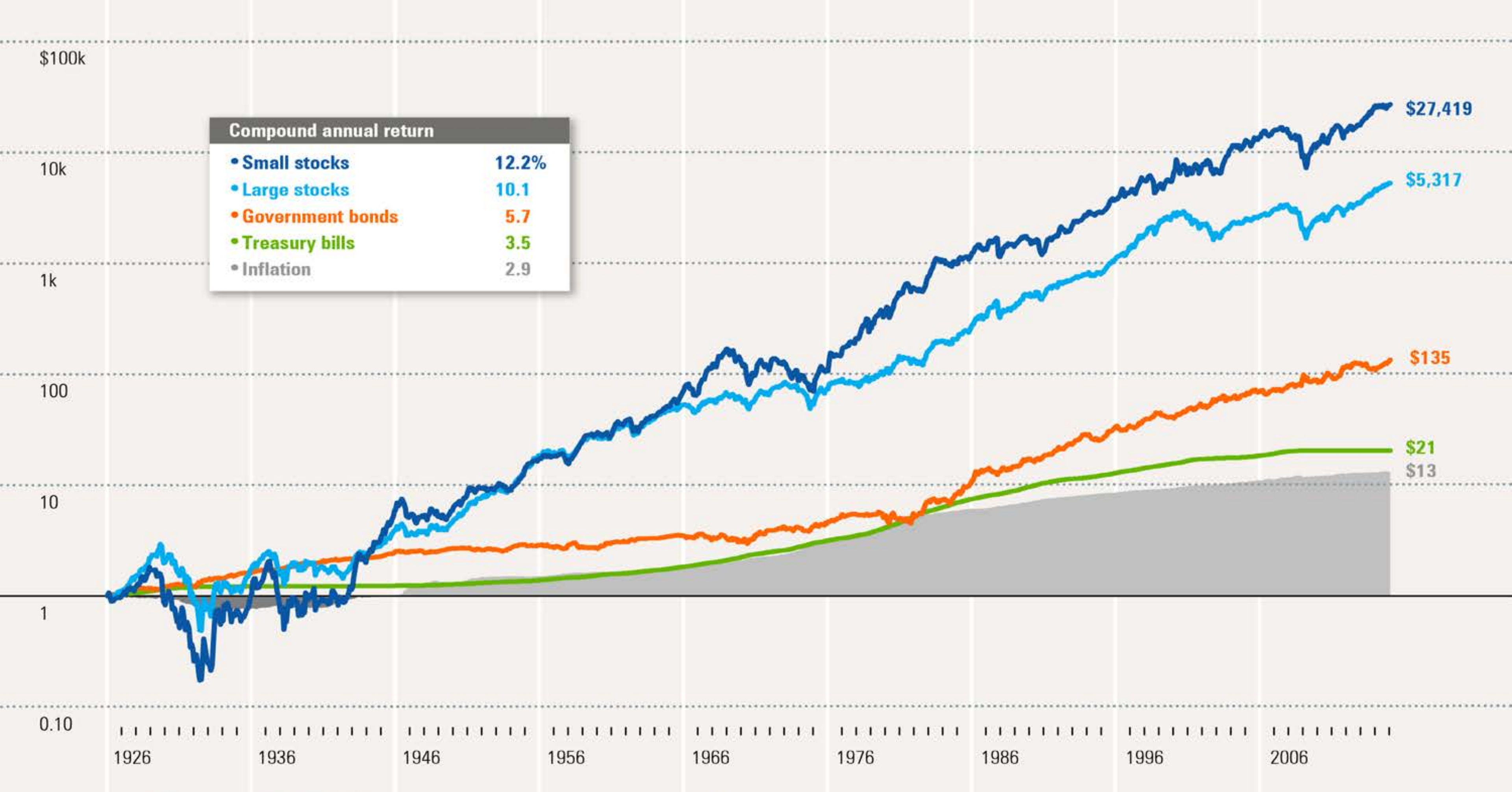
Higher Risk = Higher Return

- The Capital Market Line shows the opportunity set from combining T-Bills with a broad market portfolio.



Ibbotson® SBBI®

Stocks, Bonds, Bills, and Inflation 1926 – 2014



•**Past performance is no guarantee of future results.** Hypothetical value of $1 invested at the beginning of 1926. Assumes reinvestment of income and no transaction costs or taxes. This is for illustrative purposes only and not indicative of any investment. An investment cannot be made directly in an index.

Are Stock Market Premiums RPs?

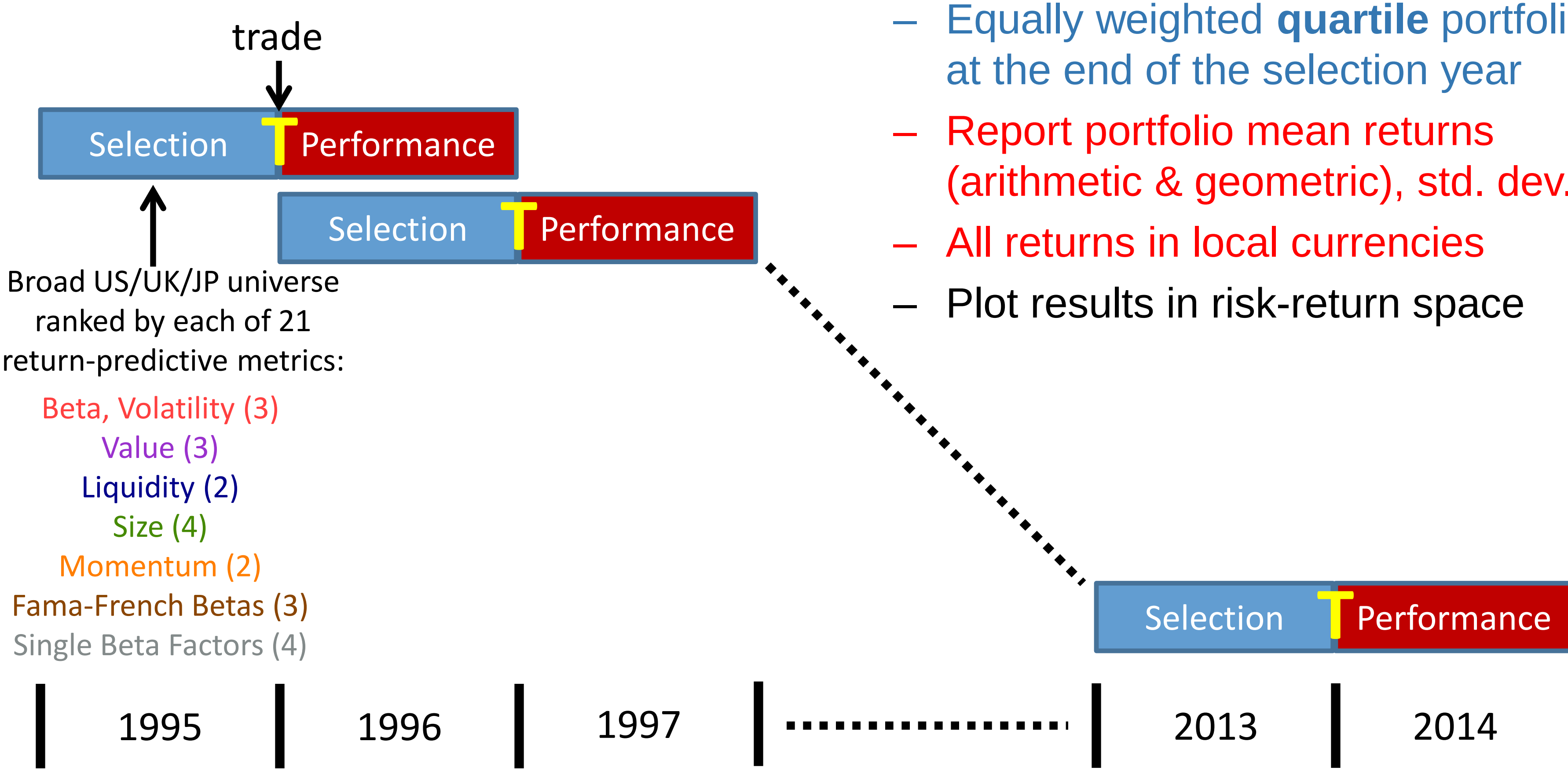
- Across markets, **higher risk = higher return**

- We examine the global stock market premiums in US, UK, and Japan

- Are risk and return always aligned in equity markets?

Study Methodology

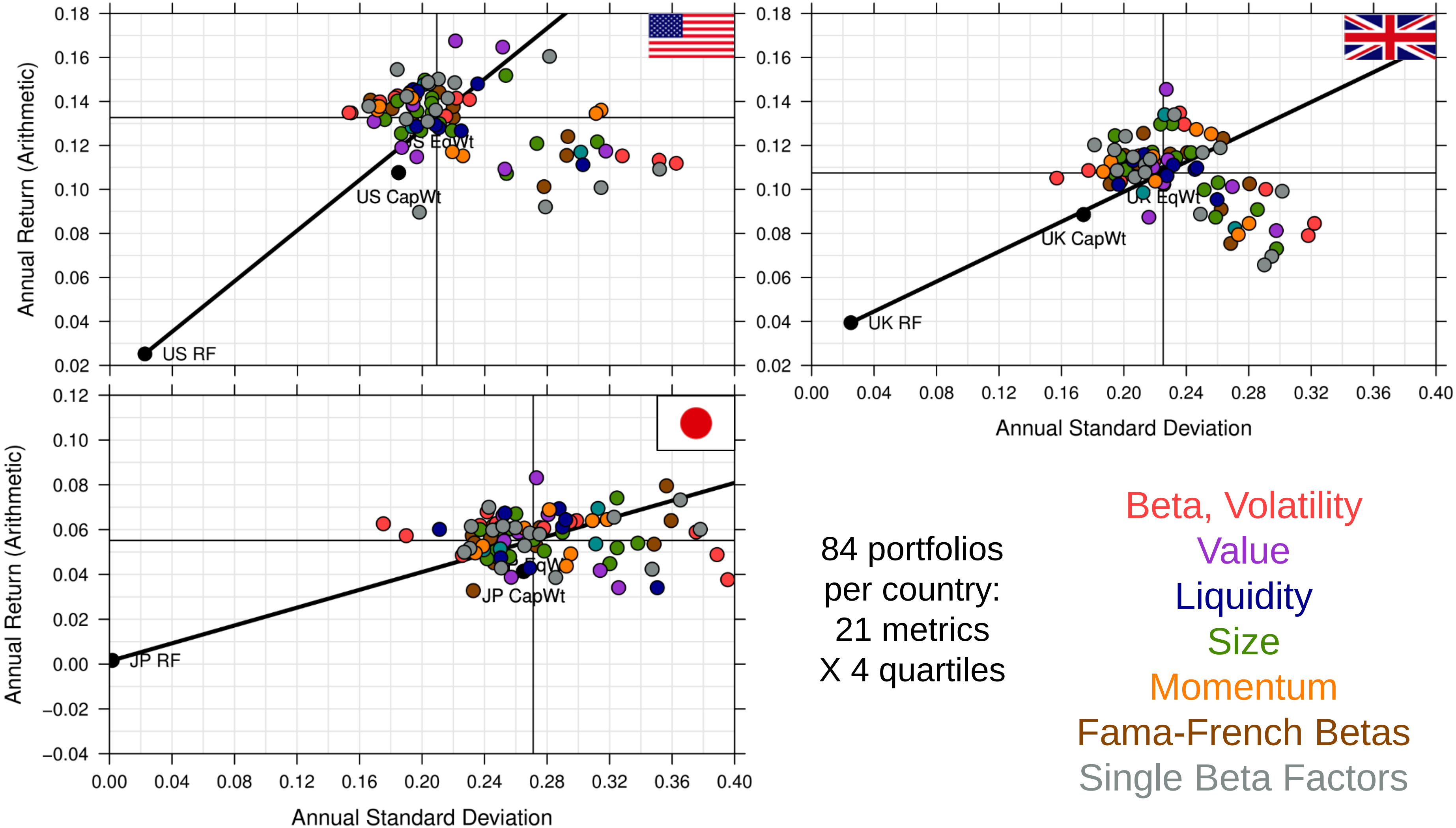
- Equally weighted **quartile** portfolios at the end of the selection year
- Report portfolio mean returns (arithmetic & geometric), std. dev.
- All returns in local currencies
- Plot results in risk-return space



Source: Ibbotson & Kim, "Risk Premiums or Popularity Premiums?," presentation given at 2015 Morningstar Institutional Conference.

Risk & Return Within Markets

1996 – 2014



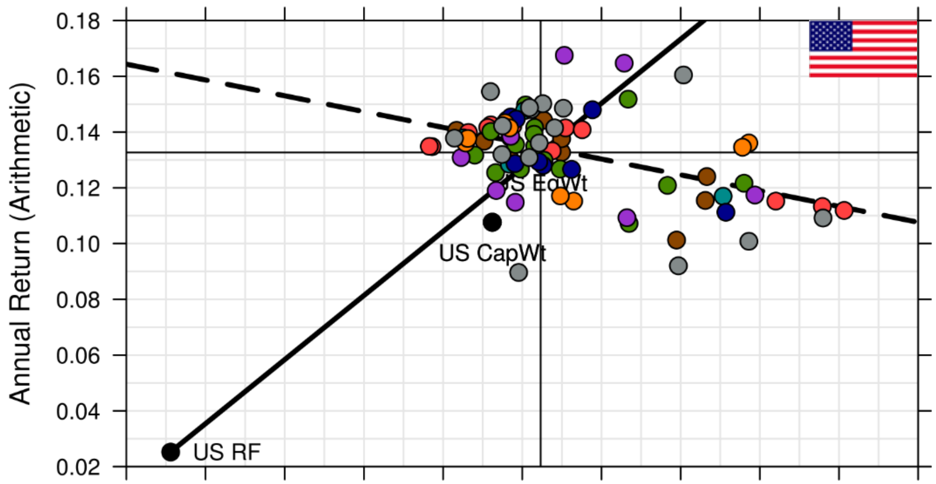
84 portfolios
per country:
21 metrics
X 4 quartiles

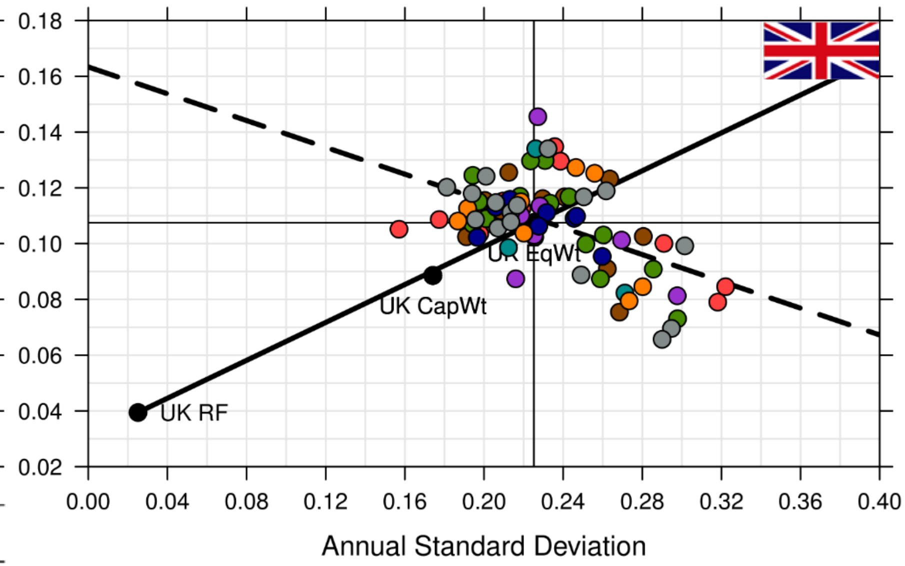
Beta, Volatility
Value
Liquidity
Size
Momentum
Fama-French Betas
Single Beta Factors

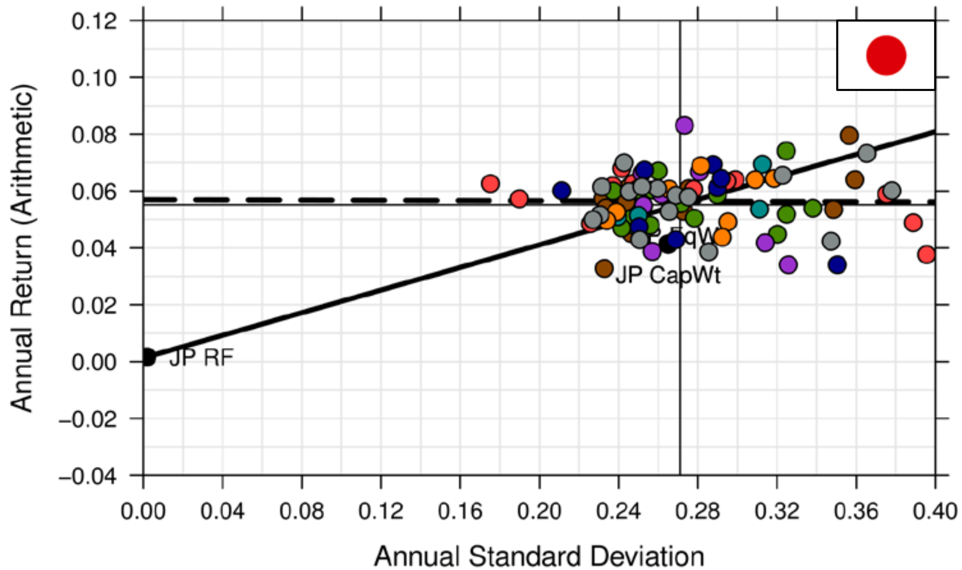
Source: Ibbotson & Kim, "Risk Premiums or Popularity Premiums?," presentation given at 2015 Morningstar Institutional Conference.

Risk & Return Within Markets

1996 – 2014







slope, CML ———	0.57	0.34	0.20
slope, OLS fit - - - -	−0.14	−0.24	−0.00
***t*-stat** [H_0: CML]	**−24.0**	**−13.9**	**−8.1**

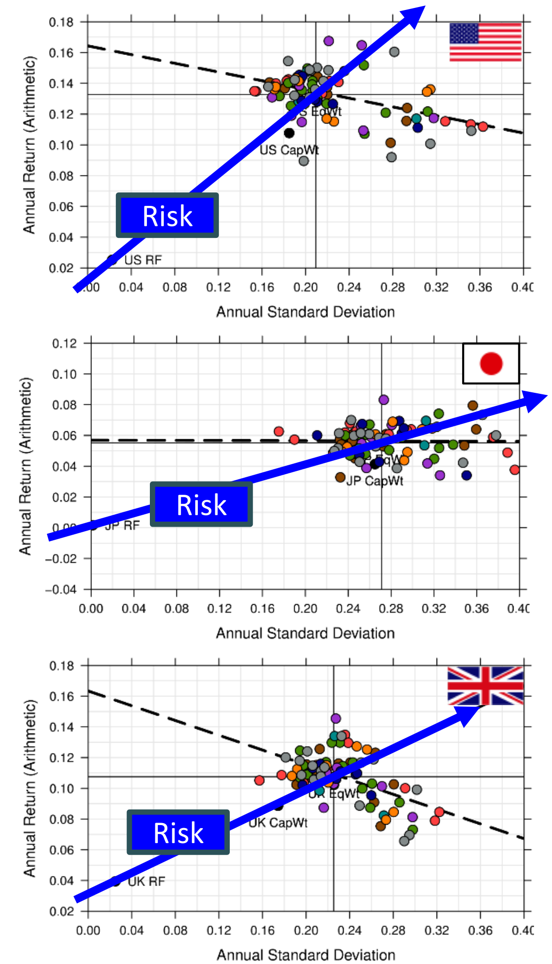
Source: Ibbotson & Kim, "Risk Premiums or Popularity Premiums?," presentation given at 2015 Morningstar Institutional Conference.

Risk is an Incomplete Explanation of Returns

The univariate view of risk and return is a gross oversimplification.

- What's missing here?
  - Should be a broad, universal concept
  - Should affect pricing
  - A behavioral finance perspective

- Our proposal: **Popularity**
  - Popular: prices ↑, returns ↓
  - Unpopular: prices ↓, returns ↑



Source: Ibbotson & Idzorek, "The Dimensions of Popularity", *Journal of Portfolio Management*, 40th Anniversary Issue 2014; Ibbotson & Kim, "Risk Premiums or Popularity Premiums?," presentation given at 2015 Morningstar Institutional Conference

What is Popularity?

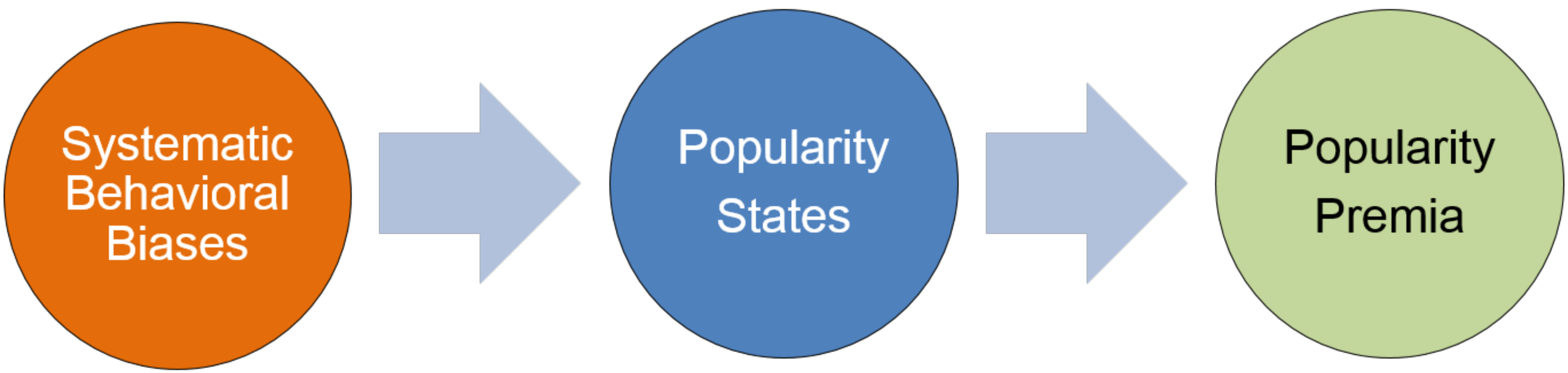
- Popularity is how much anything is liked or recognized
  - Not a new concept, similar to contrarian, sentiment, affect, crowding, herding, admired/spurned, hot/cold, etc.

- More popular stocks have higher valuations relative to their fundamentals, but *lower* expected returns

- Popularity (or unpopularity) can be *permanent* (premiums) or *temporary* (mispricing)

Behavioral Finance

- Why do these payoffs exist / persist?
- Are they "risk" premia or "popularity" premia?

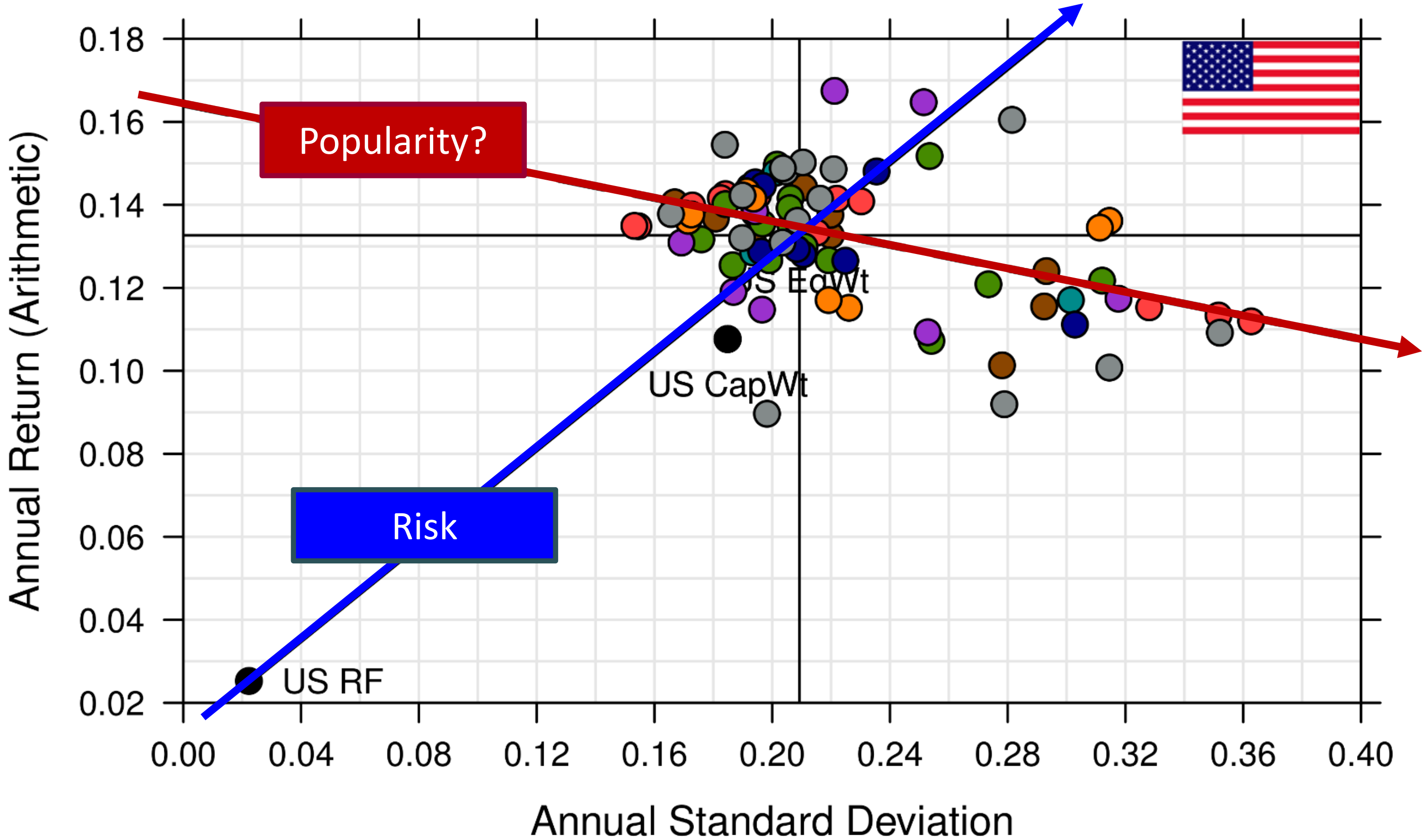


- Overconfidence
- Availability
- Herding / Group Think

- Overly popular
- Less popular

- Low Beta / Volatility
- Size
- Value

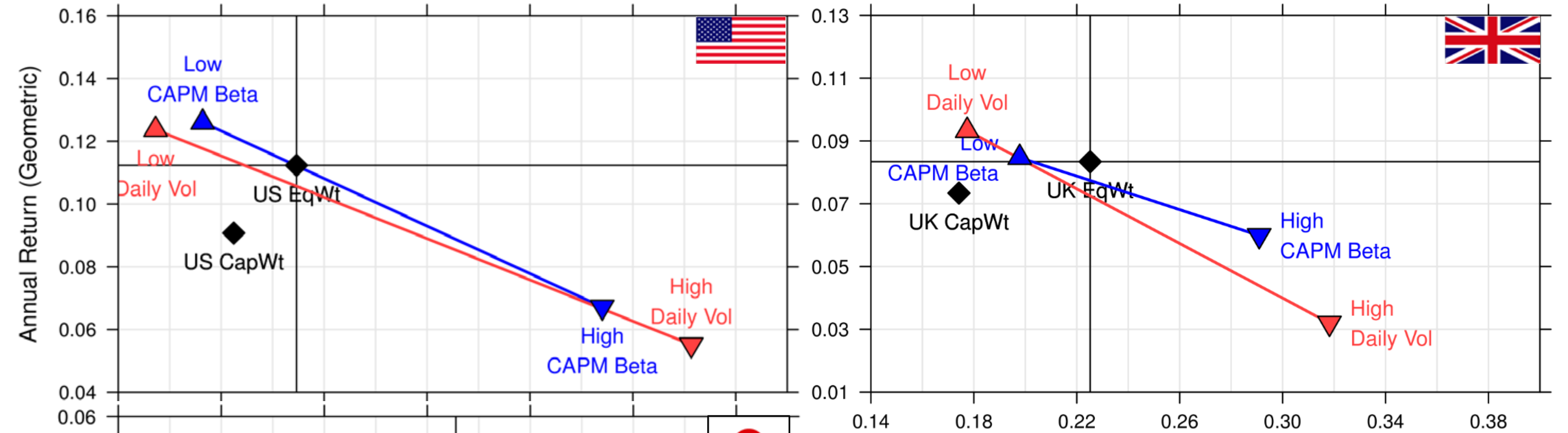
Can Popularity Explain Return with Less Risk?

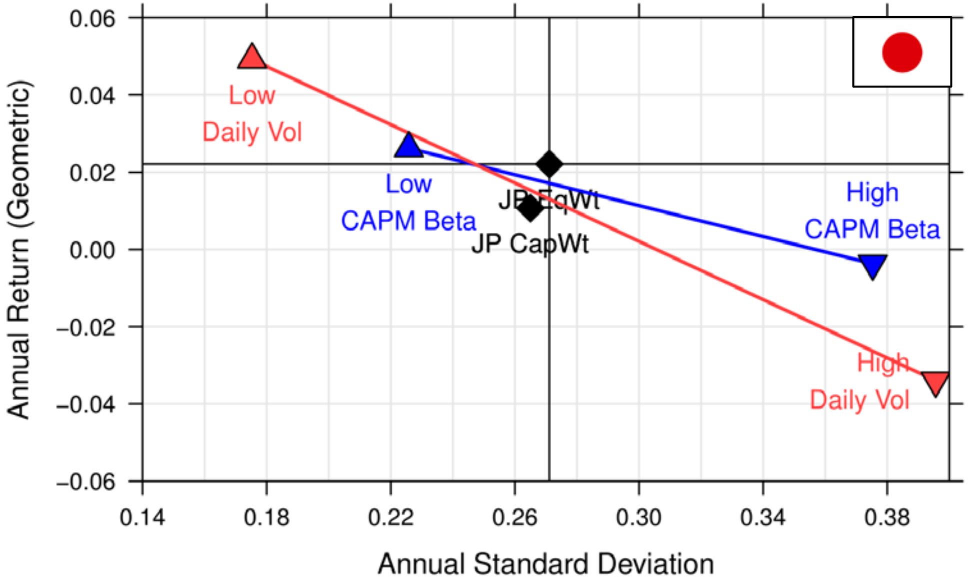


Source: Ibbotson & Kim, "Risk Premiums or Popularity Premiums?," presentation given at 2015 Morningstar Institutional Conference.

Popularity of Market Beta & Volatility

1996 – 2014





- High beta and volatility have *underperformed* with *higher* risk.
- Popularity-based explanation: **leverage aversion**
  - Identify high beta & vol as popular
  - Beta: Frazzini & Pedersen, 2011
  - Volatility: Haugen & Baker, 1991

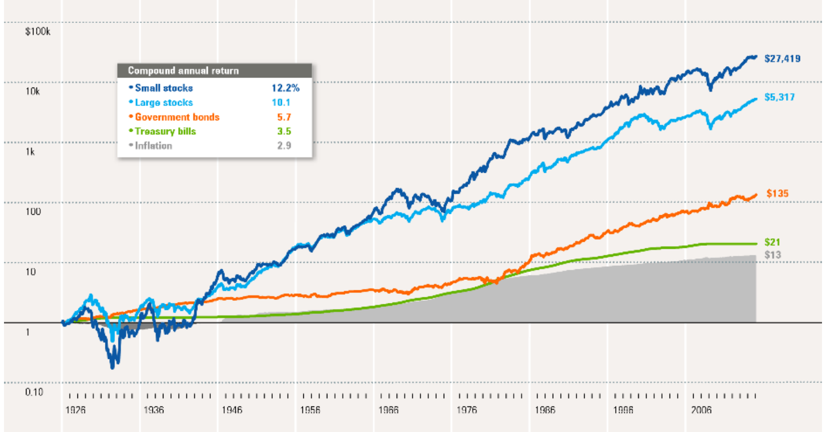
Source: Ibbotson & Kim, "Risk Premiums or Popularity Premiums?," presentation given at 2015 Morningstar Institutional Conference.

Popularity of Size

1926 – 2014

Small caps (US) have outperformed.

- Small stocks are unpopular:
  - Institutions prefer large stocks
    - Gompers & Metrick (2001)
  - Capacity constrained
  - Costly to trade (price impact)
  - Less information, less recognized



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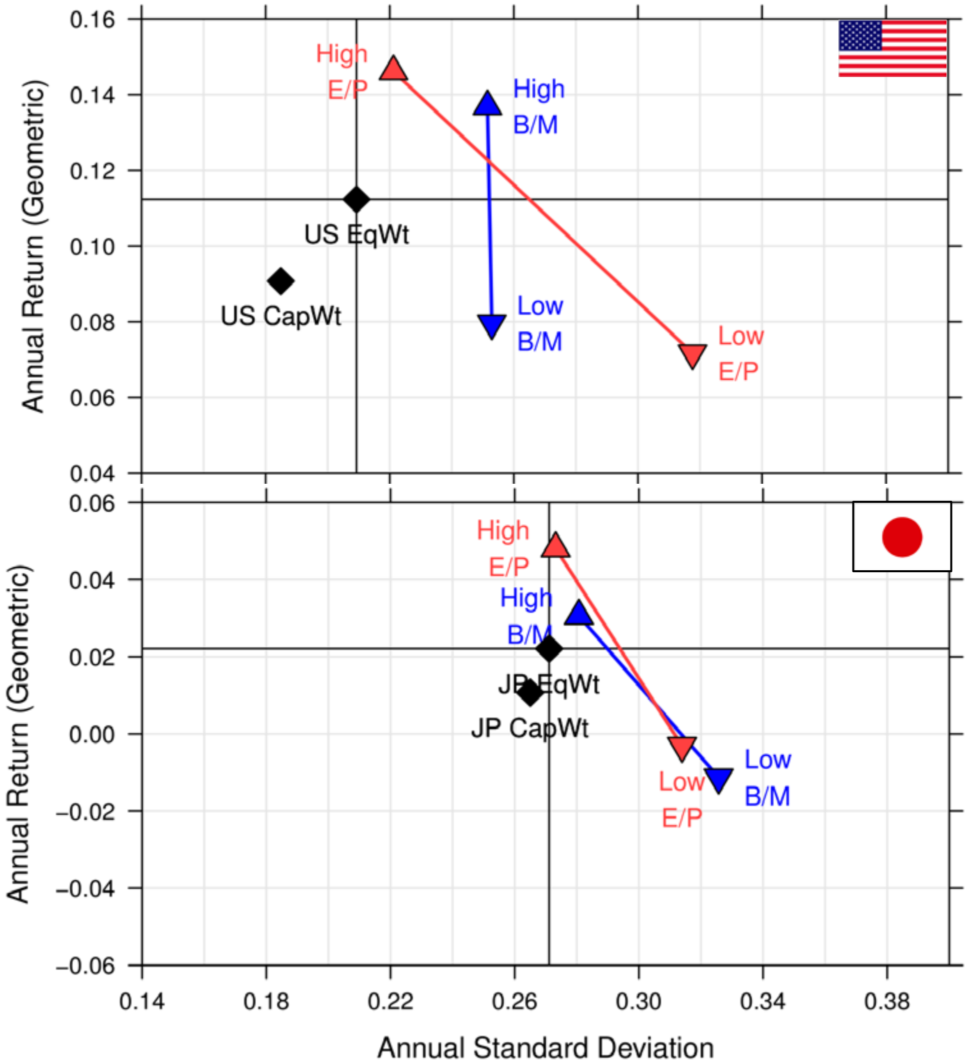
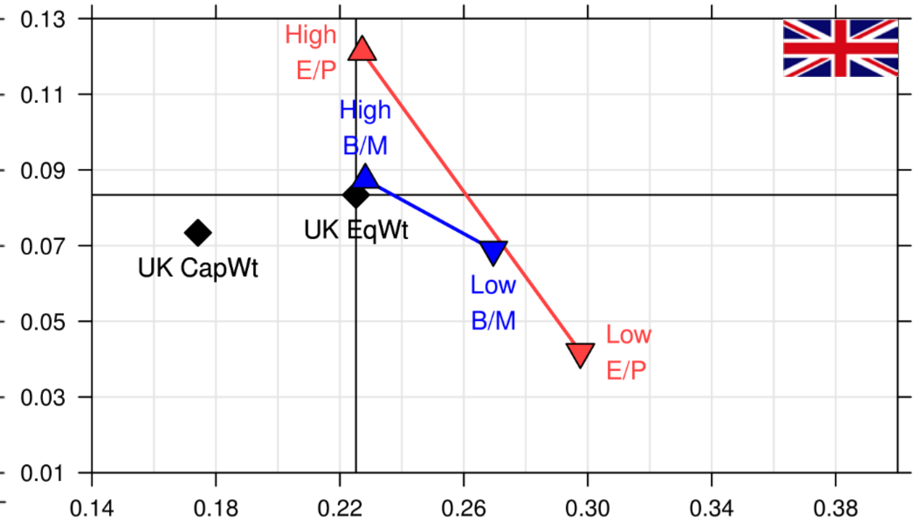
Popularity of Value

1996 – 2014



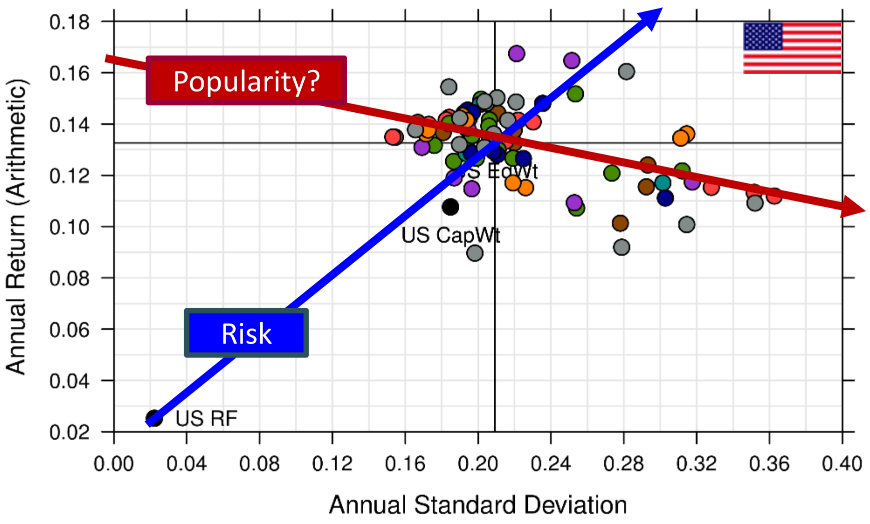


- Low value (growth) has *underperformed* with *higher* risk.
- Value stocks are unpopular:
  - Not because of higher risk
    - Lakonishok, Shleifer & Vishny 1994
  - No exciting growth story –
    - Barberis, Shleifer & Vishny 1998
  - May have management issues

Source: Ibbotson & Kim, "Risk Premiums or Popularity Premiums?," presentation given at 2015 Morningstar Institutional Conference.

Conclusions

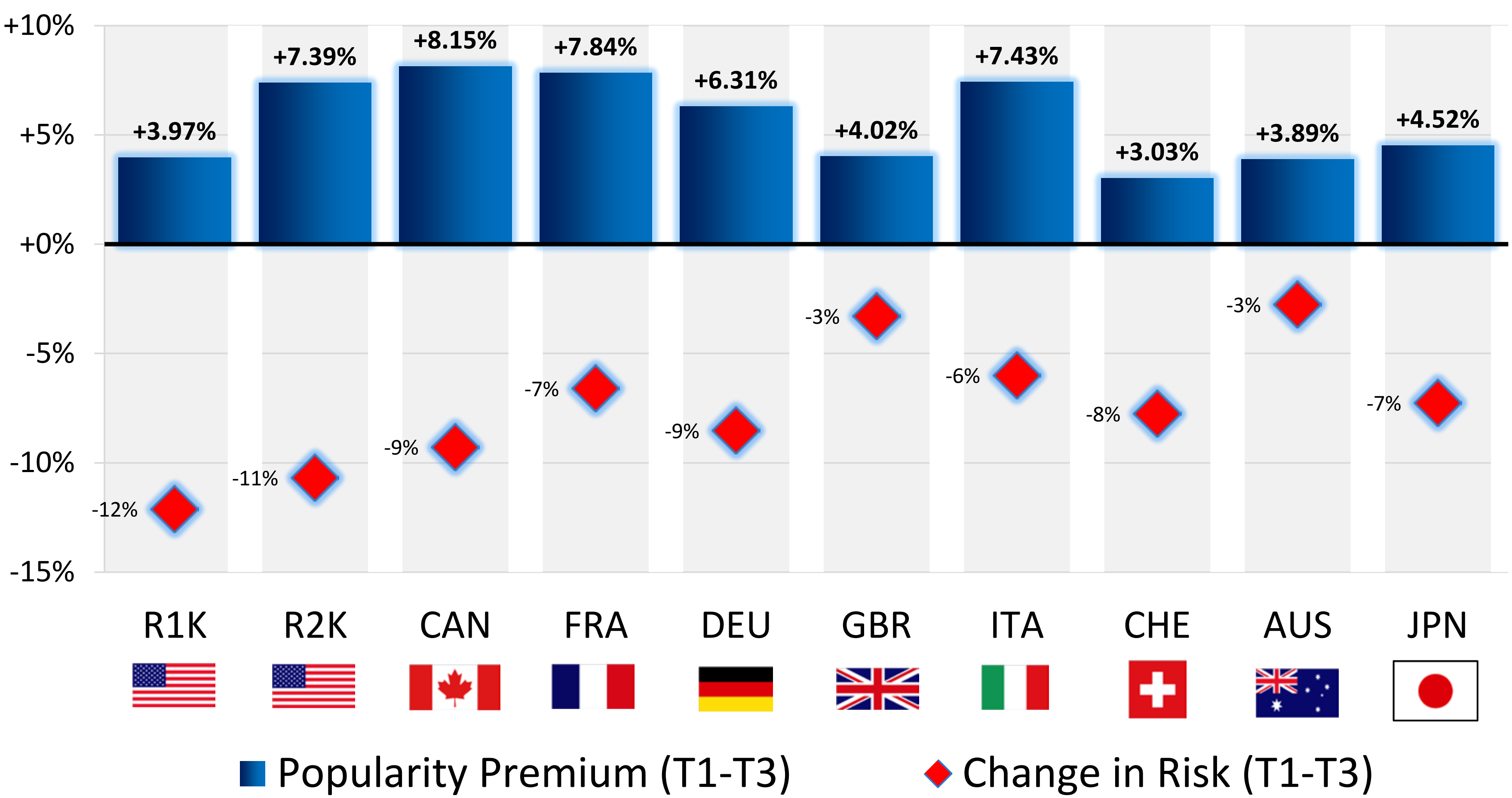
- The relationship between risk and return has been the primary paradigm in finance
  - CAPM, APT, Fama-French
  - Empirical results (1996-2014, US/UK/JP) suggest that risk cannot be the only explanation



- Popularity is a possible framework for thinking beyond risk
  - Popularity can explain other long-term premiums
  - Popularity can also explain temporary mispricings

Appendix: Global Popularity Premiums

2000 – 2014 (USD)



Source: Zebra Capital Research.

Appendix: Popularity Premiums

U.S. Equity Mutual Funds, Feb. 1995 – Dec. 2009

Morningstar Style Box®

		Value / Growth		
		Value	Blend	Growth
Size	Large	7.35% / +2.33%	6.86% / +1.65%	6.68% / +1.75%
	Mid	9.73% / +3.25%	9.61% / +3.19%	8.38% / +3.18%
	Small	9.91% / +2.77%	9.29% / +3.32%	7.77% / +3.00%

Style Box® Category Compound Annual Return

Popularity Premium

Difference in returns of mutual funds in the lowest quintile of popularity of holdings vs. highest quintile

Source: Idzorek, Xiong and Ibbotson, 2012, "The Liquidity Style of Mutual Funds," *FAJ* 41(3):401-439.