

The Dimensions of Popularity in the Stock Market

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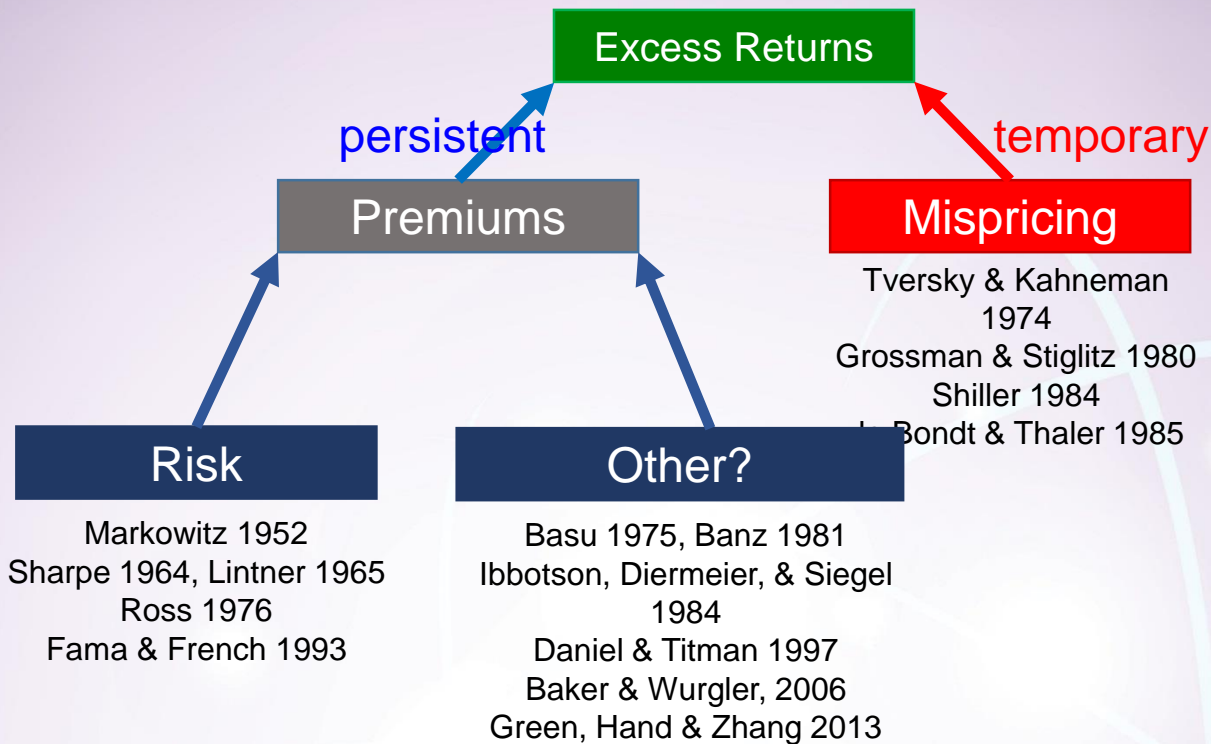
New York City

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Outline

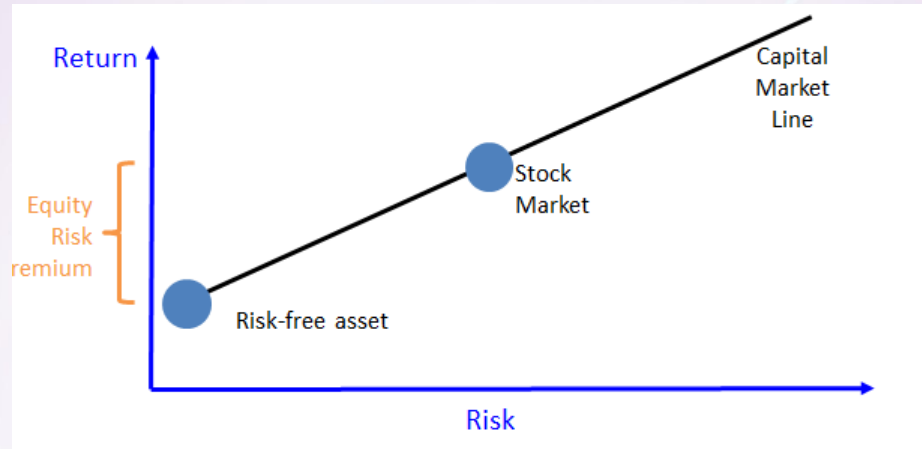
- The Standard Risk Premium Paradigm
 - Higher Risk = Higher Return
 - RPs in stock markets, bond markets, and across markets
- Are the Stock Market Premiums RPs?
 - A look at US, UK, and JP
- Or are the Premiums “Popularity” Premiums?
 - Popularity & Liquidity
 - Explains Premiums & Mispricings
- Conclusions

Premiums in Asset Pricing



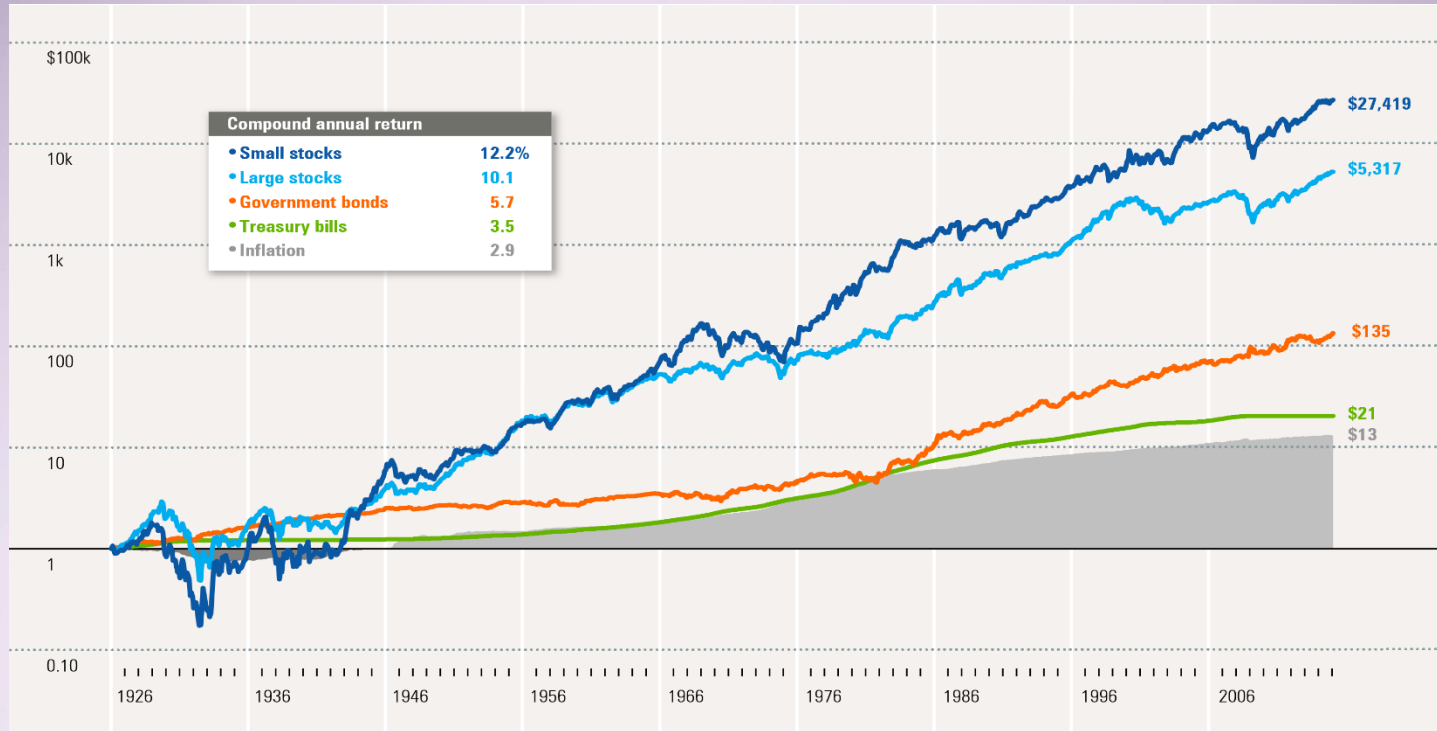
Higher Risk = Higher Return

- The Capital Market Line illustrates the payoff from the Equity Risk Premium and the U.S. Treasury Bill riskless rate.



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. ©2015 Morningstar. All Rights Reserved.

Comparing the Periods

Compound Annual (Geometric Mean) Returns

U.S.	1926-2014*	1996-2014*
Large Company Stocks	10.1%	8.6%
LT Government Bonds	5.7	7.5
U.S. Treasury Bills	3.5	2.5
Inflation	2.9	2.3

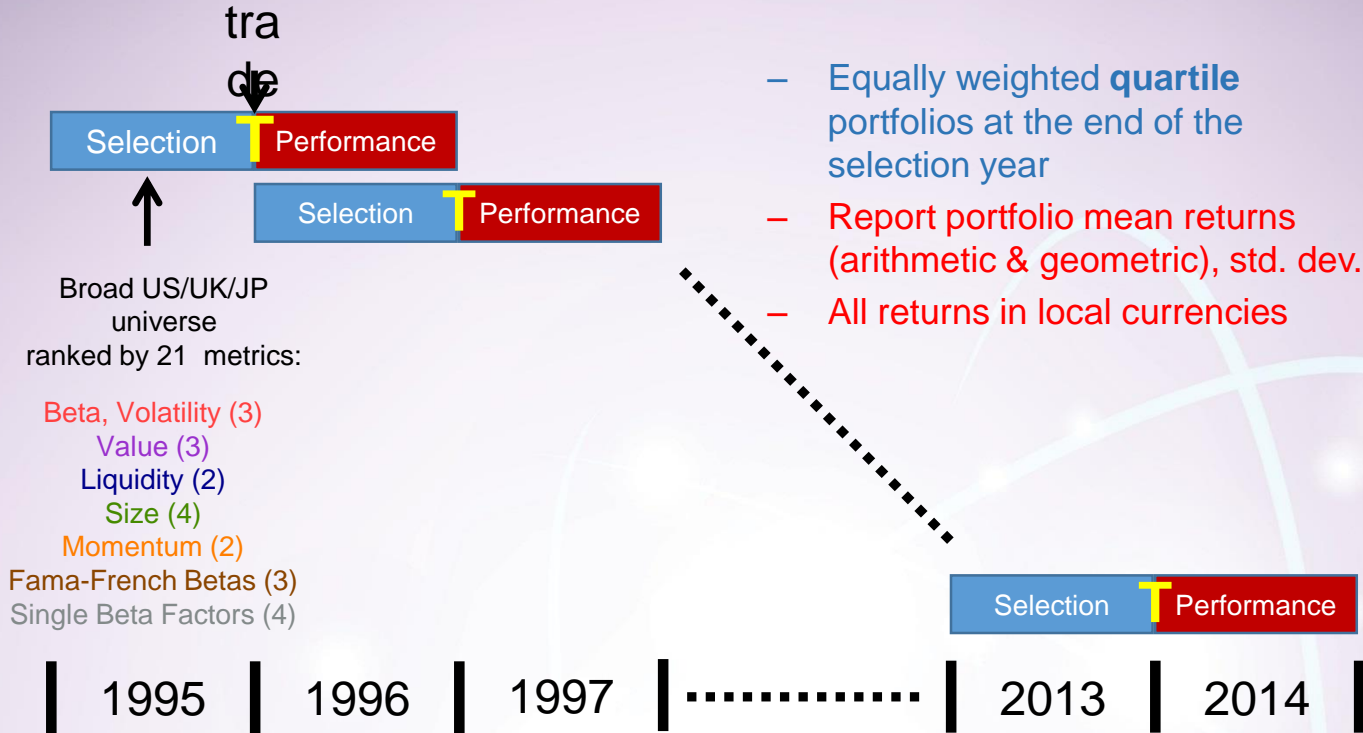
- We examine the period 1996-2014 in which we have complete int'l data.
- Returns similar to period starting in 1926, with positive but lower risk premiums.

** Ibbotson SBBI Classic 2015 Yearbook: Market results for Stocks, Bonds, Bills, and Inflation, 1926-2014, Morningstar, Inc.*

Are Stock Market Premiums RPs?

- Across markets and within the bond market, **higher risk = higher return**
- We examine the global stock market premiums in US, UK, and Japan
- In theory, high beta, small stocks, and value stocks have both higher returns and higher risk

Study Methodology



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

Overall Performance

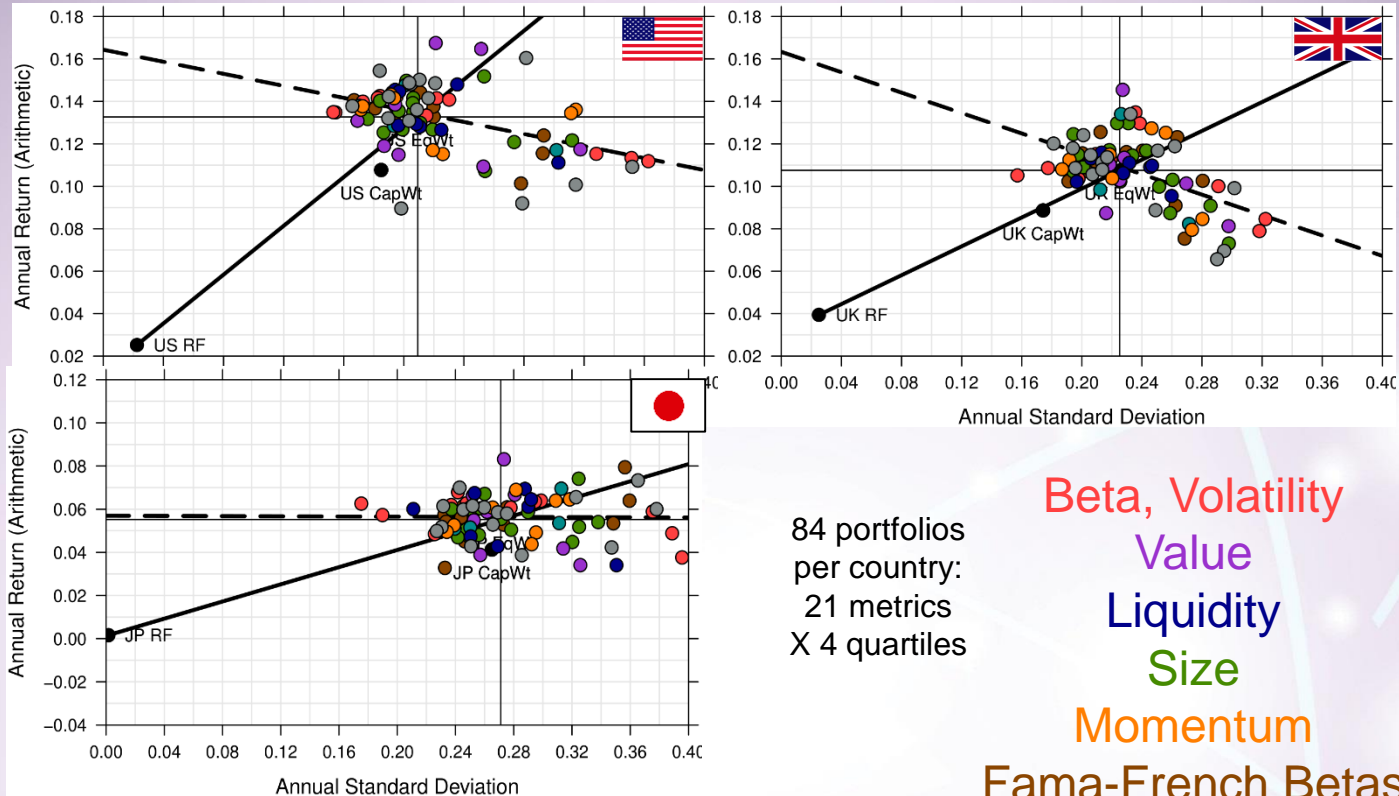


Maximum Universe Count	3,000			500			1,500		
1996-2014	Geom. Mean	Arith. Mean	Std. Dev.	Geom. Mean	Arith. Mean	Std. Dev.	Geom. Mean	Arith. Mean	Std. Dev.
Equal-Weighted Universe	11.23%	13.27%	20.93%	8.34%	10.84%	22.52%	2.21%	5.53%	27.11%
Cap-Weighted Universe	9.08	10.77%	18.49	7.34	8.59%	17.42	1.07	4.07%	26.50
Local Risk-Free Rate	2.50	2.53	2.28	3.92	3.94	2.50	0.17	0.17	0.17

Display the capital market line with the equally weighted index (arithmetic mean) and the risk free rate in local currency

Risk & Return Within Markets

1996 – 2014



84 portfolios
per country:
21 metrics
X 4 quartiles

Beta, Volatility

Value

Liquidity

Size

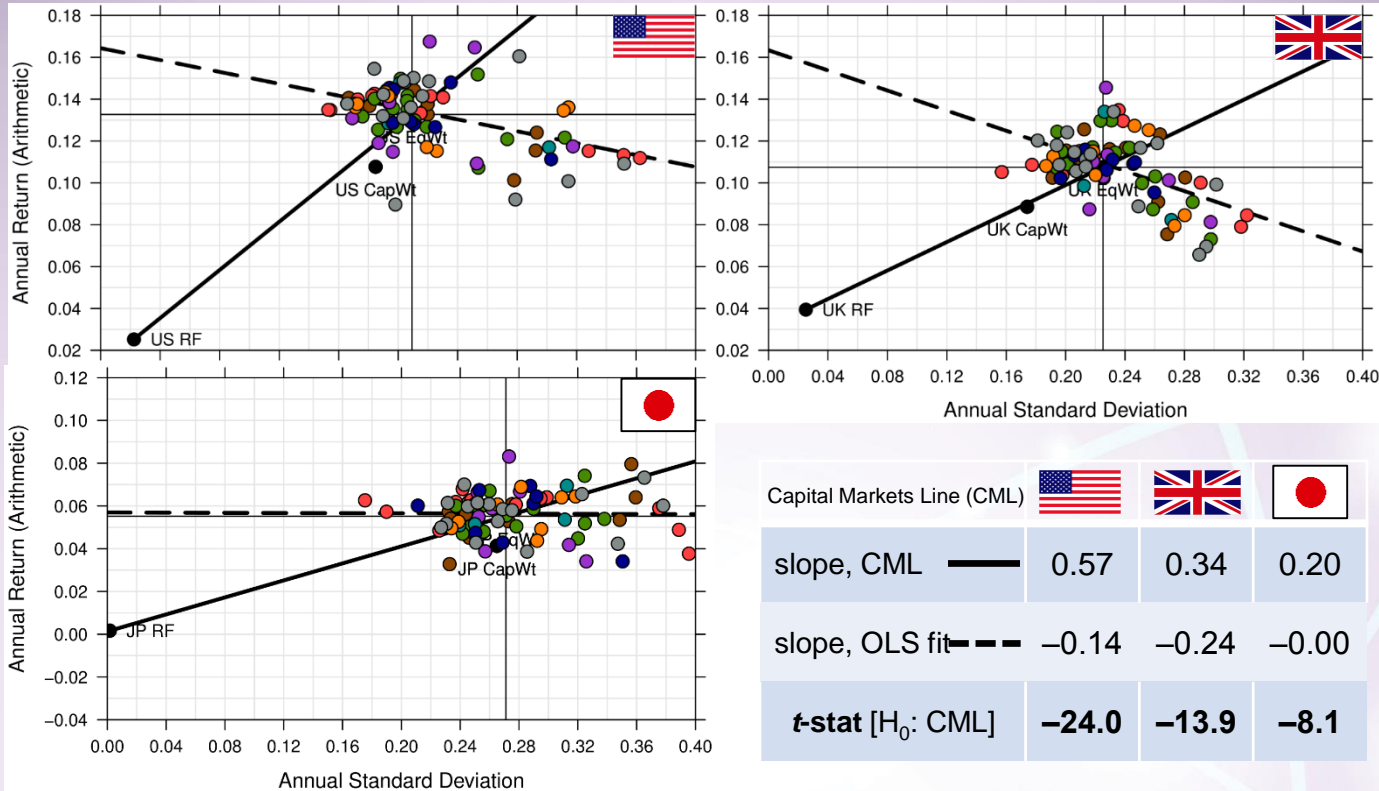
Momentum

Fama-French Betas

Single Beta Factors

Risk & Return Within Markets

1996 – 2014

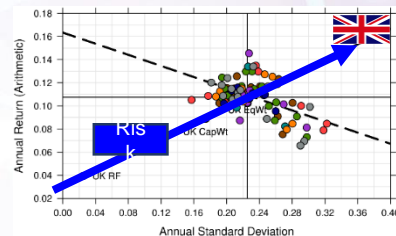
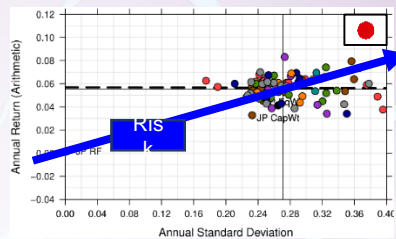
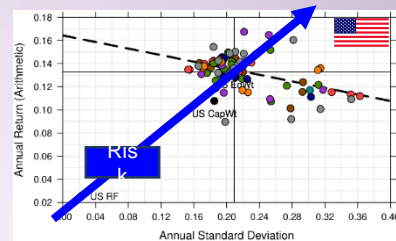


Source: Ibbotson & Kim, "Risk Premiums or Popularity Premiums?," presentation given at 2015 Morningstar Institutional Conference.

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 \uparrow , returns \downarrow
 - Unpopular: prices \downarrow , returns \uparrow



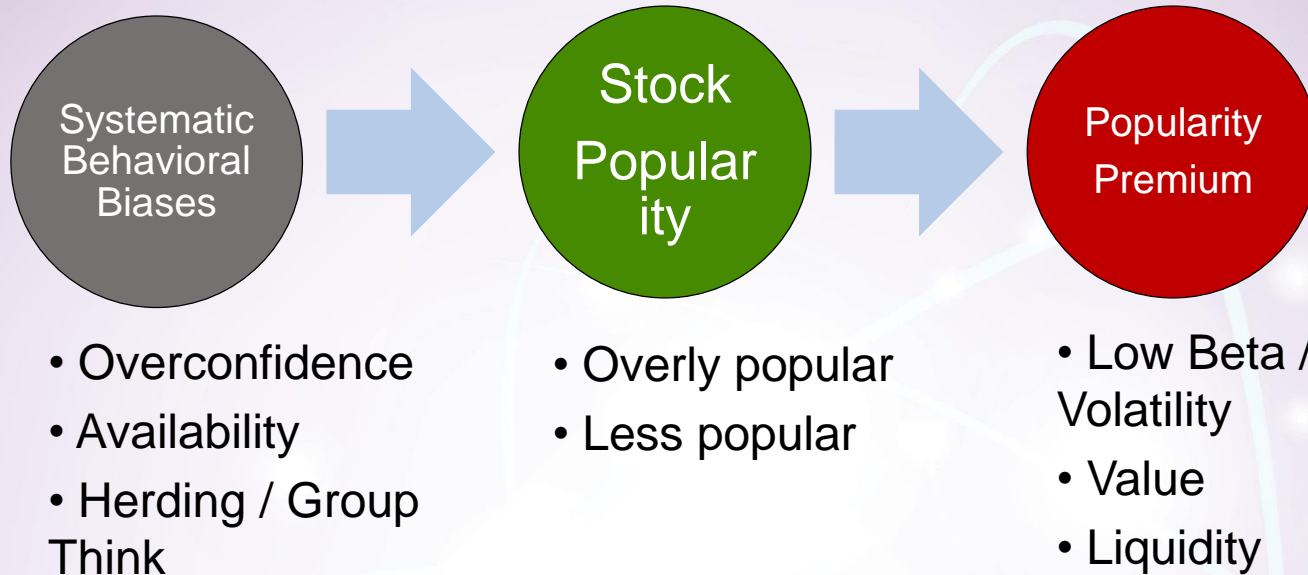
*Ibbotson & Idzorek, "The Dimensions of Popularity", *Journal of Portfolio Management*, 40th Anniversary Issue 2014

What is Popularity?

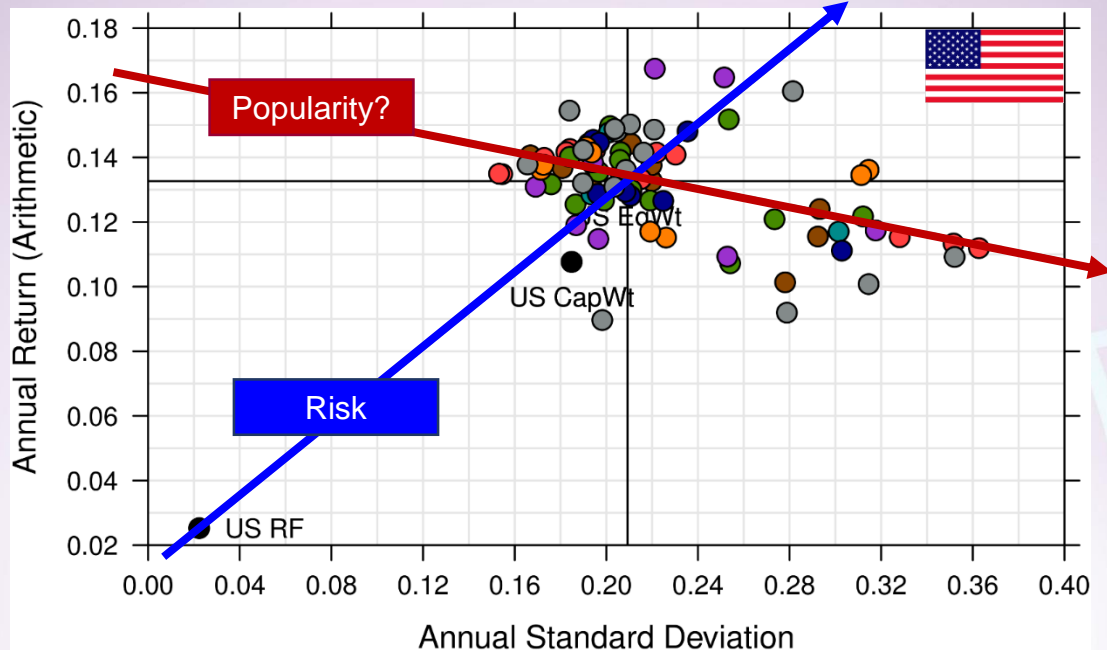
- Popularity is how much anything is liked or recognized
 - Not a new concept, similar to contrarian, sentiment, affect, crowding, herding, admired/spurned, hot/cold, etc.
- More popular stocks have higher valuations relative to their fundamentals, but *lower* expected returns
- Popularity (or unpopularity) can be *permanent* (premiums) or *temporary* (mispricing)

Behavioral Finance

- Why do these payoffs exist / persist?
- Are they “risk” premiums or “popularity” premiums?



Can Popularity Explain Return with Less Risk?



Popularity of Size

1926 – 2014

Small caps (US) have outperformed.

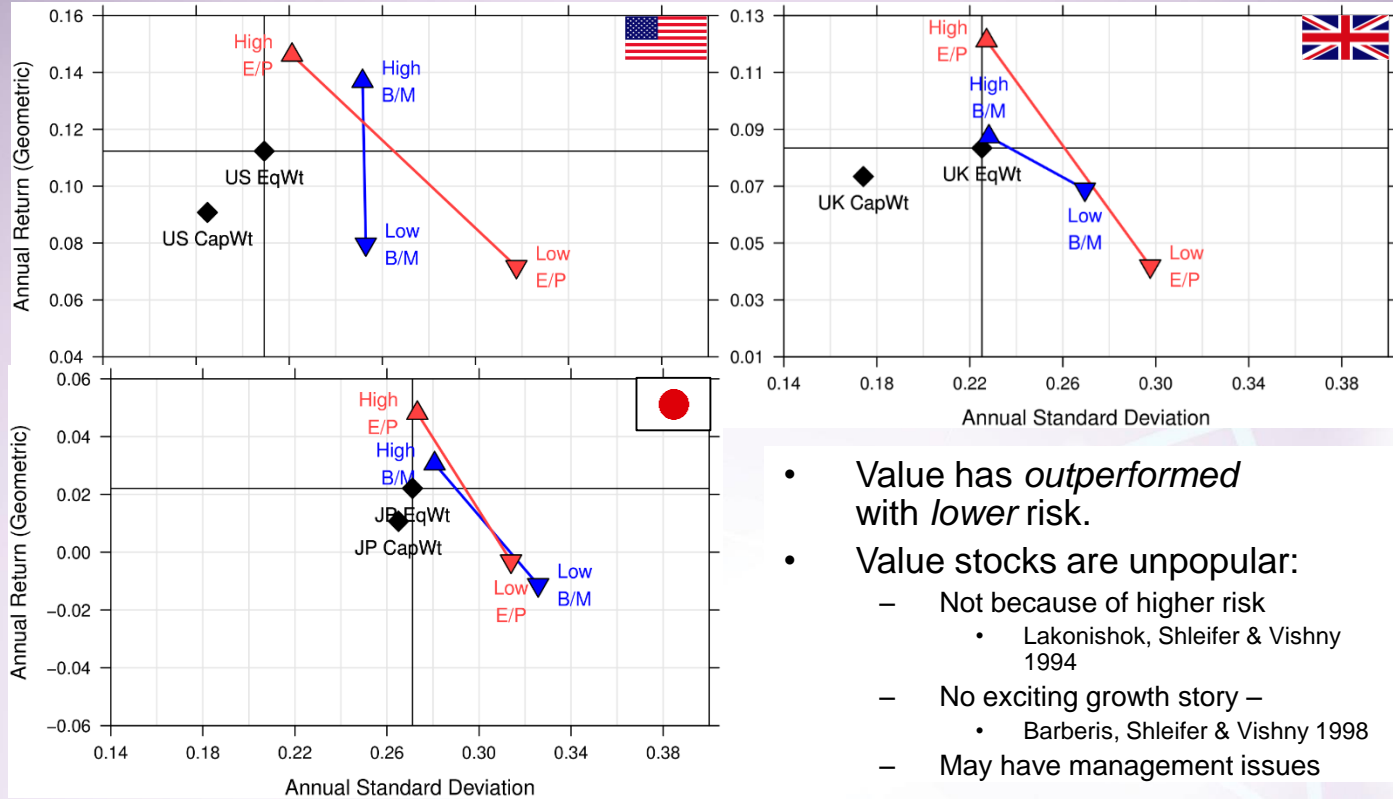
- Small stocks are **unpopular**:
 - Institutions prefer large stocks
 - Gompers & Metrick (2001)
 - Capacity constrained
 - Costly to trade (price impact)
 - Less information, less recognized



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Popularity of Value

High and Low Quartiles: 1996 – 2014



- Value has *outperformed* with *lower* 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.

Popularity of Beta and Volatility

All Quartiles: 1972 – 2014

High beta and volatility have underperformed.

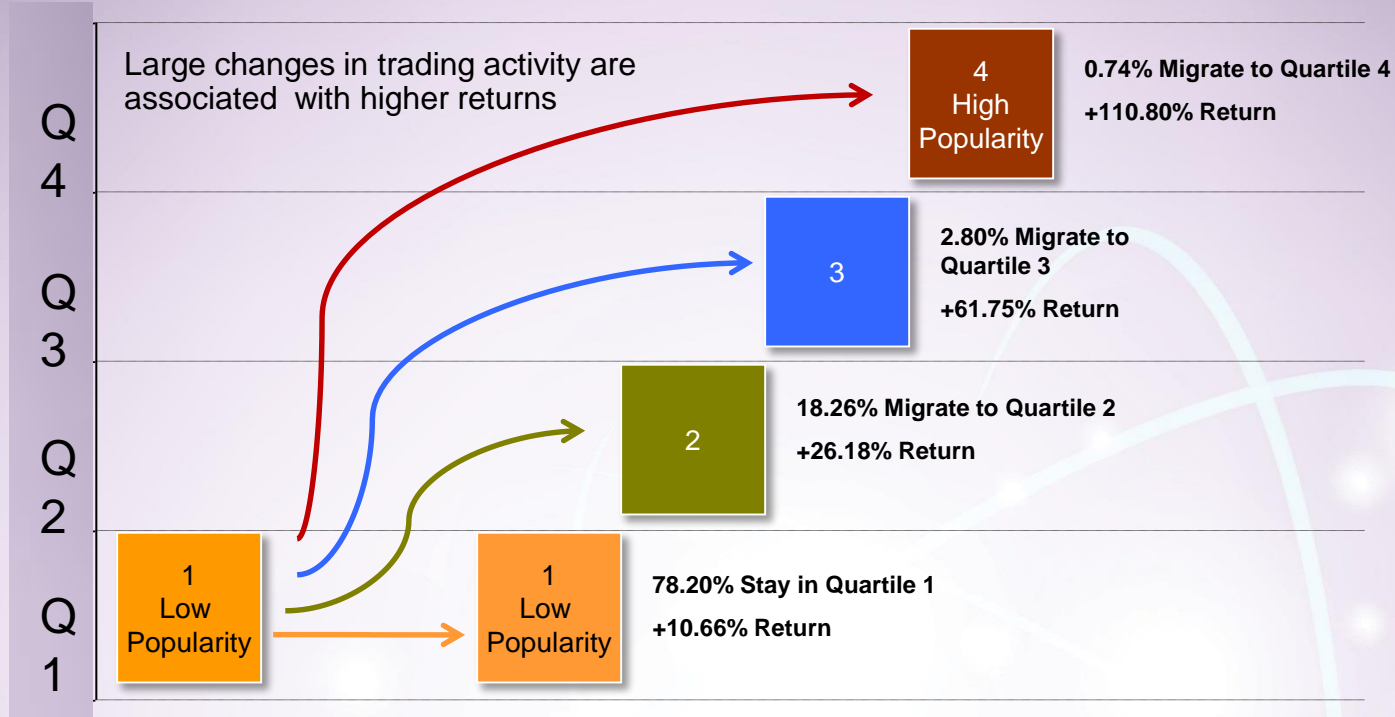
- Leverage aversion
 - Identified *high* beta & vol as popular
 - Volatility: Haugen & Baker, 1991
 - Beta: Frazzini & Pedersen, 2011
- Future outlook
 - Low beta & vol have become popular with institutions in recent years
 - Beta is only an indirect measure of popularity
 - *Popularity can change* over time

US 1972–2014		Popularity			
		Low		High	
β	Low	15.2%	14.2%	11.7%	3.4%
		16.2%	14.8%	13.7%	10.2%
	High	13.4%	14.4%	13.2%	9.8%
		11.5%	11.7%	10.3%	6.2%

Source: Ibbotson & Kim, "Liquidity as an Investment Style: 2015 Update" [Ibbotson, Chen, Kim & Hu, *FAJ* 2013], available at research.zebacapital.com

Valuations and Popularity

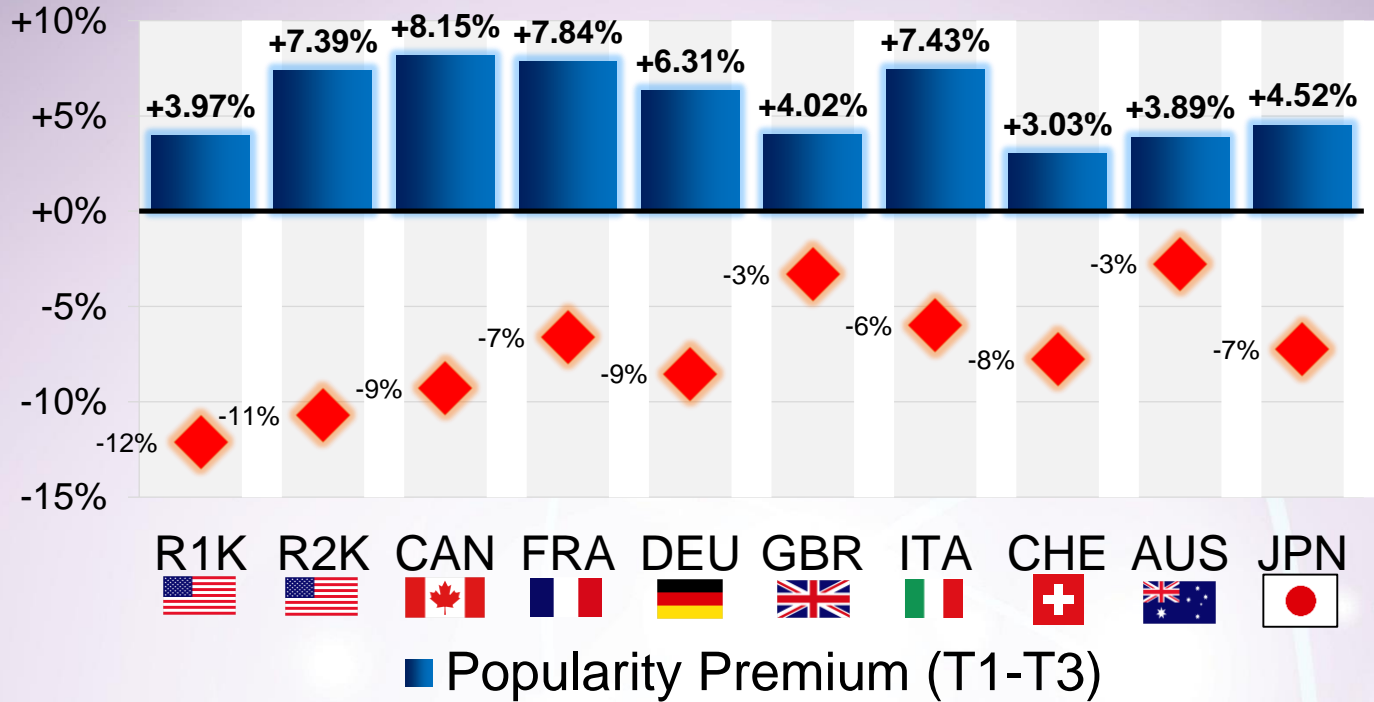
1972 – 2014, U.S.



Source: Ibbotson & Kim, "Liquidity as an Investment Style: 2015 Update" [Ibbotson, Chen, Kim & Hu, *FAJ* 2013], available at research.zebracapital.com

Global Popularity Premiums

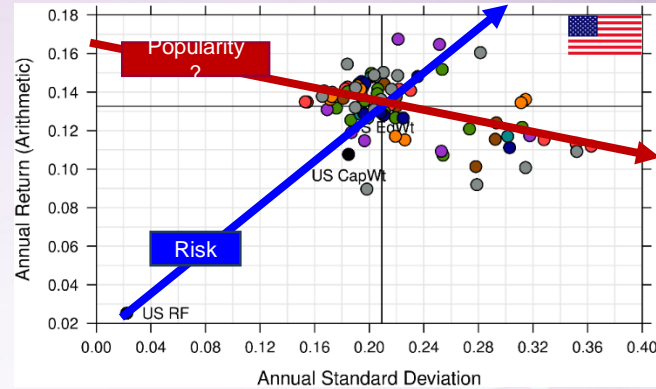
2000 – 2014 (USD)



Source: Zebra Capital Research.

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

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.

Popularity Regressions on Factors

1972 – 2014, U.S.

Popularity can be expressed as a long/short or a long only factor.

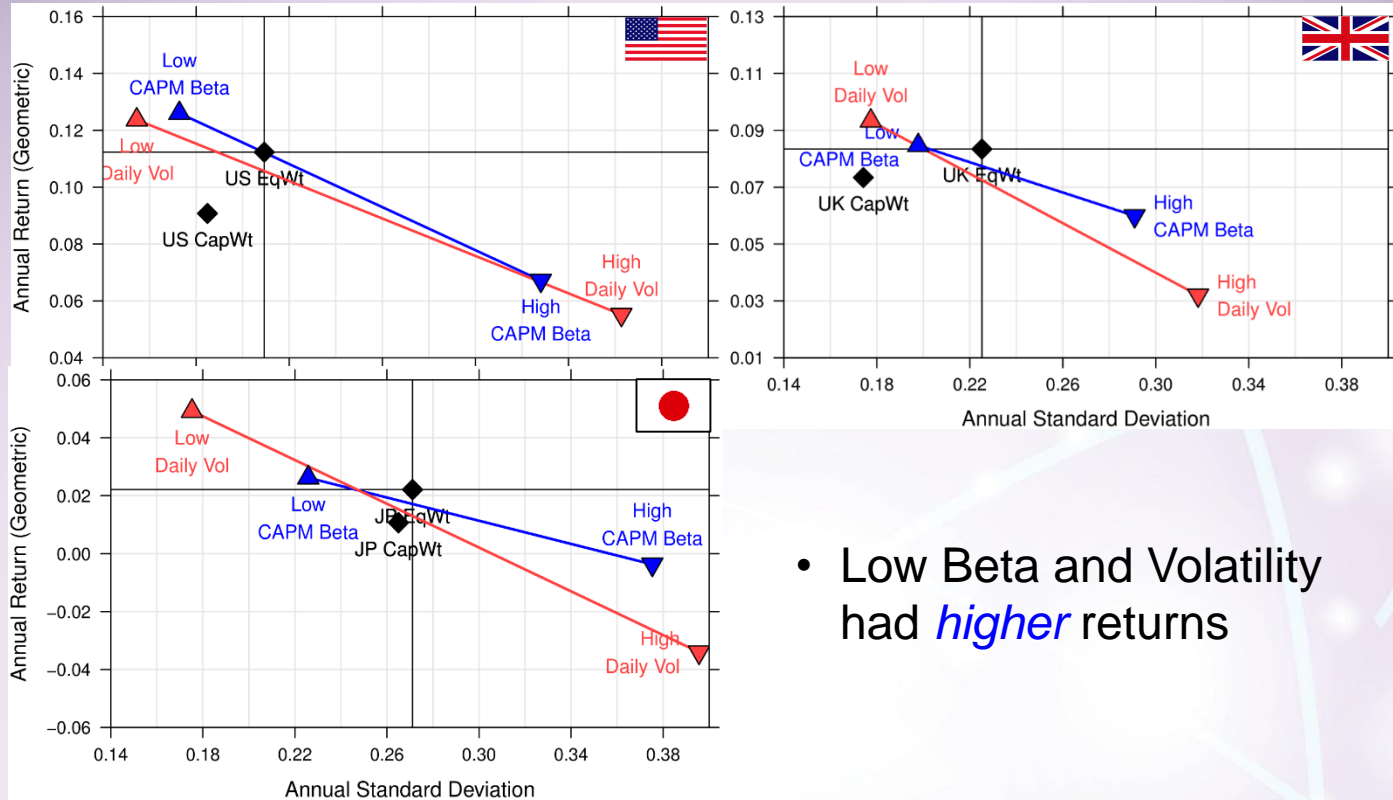
	Annualized Alpha	Market M-RF	Size SMB	Value VMG	Momentum HML	R ²
Long Unpopular, Short Popular Factor	4.44%*	-0.45	-0.39	+0.58	+0.14	72.2%
Unpopular Long Portfolio (excess over risk-free rate)	2.40%*	+0.74	+0.56	+0.44	0.00	88.3%

**t*-stats = 3.40 and 3.00 (both statistically significant at 5% level.)

Source: Ibbotson & Kim, "Liquidity as an Investment Style: 2015 Update" [Ibbotson, Chen, Kim & Hu, *FAJ* 2013], available at research.zebracapital.com

Market Beta & Volatility

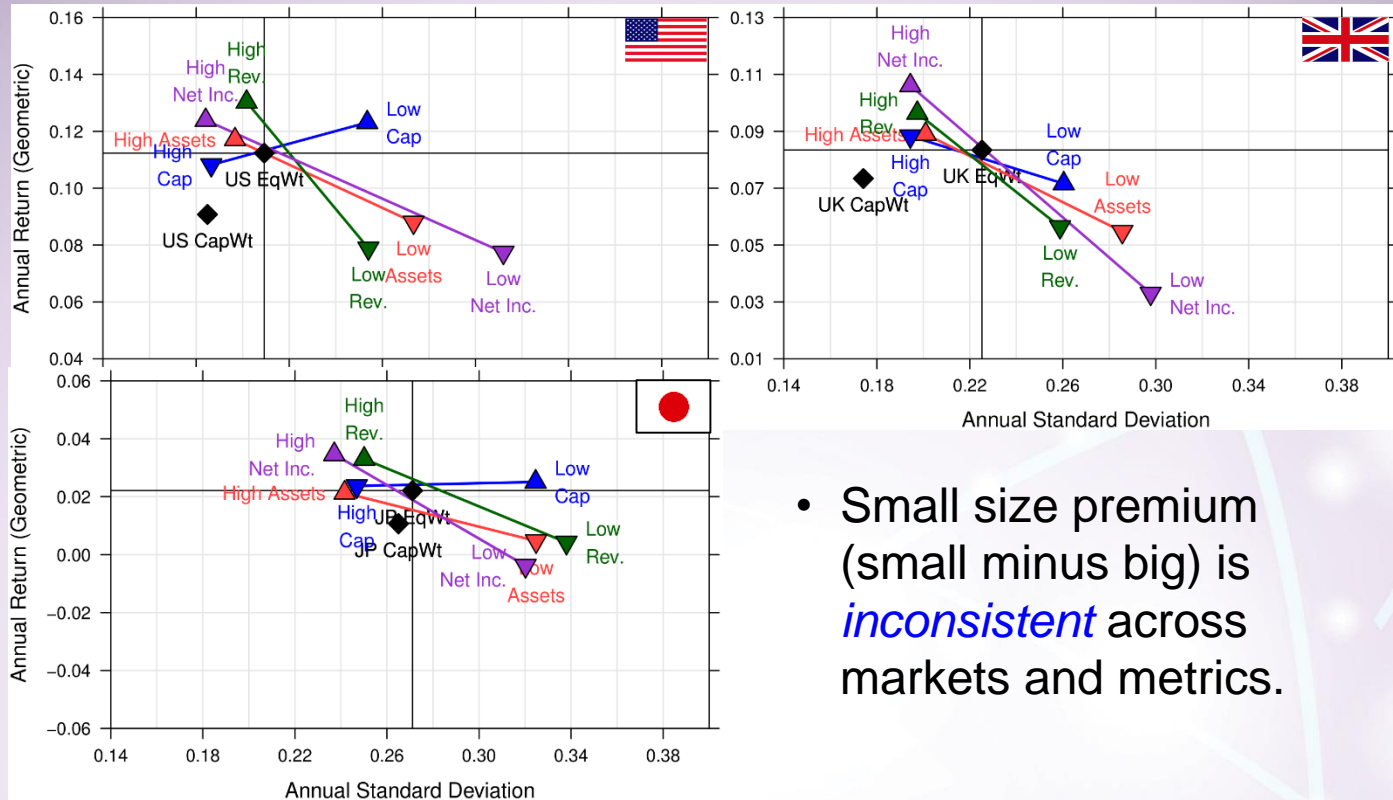
1996 – 2014



- Low Beta and Volatility had *higher* returns

Size

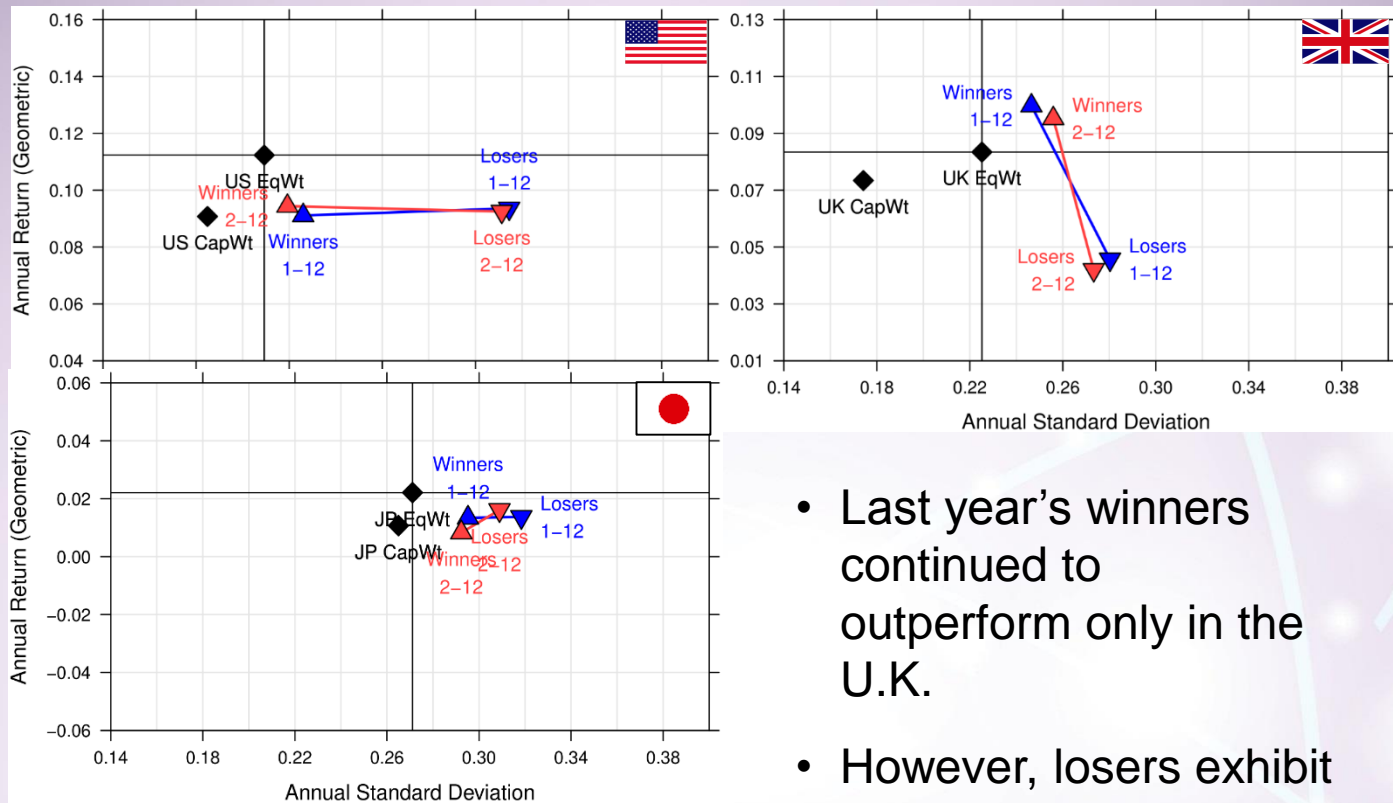
1996 – 2014



- Small size premium (small minus big) is *inconsistent* across markets and metrics.

Momentum

1996 – 2014



- Last year's winners continued to outperform only in the U.K.
- However, losers exhibit *higher* volatility.

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