

# How can a widely known investment strategy still work and be profitable?

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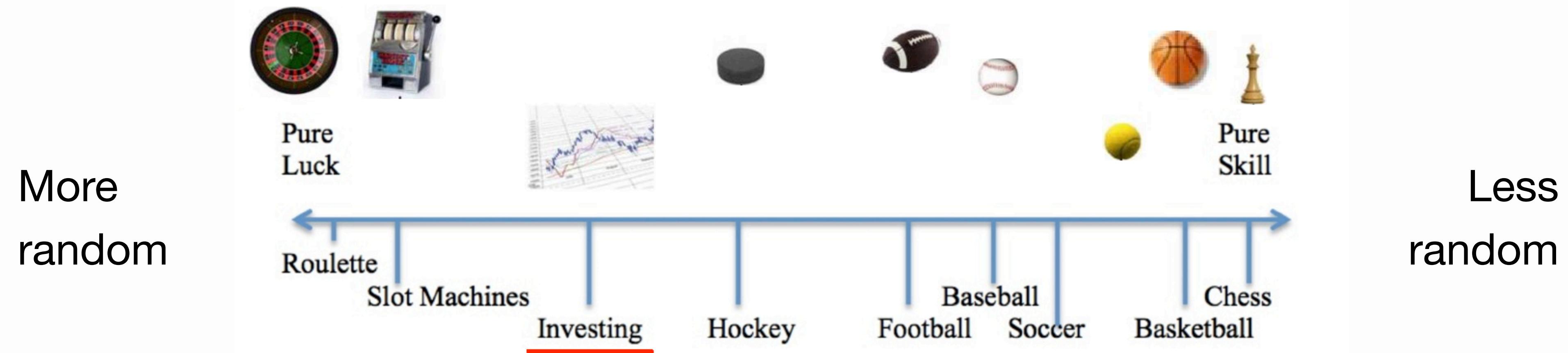
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# Table of contents

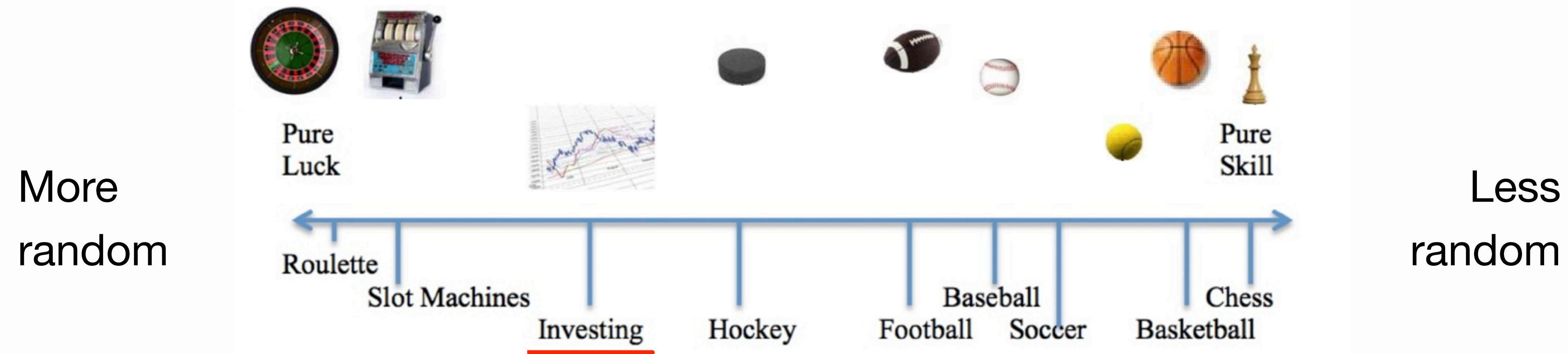
0. Clarification
1. A Toy Model: the stock-bond portfolio
2. Active vs Passive investing
3. The “edge” of an Active Investor
4. Behavioral example: Skewness of returns
5. Factor investing

# 0. Clarification



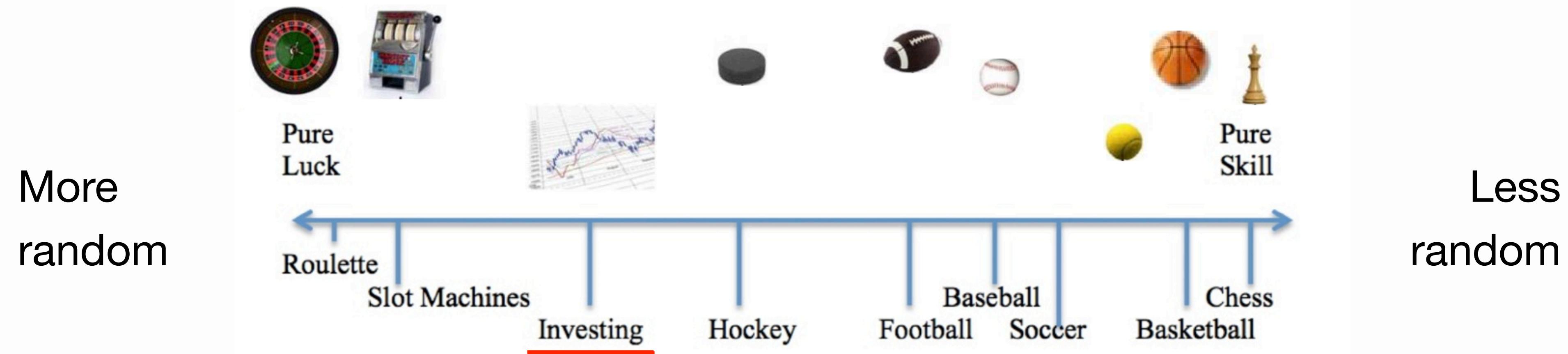
**There is a common myth about investing:**  
that in finance the smartest guy in the room wins.  
**I've come to believe this is not the case.**

# 0. Clarification



**This is true in highly technical fields:**  
physics, medical surgery or chess,  
**where randomness is a thing of lesser importance.**

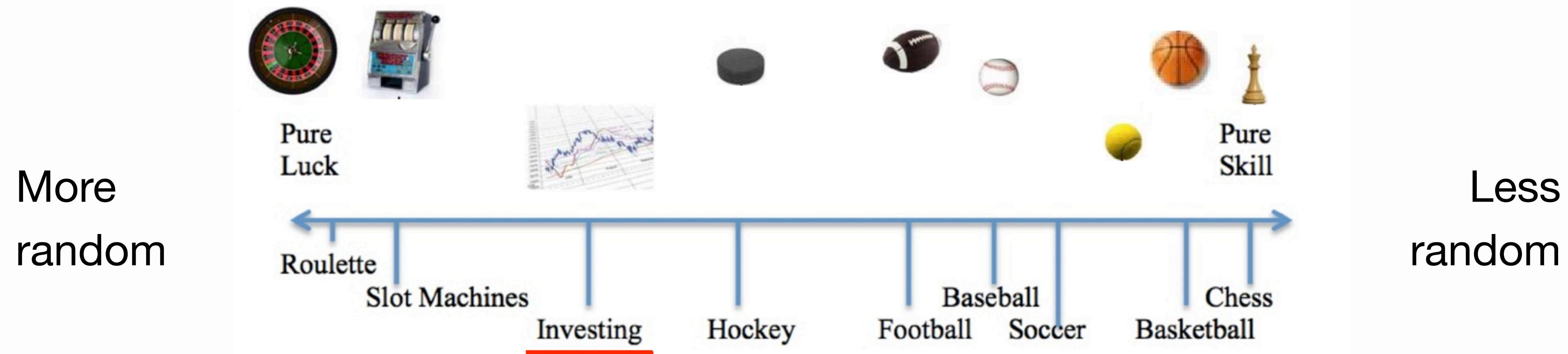
# 0. Clarification



**In investing, success is more about “street smarts” than “book smarts”.**

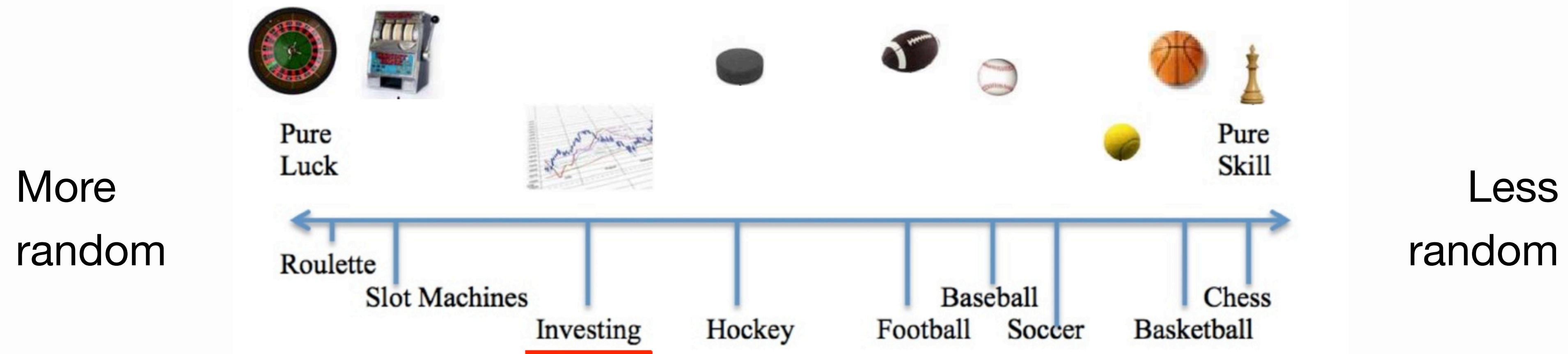
**You need to find a way to deal with randomness.**

# 0. Clarification



Having an informational advantage is useful, but  
**It's even more important to find a clever way**  
of synthesizing widely known facts  
and drawing correct conclusions from them  
**and surviving volatility along the way.**

# 0. Clarification



**goal of an investor** is to achieve profits, mitigating risks.

**investment strategy** = a set of rules / algorithms / one undertakes in the investment space in order to achieve profit on a risk-adjusted basis. Systematically involves taking advantage of some known phenomenon in the investment space.

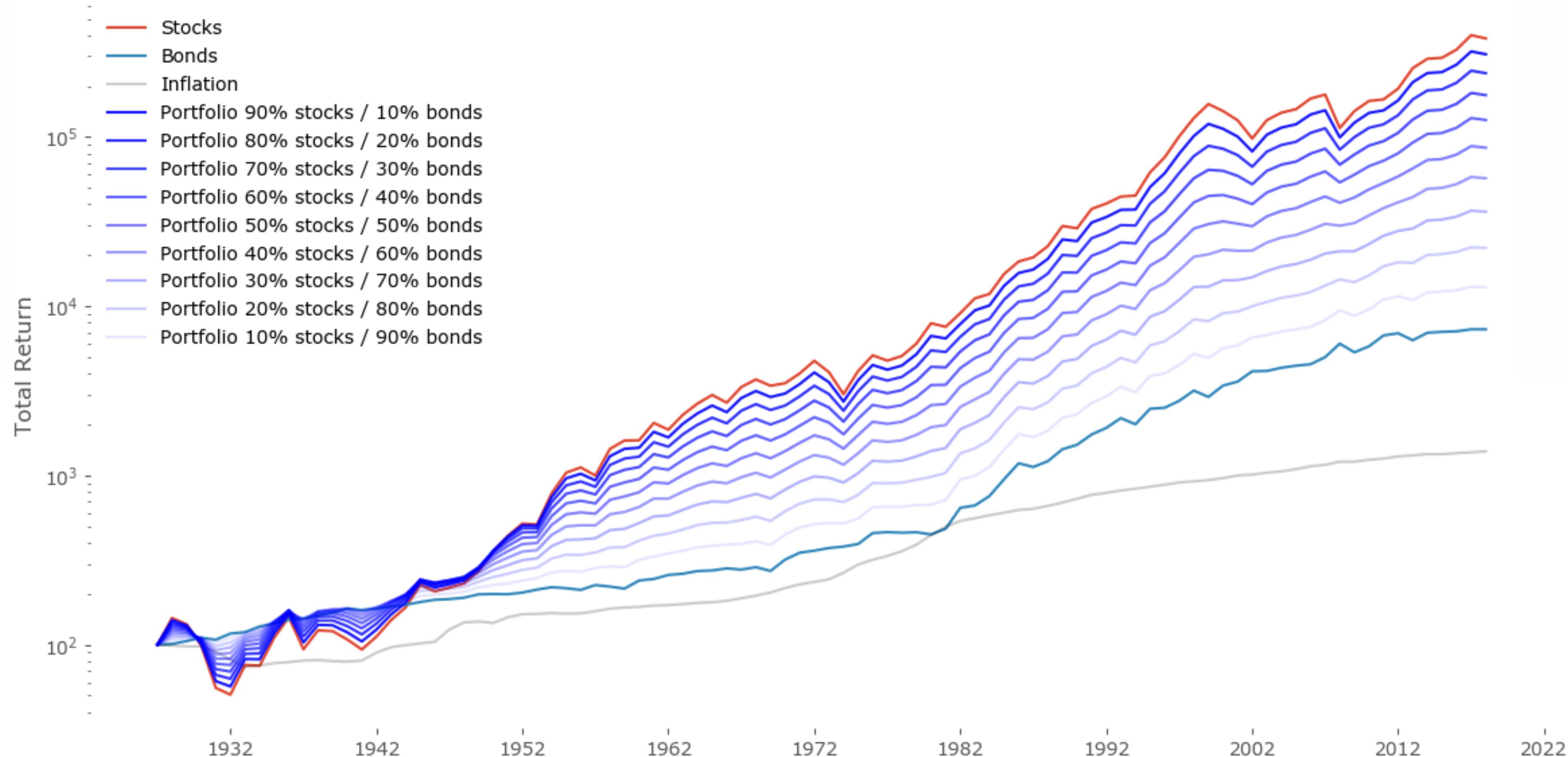
**“working” strategy** = one that completes the above mentioned task

**“unworking” strategy** = one that fails, for example does not return profits above a risk-free rate, or does achieve profits but with oversized risks along the way (not „risk-adjusted” profits).

**a simple example of a strategy** is a passive „buy and hold an index ETF” strategy.

**a more advanced example** is to hold a portfolio of, i.e. 60% stocks, 40% bonds, and rebalance the portfolio once yearly (to correct for the difference in returns through the previous year). A more advanced example is stock-selection.

# 1. A Toy Model: the stock-bond portfolio

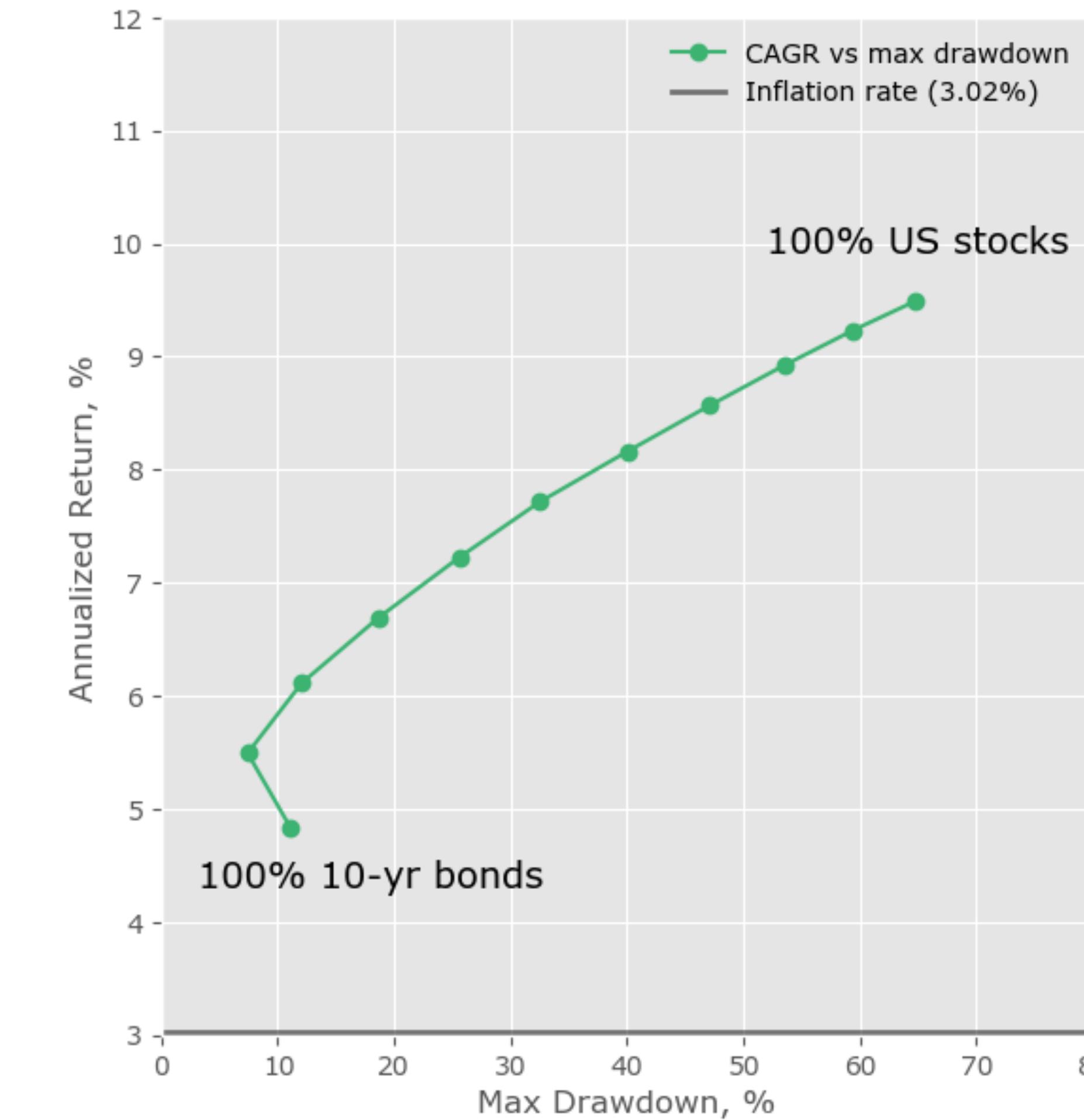
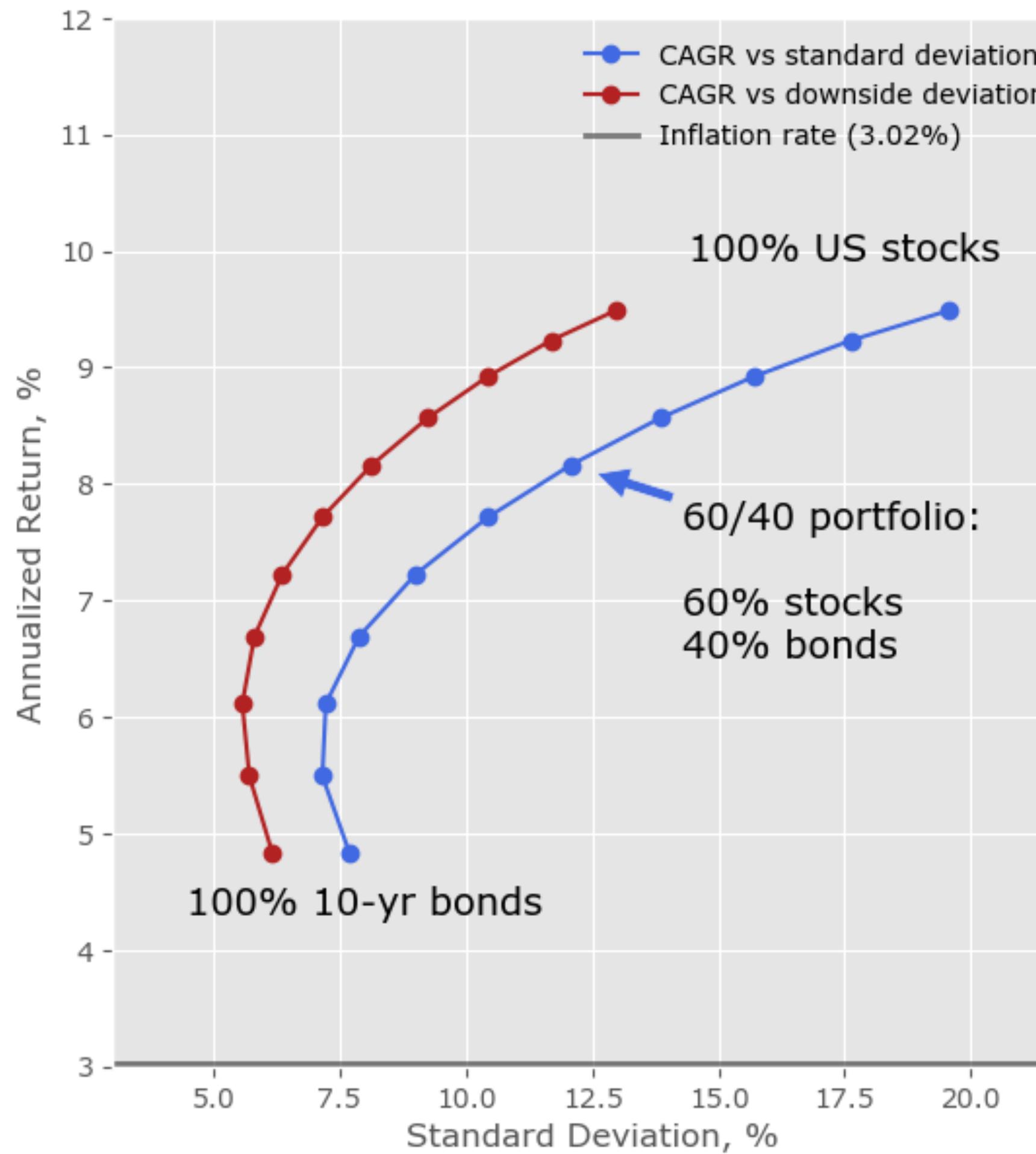


source data: [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/histretSP.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html)

The raw data for treasury bond and bill returns is obtained from the Federal Reserve database in St. Louis (FRED). The return on stocks includes both price appreciation and dividends. The treasury bond is the constant maturity 10-year bond, but the treasury bond return includes coupon and price appreciation.

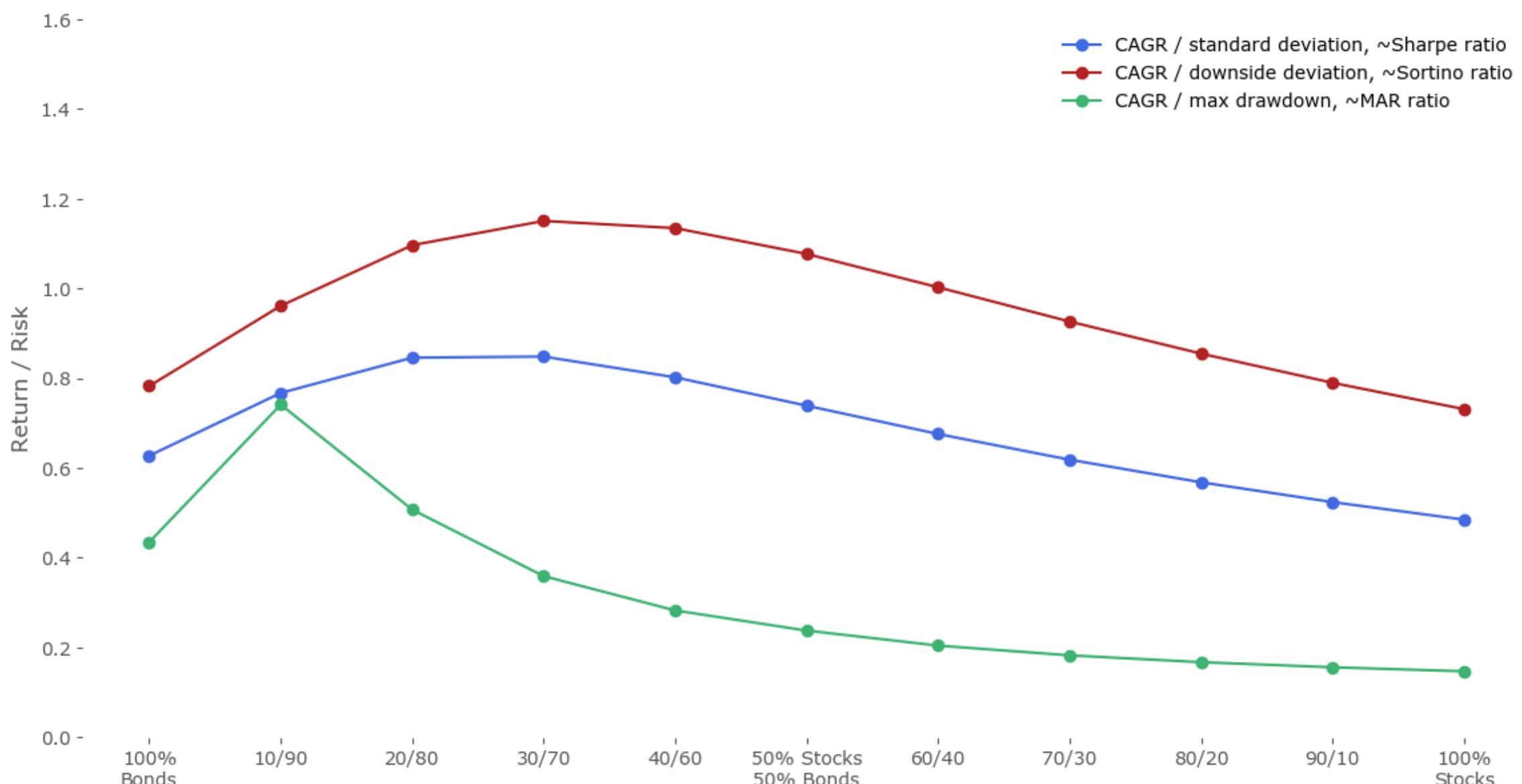
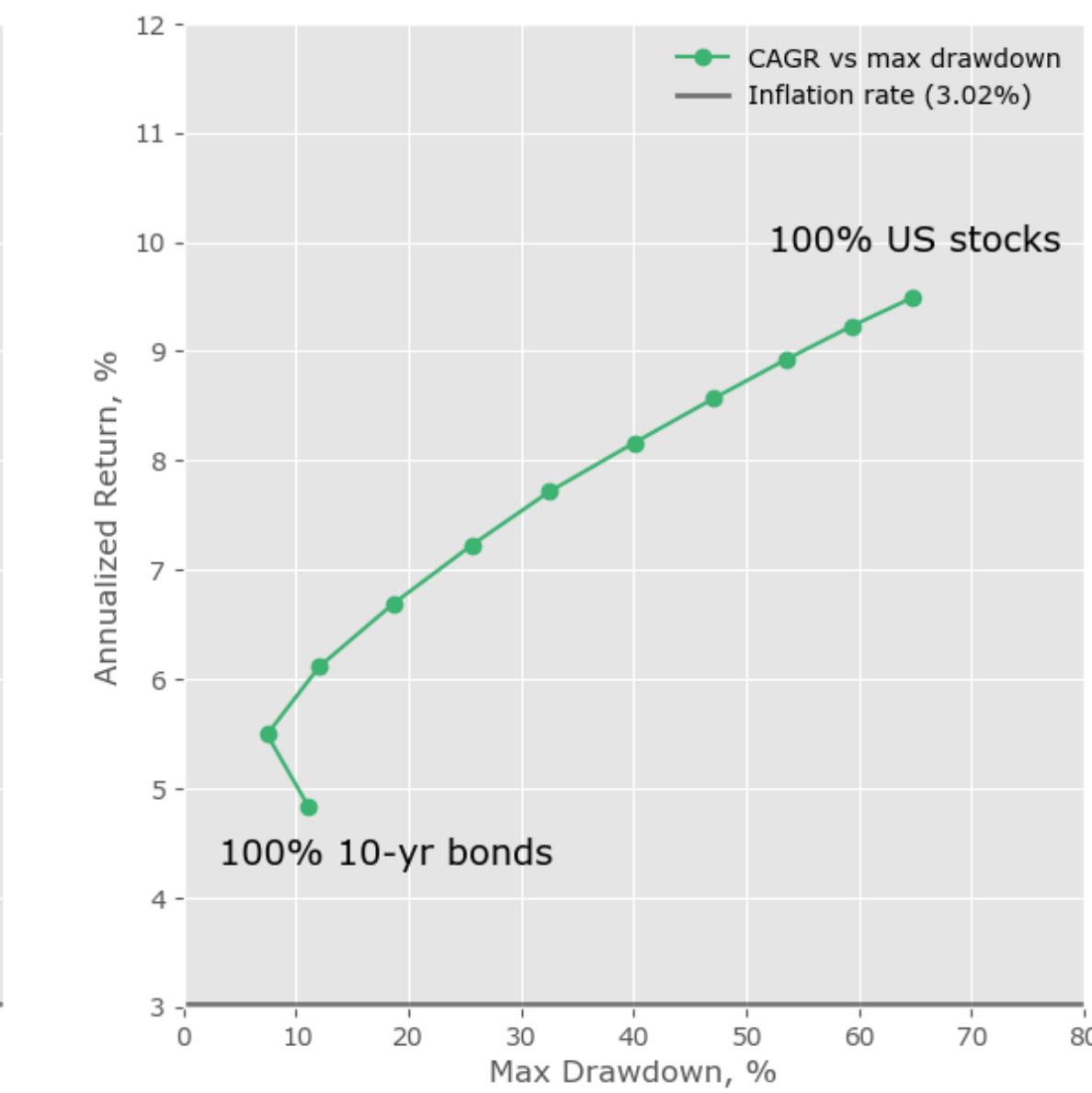
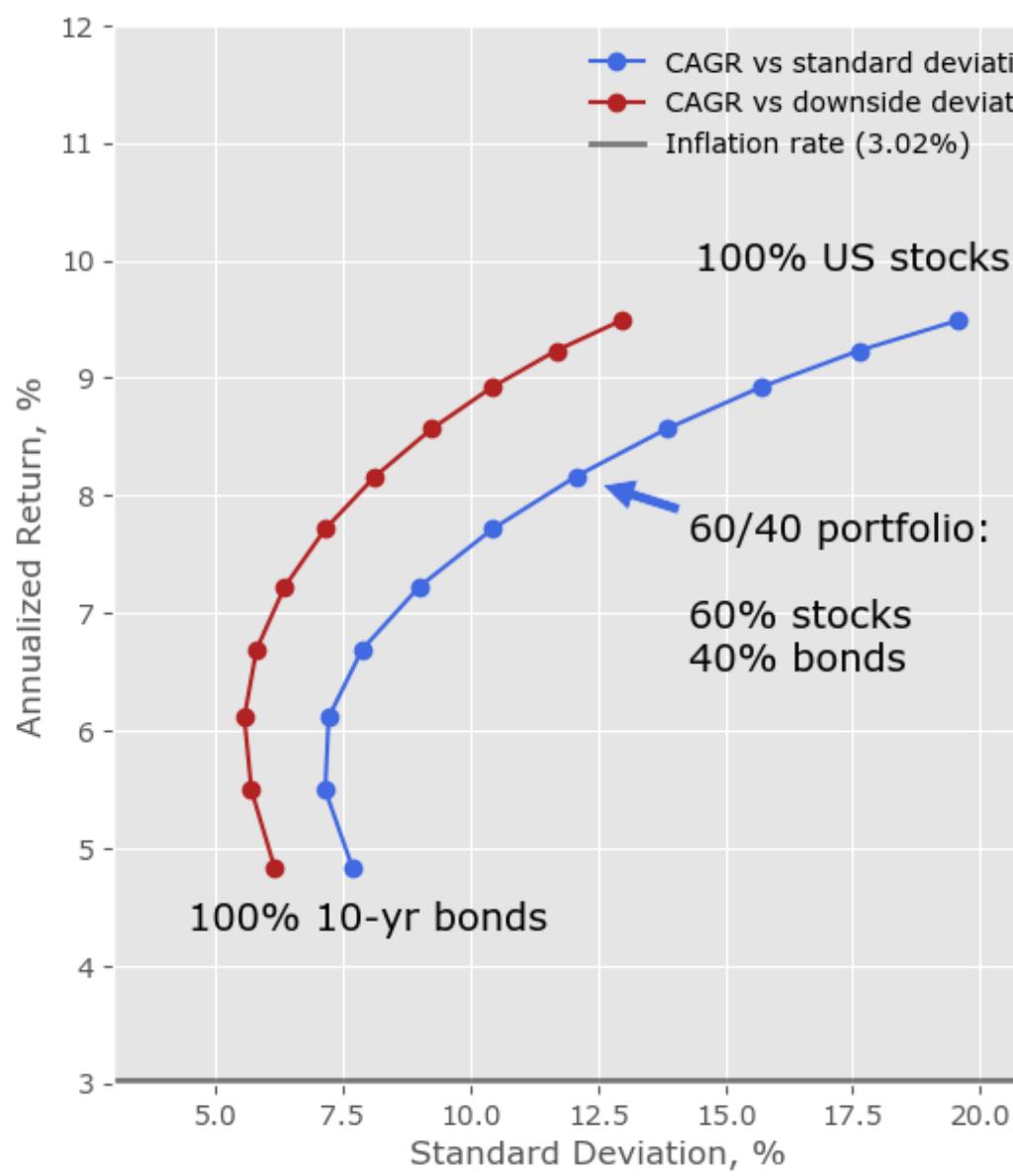
# 1. A Toy Model: the stock-bond portfolio

Stock & Bonds return rates, 1927 - 2018



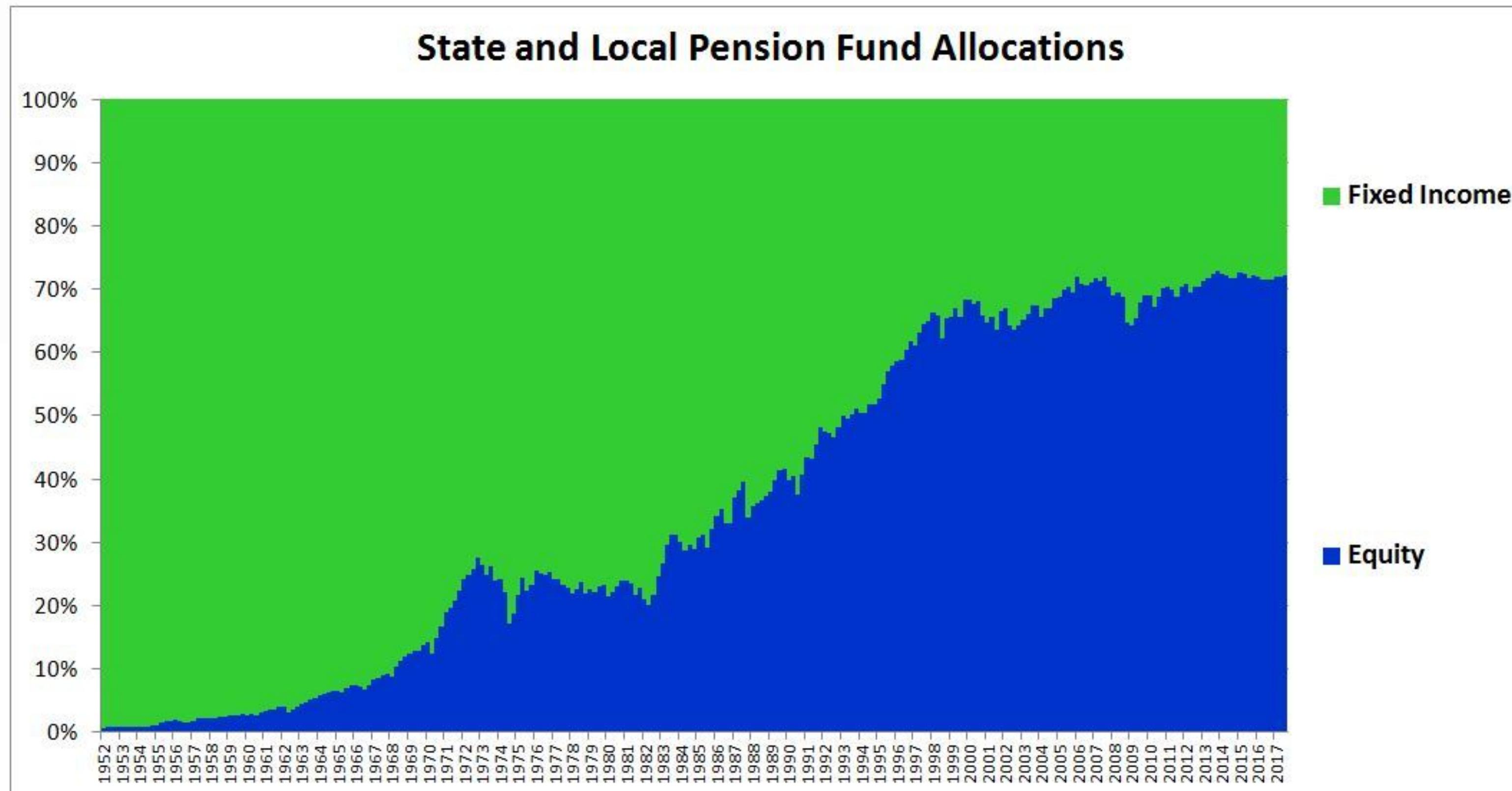
# 1. A Toy Model: the stock-bond portfolio

Stock & Bonds return rates, 1927 - 2018



# 1. A Toy Model: the stock-bond portfolio

Not just a toy?

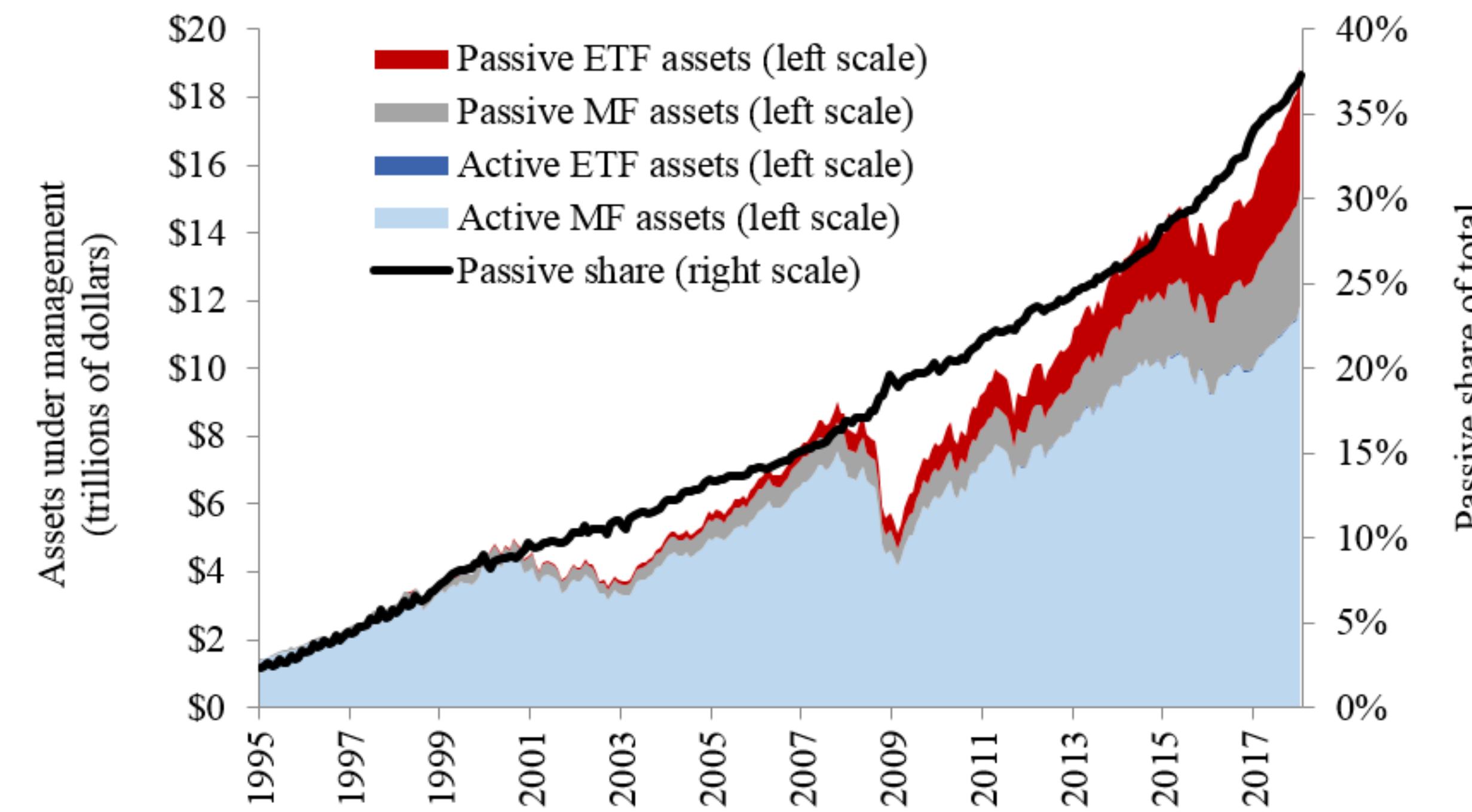


source: philosophical economics <http://www.philosophicaleconomics.com/2018/01/future-u-s-equity-returns-a-best-case-upper-limit/> compiled from government (federal reserve) data. Fixed income includes bonds, cash and equivalents, equity exposure includes domestic and foreign equity

## 2. Active vs Passive investing

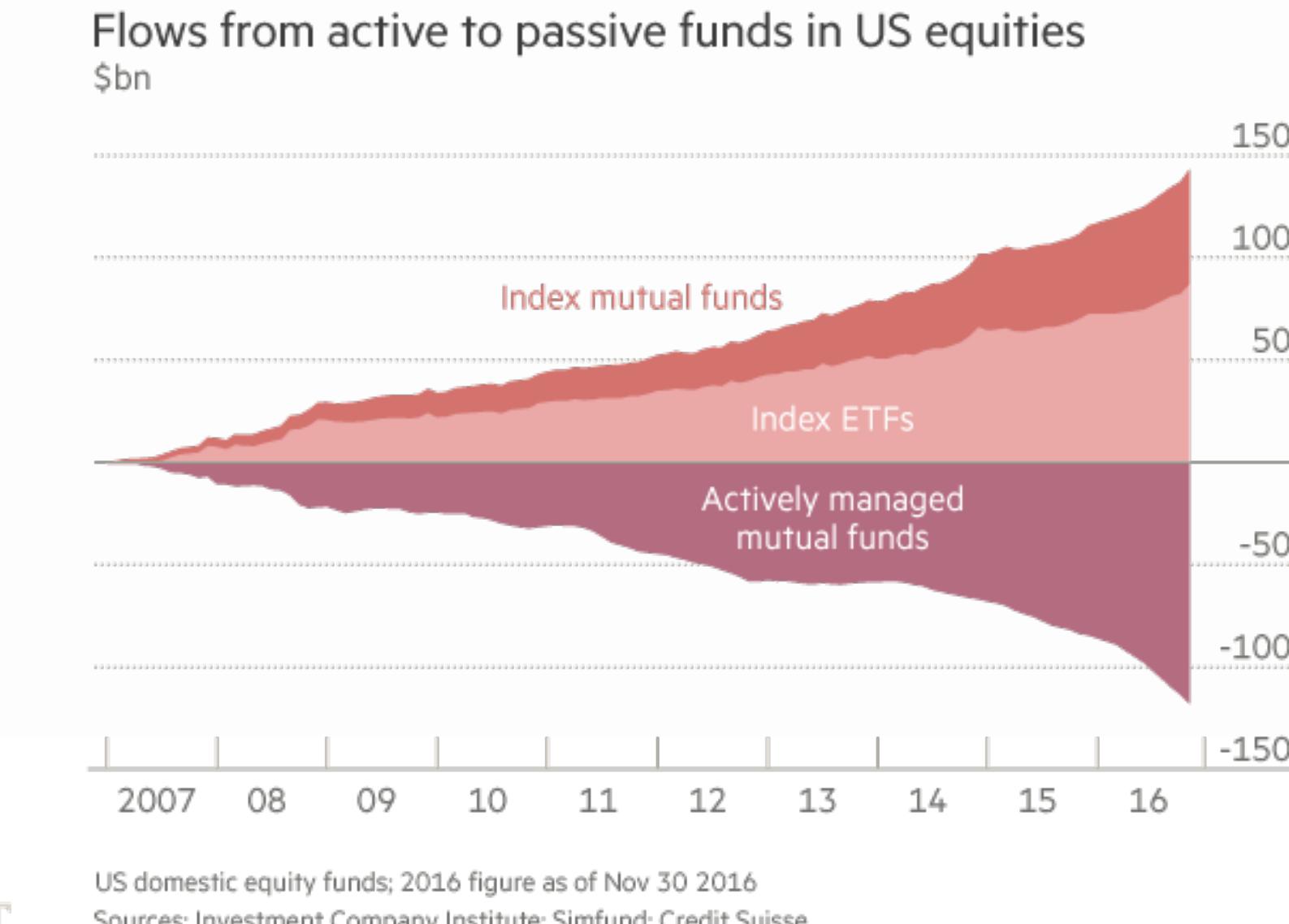
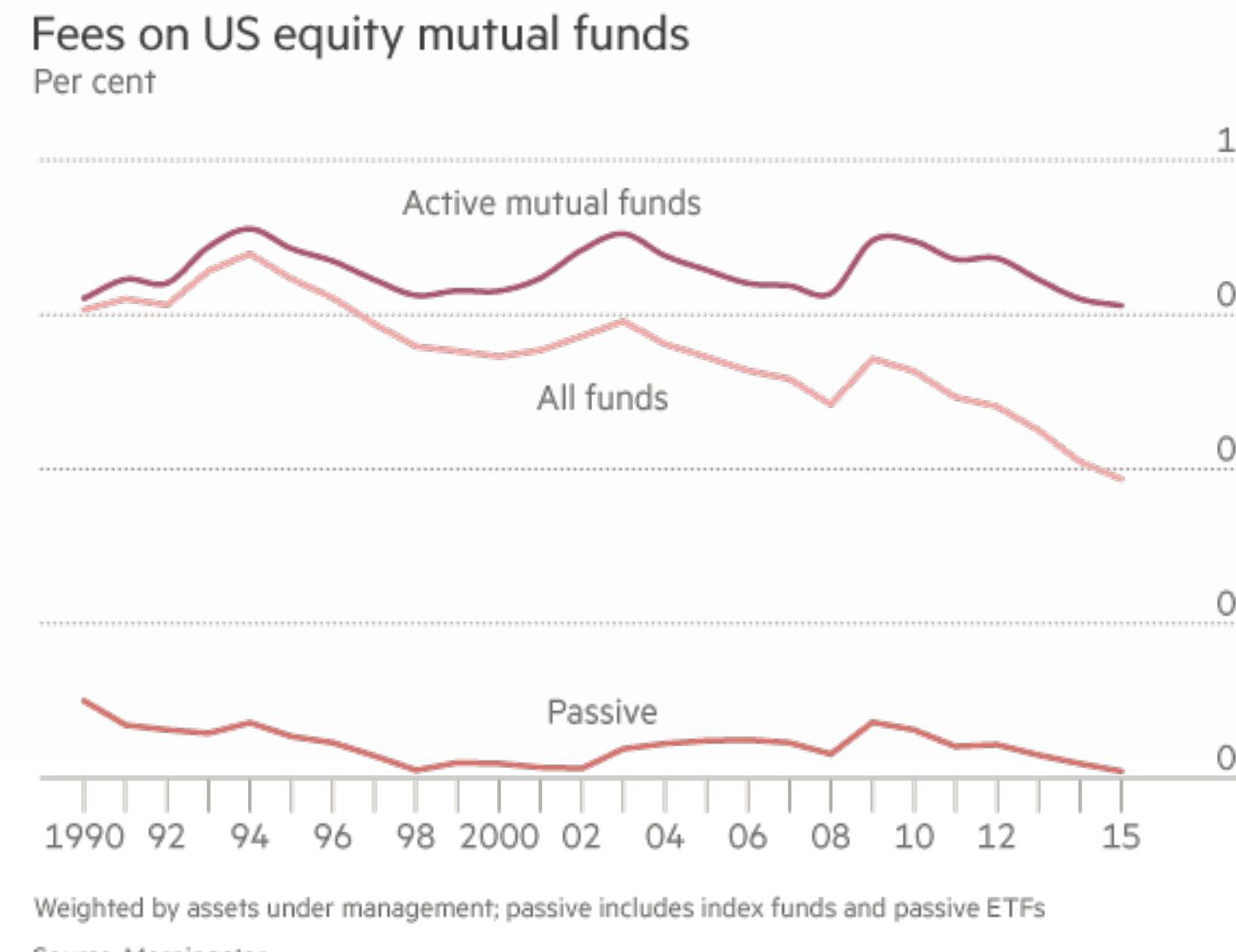
Choosing a fixed stock / bond index such as above is called **passive investing**.

Recent years have seen a steady rise in passive investing, with many advocates of buying & holding an appropriate index ETF.



source: "The Shift from Active to Passive Investing: Potential Risks to Financial Stability?", Anadu et al., Federal Reserve Bank of Boston working paper, 2018

## 2. Active vs Passive investing



FT

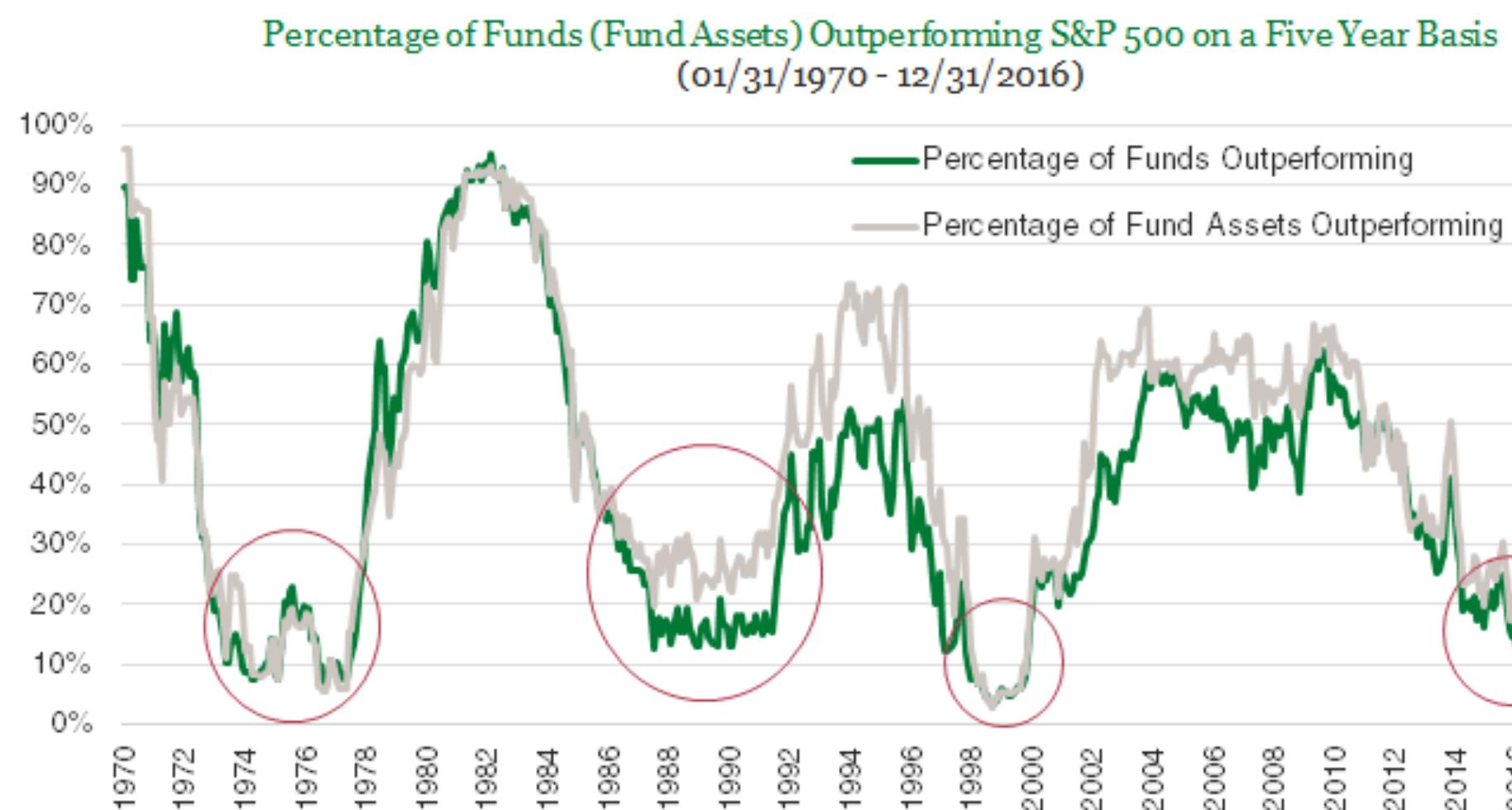
FT

source: Financial Times

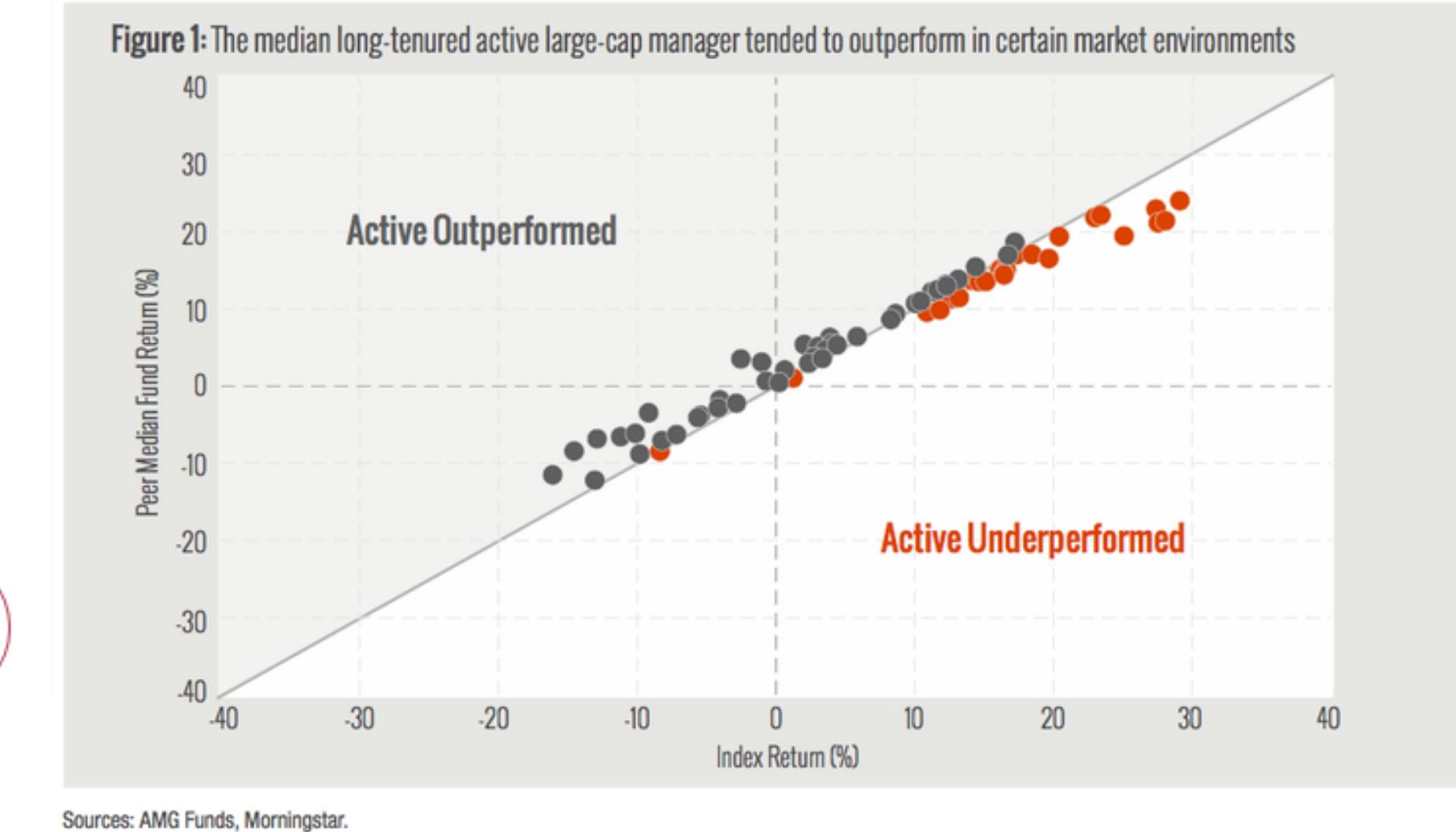
**The main upside is much lower fees**

**The risk is having more downside during tougher years**

## 2. Active vs Passive investing



sources: Nomura Instinet, Joseph Mezrich, MarketWatch: <https://www.marketwatch.com/story/how-should-active-management-fit-into-ones-portfolio-2017-03-25> ; Morningstar



**The main upside is much lower fees** than in traditional asset management, and a usually better-than-active return during expansionary markets.

**The risk is having more downside during tougher years** (which is mostly underrepresented in recent years), and suffering even more if an investor will change his approach during more turbulent market environments (what is common among investors).

## 2. Active vs Passive investing

Whenever an investor departs from such a passive approach, for example striving to achieve better-than-market returns through insight or skill, she becomes an **active investor**.

### 3. The “edge” of an Active Investor

“To be an active investor, you must believe in inefficiency to get opportunities, and in efficiency for those opportunities to turn into returns”<sup>[1]</sup>

“Who Is On the Other Side?”,  
Michael J. Mauboussin (Director of Research, Blue Mountain Capital Management), 2019

I recommend starting with this report if one is interested in figuring out a systematic active investment approach. The author encourages us to ask, whenever we trade on a market: **who is on the other side?**

Whom are we playing against, and why do we believe to have an advantage?

[1] source: <https://www.bluemountaincapital.com/wp-content/uploads/2019/02/Who-Is-On-the-Other-Side.pdf>

### 3. The “edge” of an Active Investor

“To be an active investor, you must believe in inefficiency to get opportunities, and in efficiency for those opportunities to turn into returns”<sup>[1]</sup>

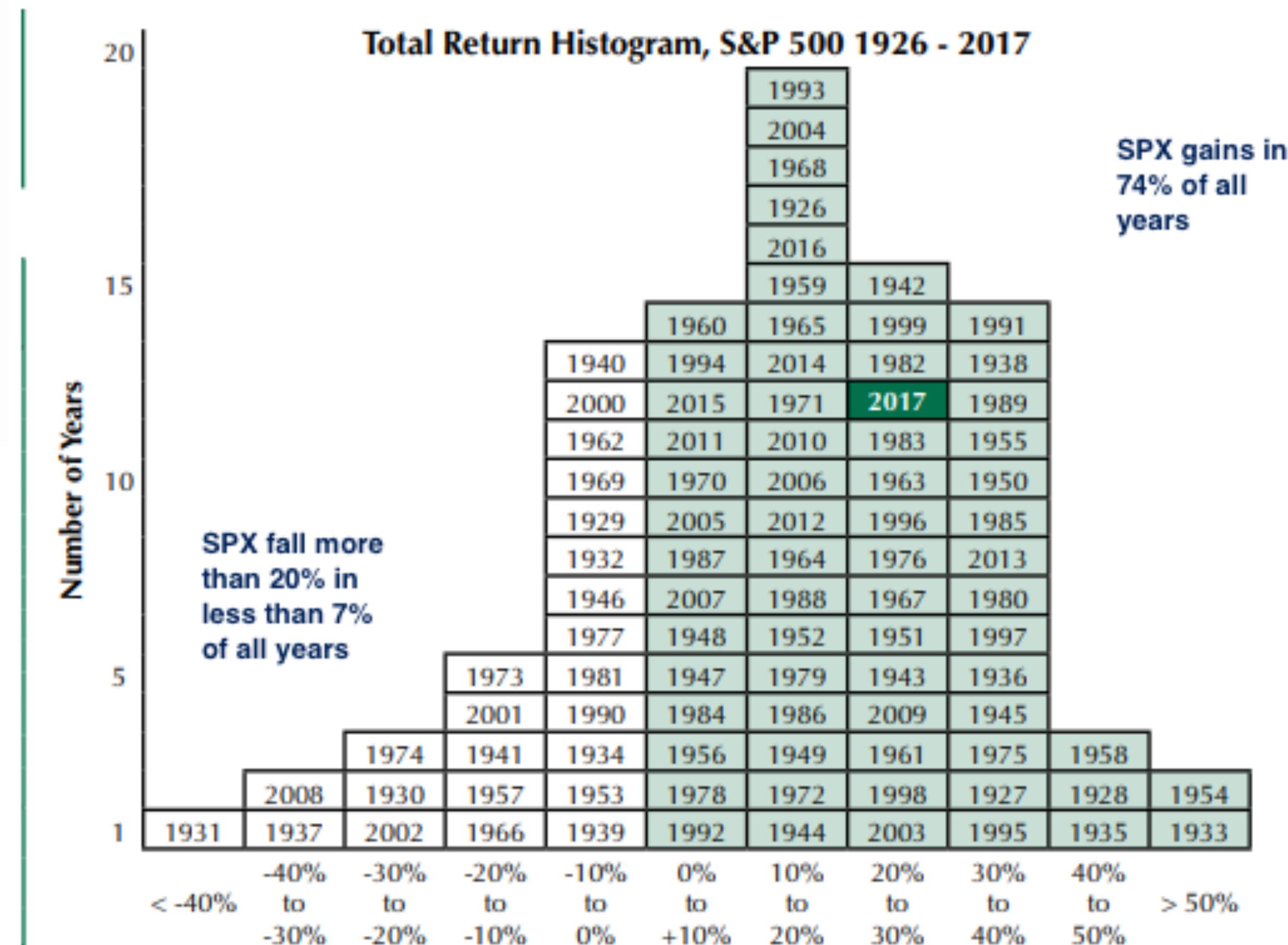
“Who Is On the Other Side?”,  
Michael J. Mauboussin (Director of Research, Blue Mountain Capital Management), 2019

In order to be successful, **an investor must consistently find and exploit some inefficiencies** of a financial market. Micheal Mauboussin identifies 4 such main inefficiency areas:

1. **Behavioral** (i.e. sentiment analysis)
2. **Analytical** (i.e. skill in correct inferring from incomplete data or more know-how in a specific area)
3. **Informational** (i.e. institutional advantage over individual investors)
4. **Technical** (i.e. index rebalancing or fund flows)

[1] source: <https://www.bluemountaincapital.com/wp-content/uploads/2019/02/Who-Is-On-the-Other-Side.pdf>

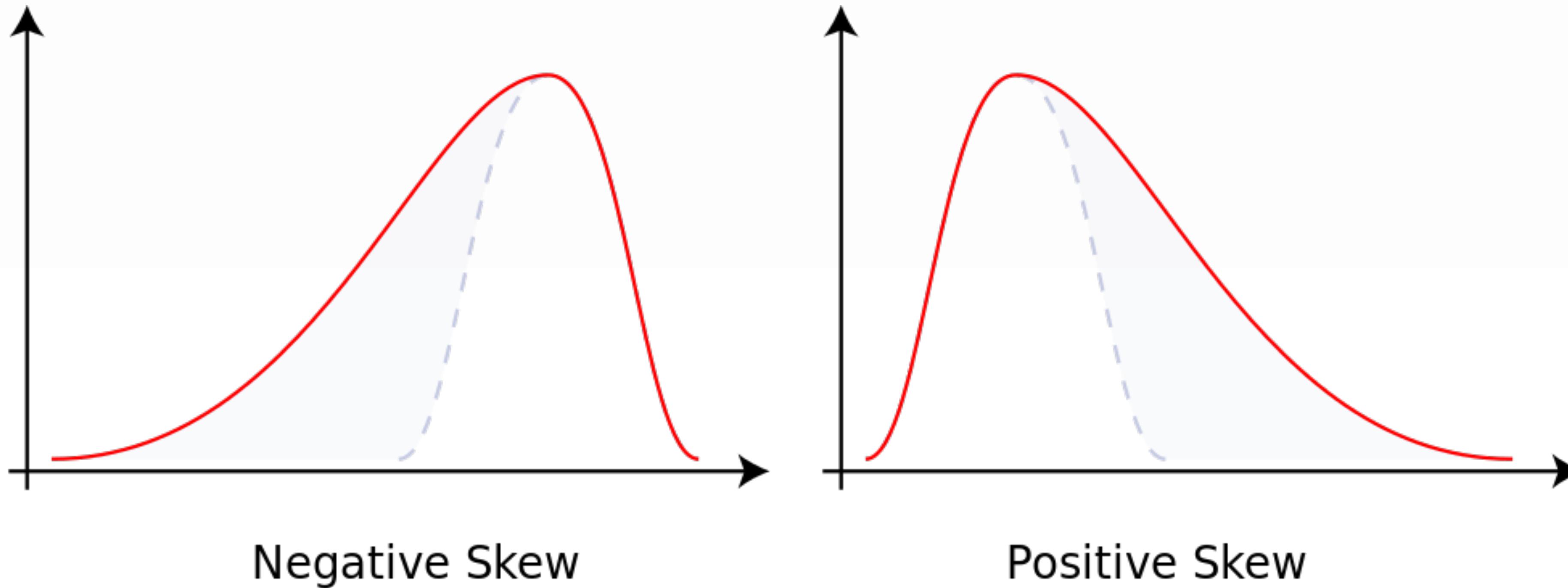
## 4. Behavioral example: Skewness of returns



source: <https://twitter.com/ukarlew>

## 4. Behavioral example: Skewness of returns

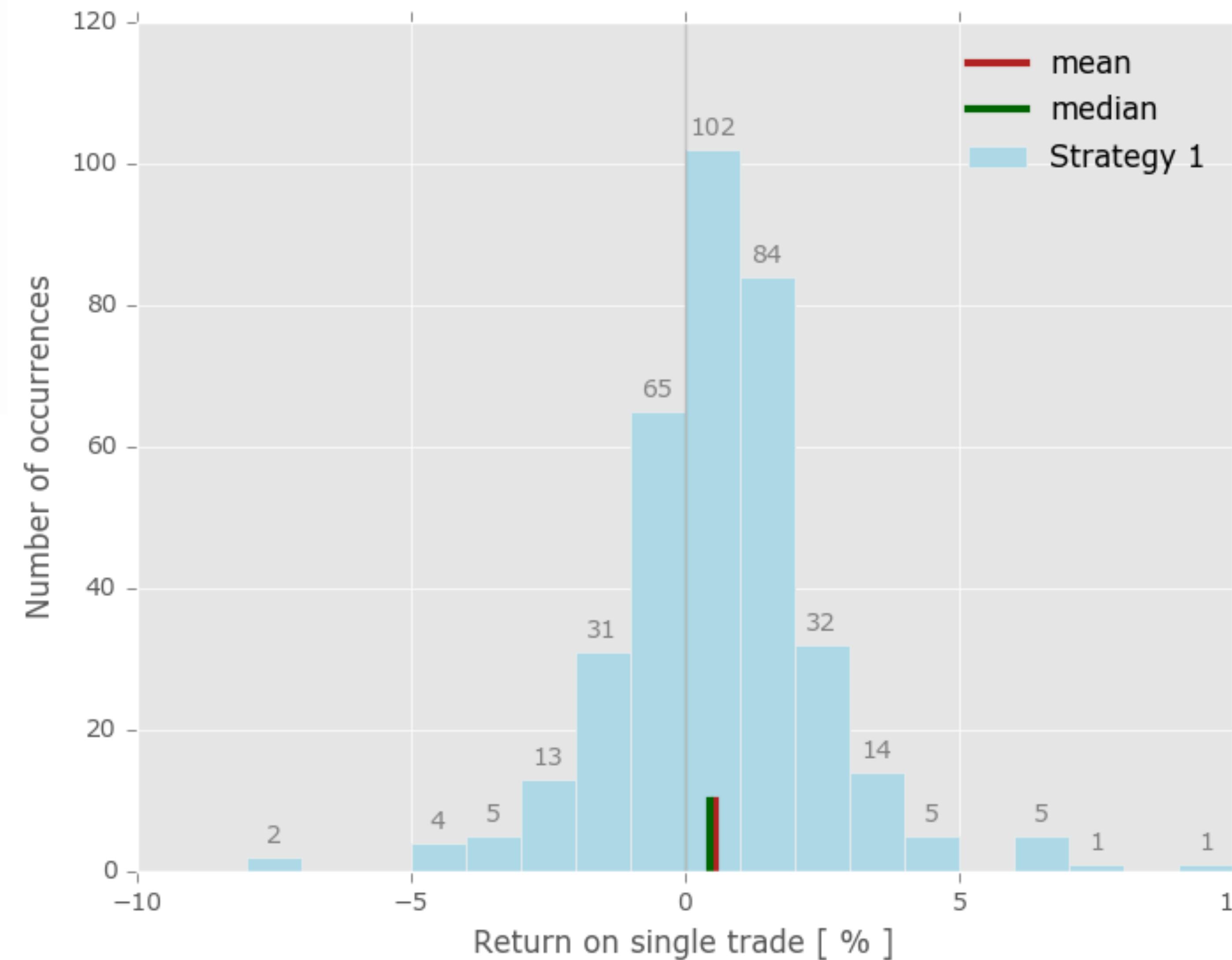
General skew types



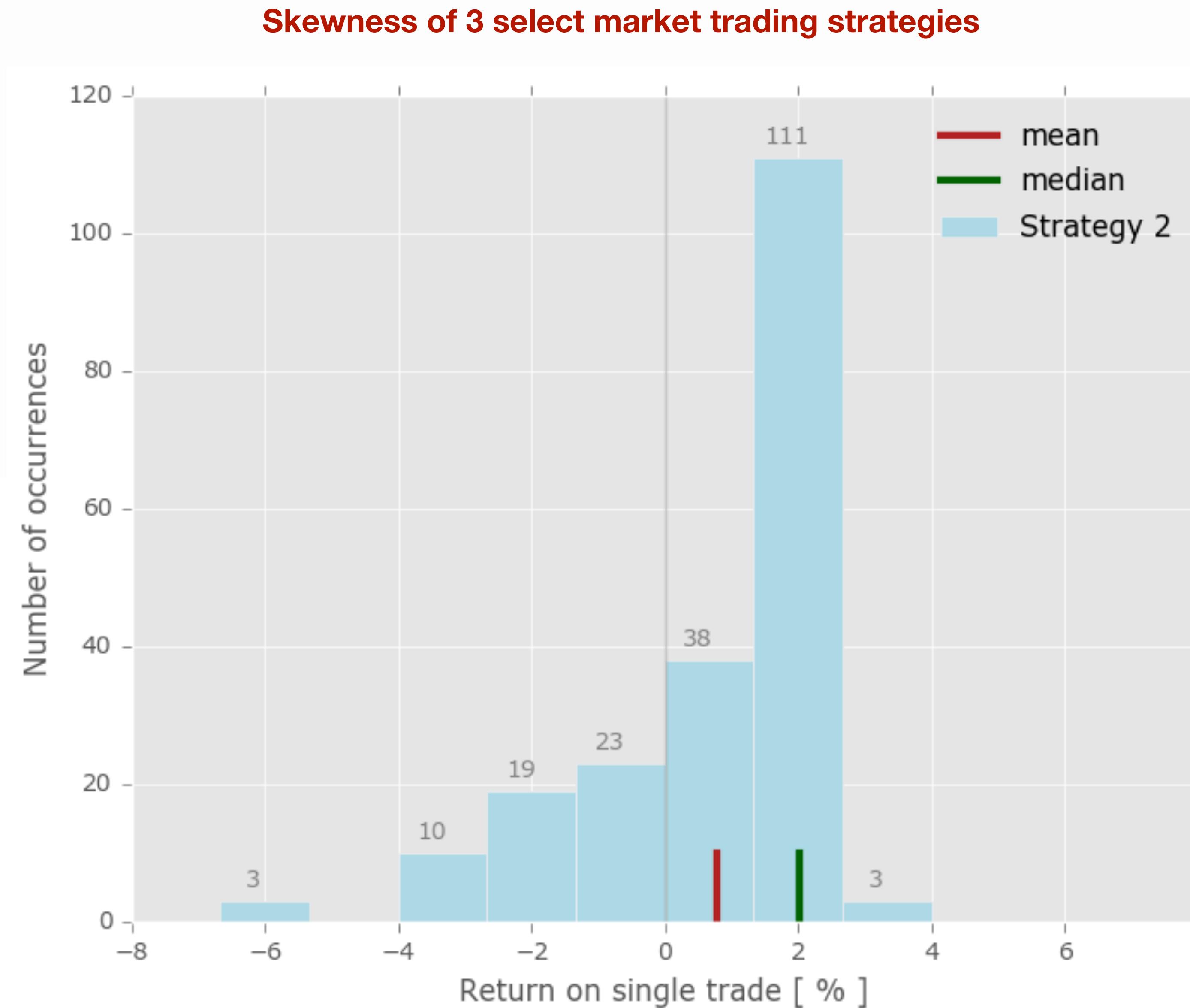
source: Wikipedia, [https://commons.wikimedia.org/wiki/File:Negative\\_and\\_positive\\_skew\\_diagrams\\_\(English\).svg](https://commons.wikimedia.org/wiki/File:Negative_and_positive_skew_diagrams_(English).svg),  
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## 4. Behavioral example: Skewness of returns

Skewness of 3 select market trading strategies

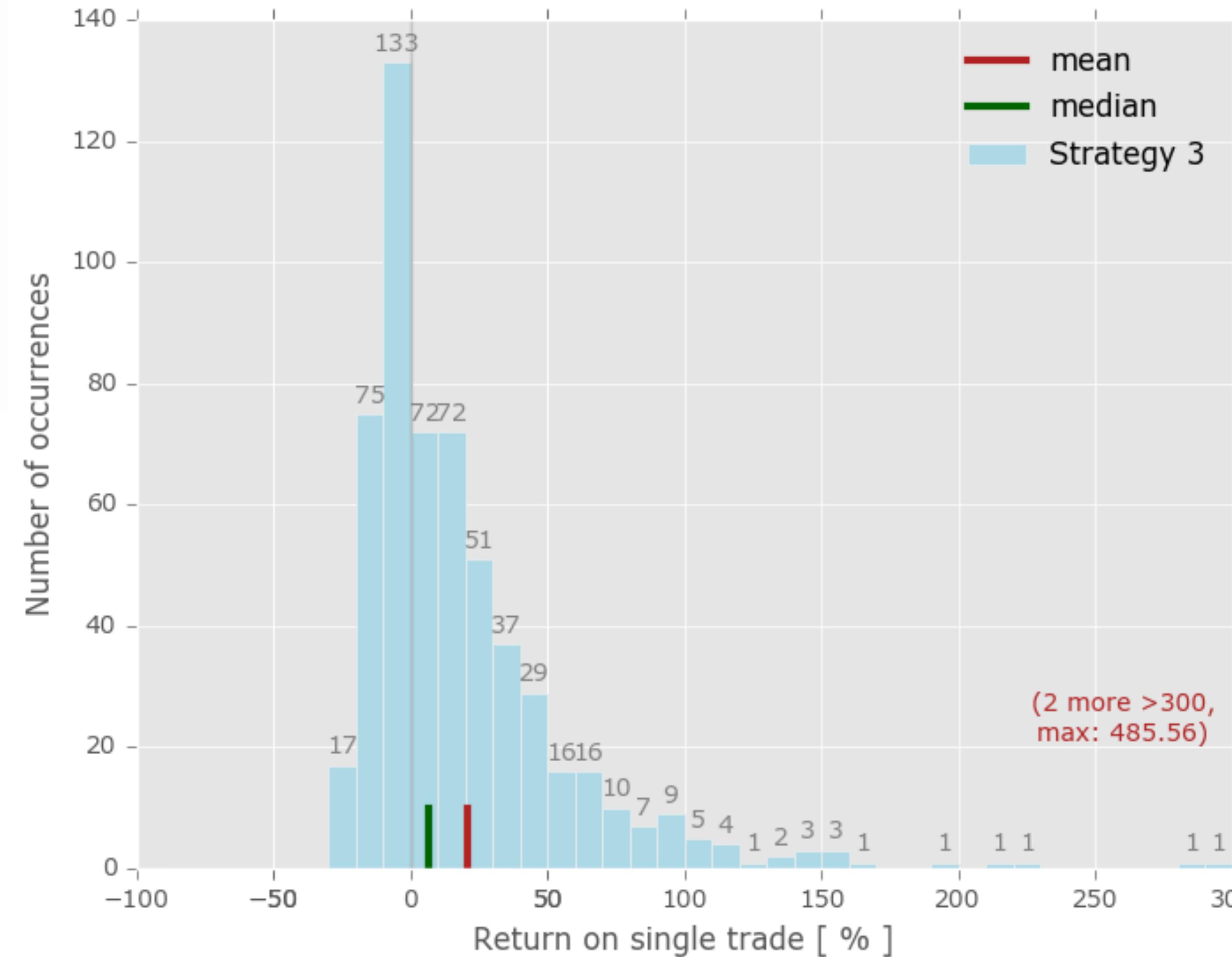


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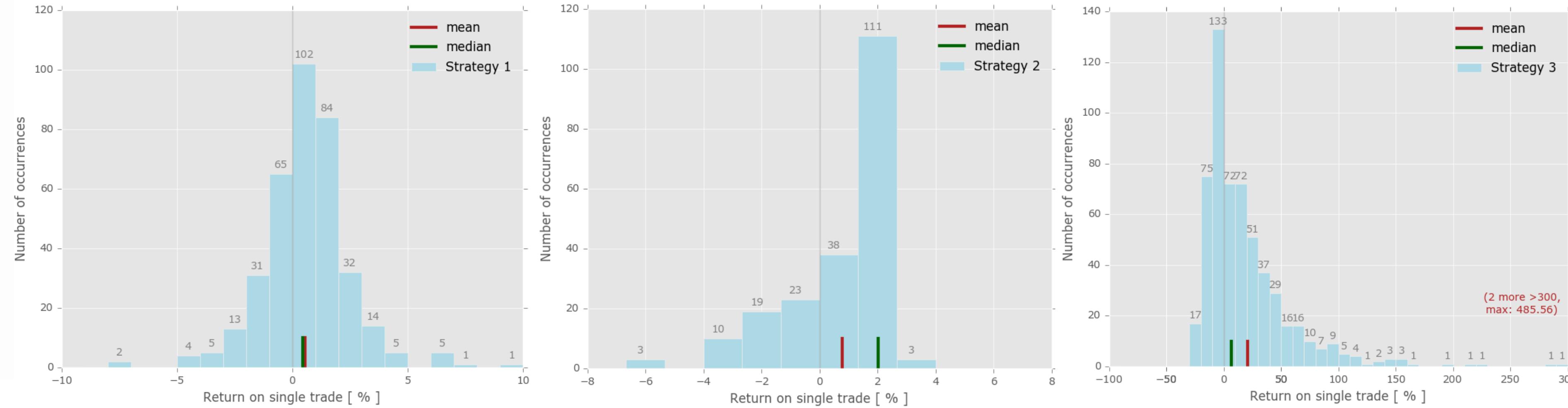
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Skewness of 3 select market trading strategies



# 4. Behavioral example: Skewness of returns

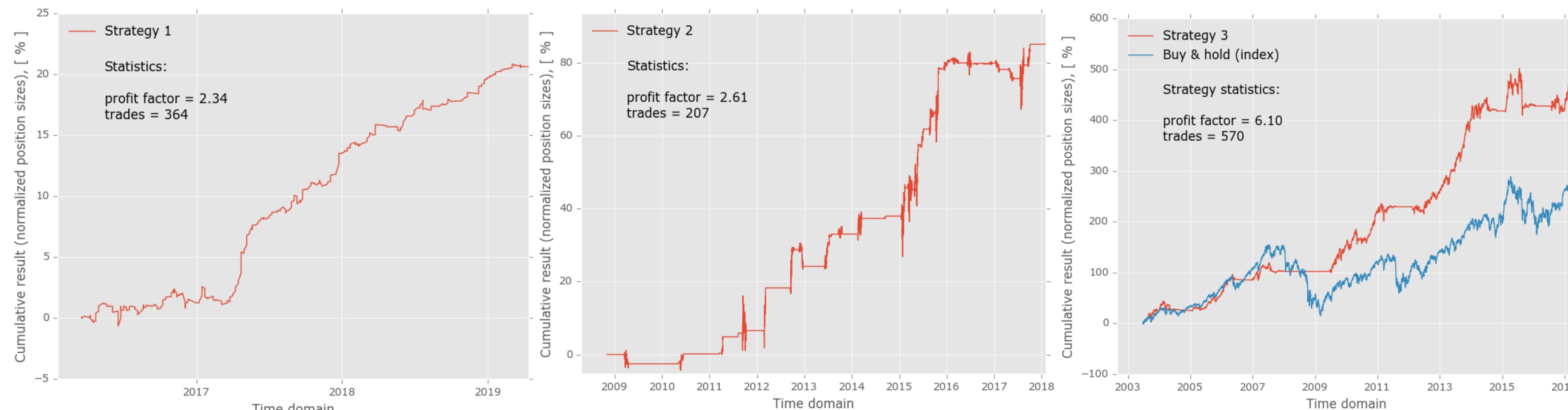
## Skewness of 3 select market trading strategies



Strategy 1

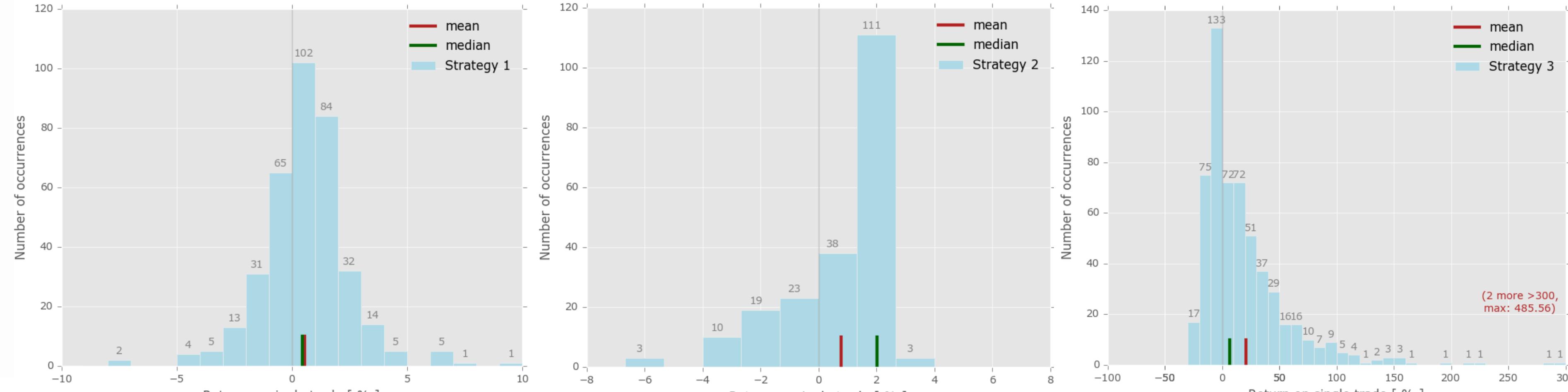
Strategy 2

Strategy 3



# 4. Behavioral example: Skewness of returns

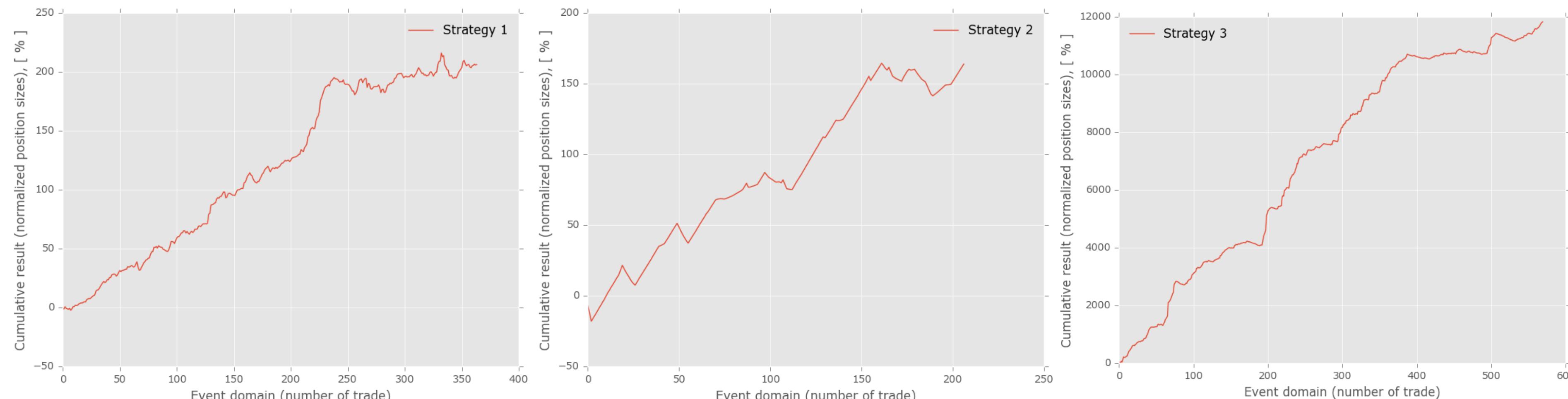
## Skewness of 3 select market trading strategies



Strategy 1

Strategy 2

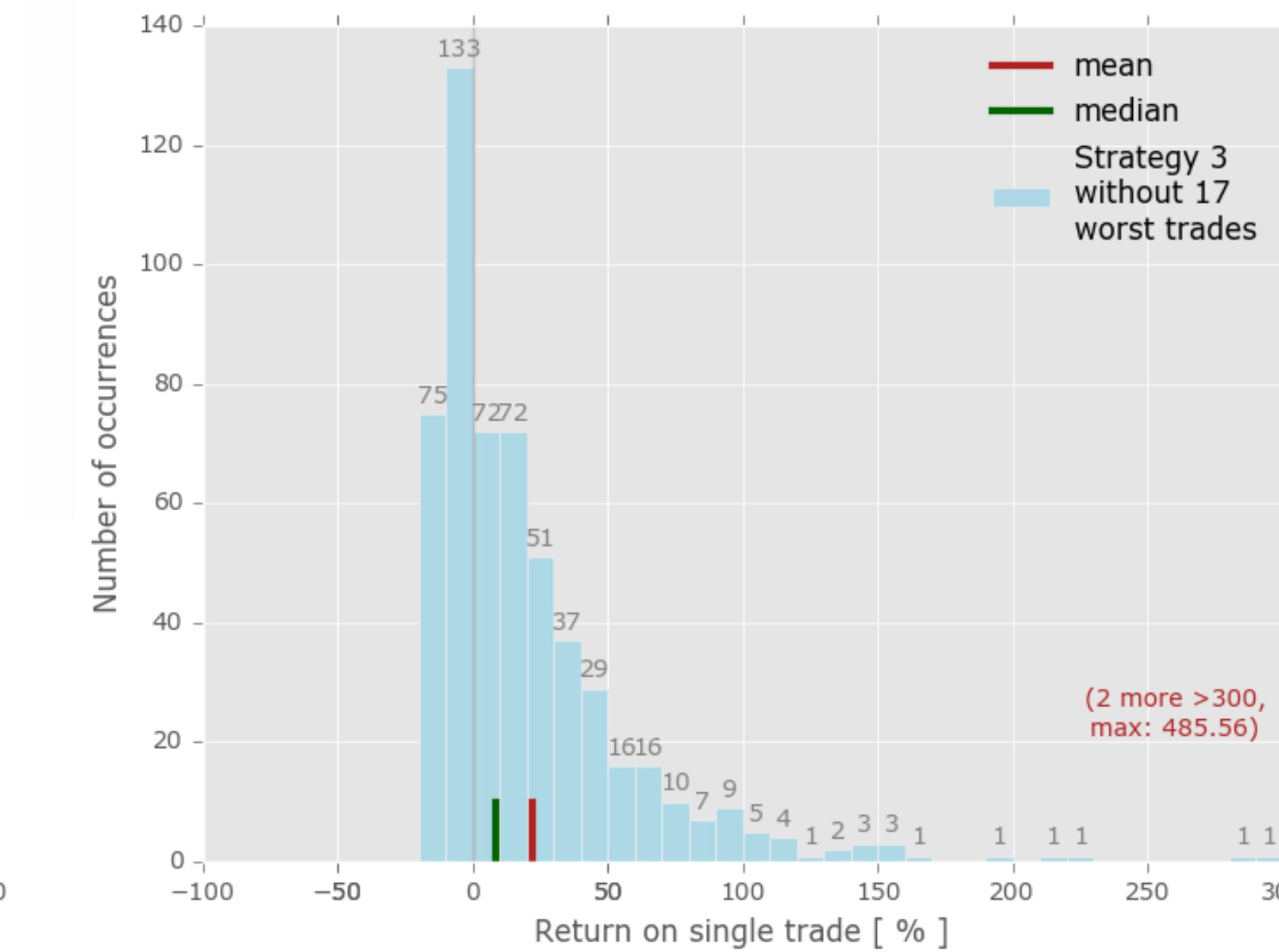
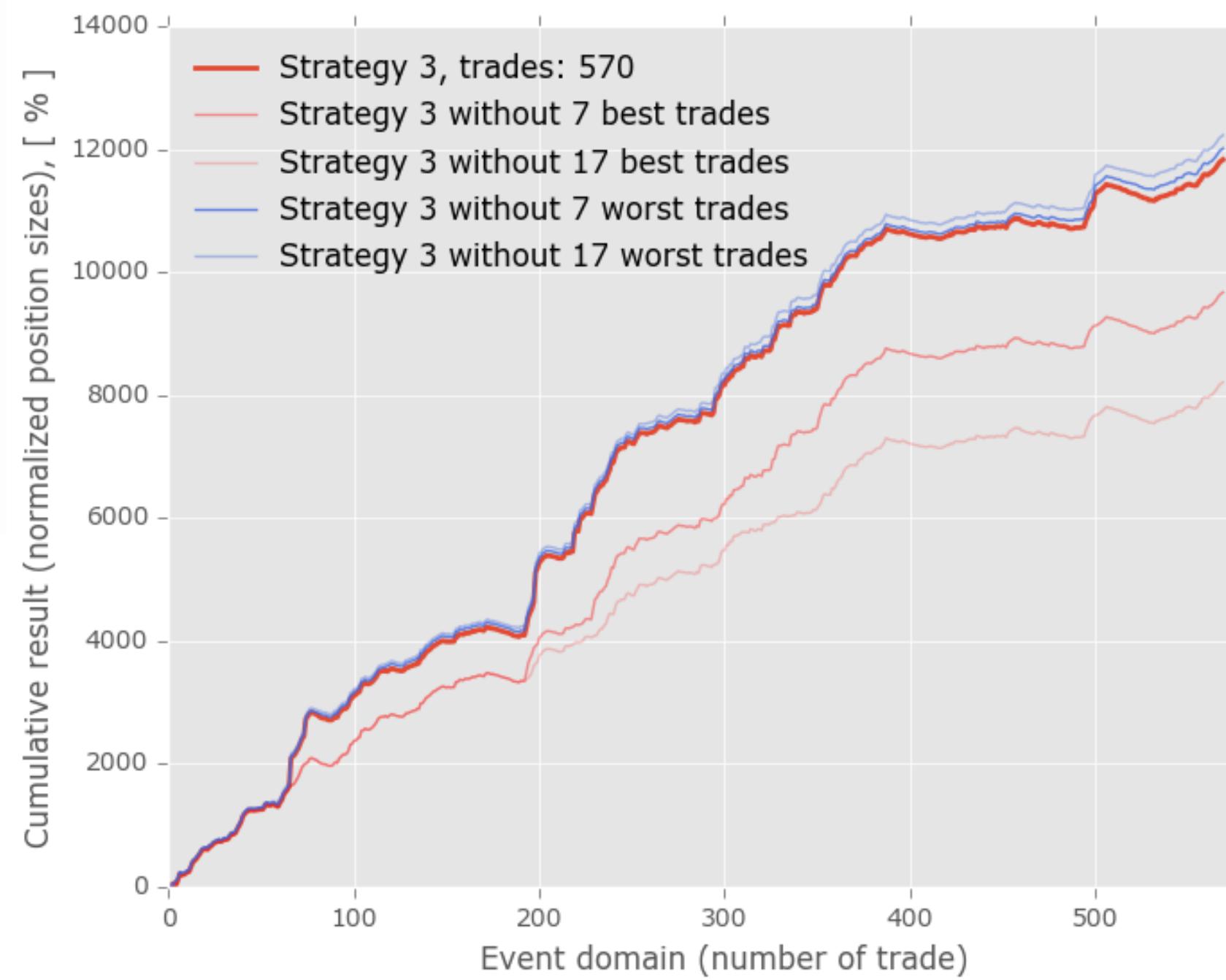
Strategy 3



source: own work at Opoka TFI

# 4. Behavioral example: Skewness of returns

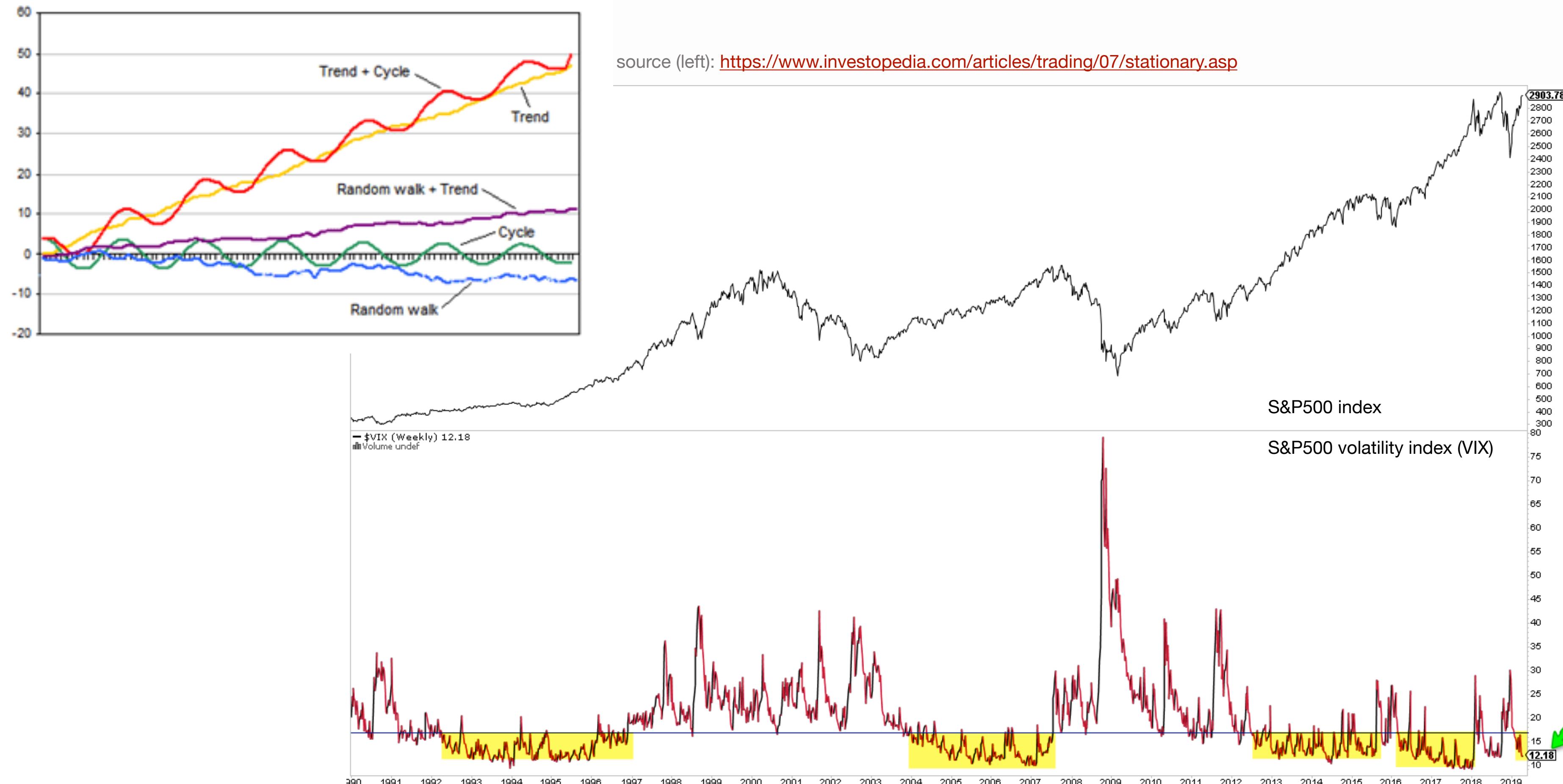
## Sensitivity to outliers



# 4. Behavioral example: Skewness of returns

**Skew is time dependent**, as financial data is not stationary

**Table 1 Non-stationary behavior**

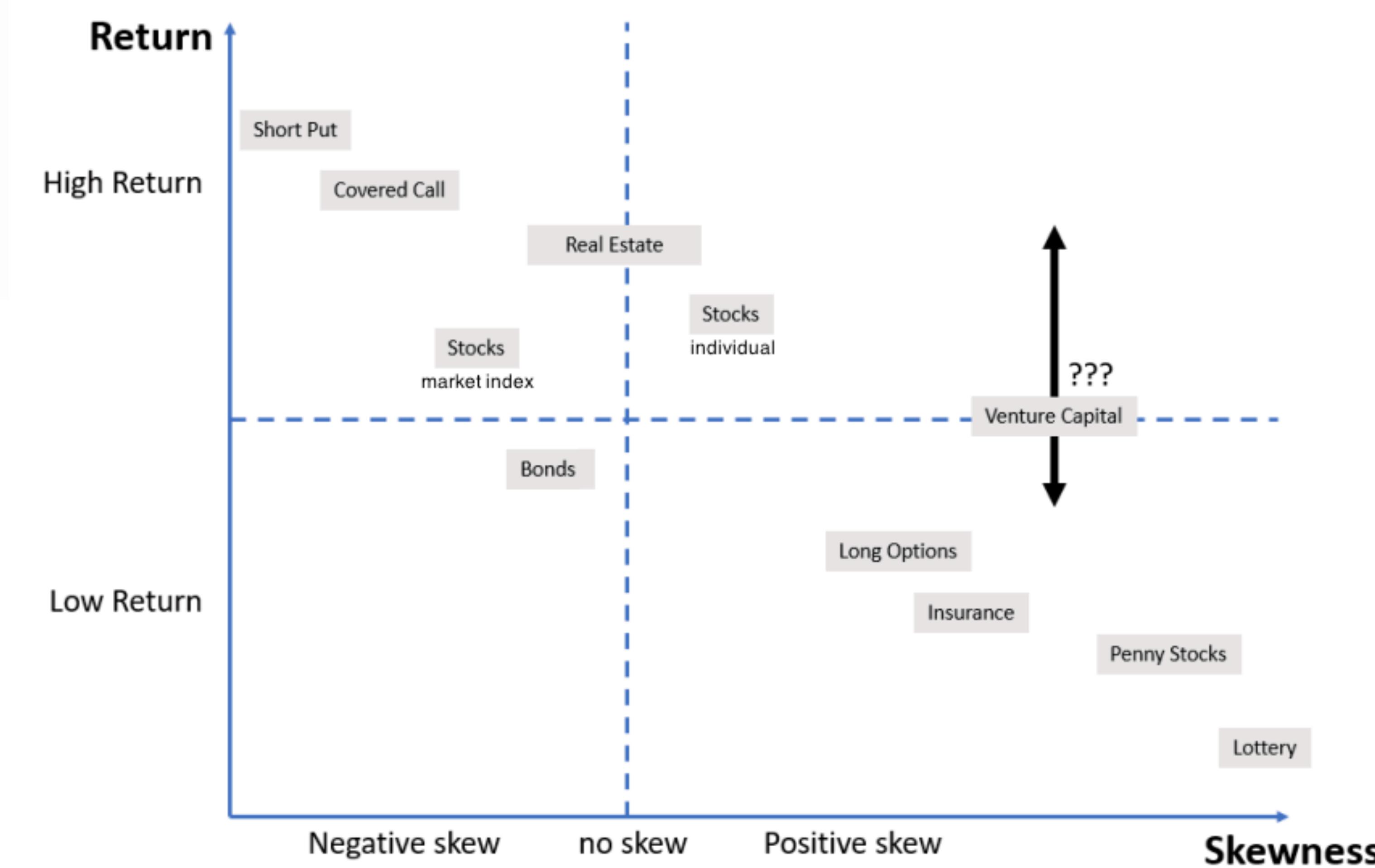


source (lower): The Fat Pitch blog, <https://fat-pitch.blogspot.com/2019/04/summary-ndx-is-now-at-new-all-time-high.html>, data: stockcharts.com

# 4. Behavioral example: Skewness of returns

**Skew is different for different asset classes:**

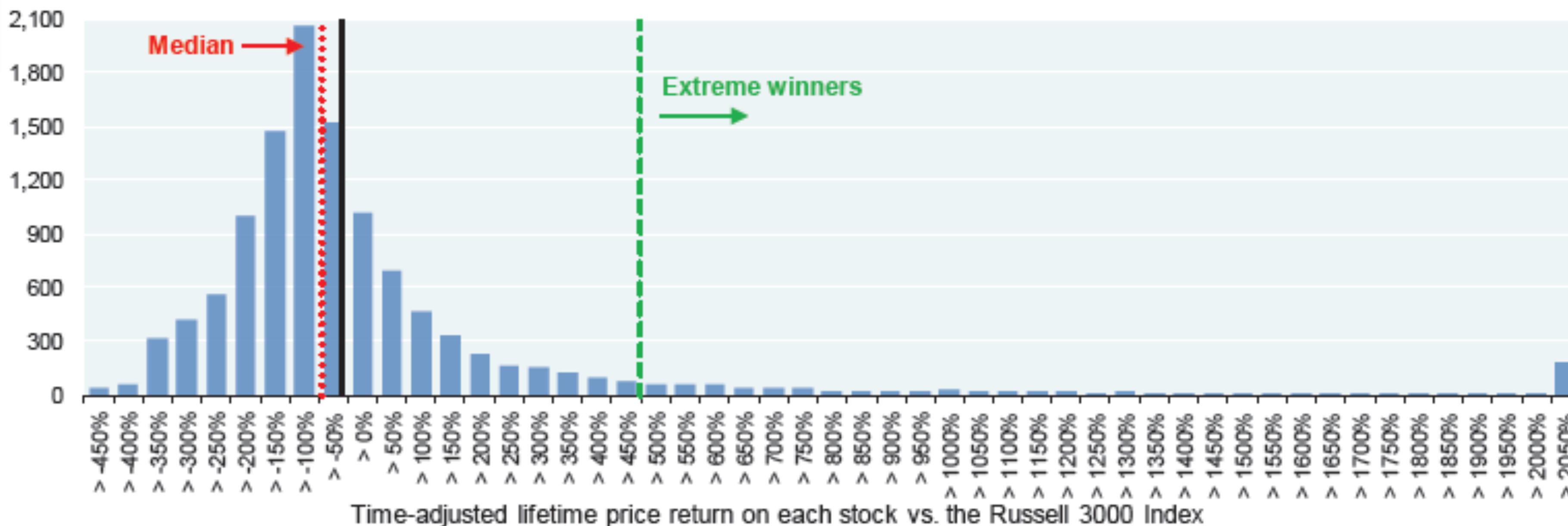
- bonds have a **negative skew** (small returns most of the times, defaults some times)



## 4. Behavioral example: Skewness of returns

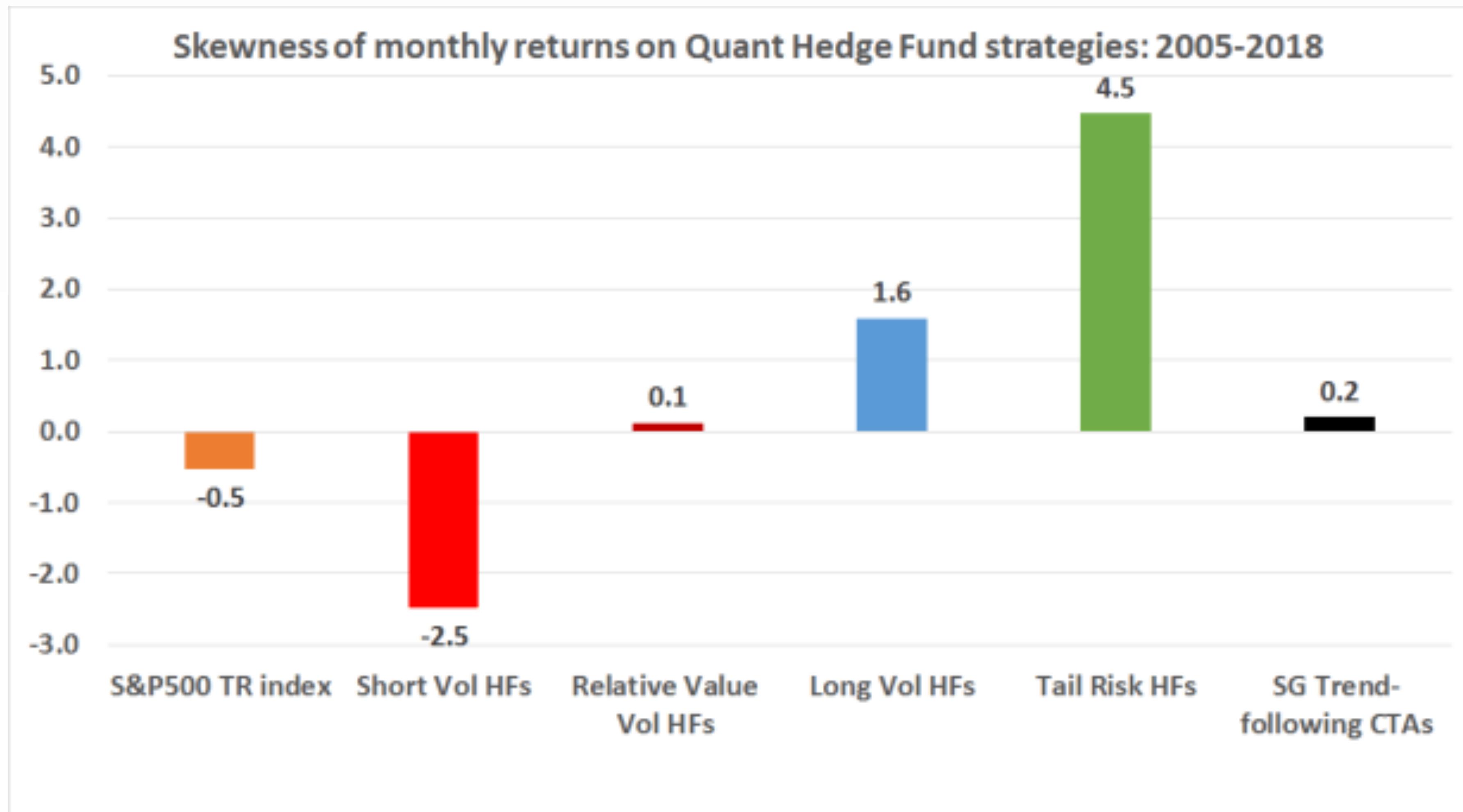
**Skew is different for different asset classes:**

- bonds have a **negative skew** (small returns most of the times, defaults some times)
- a **stock index** has **slightly negative skew** (volatility is higher in crises and bear markets)
- a set of **individual stocks** has **positive skew**



Source: FactSet, J.P. Morgan Asset Management.

## 4. Behavioral example: Skewness of returns



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**Skew is time dependent**, as financial data is not stationary.

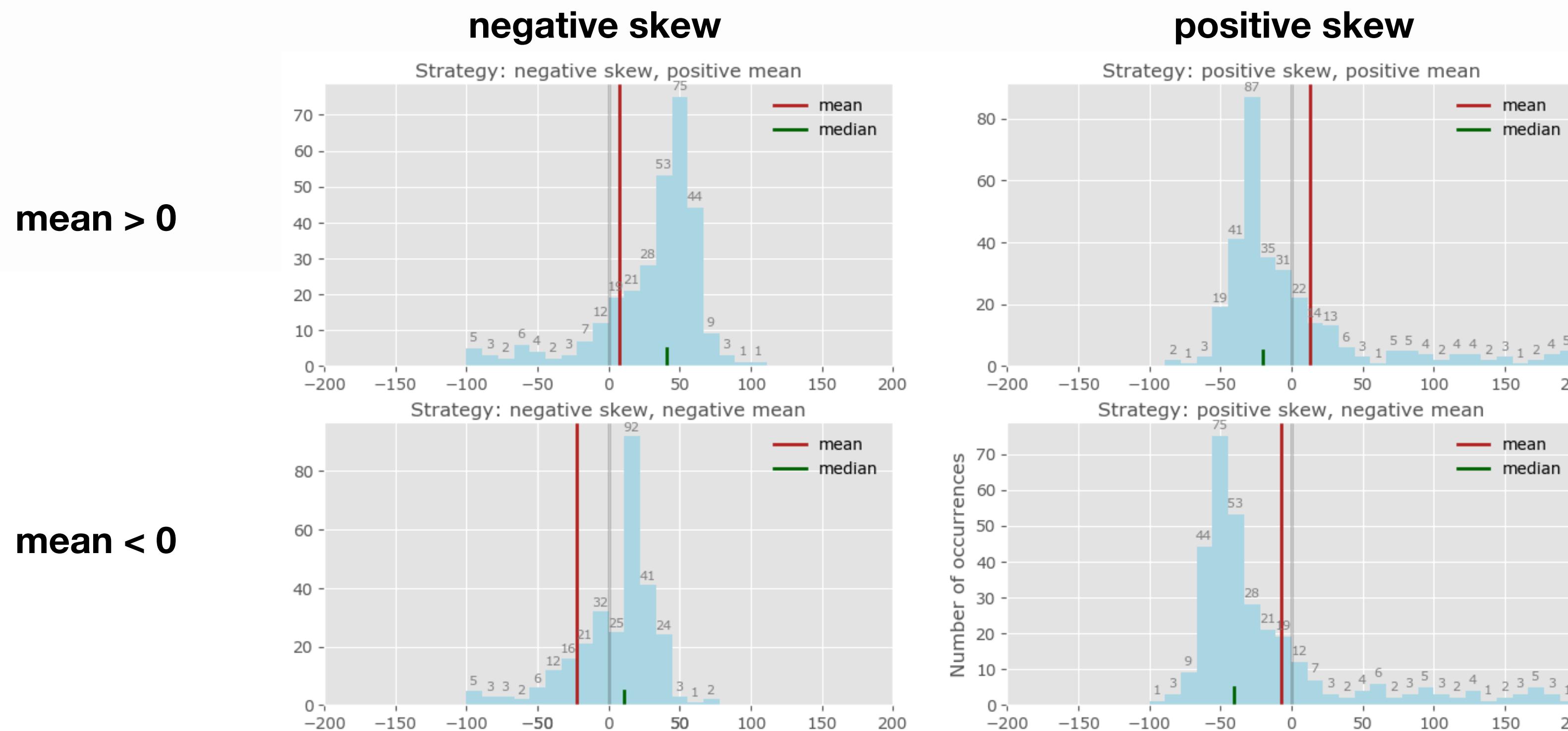
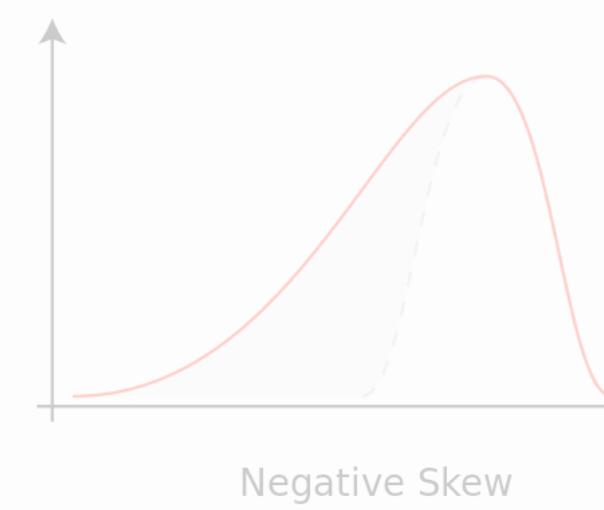
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**Any given investor might exhibit a preference for a skew profile** different than the market he invests in.  
That gives rise to possibilities of exchange between players, and therefore, return on risk.

**Skew is sensitive to outliers.**

# 4. Behavioral example: Skewness of returns



Example of 4 types of strategies: randomly generated returns<sup>[2]</sup>

[1] source: Wikipedia, [https://commons.wikimedia.org/wiki/File:Negative\\_and\\_positive\\_skew\\_diagrams\\_\(English\).svg](https://commons.wikimedia.org/wiki/File:Negative_and_positive_skew_diagrams_(English).svg),

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[2] source: own work at Opoka TFI

## 4. Behavioral example: Skewness of returns



Negative Skew



Positive Skew

**negative skew**

**positive skew**

**mean > 0**



**mean < 0**



Event domain (number of trade)

Example of 4 types of strategies: randomly generated returns<sup>[2]</sup>

[1] source: Wikipedia, [https://commons.wikimedia.org/wiki/File:Negative\\_and\\_positive\\_skew\\_diagrams\\_\(English\).svg](https://commons.wikimedia.org/wiki/File:Negative_and_positive_skew_diagrams_(English).svg),  
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[2] source: own work at Opoka TFI

## 4a. Traps

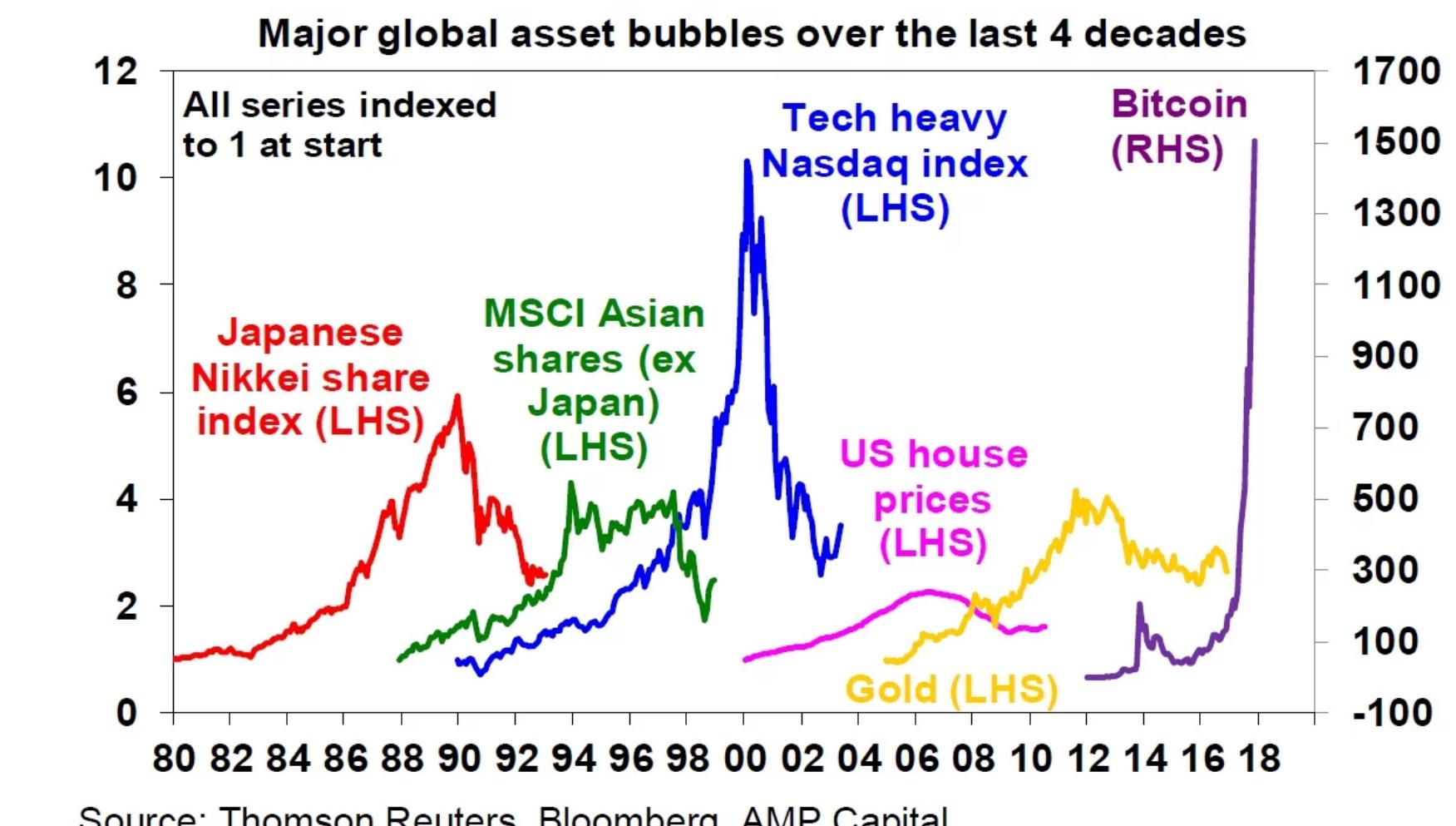
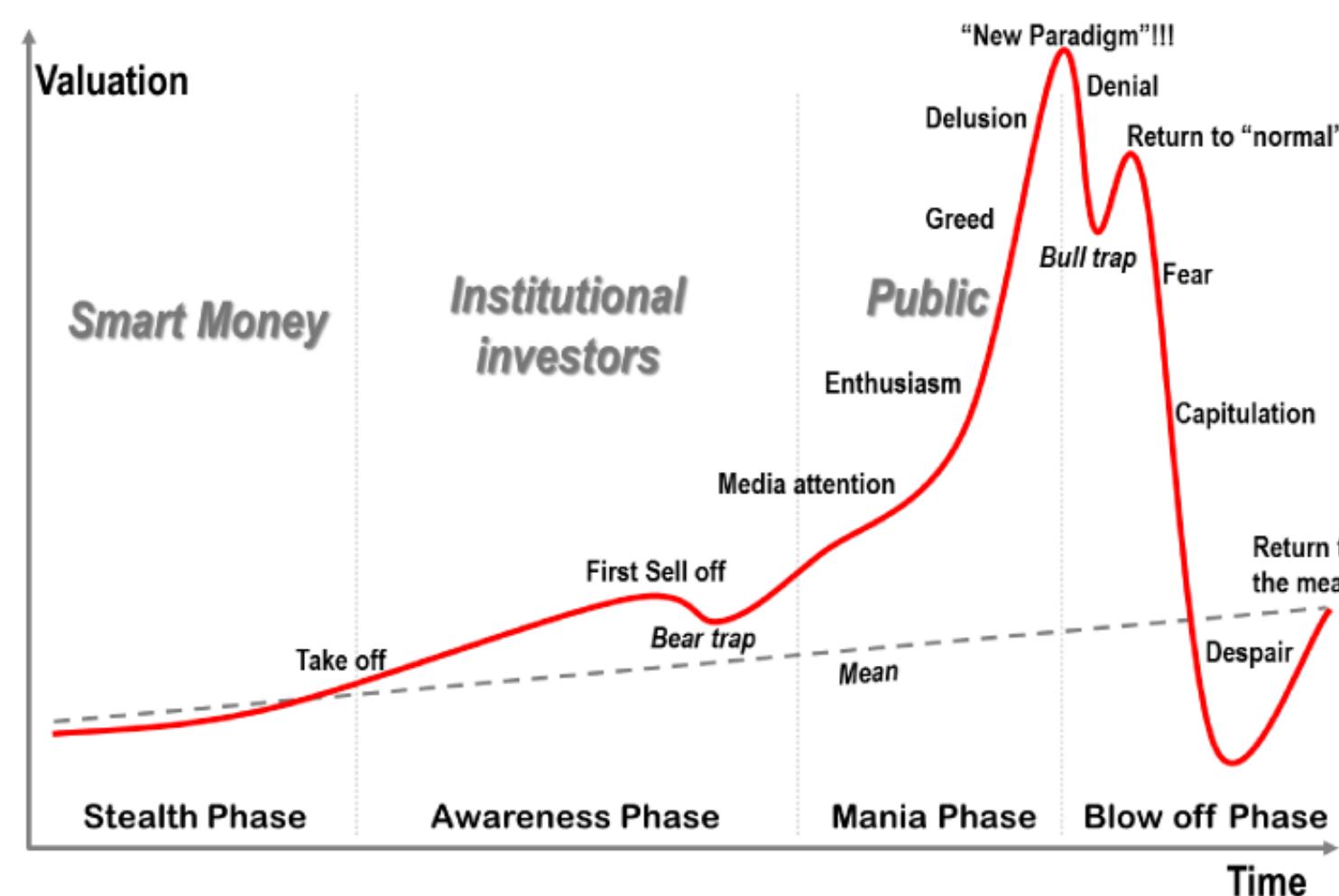


## 4a. Traps

“It’s remarkable how much long-term advantage people like us have gotten by trying to be **consistently not stupid**, instead of trying to be very intelligent.”

Charlie Munger

Trading and investing is mainly about **correct decision making in an environment of severe uncertainty**.



source (left): [https://commons.wikimedia.org/wiki/File:Stages\\_of\\_a\\_bubble.png](https://commons.wikimedia.org/wiki/File:Stages_of_a_bubble.png)

source (right): <https://www.businessinsider.com/this-chart-shows-just-how-big-the-bitcoin-bubble-has-become-2017-11>

## 4a. Traps

### **Uncertainty is something more than just risk.**

Risk can be measured and risk can be assessed.

Risk is in a way: measuring all known possible outcomes and weighing in their probabilities.

Uncertainty is something deeper: beside the known risks, it also encompasses things we do know about, the unmeasurable outcomes (like the popular idea of *black swans*, but not only these types of events), and also the dynamics of certain scenarios unfolding. Severe risks, even known ones but happening in a certain order, or all at once, may result in far more damage to a portfolio, than the same risks happening in a more “random”, non-correlated manner.

## 4a. Traps

### Sequence matters

in the **non-ergodic** world of investing.

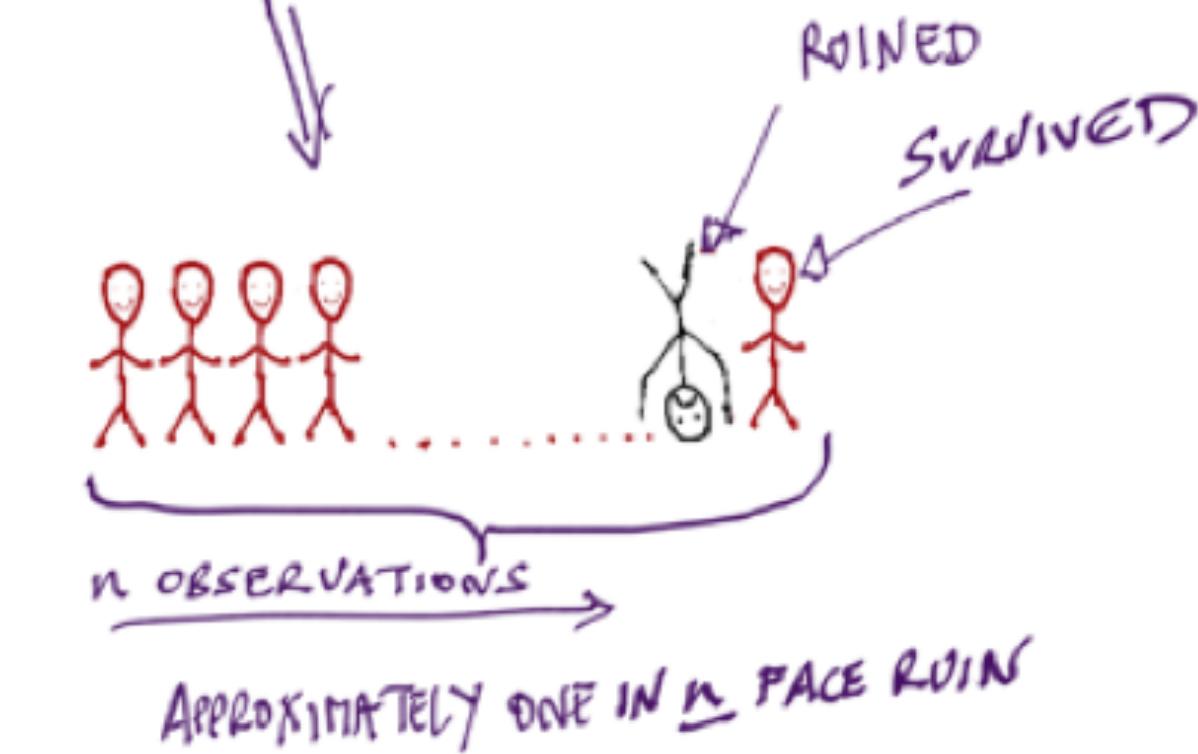
[Taleb, “The Logic of Risk Taking”, part of “Skin in the Game”,  
Incerto series, 2018. ISBN: 978-0425284629]

[Gell-Man, Peters: “Evaluating gambles using dynamics”  
<https://arxiv.org/pdf/1405.0585.pdf>]

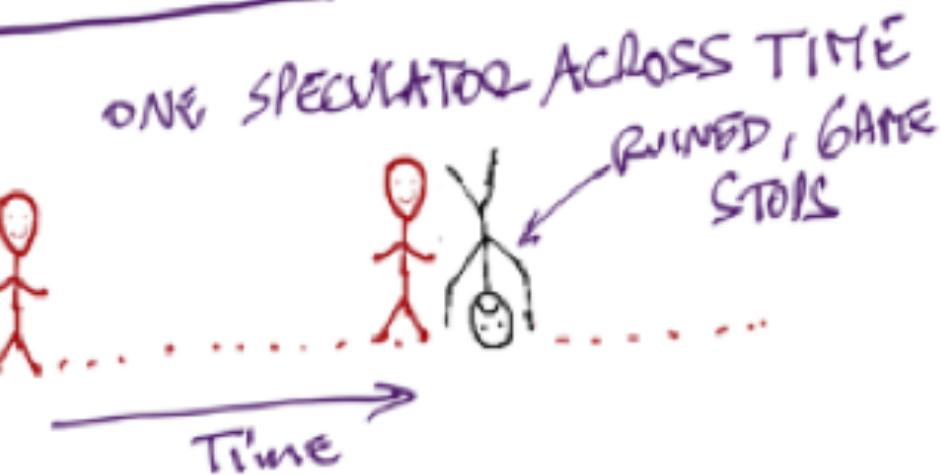
[Peters: “Optimal leverage from non-ergodicity”  
<https://arxiv.org/pdf/0902.2965.pdf>]

#### ENSEMBLE PROBABILITY

THE WIN OF ONE DOES NOT  
AFFECT THE RUIN OF OTHERS



#### TIME PROBABILITY



## 4a. Traps

### **Some of these traps are our own cognitive biases.**

A comprehensive manual on these biases is given in Kahneman and Tversky's research (Kahneman, "Thinking Fast and Slow", 2011, ISBN: 978-0374275631). Among them:

**loss aversion** (investors perceive a dollar lost and a dollar gained differently than their percentage value),  
**overconfidence** (confidence greater than predicting abilities),  
**confirmation bias** (viewing information that confirms our view as more important),  
**availability heuristic** (focusing more on recent data and developments, fresh data as more important).

Yet, as Mauboussin points out, **it is not simply the existence of individual biases that spurs behavioral inefficiencies** on a market. They could be, hypothetically, cancelling each other out.

**It is an extreme correlation between opinions among market participants** that is dangerous, when the "wisdom of crowds" turns to the "madness of crowds".

## 5. Factor investing

A popular quantitative investing technique in recent years is called “**factor investing**” or “**smart beta**”.

It relies on “**factors**” — quantifiable features that explain differences in stock returns of a subset of stocks vs a market index.

More than **300** such factors have been identified in financial research literature throughout five decades<sup>[1]</sup>, a situation referred to as “the factor zoo”, although for most there have been replication problems reported in recent years<sup>[2]</sup>.

Nonetheless the remaining factors have strong research backing. Among the most impactful and widely implemented:

**value**,

**momentum**,

**growth**,

**size**,

**quality**,

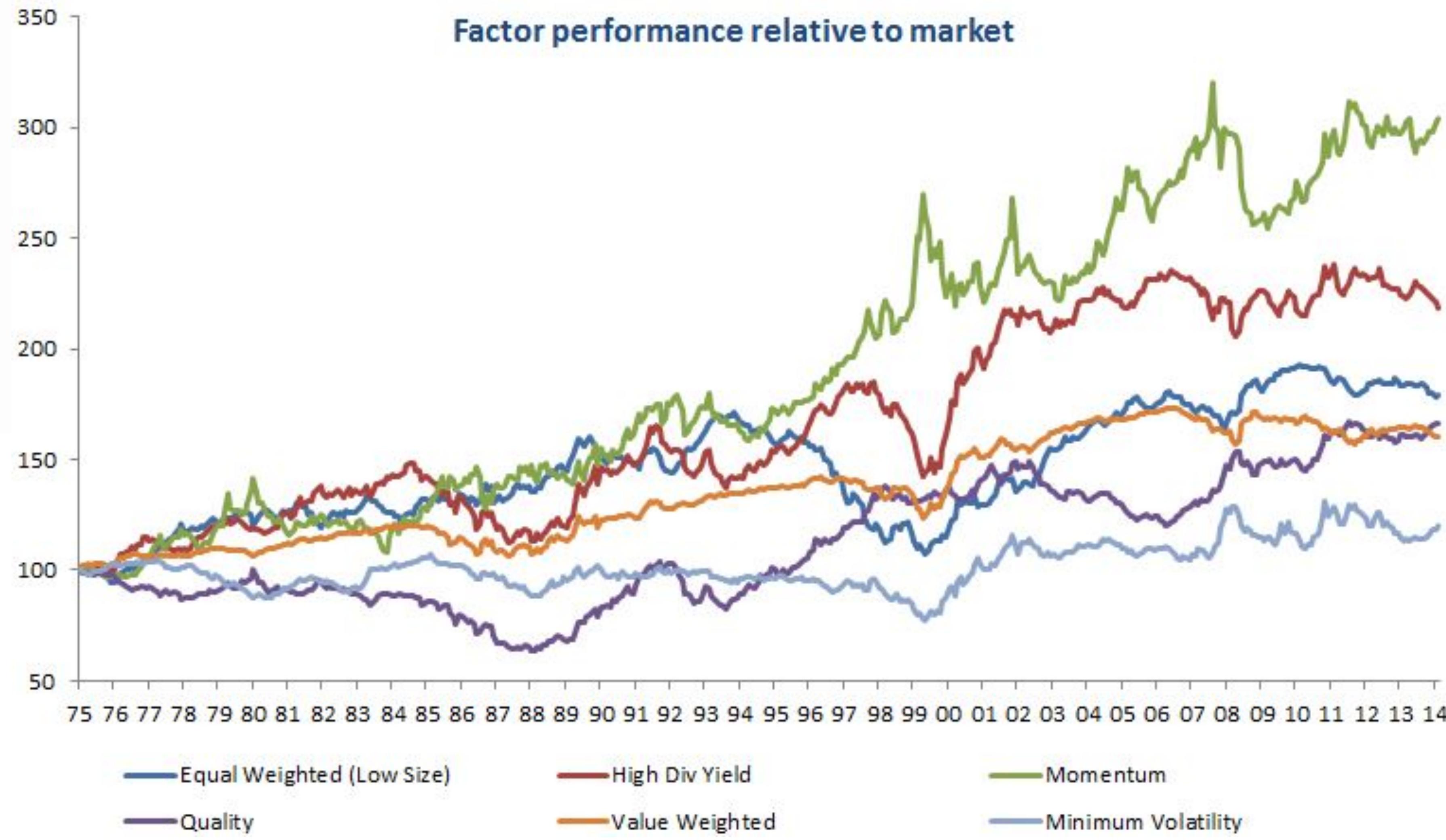
**low-volatility**,

**dividend yield**.

[1] see: “...and the Cross-Section of Expected Returns”, Harvey et al, 2015

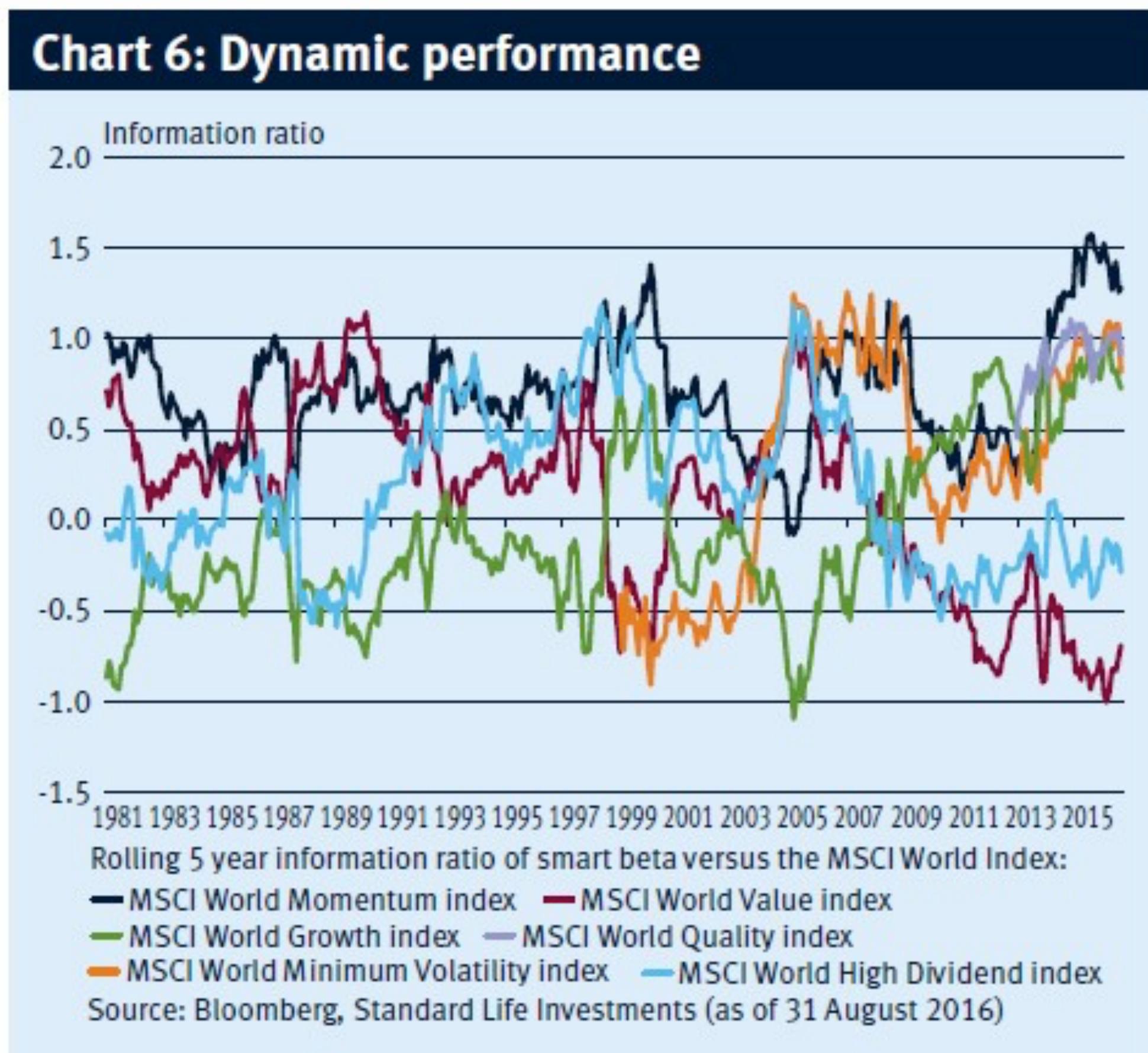
[2] see: “Replicating Anomalies”, Hou et al., 2017

## 5. Factor investing



source: MSCI (Data normalized from Jan. 1, 1975 with factor tilts on MSCI World Index) via ETF.com: <https://www.etf.com/sections/blog/new-msci-indexes-erase-smart-beta>

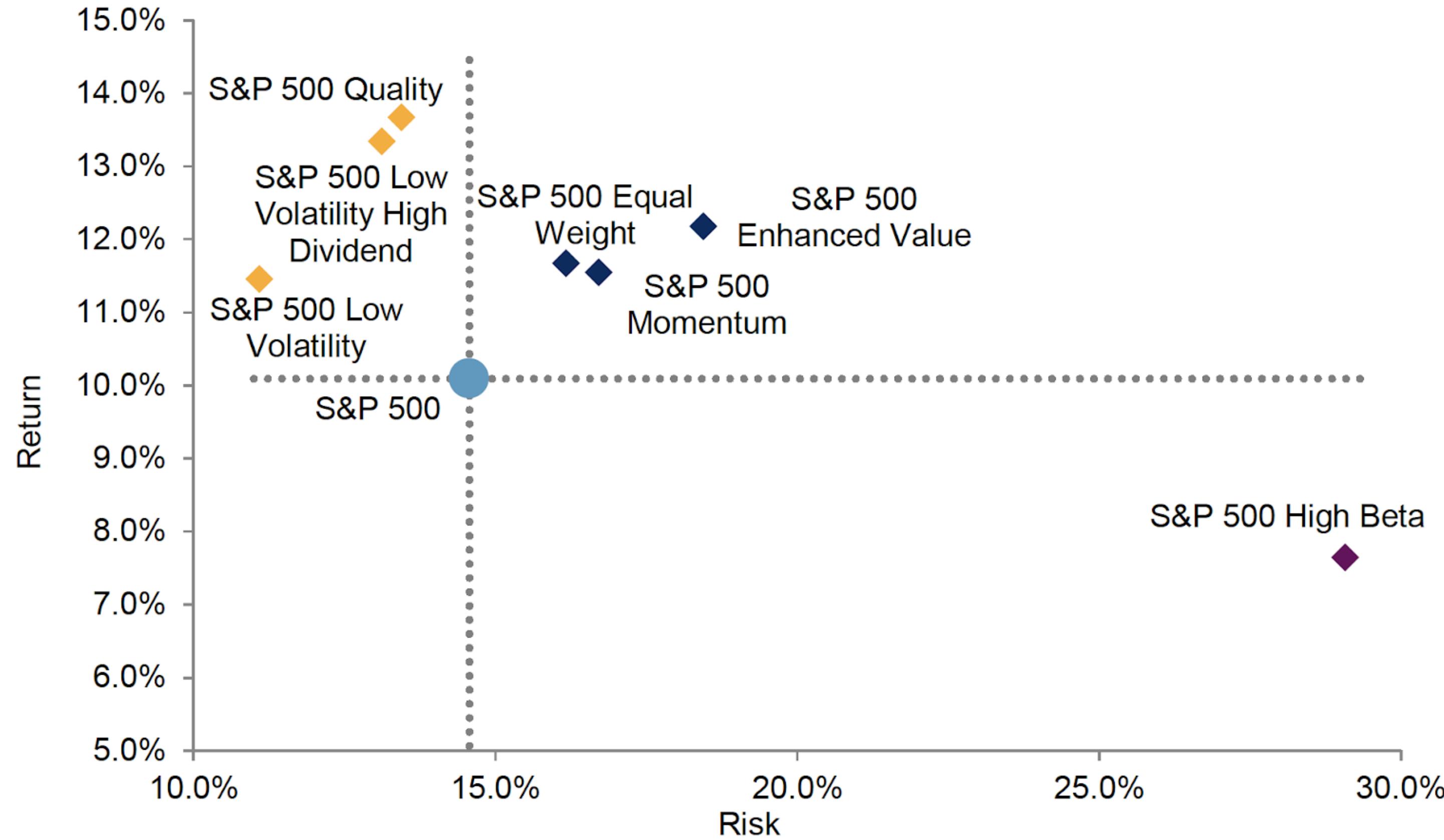
# 5. Factor investing



source: Providing Alpha In A Smart Beta World, Arne Staal, Standard Life Investments research paper; <https://www.valuewalk.com/2016/10/providing-alpha-smart-beta-world/>

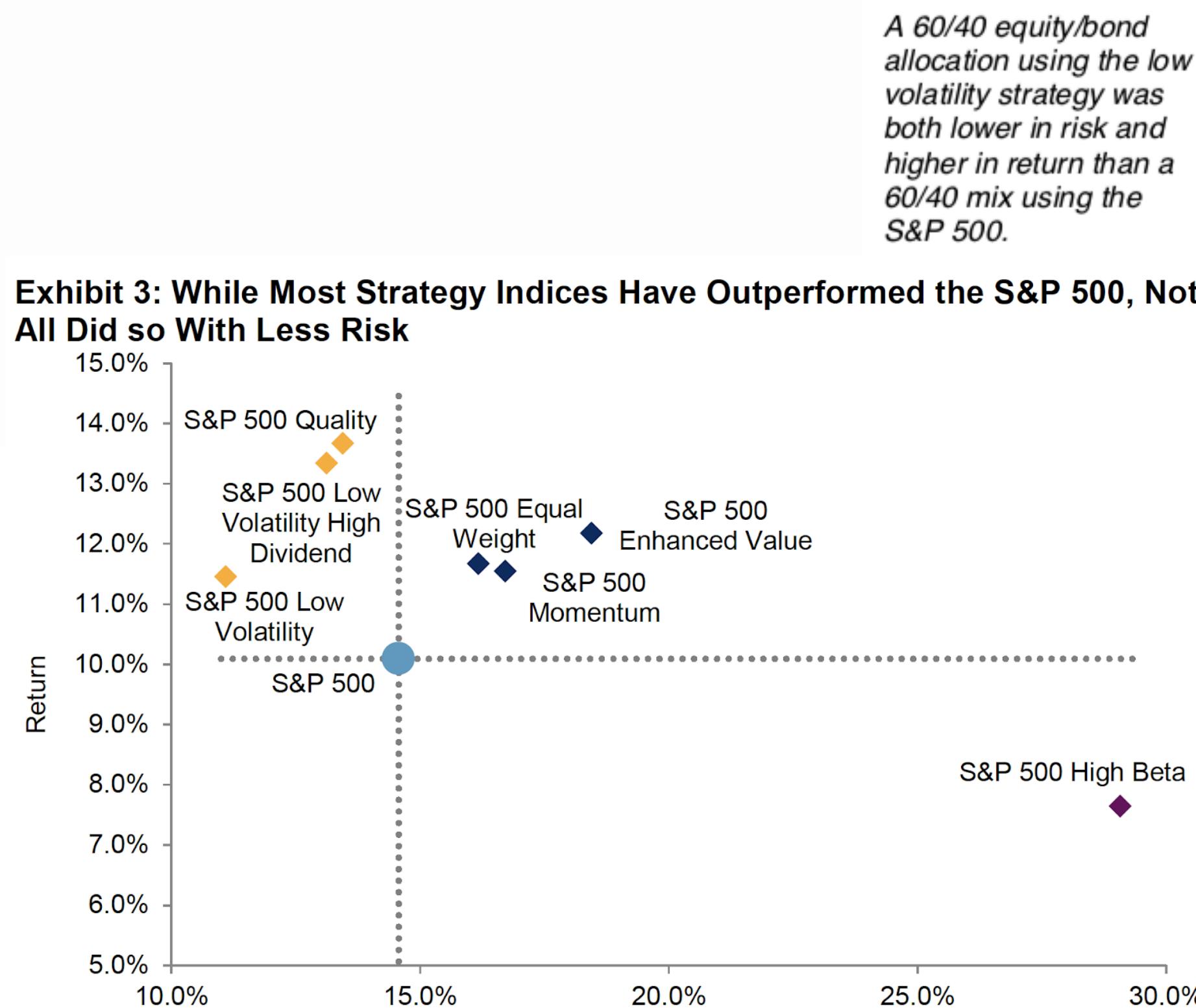
# 5. Factor investing

**Exhibit 3: While Most Strategy Indices Have Outperformed the S&P 500, Not All Did so With Less Risk**



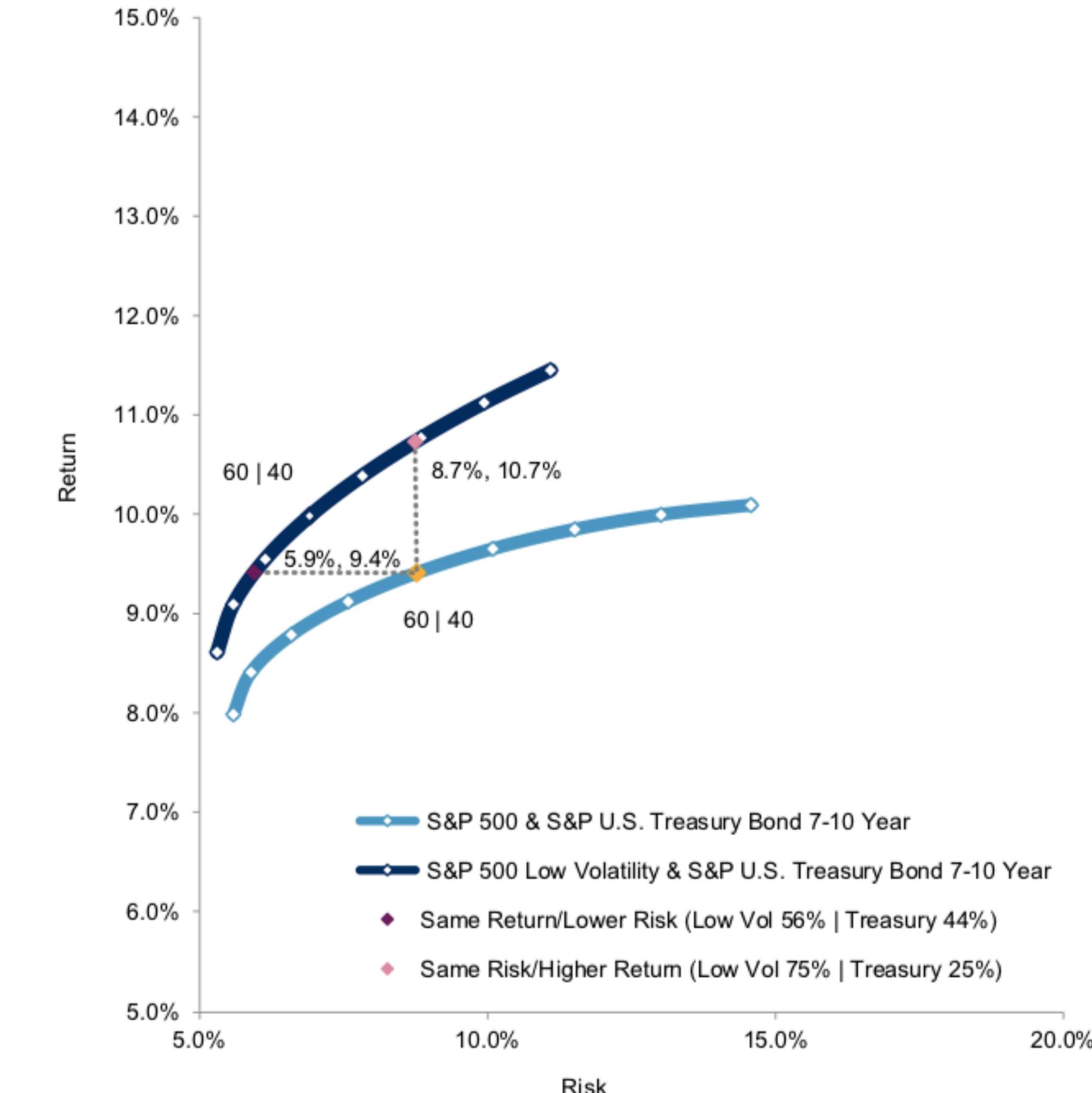
Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 1994, through Dec. 31, 2017. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

# 5. Factor investing



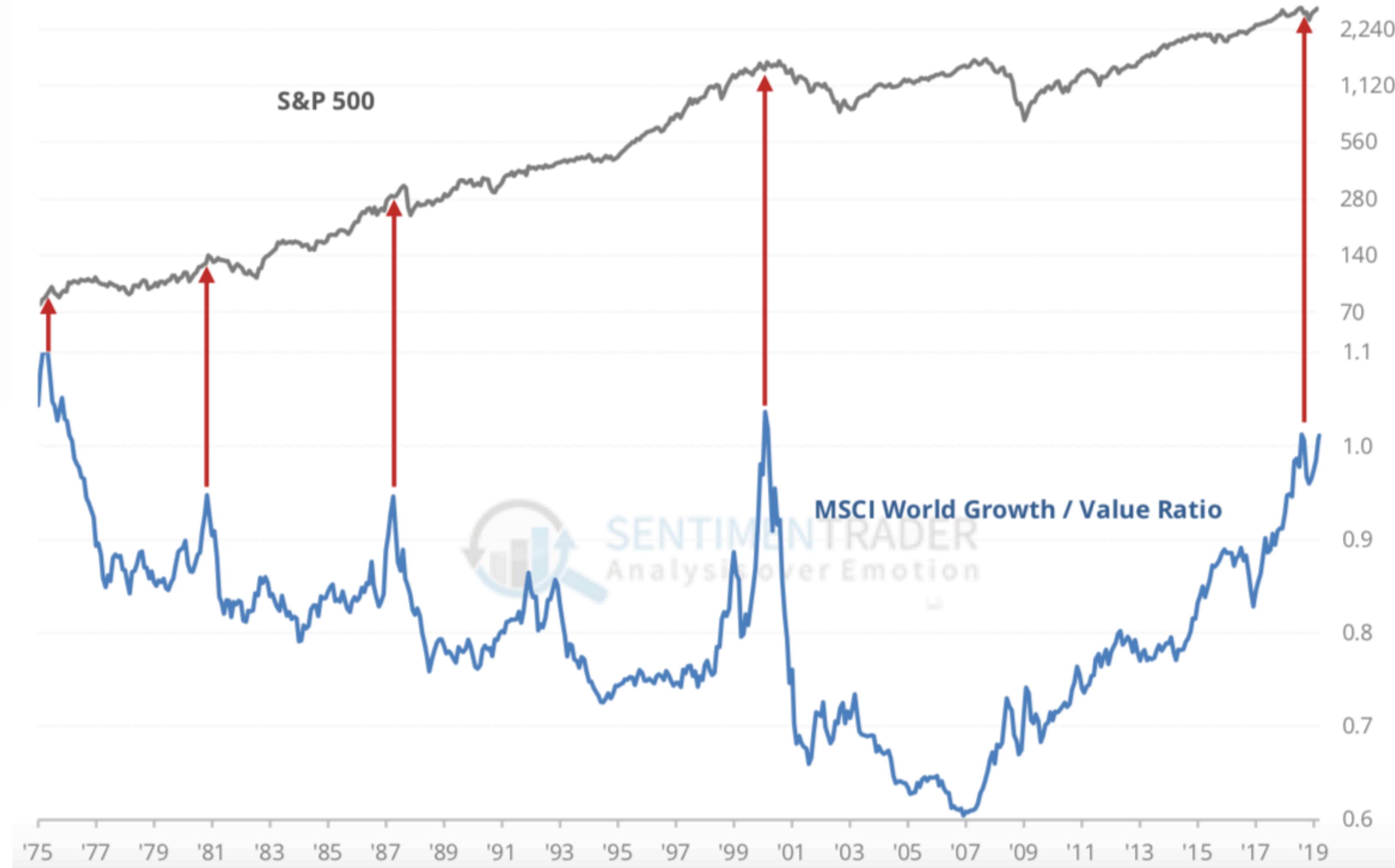
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**Exhibit 4: The Efficient Frontier Using the S&P 500 Low Volatility Index Was an Improvement in Both Risk and Return Compared to the Benchmark**



# 5. Factor investing

Currently state of the Growth-vs-Value debate:



# Conclusions

- there exist a **variety of successful investment strategies** that are well known and publicly available, yet are unsuitable for some or even most investors
  - a **winning strategy** possesses an “**edge**” due to either:  
**informational, analytical, behavioral** or **technical** advantages over other market participants
  - **skewness** and **sensitivity to tail risk** scenarios explain some of the potential payoffs for following such a strategy
  - a need to **survive volatility** are also obstacles an investor must tackle. Not all investors manage to do so
  - **behavioral biases and overcrowding trends** can lead to fluctuations between the profitability of a known strategy. When a strategy “falls out of favor” and is less widely adopted, it can regain its previous potential of higher profitability
- ...which explains how a **popular, widely known strategy can survive and continue to be profitable.**

**As a side note:**

**The popularity of a strategy lowers its “edge”, or gain over a random, passive market strategy, although it rarely depletes the strategy completely.**

# Further reading

**“How Can a Strategy Everyone Knows About Still Work?”** — A great research article by **Cliff Asness**, CEO of AQR Capital Management. Further investigation of the effects of overcrowding on popular factor-style investing strategies (impact on profitability and on liquidity)  
<https://www.aqr.com/Insights/Perspectives/How-Can-a-Strategy-Still-Work-If-Everyone-Knows-About-It>

**“Who Is On the Other Side?”** by **Michael J. Mauboussin**, Director of Research, Blue Mountain Capital Management. A perfect starting point in discussing sources of potential advantages to active investing.  
<https://www.bluemountaincapital.com/wp-content/uploads/2019/02/Who-Is-On-the-Other-Side.pdf>

A comprehensive study of over 300 different investing factors reported in financial research papers is done by Harvey, Campbell R. and Liu, Yan and Zhu, Caroline, “**...and the Cross-Section of Expected Returns**” (February 3, 2015). Available at SSRN: <https://ssrn.com/abstract=2249314> or <http://dx.doi.org/10.2139/ssrn.2249314>

The authors argue that a much more rigorous statistical procedure for testing significance of a perceived discovery is appropriate for such studies, to account for non-reported failed discoveries and rule out data-mining, resulting in much less actual factors being statistically significant.

A similar test was done in Hou et al., “**Replicating Anomalies**”, 2017.  
<http://www.nber.org/2018LTAM/hou.pdf>

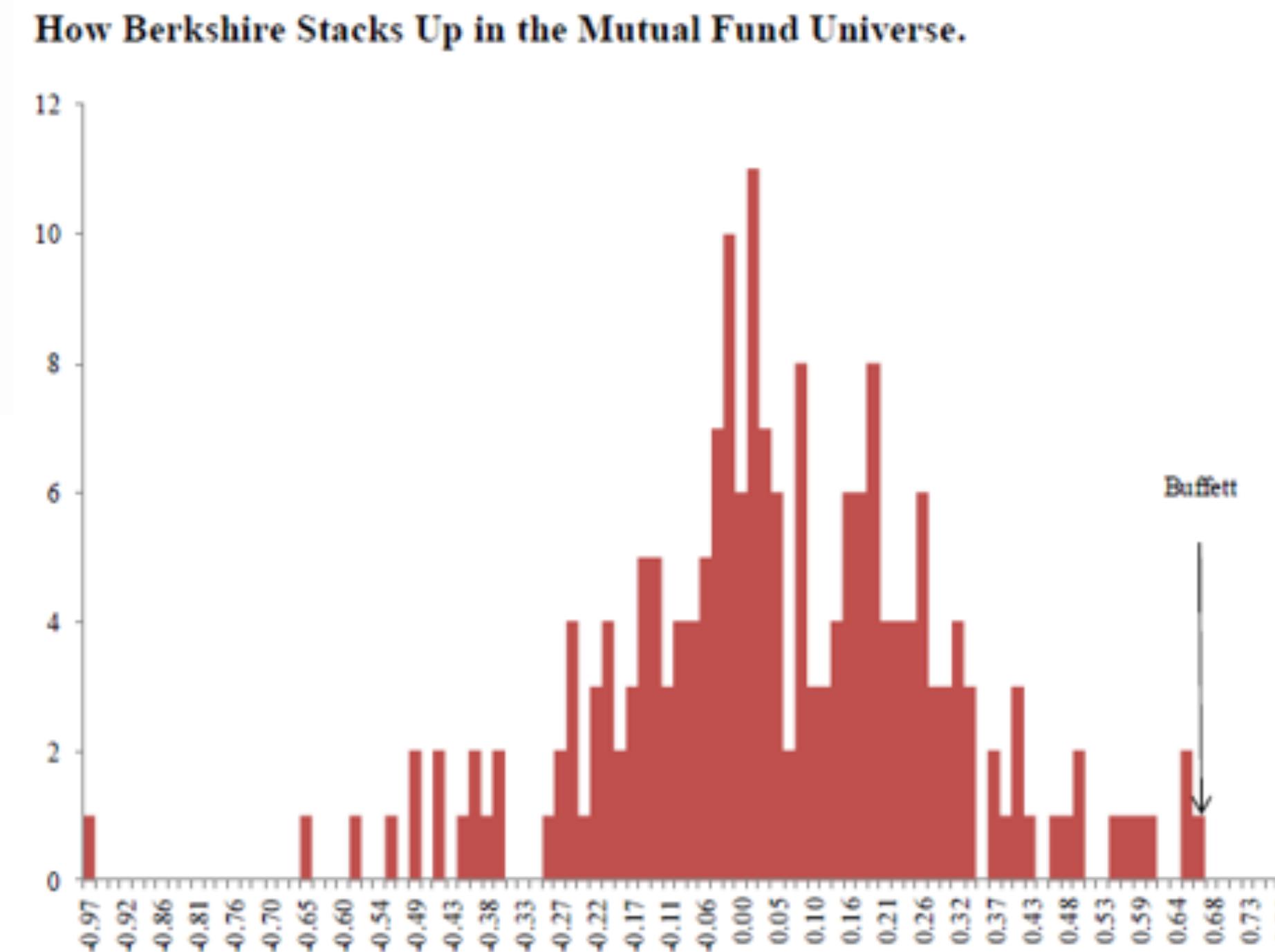
# Thank you for your attention

And please remember: none of this is investment advice. Investors invest at their own risk.

All works cited are copyrighted to their respective owners and sources.

# Bonus slides

One interesting work<sup>[1]</sup> uses factors and regression analysis to “reverse engineer” the impressive returns of Warren Buffett’s Berkshire Hathaway<sup>[2]</sup> investment conglomerate:

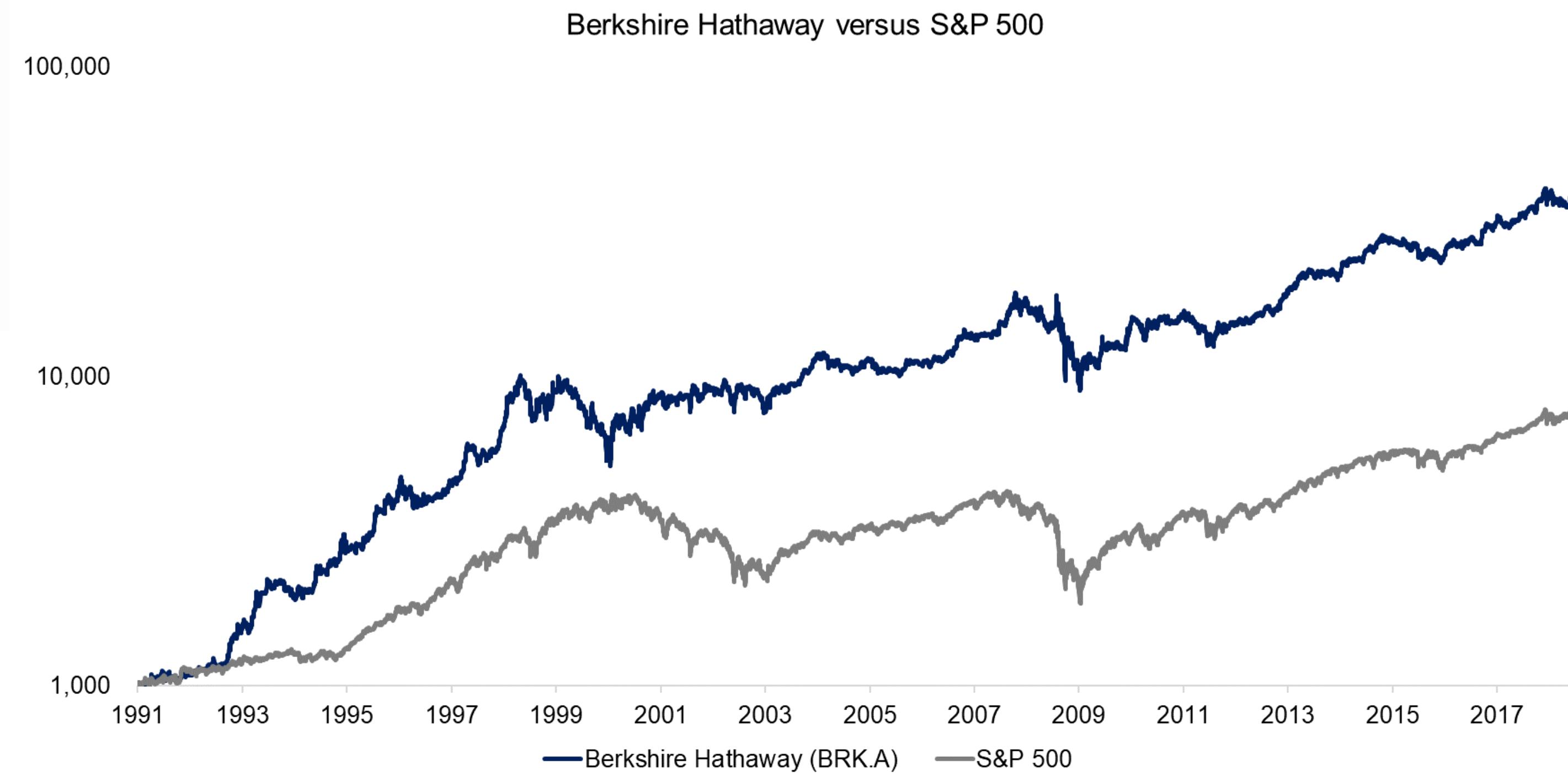


[1] source: <https://www.factorresearch.com/research-warren-buffett-the-greatest-factor-investor-of-all-time>

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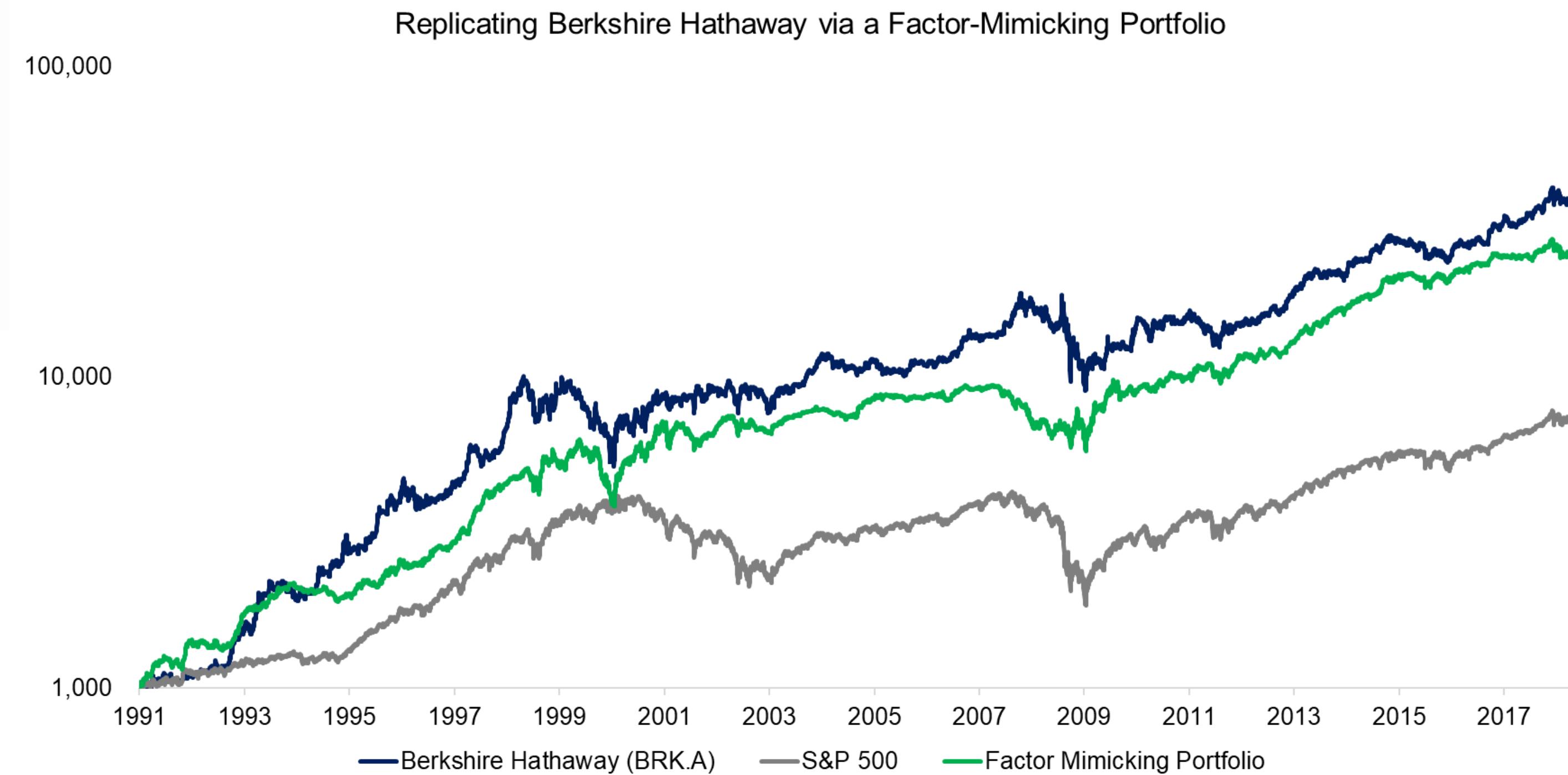


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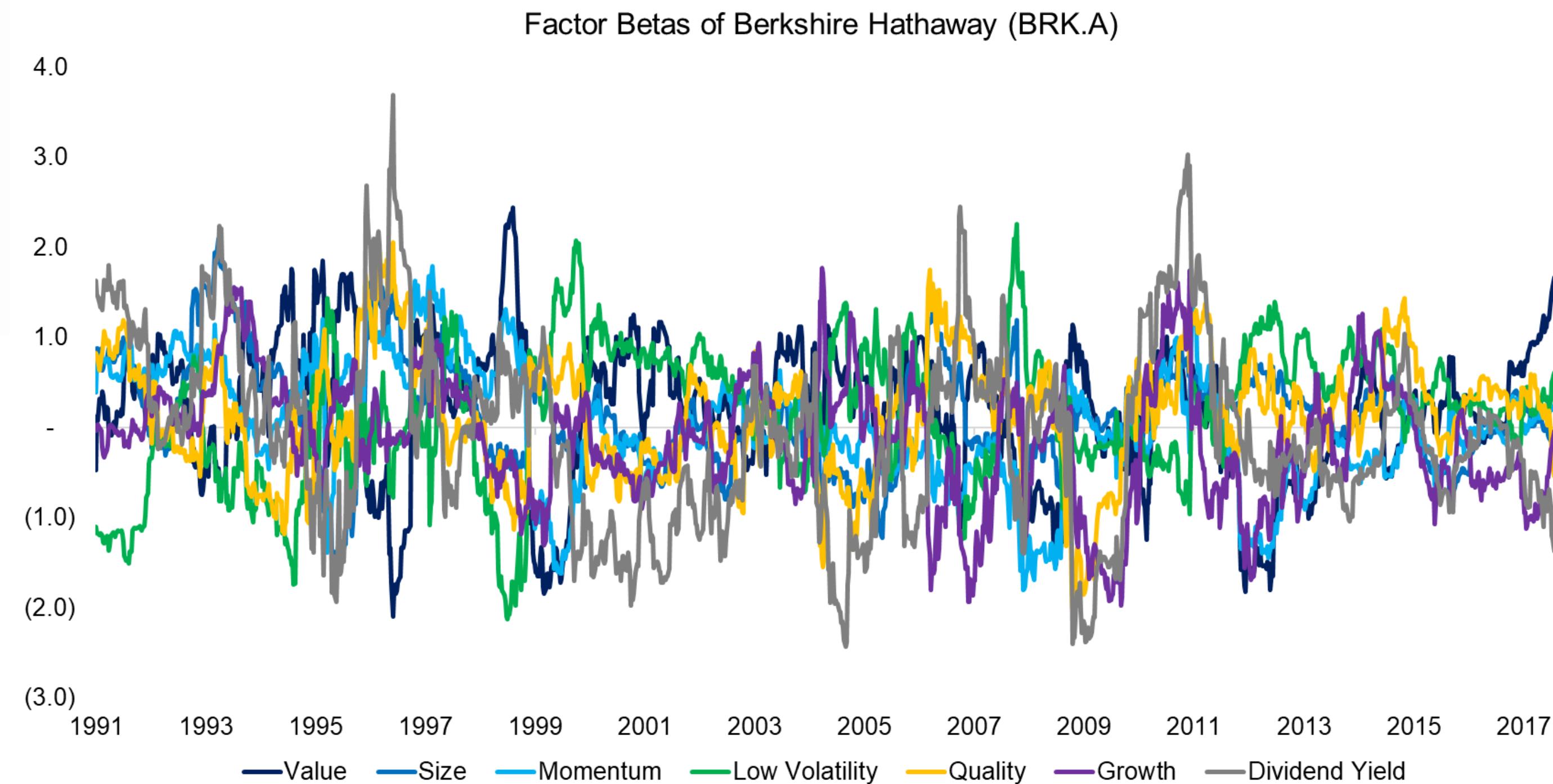


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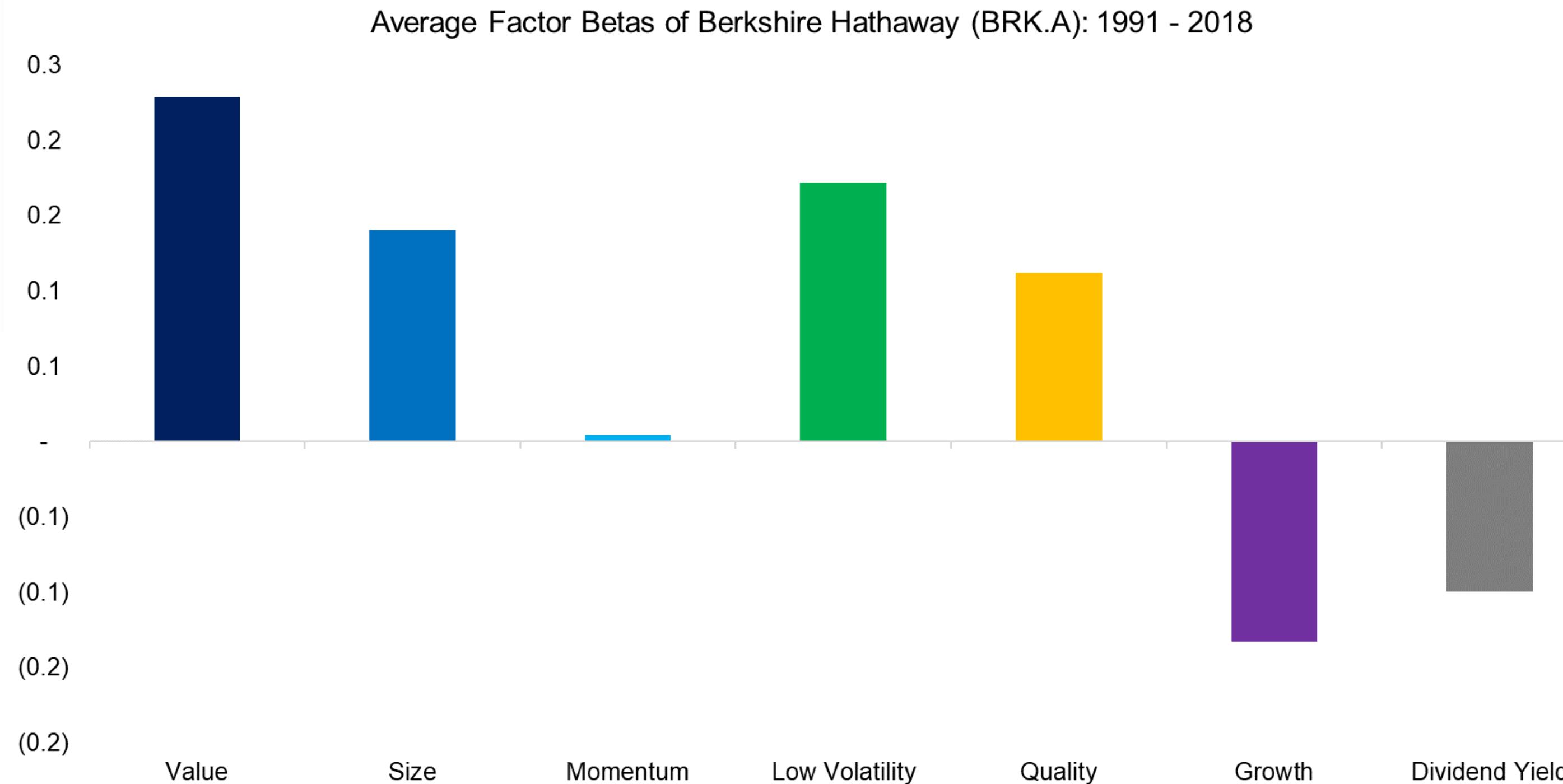


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