

# Momentum Investing

- Prashanth K.



# Factor Investing



VOLATILITY



YIELD



QUALITY



MOMENTUM

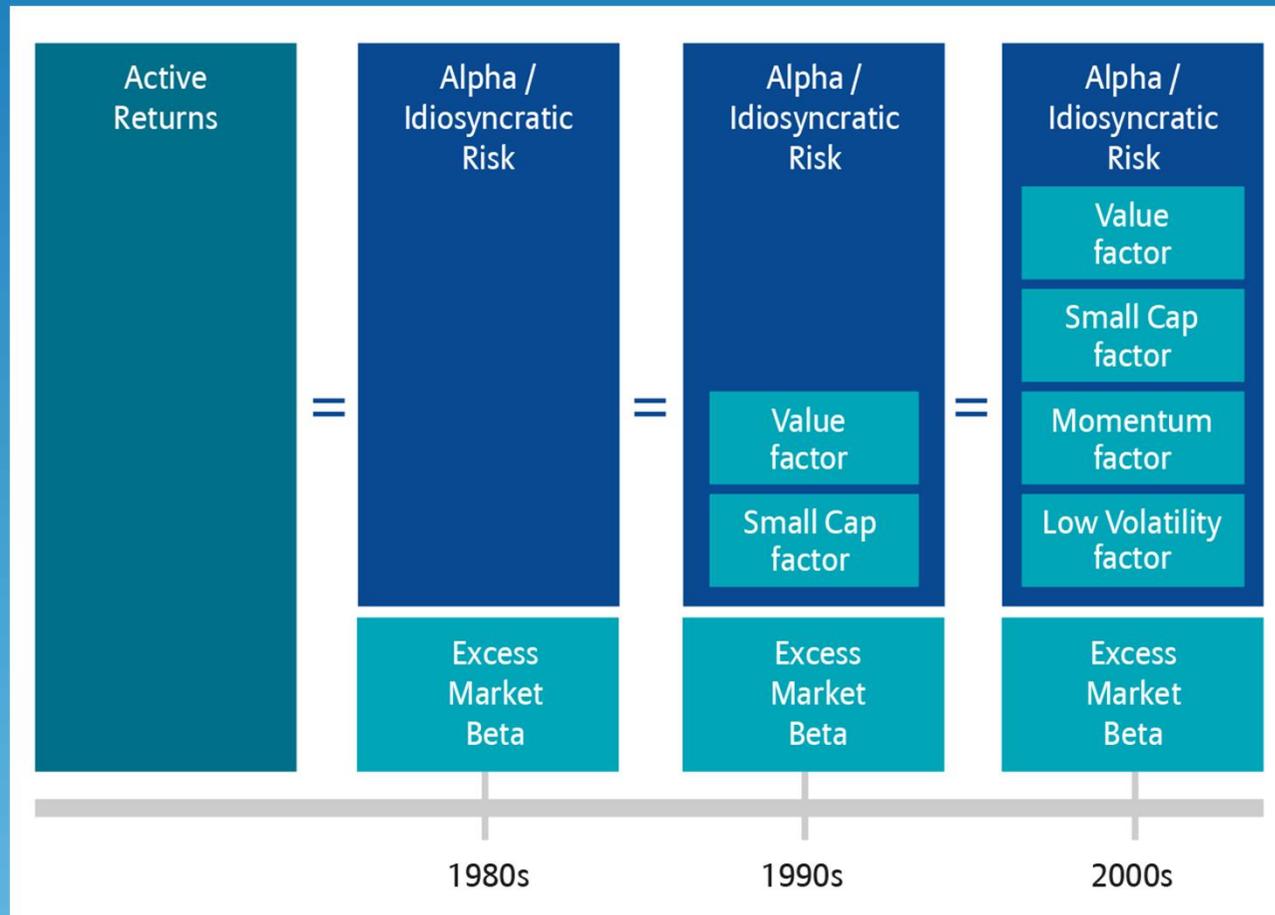


VALUE



SIZE

# Breaking down Alpha



# Momentum Investing: Buy Past Winners

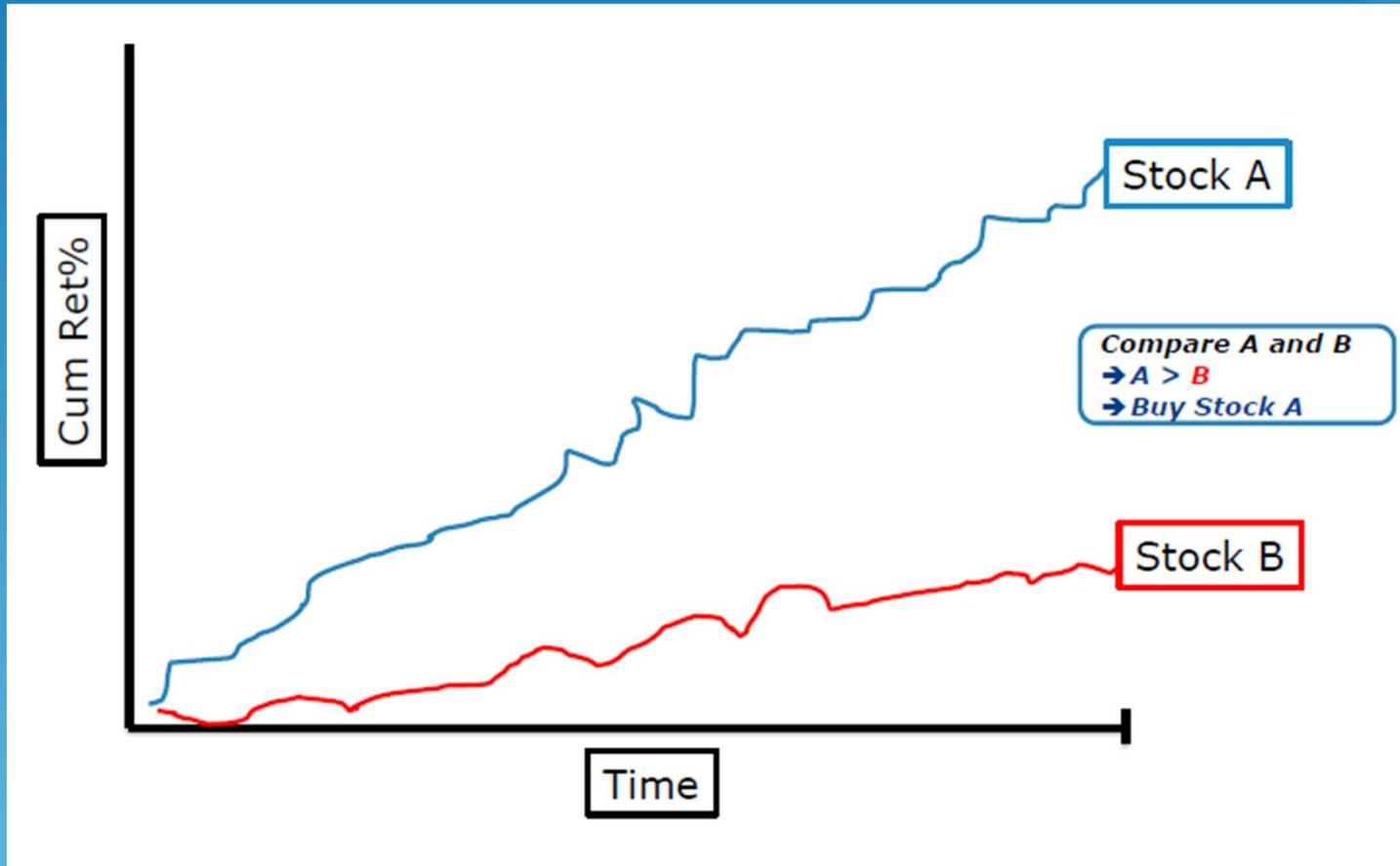


Chart Source: Alpha Architect

# Investing in Momentum



- The trend is your friend with momentum investing
- The momentum factor means that stocks that have outperformed over the recent past are likely to continue doing so
- The existence of the momentum factor suggests investors are susceptible to several behavioural biases:
  - they over/under react to new information being incorporated into an asset's price
  - herding behaviour with investors following the same trends
  - confirmation bias in which investors use recent share price activity to justify transaction decisions
- Academic research from the early 1990s identified the momentum factor and the premiums associated with it

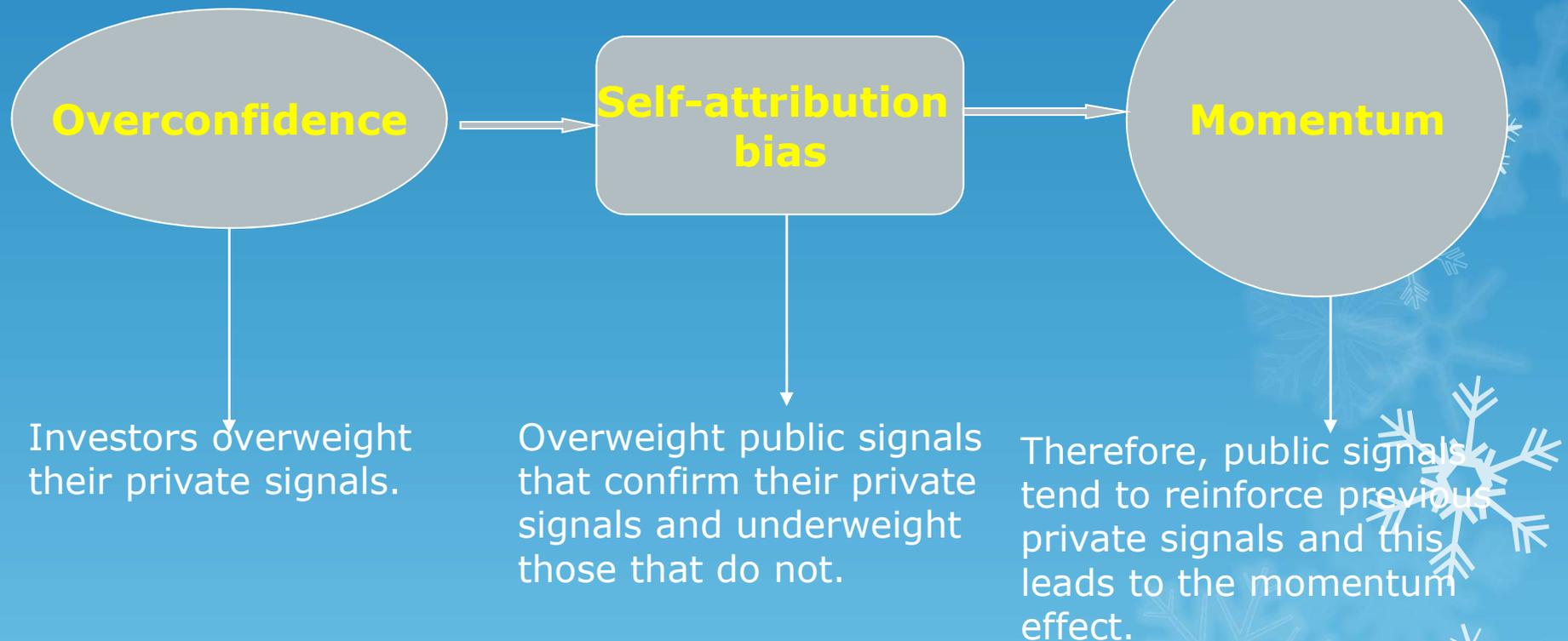
# Momentum Strategy – Academic Evidence



- Profitability of momentum strategy:
  - **Yes** in the U.S.  
Jegadeesh and Titman (1993, 2001)
  - **Yes** for most of the European countries  
Rouwenhorst (1998)
  - **Yes** for a number of countries around the world.  
Griffin, Ji, and Martin (2003)
  - **Yes** for India  
Chui, Titman, and Wei (2003)

# Overconfidence/Self-attribution bias and Momentum

- Daniel, Hirshleifer, and Subrahmanyam (1998)

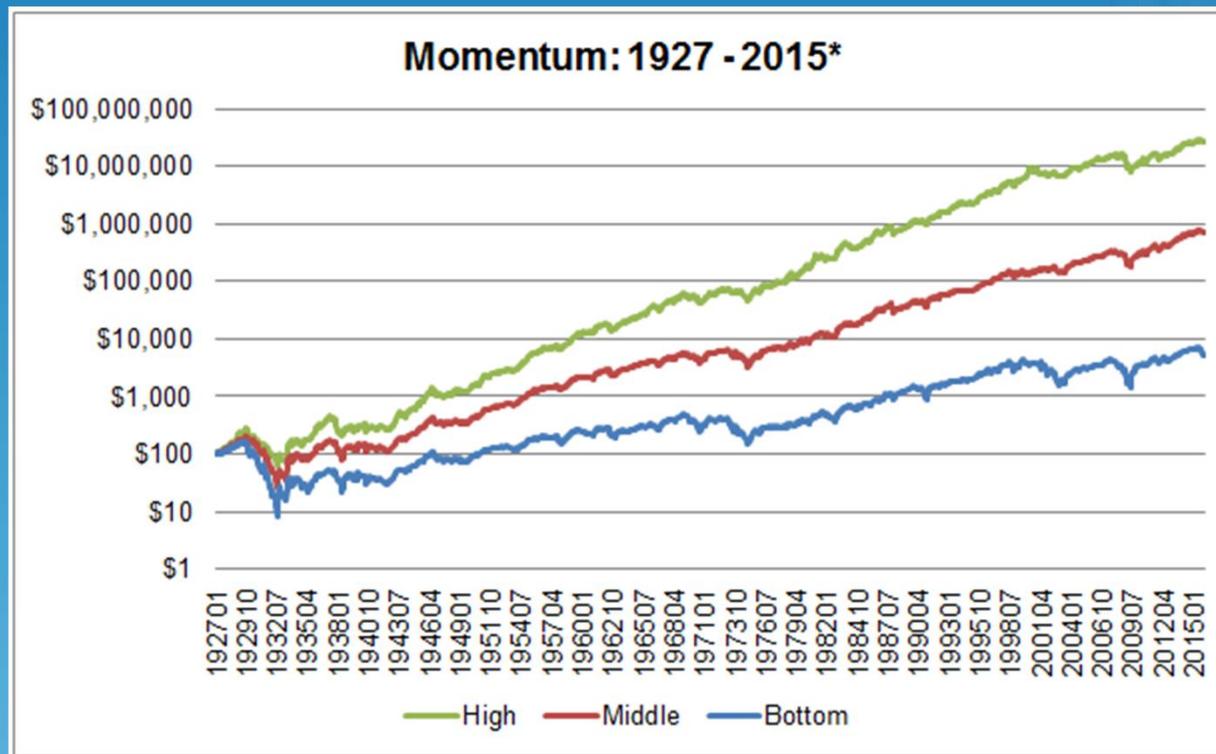


# Popular Momentum Strategies



- Stocks Ranked by Sharpe – Lookback period of 252 days
- Stocks Ranked by 12 Month – 1 Month Returns
- Stocks Ranked by 52 Week High

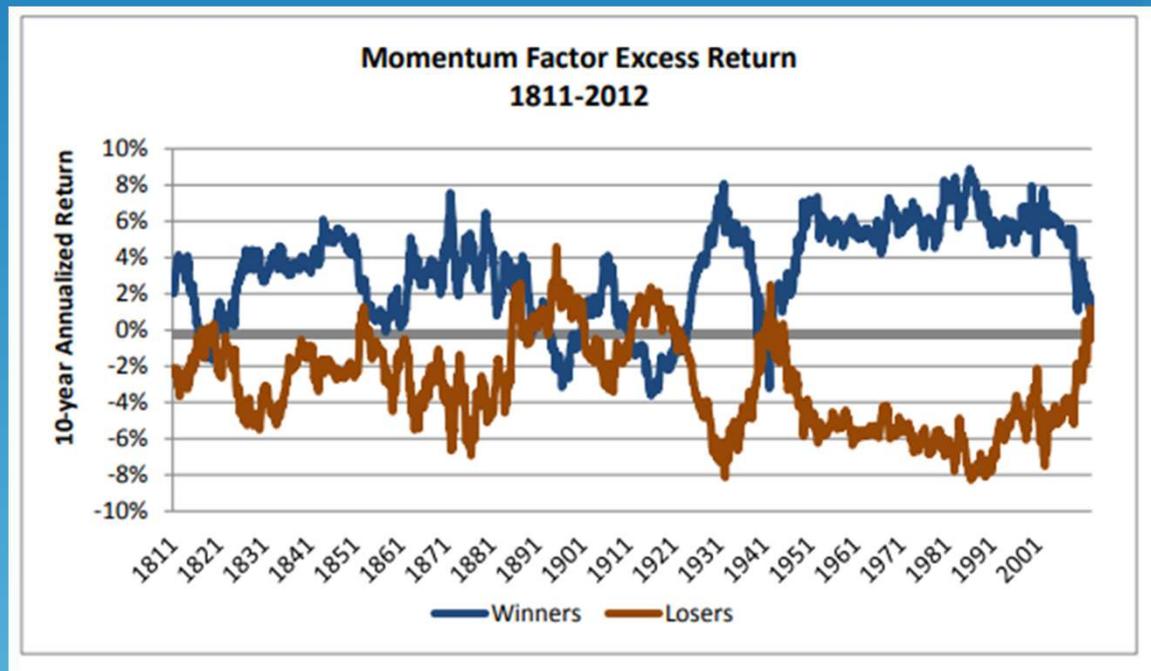
# Buying the Winners, Historical Evidence



Source: Dorsey Wright

# 10 Year Momentum Excess Returns

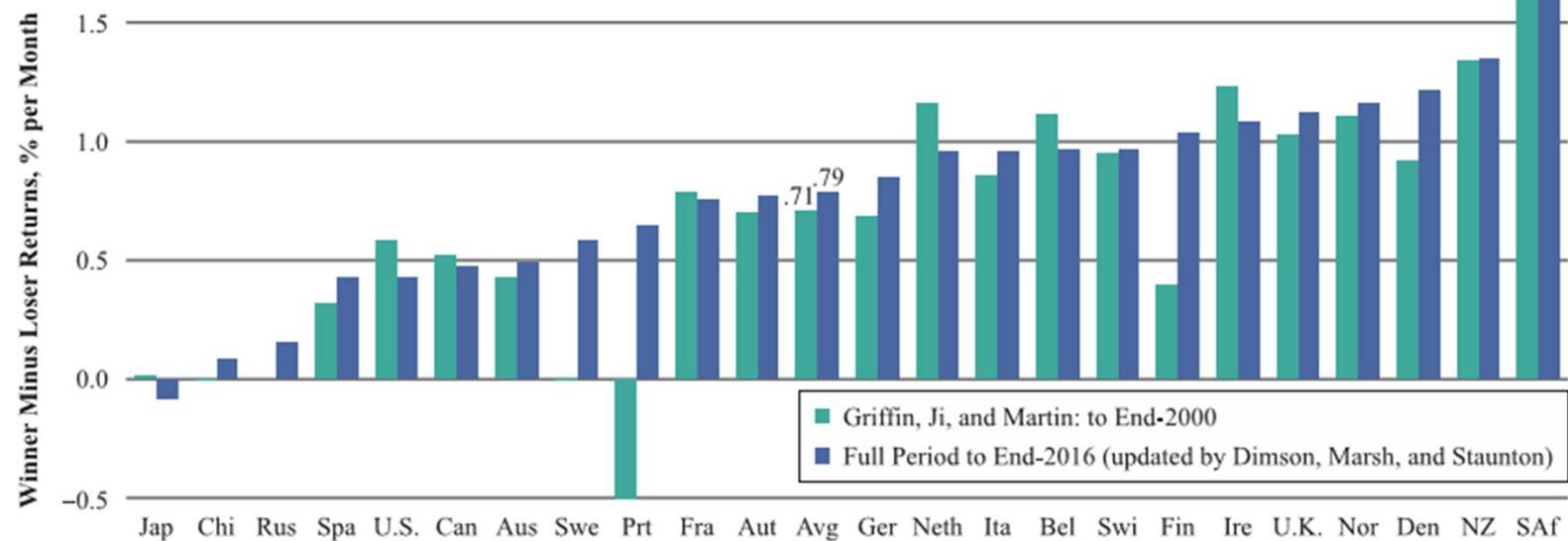
## Two Centuries of Evidence



# International Evidence

## EXHIBIT 10

Returns from a 6/1/6 Momentum Strategy in 23 Countries, 1975–2016, % per Month



Sources: Griffin, Ji, and Martin [2003] WML returns to 2000; Dimson, Marsh, and Staunton [2008] WML returns after 2000. All WML returns are 6/1/6 with 20% and 80% breakpoints.

# Momentum Works Everywhere

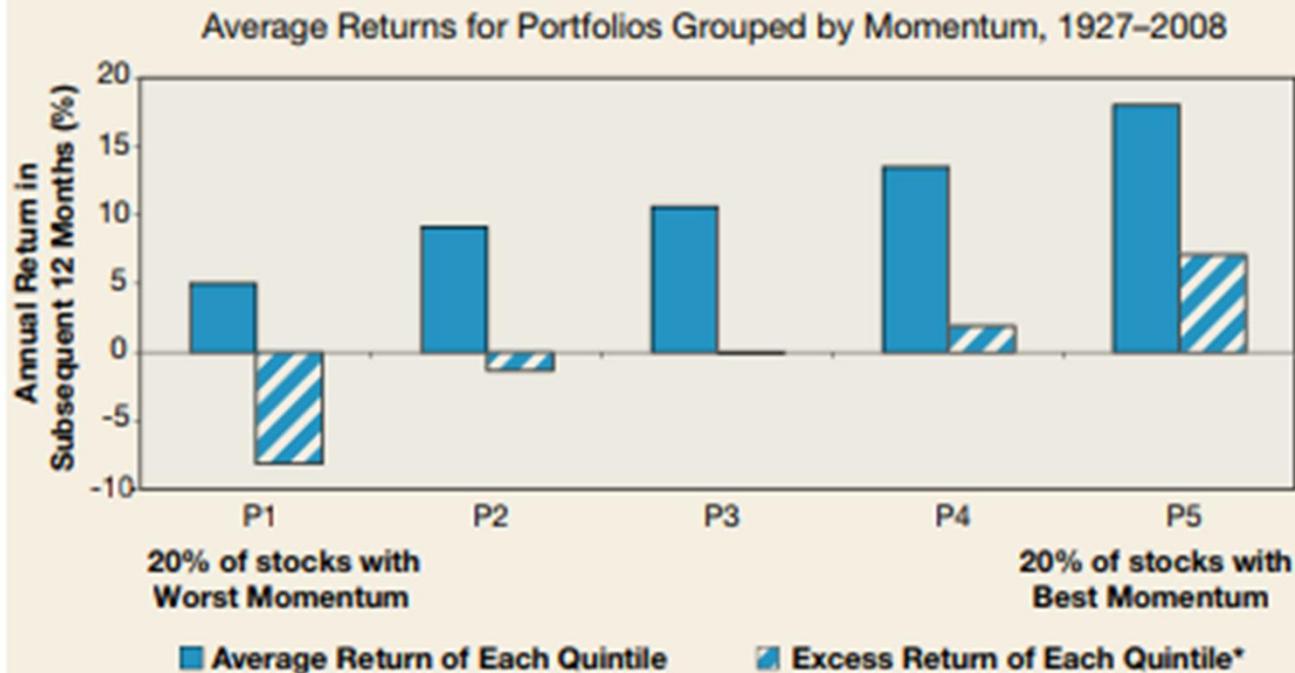
**TABLE 1: HISTORICAL PERFORMANCE OF MOMENTUM ACROSS ASSET CLASSES, 1975–2008**

	Sharpe Ratio of a Long-Short Momentum Strategy	Annualized Return of a Long-Short Momentum Strategy	Time Period Studied
<b>In Individual Stocks</b>			
United States	0.7	10.5%	1975–2008
United Kingdom	0.6	9.0%	1985–2008
Japan	0.2	3.0%	1985–2008
Continental Europe	1.1	16.5%	1988–2008
Stock Market Equal-Weighted	0.9	13.5%	1988–2008
<b>In Other Asset Classes</b>			
Bond Market (Developed)	0.3	4.5%	1975–2008
Currencies	0.5	7.5%	1975–2008
Commodities	0.8	12.0%	1975–2008
Equity Indexes (Developed)	0.6	9.0%	1975–2008
Other Asset Class Equal-Weighted	0.9	13.5%	1975–2008
All Asset Classes	1.1	16.5%	1988–2008

Source: Asness et al. (2009). Data updated through year-end 2008. Hypothetical long-short back-test where each value and momentum portfolio is scaled to an estimated 10-percent annualized volatility based on either AQR or BARRA risk models; gross of transaction and financing costs. Hypothetical performance has inherent limitations.

# Buying the Winners, Historical Evidence

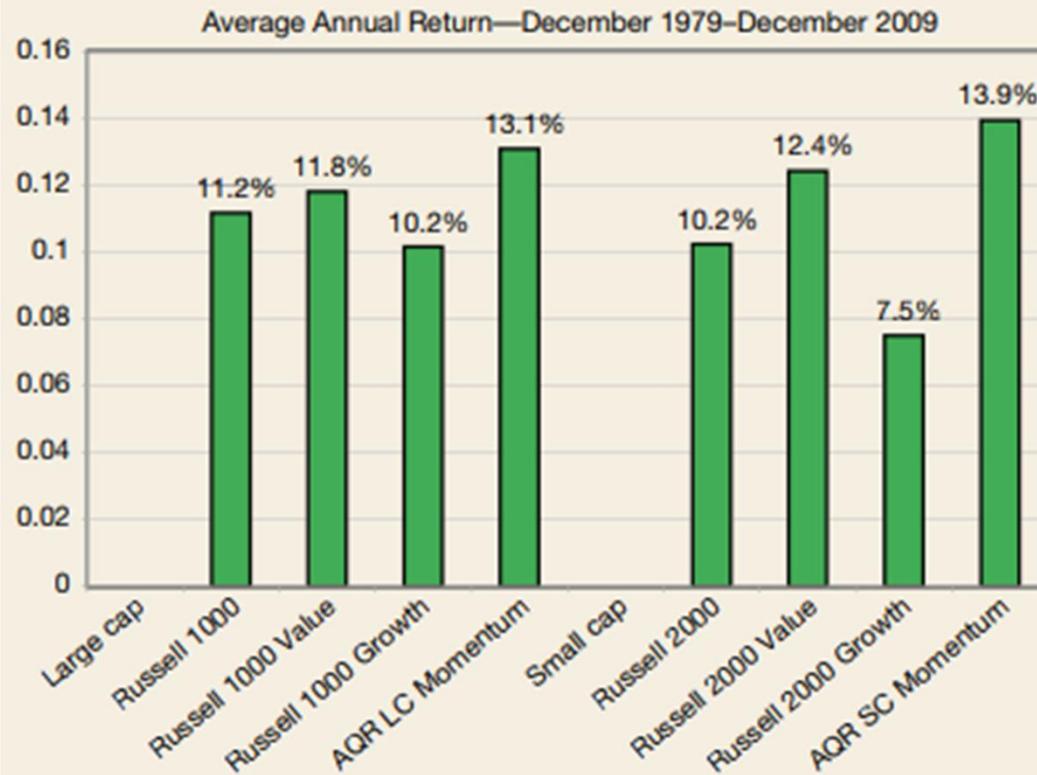
**FIGURE 1: HISTORICAL PERFORMANCE OF STOCKS WITH GOOD AND BAD MOMENTUM**



Source: Tobias Moskowitz using CRSP data

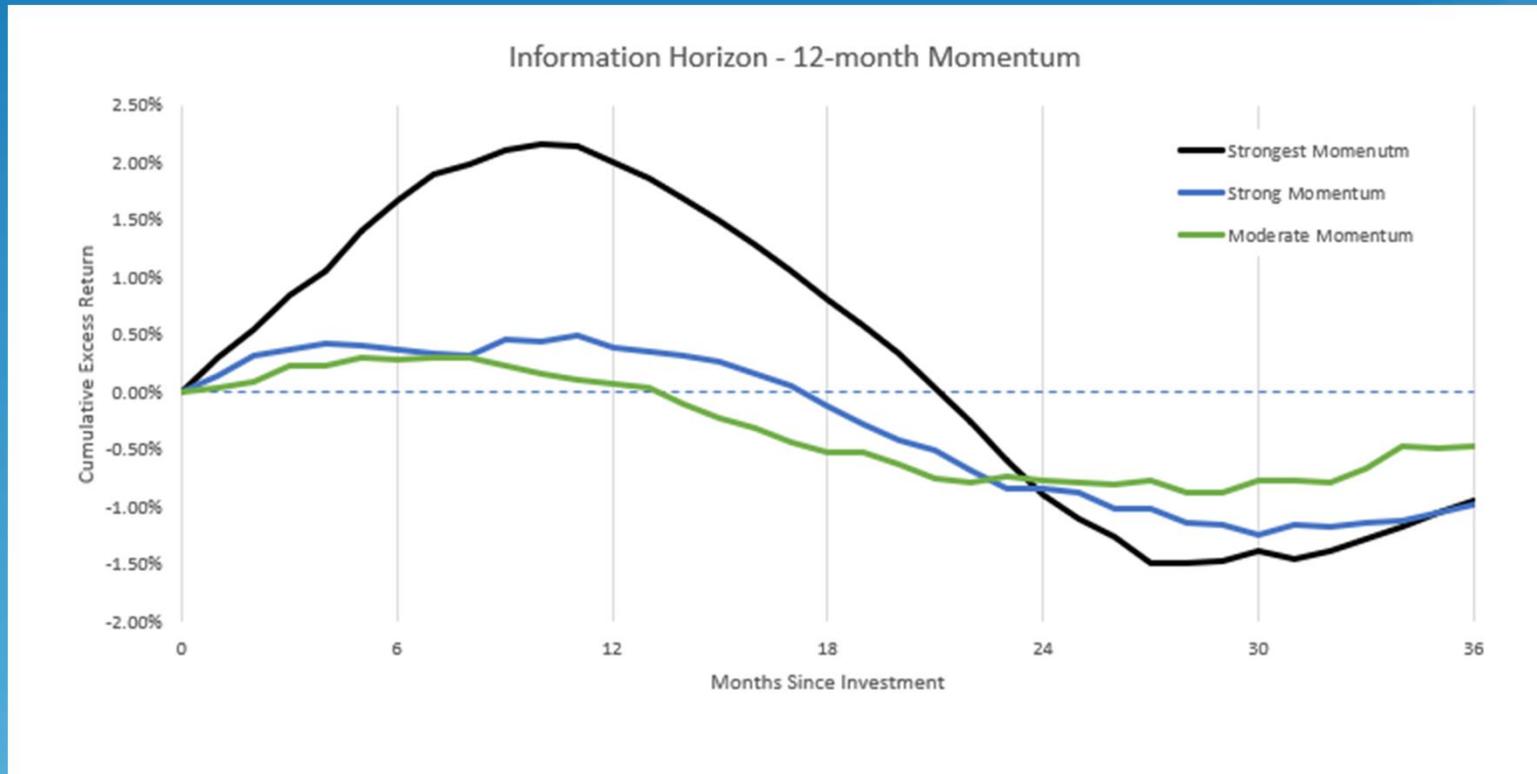
# Average Annual Return (United States)

**FIGURE 2: PERFORMANCE COMPARISON OF MOMENTUM, VALUE, GROWTH, AND CORE**



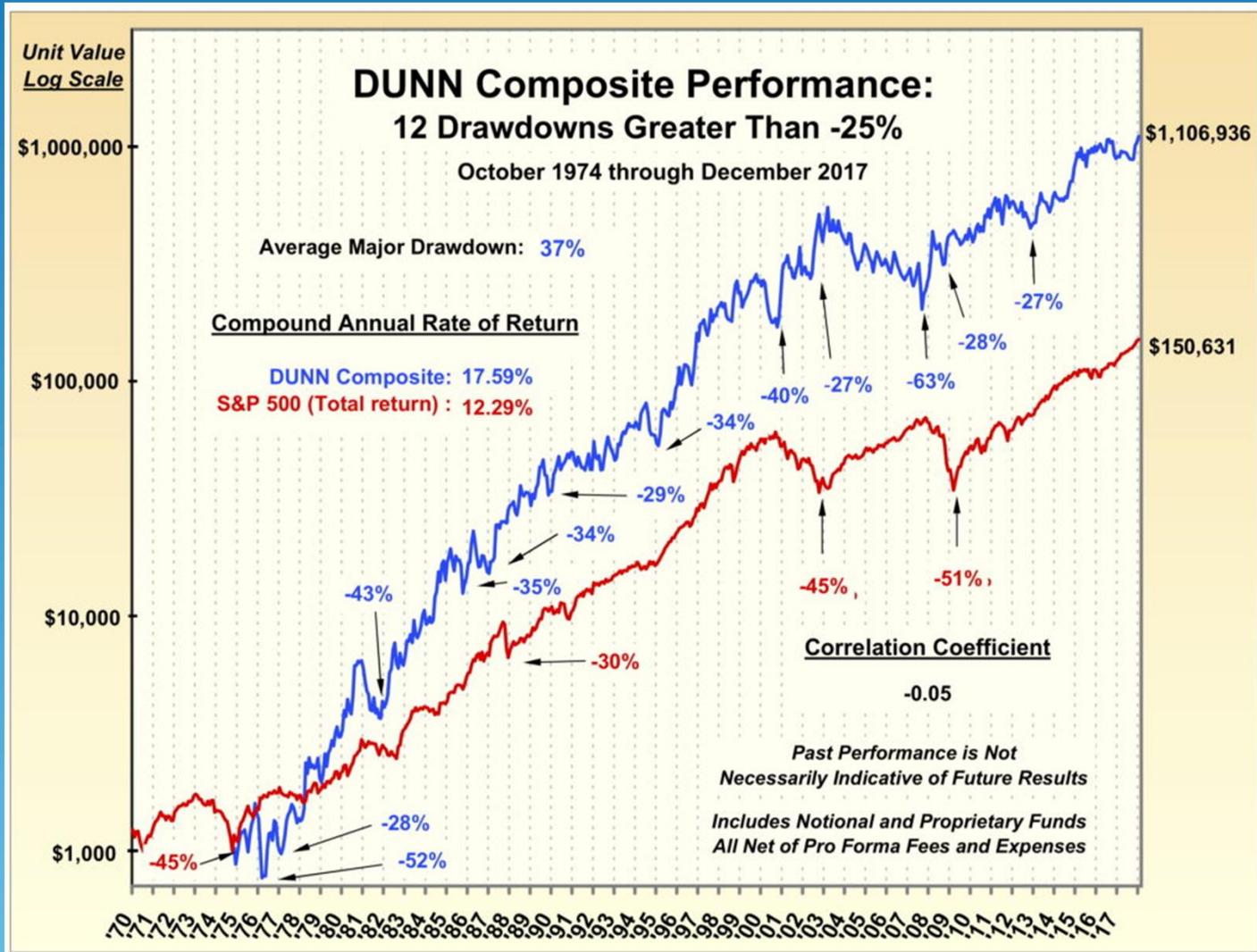
Source: Tobias Moskowitz using data from Russell and AQR Capital

# Momentum is Mean Reverting



Source: [www.factorinvestor.com](http://www.factorinvestor.com)

# Trend Following / CTA



# 2 Years of Momentum Investing



- Started investing personal funds into Momentum in May 2017
- Current Allocation: 80% of Equity Allocation
- Strategy: Modified Sharpe run once a month. Buy the top 30 Ranks. Sell whose Ranks have fallen below 40.

# Concentration or Diversification?

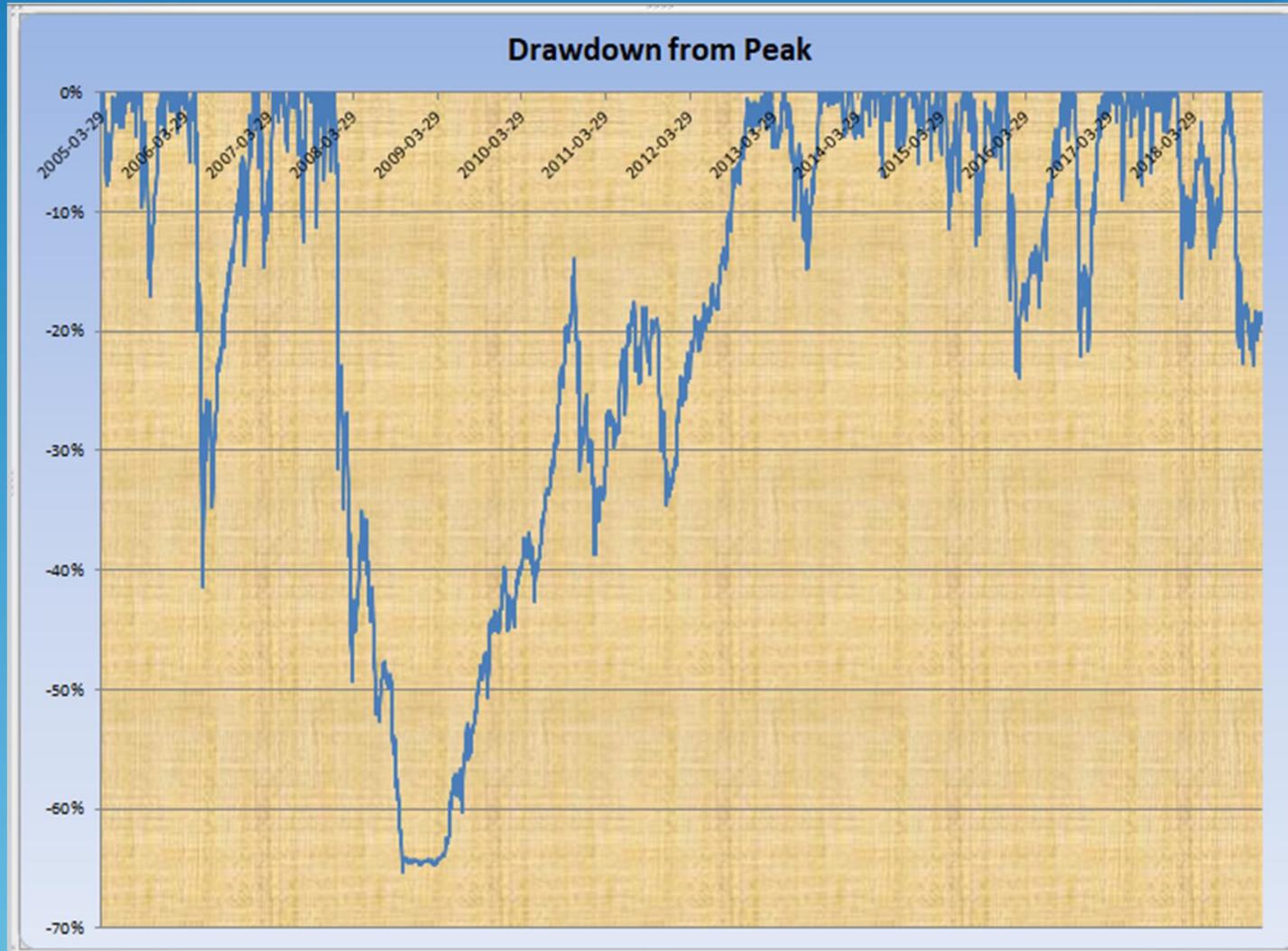
**"Wide diversification is only required when investors do not understand what they are doing."**

**- Warren Buffett**



	50 Stocks	40 Stocks	30 Stocks	25 Stocks	20 Stocks2	10 Stocks
CAGR	25.29%	25.66%	27.98%	28.85%	27.06%	22.35%
Stdev	1.37%	1.39%	1.42%	1.45%	1.50%	1.65%
CAR / MDD	41.71%	40.93%	42.85%	43.75%	38.93%	29.35%
Sharpe Ratio	1.17	1.16	1.22	1.23	1.14	0.91
Max DD	-61%	-63%	-65%	-66%	-70%	-76%

# Risk (Drawdown from Peak)

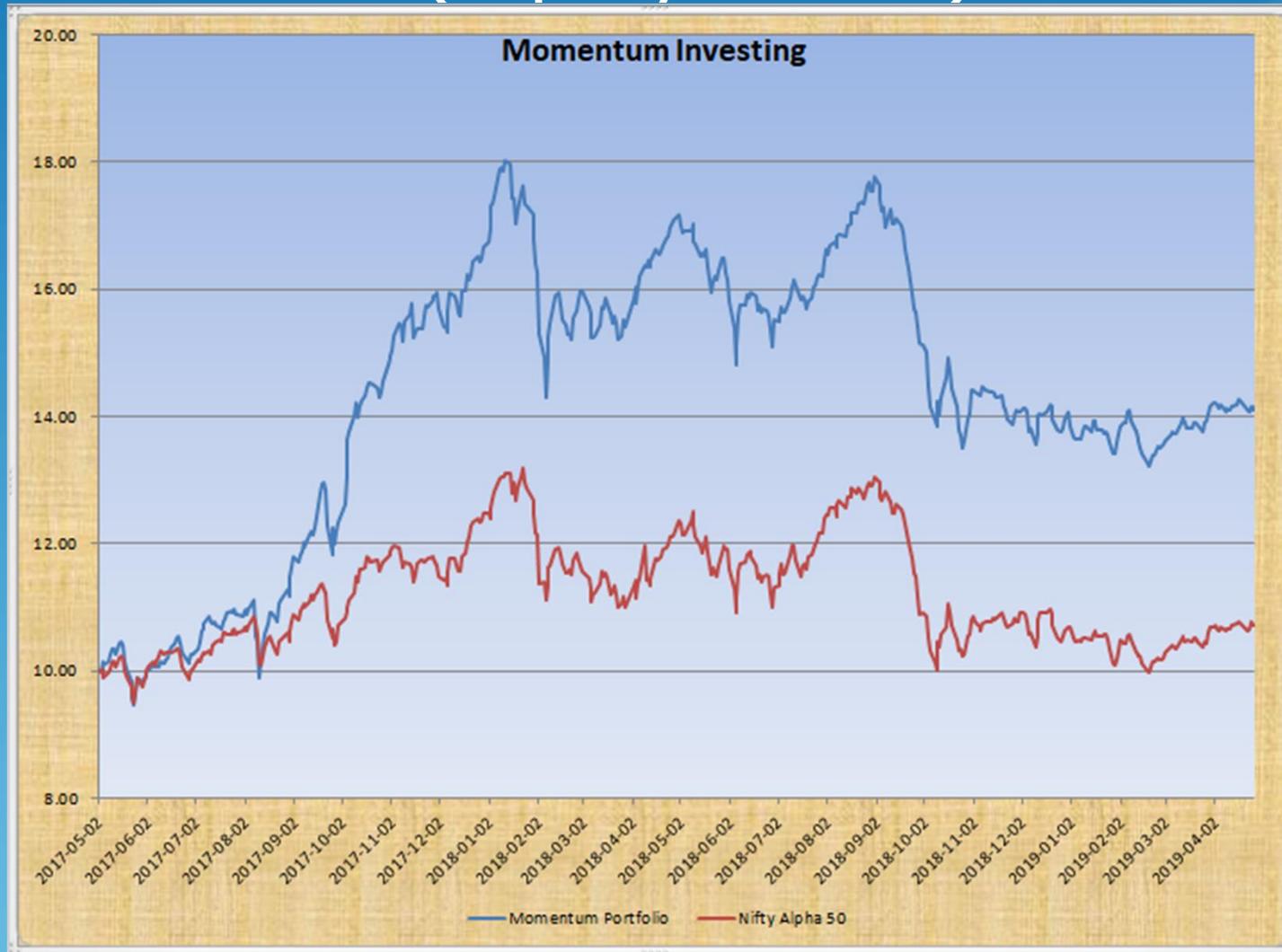


# Monthly Returns {Back-Test}

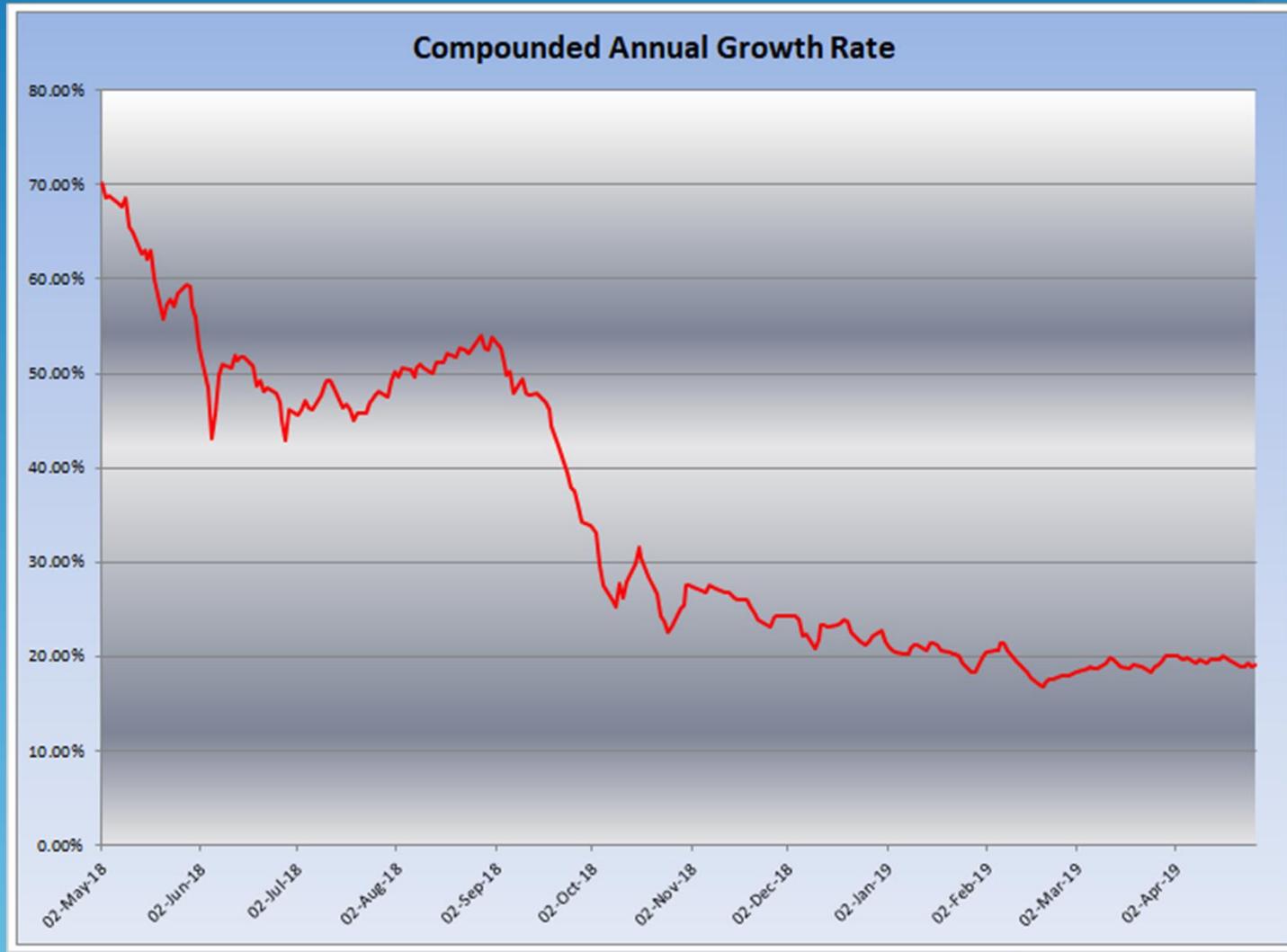
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yr. Profit
2005			-2.50%	6.03%	1.99%	-0.57%	14.17%	8.48%	7.00%	-14.58%	18.01%	1.59%	42.25%
2006	17.43%	0.81%	15.43%	7.33%	-10.94%	-19.11%	0.27%	12.53%	6.74%	4.67%	5.37%	-0.20%	40.07%
2007	6.93%	-4.72%	-2.02%	15.12%	10.26%	2.35%	3.24%	-3.29%	19.35%	22.43%	3.80%	11.80%	119.56%
2008	-19.37%	-4.69%	-26.16%	13.84%	-3.26%	-13.58%	-4.63%	0.23%	-13.61%	-18.87%	-0.02%	-0.14%	-63.87%
2009	0.05%	-0.04%	0.08%	1.81%	10.85%	5.41%	6.55%	1.54%	9.86%	1.64%	6.07%	2.48%	56.37%
2010	-3.19%	0.75%	8.32%	3.07%	-5.20%	8.62%	4.28%	5.42%	8.49%	5.59%	-7.59%	-2.29%	27.51%
2011	-5.57%	-8.00%	7.33%	5.84%	2.11%	3.45%	6.71%	-8.31%	3.20%	3.10%	-10.75%	-7.40%	-10.30%
2012	3.70%	6.10%	2.92%	4.89%	2.96%	-0.74%	0.20%	4.01%	4.68%	3.66%	5.05%	-0.65%	43.26%
2013	2.37%	-1.49%	-0.87%	1.44%	4.82%	-9.96%	1.56%	-6.11%	10.42%	6.22%	4.83%	5.28%	18.14%
2014	-0.79%	5.86%	-0.58%	2.38%	6.23%	13.15%	3.39%	6.82%	12.82%	5.08%	9.35%	1.14%	86.06%
2015	11.44%	-2.69%	0.19%	0.29%	6.54%	2.74%	5.36%	-3.51%	1.97%	3.90%	1.84%	3.69%	35.64%
2016	-9.63%	-14.52%	4.70%	6.84%	-2.53%	5.06%	7.14%	1.93%	6.58%	3.70%	-15.87%	-3.09%	-12.93%
2017	15.88%	5.27%	2.50%	5.62%	0.15%	4.46%	7.13%	4.84%	8.04%	18.29%	8.15%	4.59%	124.30%
2018	3.14%	-5.02%	-3.14%	9.09%	-1.33%	-6.58%	5.25%	8.30%	-10.36%	-10.23%	-0.45%	0.18%	-12.73%



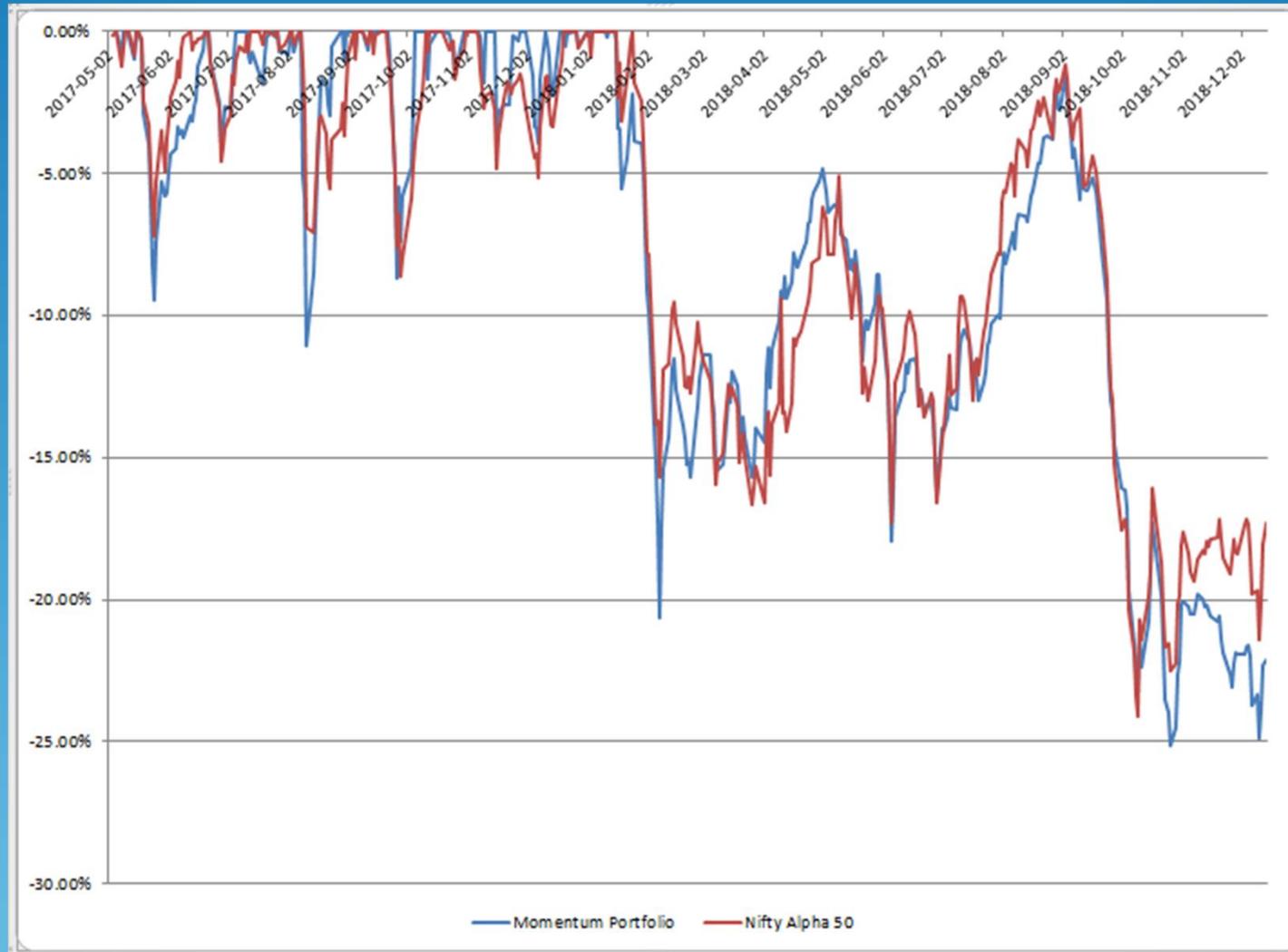
# Actual Performance (Equity Curve)



# Running CAGR Returns



# Drawdown from Peak



# Statistics

- Correlation with Nifty Alpha 50: 82%
- Median Daily Change: 0.10%
- Churn Ratio: 292%
  
- Median Market Cap of Companies in Portfolio: 26,000 Cr.
- Average Holding Period: 124 Days.
- Transaction Cost / Year: 0.75% to 1%
  
- Win Loss Ratio: 39%
- Average Winner : 24.50%.
- Average Loser: 10%
  
- Best Returns: IB Ventures (300% on Invested Capital)
- Worst Returns: Vakrangee (-57% on Invested Capital)

# Recommended Reads



- Website:

- <https://alphaarchitect.com/>
- <https://www.aqr.com/>

- Books:

- Your Complete Guide to Factor-Based Investing: The Way Smart Money Invests Today
- Quantitative Momentum: A Practitioner's Guide to Building a Momentum-Based Stock Selection System
- Dual Momentum Investing: An Innovative Strategy for Higher Returns with Lower Risk



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