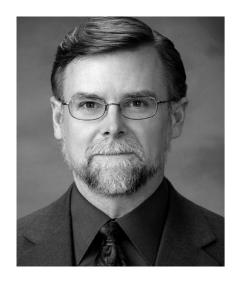
JULEXCAPITAL

TAA - when inflation is rising

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Today . . . Right now

Consumer Price Inflation today



CPI today

- On a year-over-year basis
 - **9.1%** June 30th
 - **8.5%** July 31st
 - **8.0% e** August 31st

Expected future inflation



Just take the difference between

- Regular Treasuries
- TIPS

Be careful to

- Use current yield
- Exactly match the maturities



Treasury Yields

| NAME | COUPON | PRICE | YIELD |
|----------------------|--------|-------|-------|
| GB3:GOV 3 Month | 0.00 | 2.79 | 2.85% |
| GB6:GOV 6 Month | 0.00 | 3.17 | 3.27% |
| GB12:GOV 12 Month | 0.00 | 3.25 | 3.36% |
| GT2:GOV 2 Year | 3.25 | 99.69 | 3.41% |
| GT5:GOV 5 Year | 3.13 | 99.40 | 3.26% |
| GT10:GOV 10 Year | 2.75 | 96.97 | 3.11% |
| GT30:GOV 30 Year | 3.00 | 95.17 | 3.25% |



Treasury Inflation Protected Securities (TIPS)

| NAME | COUPON | PRICE | YIELD | |
|-----------------------|--------|--------|-------|--|
| GTII5:GOV 5 Year | 0.13 | 98.19 | 0.52% | |
| GTII10:GOV 10 Year | 0.63 | 100.98 | 0.52% | |
| GTII20:GOV 20 Year | 0.75 | 95.02 | 1.03% | |
| GTII30:GOV 30 Year | 0.13 | 79.83 | 0.91% | |

Therefore the market expects future inflation to be



• Average over the <u>next</u>

| • 2.7% 5 y | /ears |
|------------|-------|
|------------|-------|

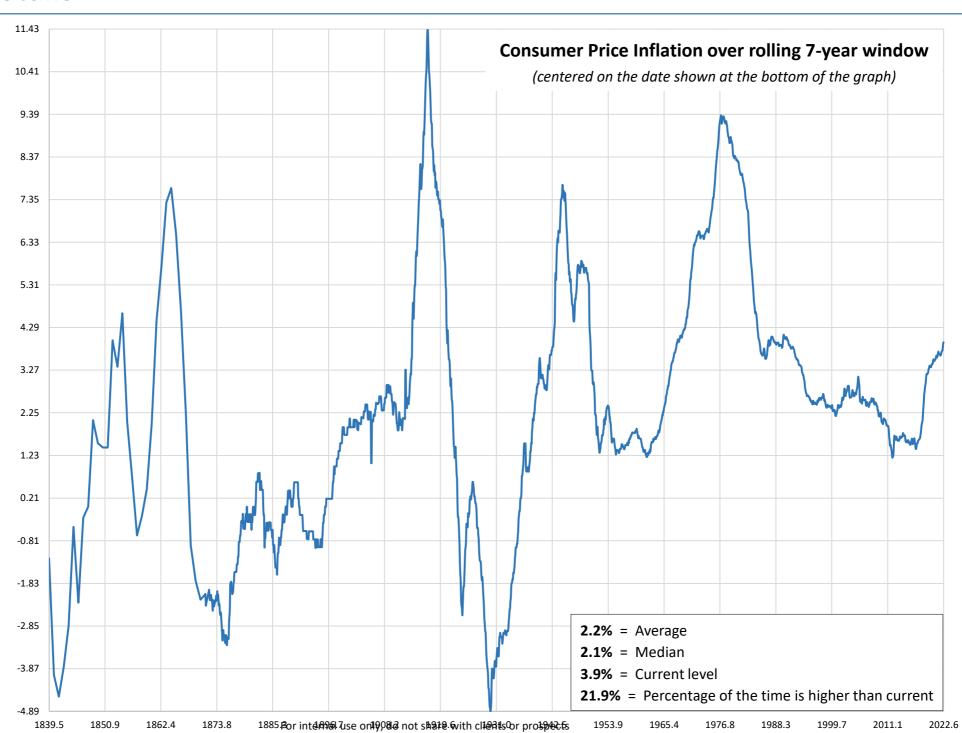


Context is necessary

Long-run history

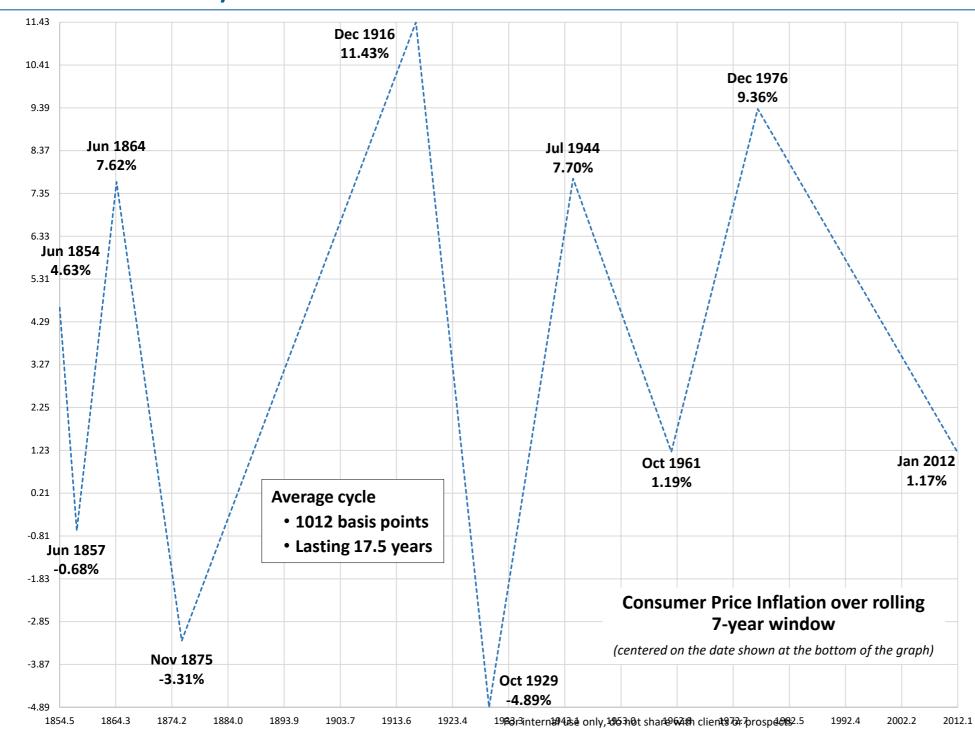
Inflation - the details





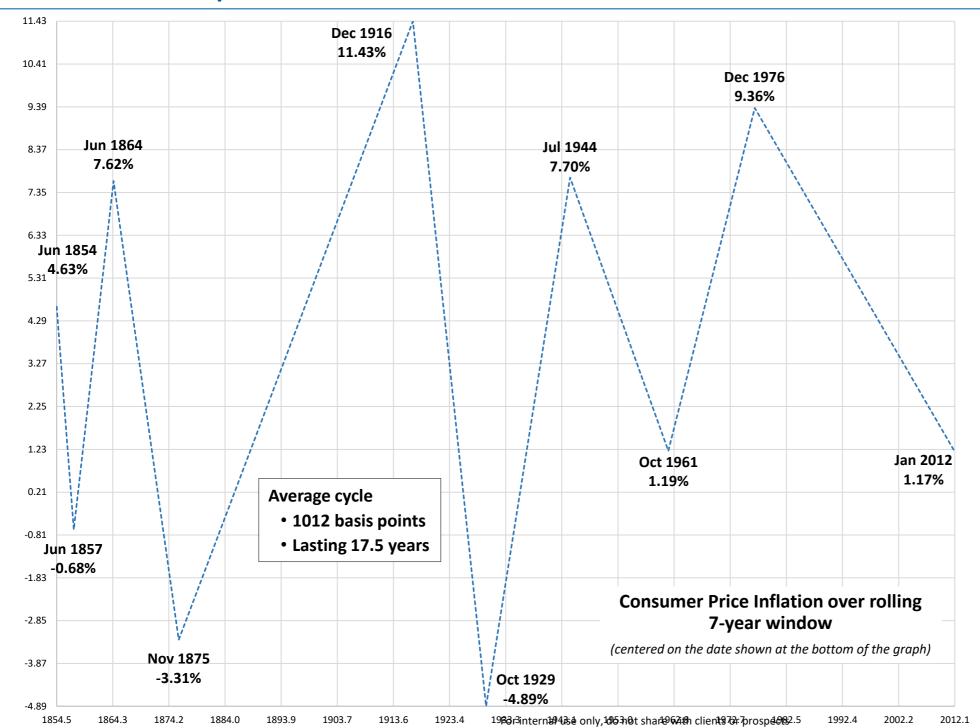
Inflation - the cycles





Inflation - the cycles





Inflation . . . Now rises for "17.5 years"

Like its always done



If we just "accept" history

Take history as the forward-looking forecast A good/best starting point

Future inflation



Bottomed out

- Jan 2012
- At 1.17%

Typical cycle

- Runs for 17.5 years
- Moves inflation YOY by 1012bps
- If history repeats (the **best** possible starting point) . . . inflation will peak
 - On July 2029
 - At 11.29% . . . YOY (year-over-year)
 - Is this "heroic"? Nope . . . This would be normal, vanilla, boring, and seriously typical
 - RECALL . . . inflation hit a high of 14.8% on Mar 1980 YOY



Important qualifications

Drawn from today's . . . quite serious realities



- It's all about COVID
- And the US government's response to COVID
- And many other country's . . . respective responses to COVID
- We seriously need to modify our history-based conclusions for the once-in-a-hundred-year event of COVID
- I struggle to see . . . how this has anything to do with "long-run" interest rates
- BUT . . . It has serious implications for inflation

How did inflation get to today's extreme high level



Why is inflation happening . . .

- COVID
 - Millions left the labor force . . . stopped working
 - The global supply chain broke . . . and it takes years (not months) to reconnect it
 - Consumers got bored . . . and just started buying stuff . . . a <u>lot</u> of stuff
- Federal government stimulus
 - Monetary by Federal Reserve
 - Fiscal spending by the US Congress
- Ukraine
- Deglobalization

What happens to inflation next



• It goes <u>down</u> . . . Big time

- Security markets are forecasting inflation to <u>AVERAGE</u> just
 - 2.7 % over the <u>next</u> five years
 - 2.6% over the <u>next</u> ten years

Why is it necessary that inflation falls from today's level



Why must inflation fall from current levels?

- COVID
 - Millions left the labor force . . . stopped working
 - The global supply chain broke . . . and it takes years (not months) to reconnect it
 - Consumers got bored . . . and just started buying stuff . . . a lot of stuff
- Federal government stimulus
 - Monetary by Federal Reserve
 - Fiscal spending by the US Congress
- Ukraine
- Deglobalization

These two factors are working hard to drive inflation higher

These five factors are all working in reverse, serving to push inflation back down



But why?

Why would inflation go back up . . . <u>AFTER</u> COVID fully washes through the system

It may not

BUT

The BIG issue at play . . . What is really determining everything



- It's all about funding (paying for) . . . projects . . . that're at play
- Society and governments have several projects that they're attempting to finance
 - Cold war with Russia
 - Cold war with China
 - Conversion from fossil fuels to renewables
 - Income inequality gap
 - Wealth inequality gap
 - Expanding social welfare programs
 - Transitioning from one political structure . . . To a different structure
- Inflation is a method for both obscuring the cost . . . and dispersing its burden
- My 2 cents . . . The French revolution (reign of terror) of the late 18th century . . . Is helpful



Ultra-simplified TAA model

Used to evaluate the question of how TAA performs when inflation rises/falls

28 asset categories (Jan 1919 - present)



- High quality, consistent, uniform data available since Jan 1919
- 7 types of US stocks
- 9 international countries
- 5 types of US Treasuries
 - 90-Day . . . to . . . 30-Years
- 1 type of TIPS
 - Yes, simulated back to 1919
- 1 type of high yield US corporate bonds
 - Yes, simulated back to 1919
- 2 types of precious metals
 - Gold and platinum
- 3 types of generalized commodities
 - Ultra-diversified commodities
 - Agricultural commodities
 - Diversified base metals

Specifics of the TAA modeling



- Investment time horizon is specified as
 - 7 ½ years The midpoint of 5 years and 10 years
- Pick those asset categories that trended the most strongly
 - Over the last eleven months

- Always pick the top eight
- Because of the short investment time horizon (7 ½ years)
 - Differentiated weighting is applied to the asset categories
 - For example, if Treasuries are "selected," then they receive an extra weight

Transactions costs are assumed in the analysis



- At the low end
 - 1 basis point to trade stocks in one direction (a buy or a sale)
- At the high end
 - 108.3 basis points to trade diversified base metals . . . a buy or a sale
- The assumed transactions costs are far higher than what one to encounter in real life



- All data was provided by
- Global Financial Data, Inc.
- Kenneth R. French data library (Dartmouth College)



Results

Over the entire time period 1919 to the present

All results are shown after inflation



- Adjustment for inflation is necessary because
 - Inflation has varied to such an extent (high to low), that without this adjustment one ends up with noise
 - Investors care about what their portfolio will purchase in goods and services
- We took the entire time period (1919 present)
- Evaluated for those months when inflation was rising the most rapidly
 - 20% of the months
 - 25%
 - 33.33%
 - 50%
 - 60%
- Strictly ignored how high or low inflation was . . . Only looked at how fast it was rising (measured proportionately)

After inflation, annualized returns <u>Rising</u> the FASTEST



| Percentile (in %) | TAA before all transactions costs | TAA after super high transactions costs | S&P 500 | Dow Jones Industrials | 10-year Treasury | US Aggregate Bond Index | Gold | 25/75 S&P 500 and 10-year Treasury |
|----------------------|---|---|---------|--------------------------|---------------------|-------------------------------|------|--|
| 20 | 2.7 | 1.5 | -3.3 | -4.1 | -4.7 | -4.2 | 0.3 | -4.1 |
| 25 | 2.3 | 1.2 | -2.7 | -3.4 | -3.4 | -2.8 | -1.4 | -3.0 |
| 33.333 | 4.4 | 3.3 | -0.5 | -0.7 | -2.1 | -1.6 | -0.4 | -1.5 |
| 50 | 6.8 | 5.7 | 1.7 | 1.8 | -0.4 | -0.1 | 1.1 | 0.3 |
| 60 | 7.8 | 6.7 | 3.0 | 3.4 | 0.1 | 0.5 | 0.9 | 1.1 |



When inflation was falling the fastest



This is when inflation is **FALLING** the fastest

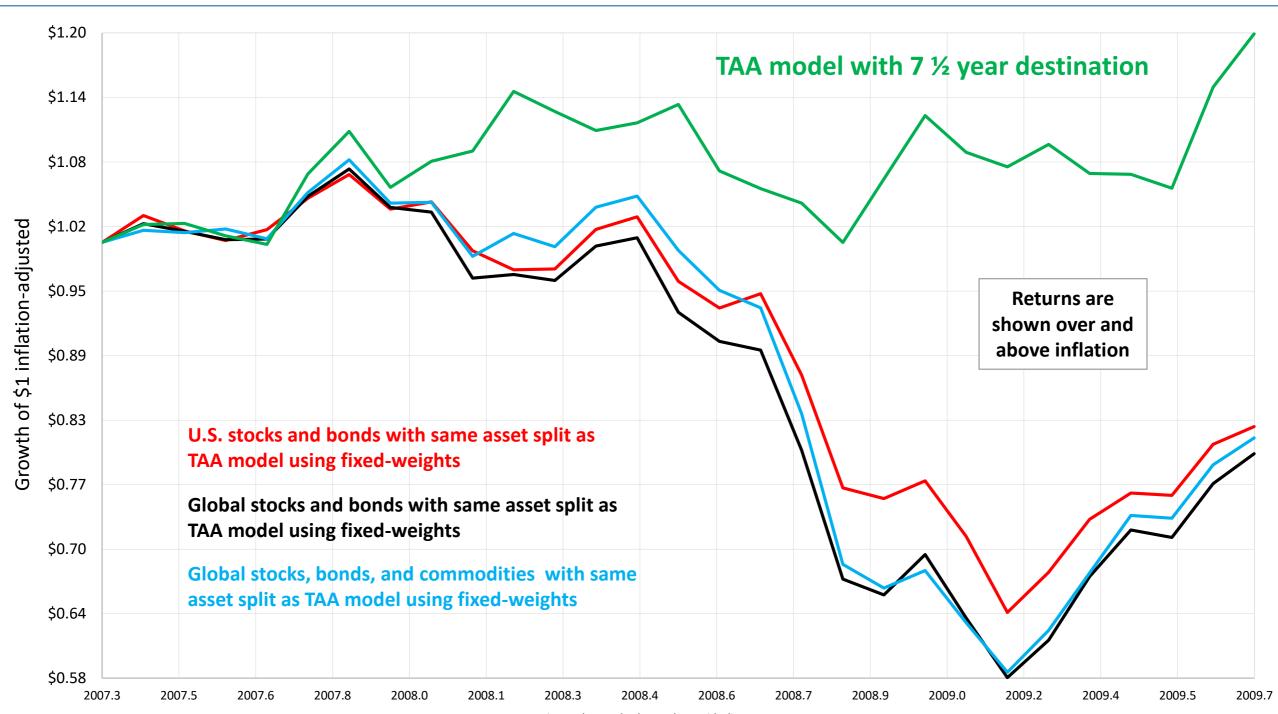
| Percentile (in %) | TAA before all transactions costs | TAA after super high transactions costs | S&P 500 | Dow Jones Industrials | 10-year Treasury | US Aggregate Bond Index | Gold | 25/75 S&P 500 and 10-year Treasury |
|----------------------|-----------------------------------|---|---------|--------------------------|---------------------|-------------------------------|------|--|
| 10 | 16.1 | 15.7 | 11.6 | 9.3 | 13.9 | 13.5 | 10.9 | 14.6 |
| 20 | 18.5 | 17.9 | 18.3 | 19.1 | 8.0 | 8.9 | 6.5 | 11.2 |
| 25 | 18.7 | 18.1 | 16.6 | 16.2 | 7.0 | 7.8 | 6.6 | 10.0 |
| 33.33 | 18.3 | 17.6 | 15.9 | 15.5 | 6.4 | 7.0 | 4.2 | 9.3 |



But why?

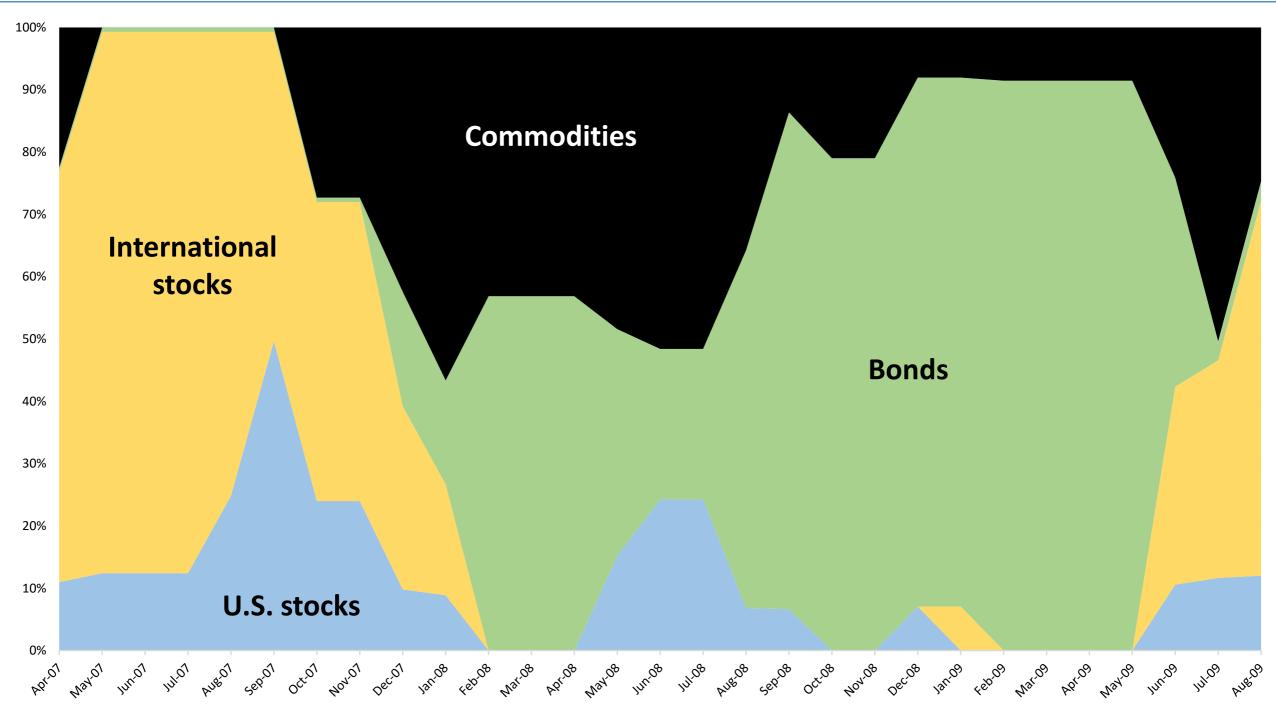
Why is the TAA model doing so much better than passive Buy & Hold?





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ntegrated's Investment Management Department is independent, unbiased, and has unencumbered access to the full range of institutional-quality investment management products available throughout the world. The Investment Department has as its mission to conceive, design, build, deliver, and support superior scalable investment management solutions. The superiority of these solutions is defined in terms of cost, tax efficiency, risk-adjusted performance, transparency, dependability, ease of understanding, and likelihood of achieving their stated investment objectives.



Rob Brown

Rob is a senior level investment professional with over 35 years of experience in portfolio management for large, sophisticated foundations, endowments, pensions, and the ultra-high net worth. Today, he serves as Integrated's Chief Investment Officer. Prior to Integrated, he held executive positions with Goldman Sachs, Genworth Financial, SEI, Envestnet, and the CFA Institute. During his tenure with Goldman Sachs, he directed the investment management department, a team that included nine CFA Charterholders who oversaw \$18.6 billion. While at Genworth, Rob served as the Chief Investment Officer directing a \$7.5 billion institutional portfolio of domestic and international securities. At SEI, he worked as the Managing Director of SEI's Research Department that supported the wealth management needs of over \$300 billion of pension, endowment, and foundation assets under advisement. At Envestnet, Rob served as the Chairman - Investment Policy Committee, Executive Vice President, and Senior Managing Director - Consulting Division for PMC International (later acquired by Envestnet). where he led the investment decision-making for a \$3.3 billion portfolio. Rob also worked in the public sector, where he held the position of Chief Investment Officer for one of our nation's larger state public pension plans, the Arizona Public Safety Personnel Retirement System. His publications have appeared in the Journal of Derivatives and Hedge Funds, Journal of Investing, Journal of Investment Consulting, Journal of Beta Investment Strategies, Pensions & Investments, FA Magazine, RIA Central, On Wall Street Magazine, Royal Alliance Associates Sourcebook, Bank Investment Consultant, Investment News Magazine, London Financial Times, Financial Planning, Financial Advisor, Journal of Finance and Market, Journal of Financial Planning, and Journal of Wealth Management.

Winners Repeat, Losers Repeat

Rob Brown

Rob Brown

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KEY FINDINGS

- The TAA portfolio earned an inflation-adjusted 10.8% over the aggregate period (102.1 years), whereas a comparable passive index earned a lesser 6.7% (one with a similar standard deviation, a 75/25 global stock/bond mix).
- TAA's performance advantage resulted even after subtracting unusually high transaction costs from the TAA portfolio, while assuming that the comparable passive index could rebalance each month cost-free.
- The TAA portfolio's greater relative success in achieving the stated investment objective did not diminish with the passage of time. If anything, it may have improved during the most recent period (14.3% of the cases examined drawn from the data spanning 1919–2021).

ABSTRACT

I present a tactical asset allocation proof-of-concept portfolio. It is intended to harvest the non-IID statistical attributes of stocks, bonds, commodities, and currencies, both domestic and international. It has as its objective to benefit from markets' propensity to trend from month to month and during both bull and bear market environments. The proof-of-concept portfolio relies on a simple quantitative rule that allows for rigorous evaluation over the past 102.1 years. The results presented herein suggest that Tactical Asset Allocation (TAA) is an approach worthy of consideration. Moreover, the article suggests that a necessary condition for TAA success lies in correctly specifying its rather differentiated investment objective—one that may be unrelated to comparisons with popular fixed-weight index benchmarks. Such fixed-weight benchmarks have correlations with TAA strategies that are so low as to make commonly used statistical comparisons irrelevant (i.e., not statistically significant). This article attempts to correct our industry's mischaracterization and overpromising of all things TAA by focusing on the time required for success.

actical Asset Allocation (TAA) earned a poor reputation over the past 13 years (since 3/6/2009, the recent bear market low). My objective is to mitigate a portion of the retail industry's TAA skepticism. This is an interesting topic, given the size of the retail industry, TAA's prominence within it, and forecasted future growth in TAA's market share. Direct and indirect, the retail industry is large and growing, currently estimated to be more than \$16 trillion. TAA first came into existence back in the 1980s and has grown consistently ever since, with occasional faster growth

¹ Sources: ICMA (International Capital Market Association) analysis using Bloomberg Data (August 2020), Ned Davis Research, and The Visual Capitalist (https://www.visualcapitalist.com).



Quick rebuttal

Have bear markets been getting shorter . . . <u>NO !</u> Has TAA been losing its edge . . . <u>NO !</u>

Bear markets for inflation-adjusted U.S. stocks since 1845

| Cumulative percentage return, unannualized | Duration in years | Start date | End date | Volatility, annualized standard deviation of monthly returns | Percentage of monthly returns that were POSITIVE | Annualized return during BEAR market |
|--|-------------------|------------|----------|--|--|--------------------------------------|
| -30 | 1.25 | Aug 1853 | Nov 1854 | 27.6 | 27 | -25.1 |
| -31 | 0.83 | Dec 1856 | Oct 1857 | 19.2 | 10 | -36.4 |
| -35 | 0.67 | Jul 1864 | Mar 1865 | 32.4 | 38 | -47.1 |
| -32 | 1.25 | Mar 1876 | Jun 1877 | 7.8 | 7 | -26.2 |
| -37 | 1.17 | Sep 1906 | Nov 1907 | 13.8 | 14 | -32.7 |
| -27 | 2.00 | Oct 1912 | Oct 1914 | 11.0 | 38 | -14.8 |
| -48 | 4.08 | Nov 1916 | Dec 1920 | 15.9 | 41 | -14.8 |
| -79 | 2.75 | Aug 1929 | May 1932 | 37.3 | 36 | -43.7 |
| -50 | 1.08 | Feb 1937 | Mar 1938 | 31.6 | 23 | -47.1 |
| -39 | 2.58 | Sep 1939 | Apr 1942 | 19.3 | 42 | -17.3 |
| -37 | 1.75 | May 1946 | Feb 1948 | 14.5 | 29 | -23.4 |
| -35 | 1.58 | Nov 1968 | Jun 1970 | 14.8 | 26 | -24.1 |
| -52 | 1.75 | Dec 1972 | Sep 1974 | 15.2 | 14 | -34.2 |
| -30 | 0.25 | Aug 1987 | Nov 1987 | 33.9 | 0 | -76.3 |
| -47 | 2.08 | Aug 2000 | Sep 2002 | 17.8 | 36 | -26.4 |
| -52 | 1.33 | Oct 2007 | Feb 2009 | 19.2 | 25 | -42.1 |
| ? | ? | Dec 2021 | ? | ? | ? | ? |

| Cumulative percentage return, unannualized | Duration in years | Start date | End date | Volatility, annualized standard deviation of monthly returns | Percentage of monthly returns that were POSITIVE | Annualized return during BEAR market |
|--|-------------------|------------|----------|--|--|--------------------------------------|
| -50 | 1.08 | Feb 1937 | Mar 1938 | 31.6 | 23 | -47.1 |
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| ? | ? | Dec 2021 | ? | ? | ? | ? |

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EXHIBIT 12 Probability of Earning More Than 4.25% Inflation-Adjusted During a Random 12.5-Year-Long Investment Period

| Number of Unique 12.5- Year-Long Investment Periods that End During the Date Range Shown to the Right | Date Range | TAA Portfolio | 65/0/35/0 | 75/0/25/0 | 35/30/35/0 | 40/35/25/0 | 35/30 26.25/8.75 | 40/35 18.75/6.25 |
|---|-----------------------|------------------|-----------|-----------|------------|------------|---------------------|---------------------|
| 154 | Mar 2009– Dec 2021 | 100 | 66 | 66 | 64 | 65 | 79 | 77 |
| 153 | Jun 1996– Feb 2009 | 100 | 98 | 98 | 98 | 98 | 99 | 98 |
| 154 | Aug 1983– May 1996 | 100 | 81 | 81 | 81 | 81 | 81 | 81 |
| 154 | Oct 1970– Jul 1983 | 100 | 18 | 19 | 21 | 24 | 23 | 26 |
| 154 | Dec 1957– Sep 1970 | 100 | 99 | 100 | 99 | 100 | 100 | 100 |
| 153 | Mar 1945– Nov 1957 | 84 | 63 | 78 | 37 | 43 | 38 | 44 |
| 154 | May 1932– Feb 1945 | 100 | 71 | 69 | 91 | 90 | 90 | 86 |

NOTE: TAA = Tactical Asset Allocation.

Probability of Earning More Than 4.25% Inflation-Adjusted During a Random 12.5-Year-Long Investment Period

| Number of Unique 12.5- Year-Long Investment Periods that End During the Date Range Shown to the Right | Date Range | TAA Portfolio | 65/0/35/0 | 75/0/25/0 | 35/30/35/0 | 40/35/25/0 | 35/30 26.25/8.75 | 40/35 18.75/6.25 |
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| 153 | Jun 1996– Feb 2009 | 100 | 98 | 98 | 98 | 98 | 99 | 98 |
| 154 | Aug 1983– May 1996 | 100 | 81 | 81 | 81 | 81 | 81 | 81 |
| 154 | Oct 1970– Jul 1983 | 100 | 18 | 19 | 21 | 24 | 23 | 26 |
| 154 | Dec 1957– Sep 1970 | 100 | 99 | 100 | 99 | 100 | 100 | 100 |
| 153 | Mar 1945– Nov 1957 | 84 | 63 | 78 | 37 | 43 | 38 | 44 |
| 154 | May 1932– Feb 1945 | 100 | 71 | 69 | 91 | 90 | 90 | 86 |
| 4 | | | | | | | | |

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How to explain Tactical Asset Allocation to a prospect

Friday

Sept 16th

11:00 a.m. EASTERN

Important Disclosures



All data and statistics were provided by Ycharts, Global Financial Data, Inc., and NDR, Inc. (unless otherwise indicated in the exhibit)

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One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or adhere to a particular trading program in spite of trading losses are material points which can also adversely affect actual trading results. There are numerous other factors related to the markets in general or to the implementation of any specific trading program which cannot be fully accounted for in the presentation of hypothetical performance results and all of which can adversely affect actual trading results.

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