

# MOMENTUM INVESTING: SIMPLE, BUT NOT EASY

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Empower Investors Through Education | Affordable Alpha

## Overview

1. What is Momentum?
2. Do **transaction costs** destroy profits?
3. Is momentum **too crowded**?
4. Can an open secret **work in the future**?

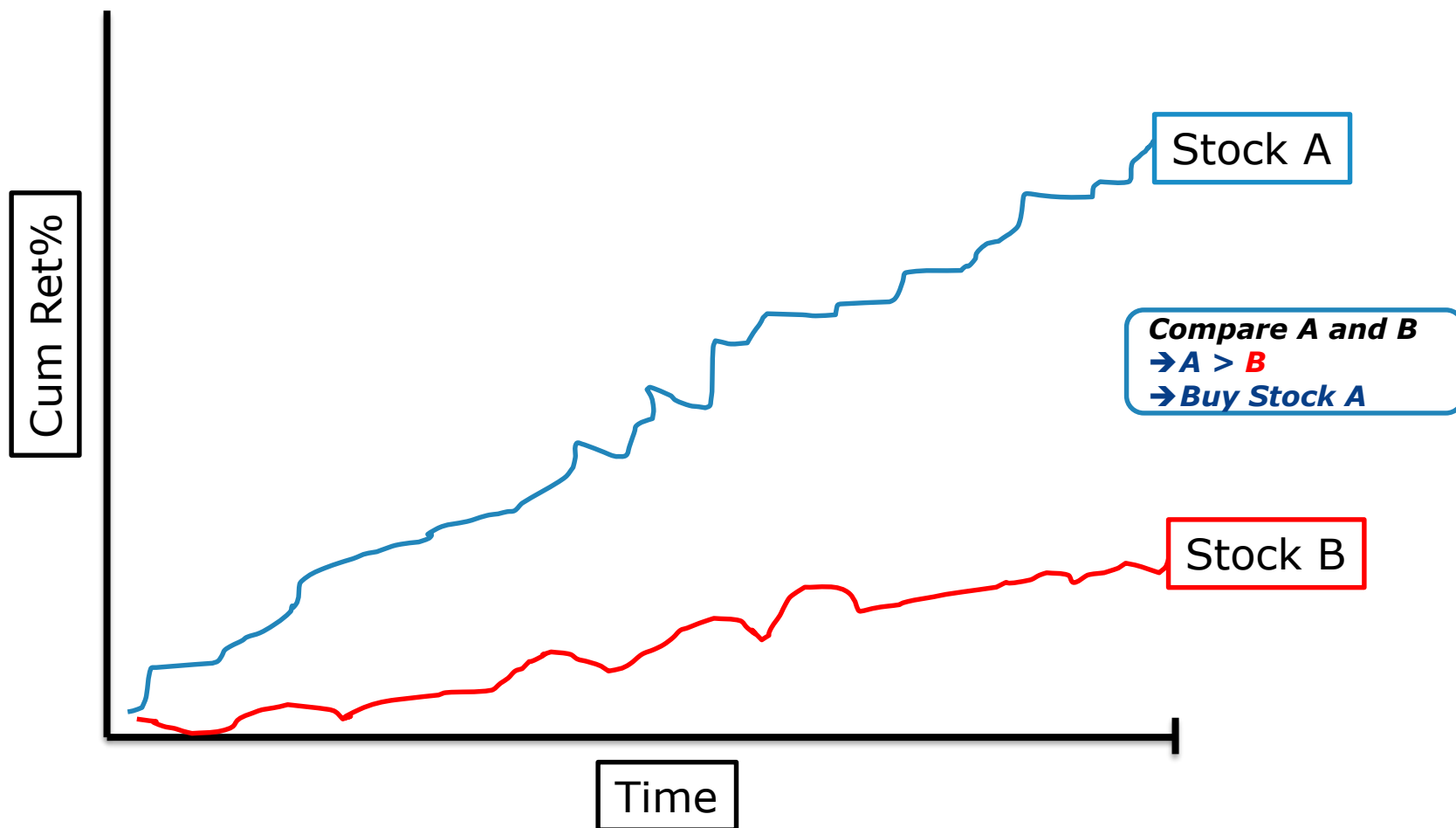


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# Stock Picking Momentum 101: Buy Past Winners



## Few Deny the Empirical Facts



***"The premier anomaly is momentum..."***



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# Do Transaction Costs Destroy Momentum?

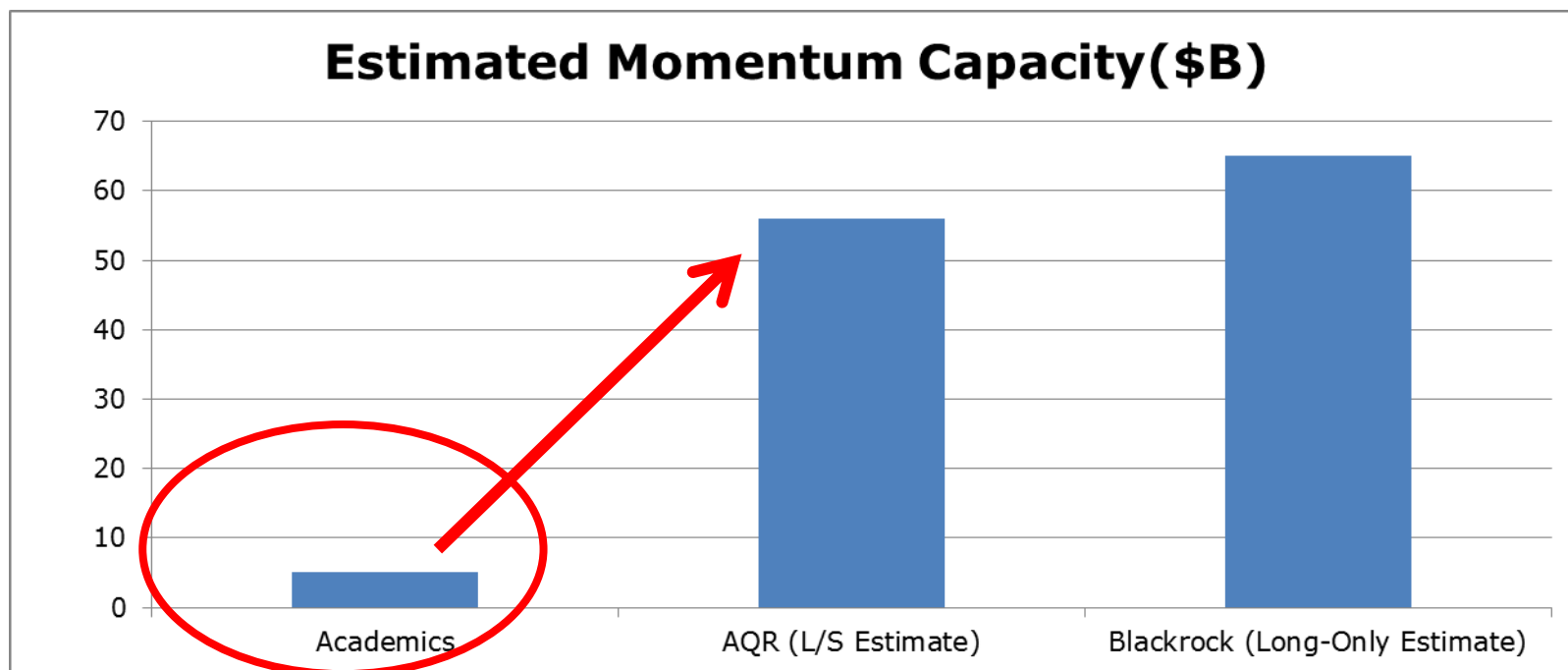
Illusion?

Exploitable?



# Papers Highlighting Momentum Has Capacity Constraints

1. ["A Taxonomy of Anomalies and their Trading Costs"](#) by Novy-Marx and Velikov (2015)
2. ["The Illusory Nature of Momentum Profits"](#) by Lesmond, Schill, and Zhou (2003)
3. ["Are Momentum Profits Robust to Trading Costs?"](#) by Korajczyk and Sadka (2003)
4. ["Combining Value and Momentum"](#) by Fisher, Shah, and Titman (2015)
5. ["Capacity of Smart Beta Strategies: A Transaction Cost Perspective"](#) by Ratcliffe, Miranda, and Ang (2017)
6. ["Trading Costs of Asset Pricing Anomalies"](#) by Frazzini, Israel, and Moskowitz (2015)



## \$5B or \$50B+ Capacity?





# Who's Right?

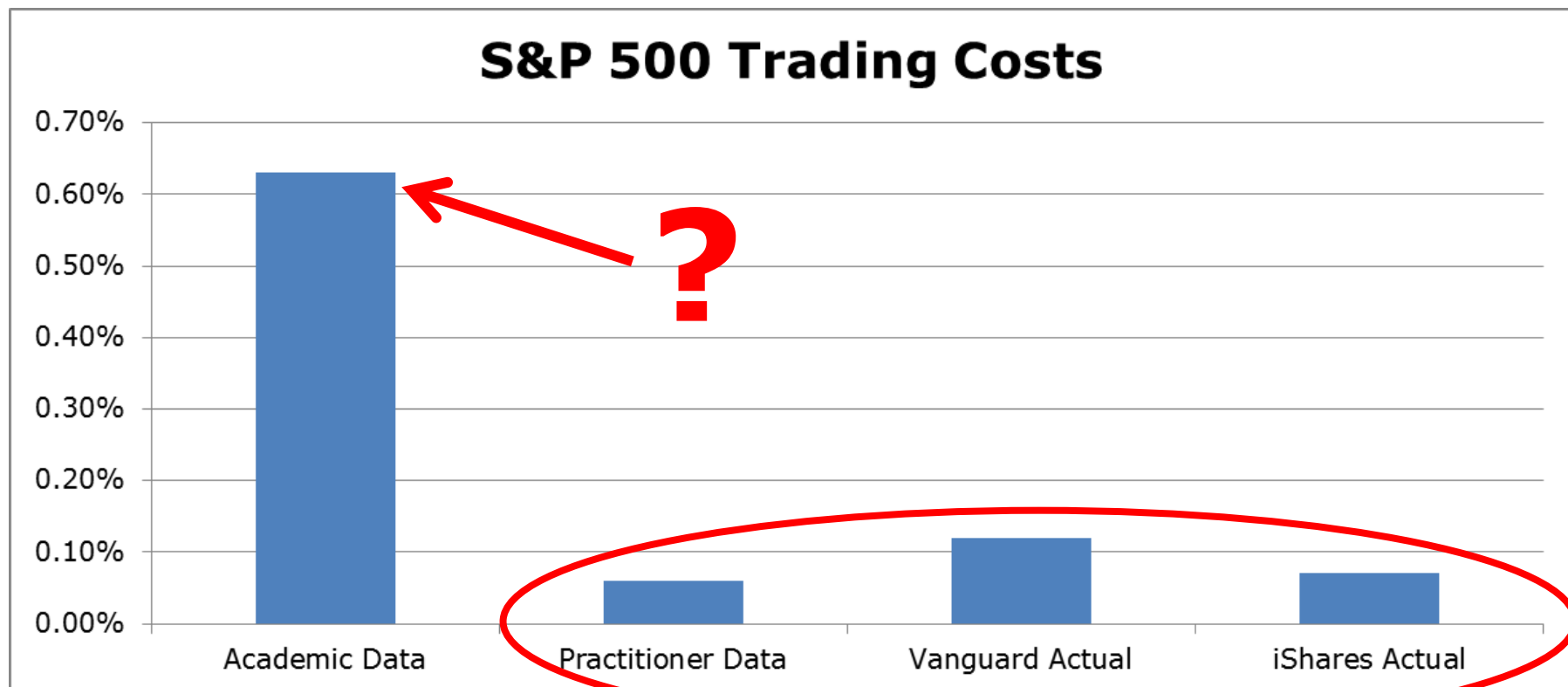


Conflicted  
Pros?

Ivory  
Tower?



# Reality Check: What Would It Cost to Trade The Market?



**Practitioner Data is More Credible**



Source: "[Trading Costs of Asset Pricing Anomalies](#)" by Frazzini, Israel, and Moskowitz (2015) Performance figures contained herein are hypothetical, unaudited and prepared by Alpha Architect, LLC; hypothetical results are intended for illustrative purposes only. Past performance is not indicative of future results, which may vary.

# Momentum has capacity, but it is not unlimited!

**High <----- Concentration -----> Low**

	50	100	150	200	250	300	500	Universe
1	17.36%	15.85%	15.49%	14.01%	13.51%	12.95%	12.12%	10.27%
2	16.35%	15.41%	15.05%	13.92%	13.28%	12.83%	12.12%	10.27%
3	15.97%	14.68%	14.09%	13.35%	12.84%	12.53%	11.90%	10.27%
4	15.25%	13.86%	13.58%	12.94%	12.61%	12.30%	11.78%	10.27%
5	14.79%	13.53%	13.35%	12.71%	12.31%	12.15%	11.74%	10.27%
6	14.15%	13.07%	13.01%	12.55%	12.20%	11.96%	11.61%	10.27%
7	13.87%	12.86%	12.87%	12.41%	12.04%	11.81%	11.52%	10.27%
8	13.47%	12.72%	12.70%	12.25%	11.89%	11.67%	11.43%	10.27%
9	13.06%	12.37%	12.37%	11.97%	11.61%	11.45%	11.29%	10.27%
10	12.57%	12.11%	12.06%	11.74%	11.42%	11.26%	11.17%	10.27%
11	11.94%	11.73%	11.73%	11.42%	11.18%	11.05%	11.04%	10.27%
12	11.42%	11.35%	11.39%	11.12%	10.89%	10.82%	10.89%	10.27%

Low <- rebal -> High

## Long-only generic momentum portfolios: CAGR

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# Is Momentum Overcrowded?



## The data suggest that ETFs are not “crowding” factors



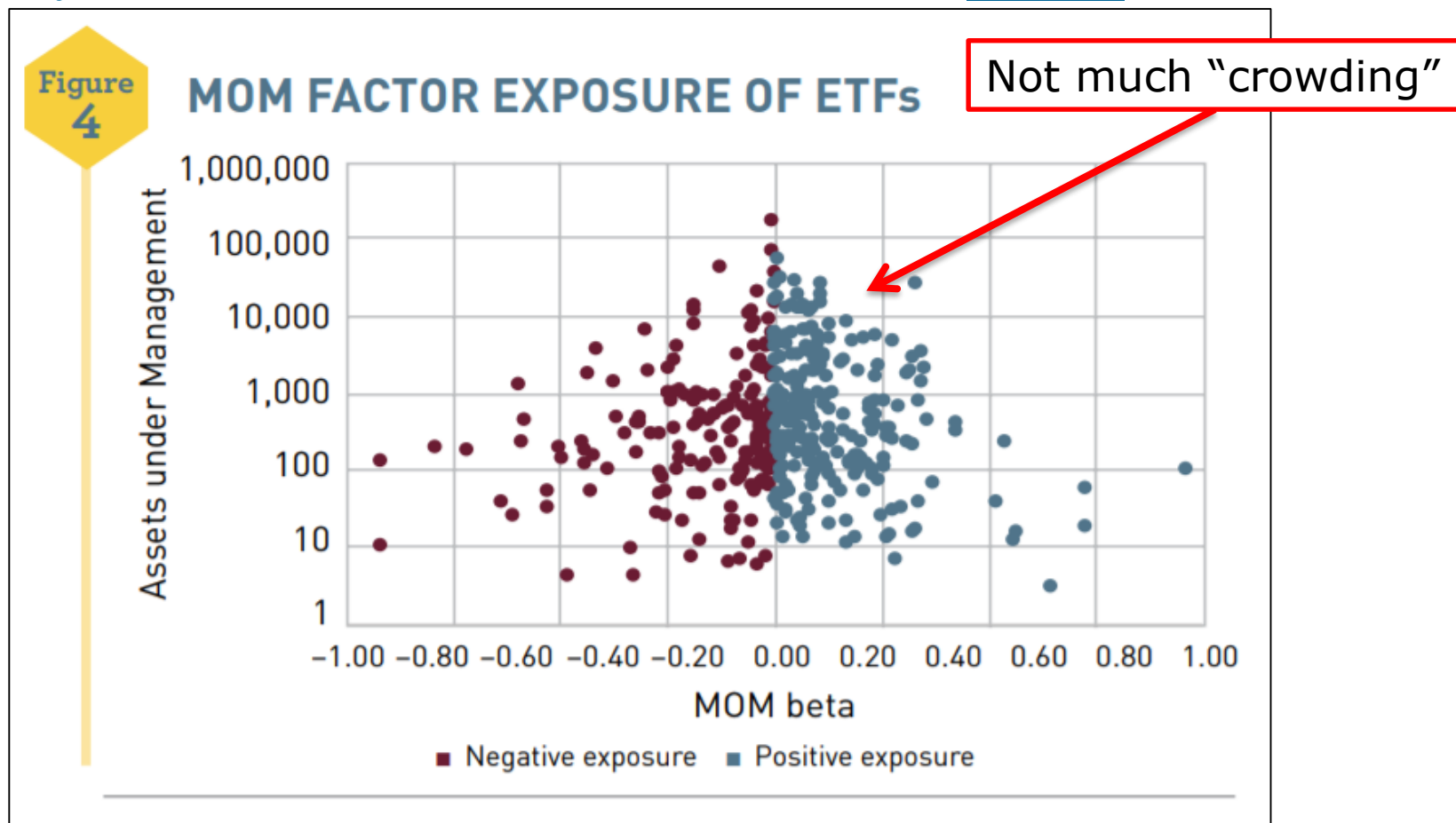
“...aggregate factor exposures **turn out to be close to zero...**

...[the evidence] **argues against** the concern that factor premiums are **being arbitrage away...**





# Is Everyone a Momentum Factor Investor? Nope.



## Big Market with Many Buyers/Sellers



Source: [Are Exchange-Traded Funds Harvesting Factor Premiums?](#) by David Blitz. The results are hypothetical results and are NOT an indicator of future results and do NOT represent returns that any investor actually attained. Additional information regarding the construction of these results is available upon request. Sample is from 2011 to 2015. Indexes are unmanaged, do not reflect management or trading fees, and one cannot invest directly in an index. All returns are total returns and include the reinvestment of distributions (e.g., dividends).

# Who Are the Momentum Factor Investors? Not the PhDs.

(A) Ten Largest Positive Exposures			
ITB US	iShares US Home Construction	2,079	0.35
ICF US	iShares Cohen & Steers REIT	3,590	0.35
VNQ US	Vanguard REIT	26,986	0.33
RWR US	SPDR Dow Jones REIT	3,061	0.32
XHB US	SPDR S&P Homebuilders	1,935	0.32
SCHH US	Schwab US REIT	1,858	0.31
IYR US	iShares US Real Estate	4,737	0.28
XBI US	SPDR S&P Biotech	2,295	0.24
XLU US	SPDR Utilities Select	5,740	0.24
VPU US	Vanguard Utilities	1,657	0.24

(B) Ten Largest Negative Exposures			
VGT US	Vanguard Information Technology	8,340	-0.18
XLK US	SPDR Technology Select	13,659	-0.19
XLE US	SPDR Energy Select	12,290	-0.19
VDE US	Vanguard Energy	4,034	-0.23
IYW US	iShares US Technology	2,740	-0.23
XLB US	SPDR Materials Select	2,237	-0.25
IGE US	iShares North American Natural Resources	1,922	-0.30
AMLP US	Alerian MLP ETF	7,088	-0.30
AMJ US	JP Morgan Alerian MLP INDEX	3,726	-0.42
XOP US	SPDR S&P Oil & Gas Exploration and Production	1,796	-0.43

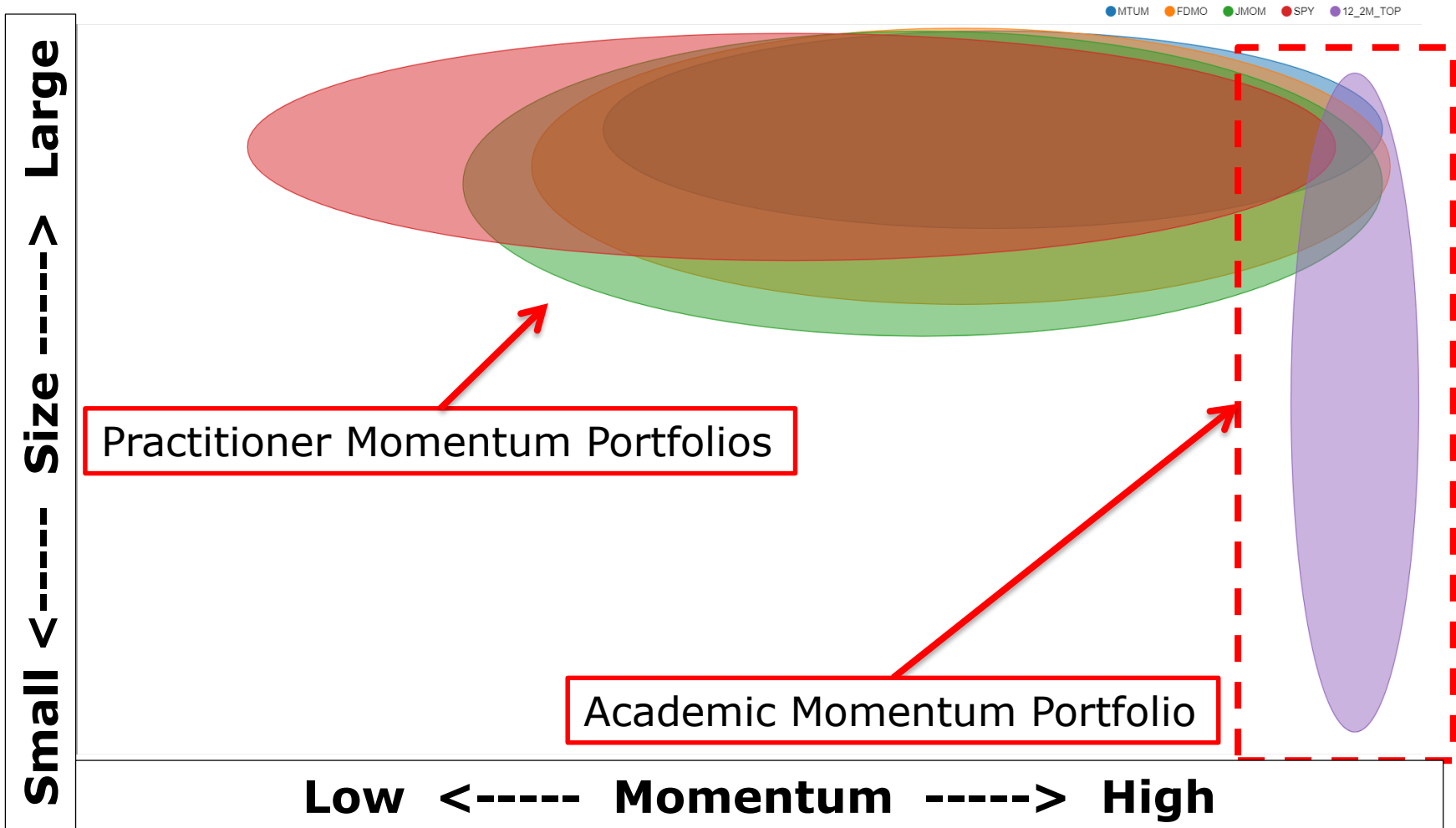
## Momentum Factor Funds Aren't Driving Market



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# Are Momentum ETFs Even Trading Momentum? Not Really.



## Mega-Cap Factor or Momentum Factor?

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**Too Many CFAs...**  
**Too Many Computers...**  
**Too Many Quant PhDs...**

**“Momentum Investing is  
Dead.”**

***Or is it?***



**Let's step back...**

**Why Do Strategies  
"Work"  
In the first place?**





Markets are efficient.

No they aren't!  
People are insane.



Yes they are!  
Why can nobody  
beat the market?



Because people are insane!



## Why “Open Secrets” May Continue to Work...

***Higher  
Risk***



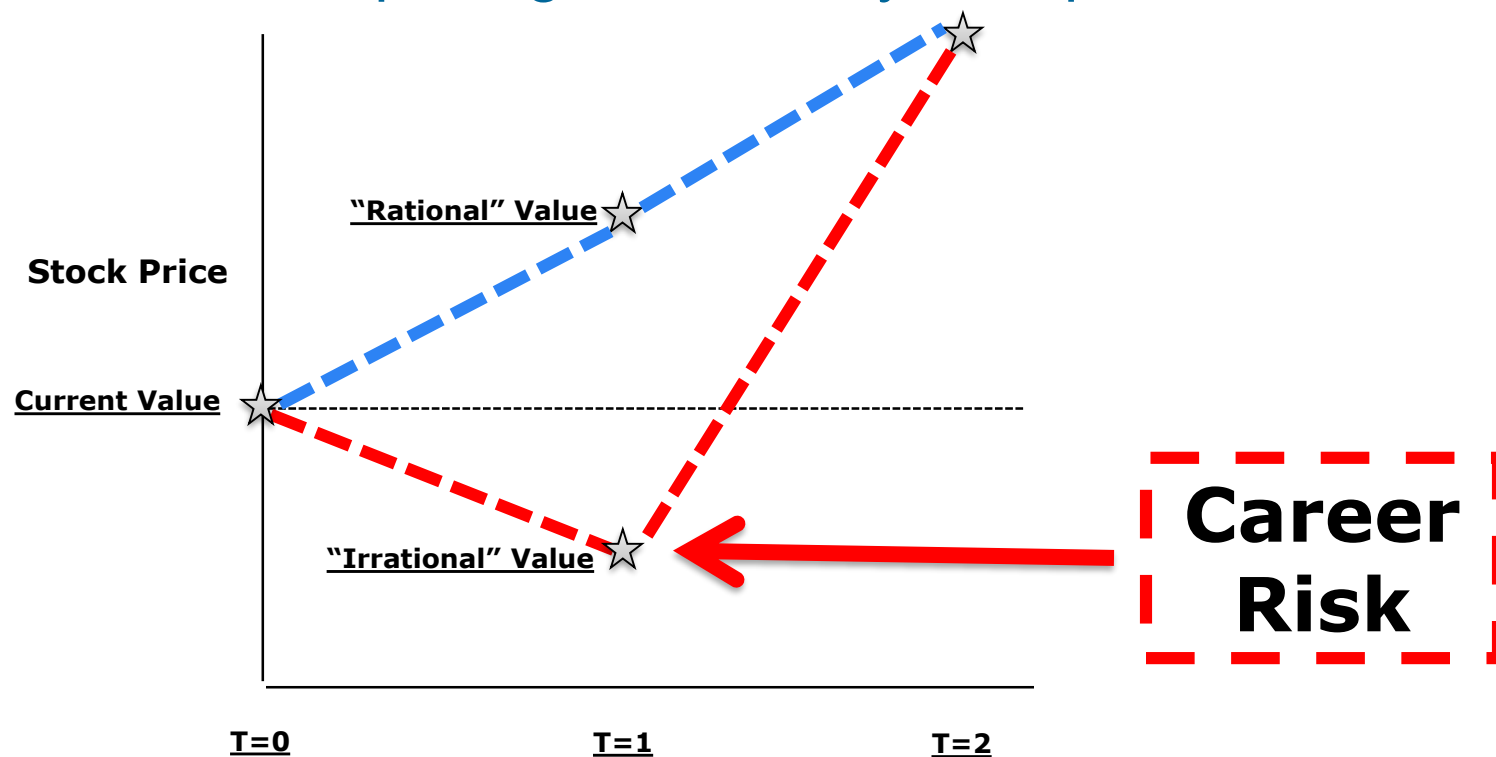
***Mispricing***



***Expected  
Excess  
Return***



# Risk is risk and “Mispricing” is not easy to exploit



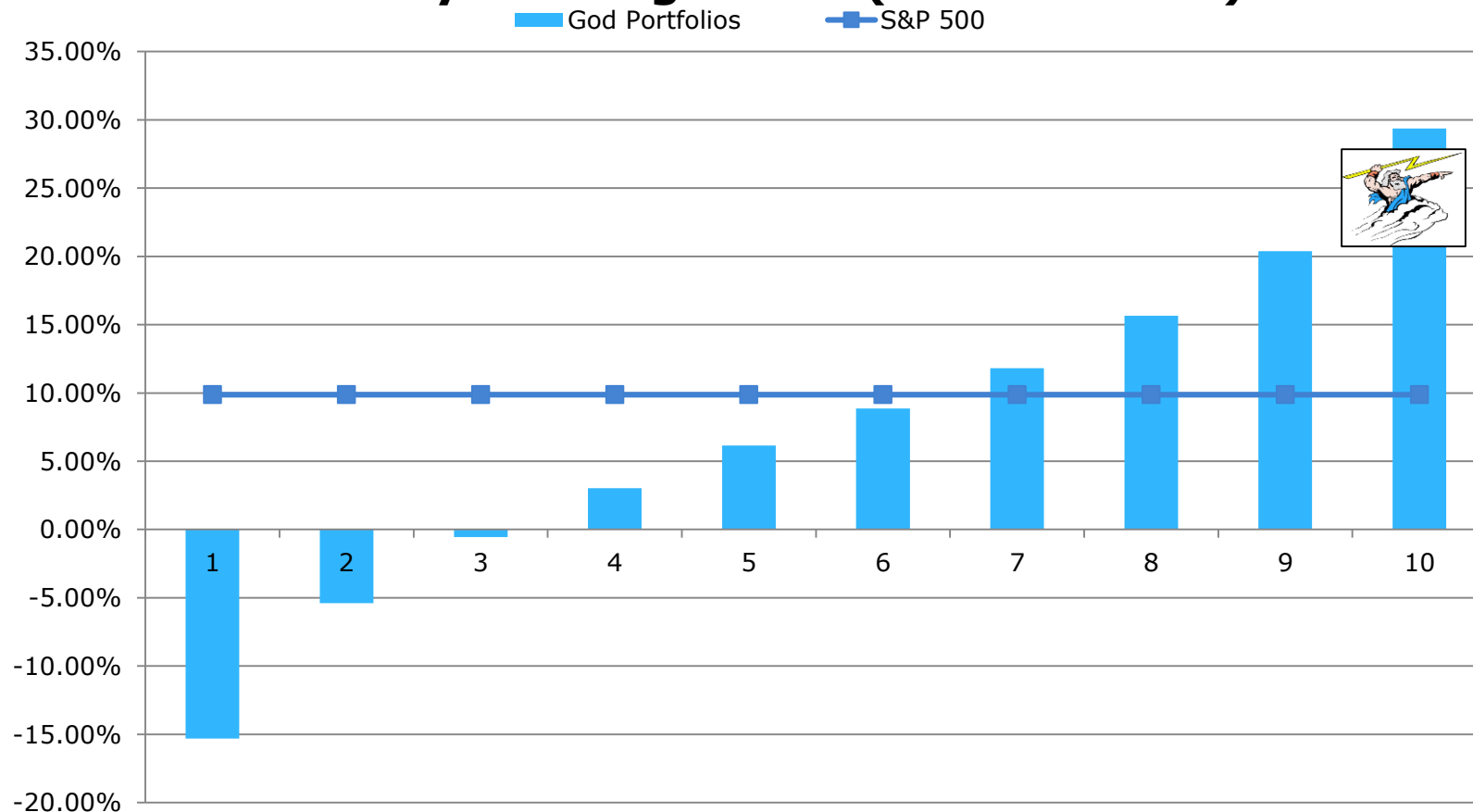
	T=0	T=1	T=2
#1	\$100	\$150	\$200
#2	\$100	\$50	\$200



## Relative Performance Destroys Careers

# God can identify mispricing better than anyone...

## CAGR by Ranking Decile (1927 to 2016)

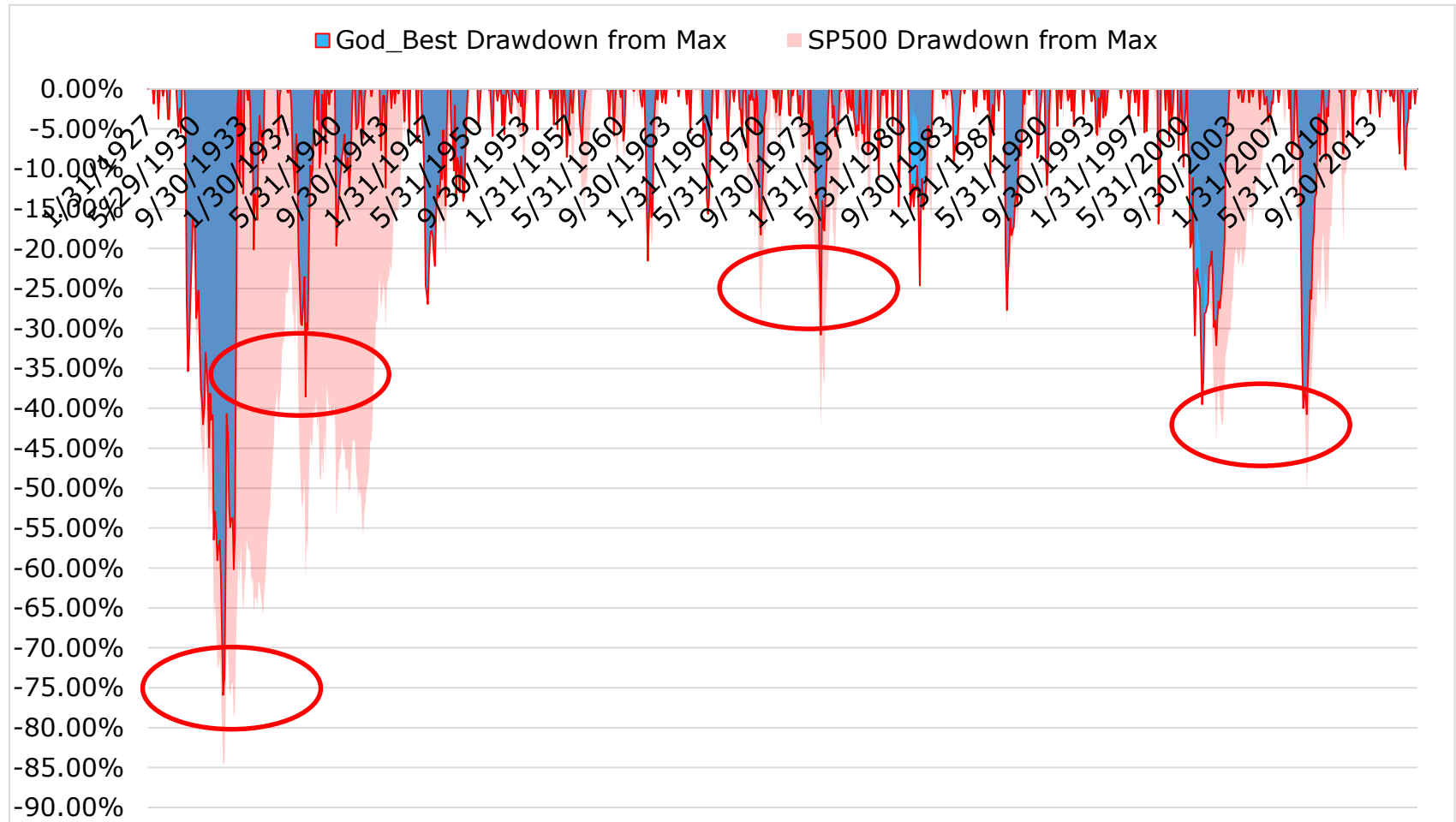


Source: The results are hypothetical results and are NOT an indicator of future results and do NOT represent returns that any investor actually attained. In fact, these results are **IMPOSSIBLE to attain** because they have explicit look ahead bias. The deciles are based on 5-year look-ahead of total returns. All returns are total returns and include the reinvestment of distributions (e.g., dividends).





# But Even God can't destroy risk...



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# Looking for **Excess** Returns?

## Questions to Consider:

- Higher fundamental risk?
- Tough to exploit mispricing?
- Is my capital sustainable?

***Higher  
Risk***



***Mispricing***



***Expected  
Excess  
Return***



## Overview

1. What is Momentum?
  - **Buying winners.**
2. Do transaction costs destroy profits?
  - **No, but capacity is limited.**
3. Is momentum too crowded?
  - **No, at least measured via ETF market.**
4. Can an open secret work in the future?
  - **Yes, via risk and costly arbitrage.**



# APPENDIX

# Knowledge is power, right?





# A FEW FACTS RELATED TO MOMENTUM



# Momentum has worked, but requires Focus/Frequency

## Long-only generic momentum portfolios: CAGR

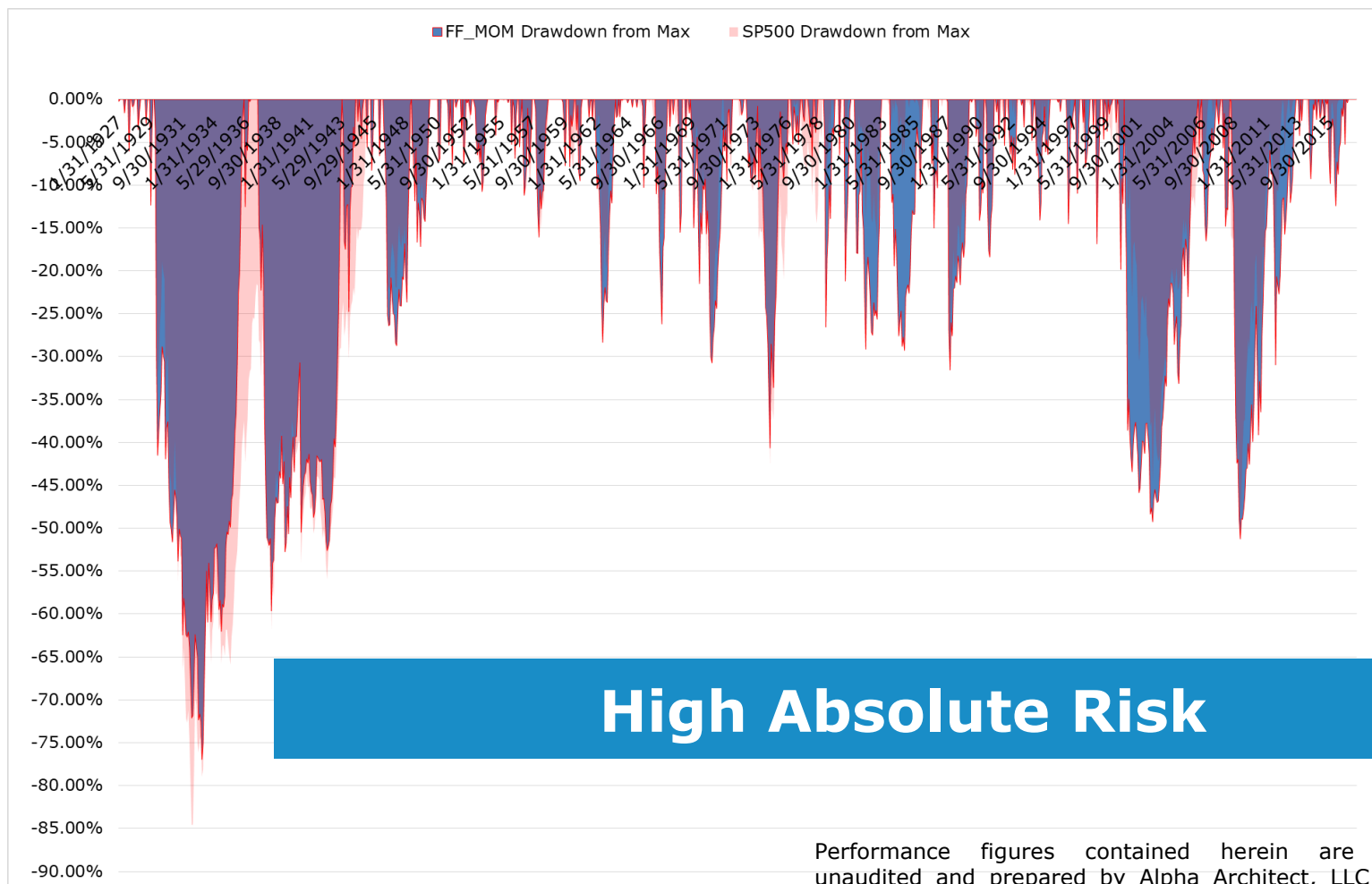
		Number of Stocks Selected each month								
		50	100	150	200	250	300	500	Universe	
Holding Period for each Stock	Alpha?	1	17.36%	15.85%	15.49%	14.01%	13.51%	12.95%	12.12%	10.27%
		2	16.35%	15.41%	15.05%	13.92%	13.28%	12.83%	12.12%	10.27%
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- + Focused Factors **Increase** Expected Performance
- Focused Factors **Increase** Tracking Error & Volatility

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# Risky: Long-only momentum portfolios can lose big!



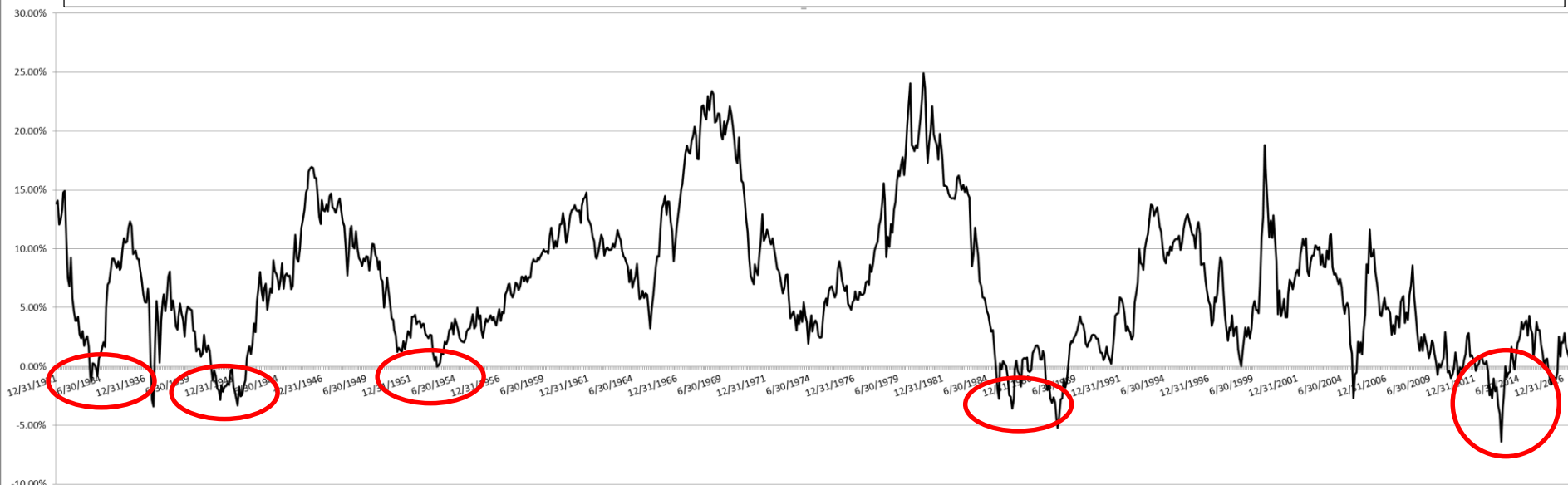
- **FF\_MOM** = Top Decile Momentum
  - Ranked on cumulative 12 months, skip last month
  - Monthly rebalanced
- **SP500** = SP500 Total Return Index
- **Simulated Performance:** 1/1/1927 to 12/31/2016, Gross of fees, total returns, including dividends and distributions

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# Risky: Long-only momentum portfolios can underperform!

## 5-Year Rolling CAGR Relative to S&P 500



## High Relative Risk

- **FF\_MOM** = Top Decile Momentum
  - Ranked on cumulative 12 months, skip last month
  - Monthly rebalanced
- **SP500** = SP500 Total Return Index
- **Simulated Performance:** 1/1/1927 to 12/31/2016, Gross of fees, total returns, including dividends and distributions



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# Our Best Effort: Quantitative Momentum

① Identify **Universe**

② **Core Momentum** Screen

③ **Momentum Quality** Screen

④ **Seasonality** Screen

⑤ Invest with **Conviction**  
(~50 stocks)

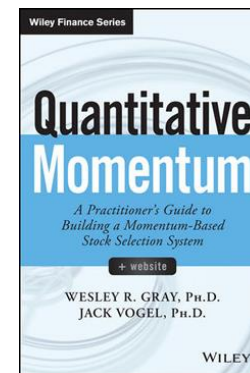
*Focused*

*High turnover*

*"Frog in the pan" momentum*

*Momentum seasonality*

*Massive tracking error*



**Bottom line? High Expected Returns Have High Risk**

Our Firm Mission and *Passion*:

# We Empower **Investors** Through **Education**



*In order to*

# Develop **Sustainable** Investors



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Annual performance is calculated based on monthly return streams, geometrically linked as of the end of the specified month end.

Results, unless cited otherwise, are shown gross of fees and do not reflect the effect of investment fees which would lower performance. Performance reflects the reinvestment of dividends and other earnings. The following hypothetical illustrates the compound effect fees have on investment return: For an account charged 1% with a stated annual return of 10%, the net total return before taxes would be reduced from 10% to 9%. A ten year investment of \$100,000 at 10% would grow to \$259,374, and at 9%, to \$236,736 before taxes. For a complete description of all fees and expenses, please refer to Alpha Architect's Form ADV Part 2A.



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QUESTIONS?

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