JULEX CAPITAL

What happens when interest rates rise?

How does TAA perform during rising/falling interest rate environments?

To answer this question, we must:

- Identify a time period to examine,
- Specify how we define rising and falling interest rate environments,
- Identify a simple transparent TAA portfolio that anyone could replicate, and
- Provide comparative passive index benchmarks.

Identify a time period to examine - Historically, interest rates proceeded through long "40-year" bull and bear markets, i.e., through multi-decade long regimes of rising and then falling interest rates. Therefore, any useful answer must examine the long span of time. Here, we examine the period from 12/31/1919 through the present. This allows use to identify performance during remarkably different interest rate environments. Our definition of "interest rates" is the current yield on the 10-year US Treasury bond.

Specify how we define rising and falling interest rate environments - The time period examined provides monthly returns. We broke these months into four equal-sized groups identifying periods of rapidly rising, moderating rising, moderately falling, and rapidly falling interest rates. Each group covers 25.3 years.

Identify a simple transparent TAA portfolio that anyone could replicate - Our TAA thought-experiment portfolio was constructed from 32 asset categories and had an average asset mix of: 21.7% US stocks, 25.6% international stocks, 13.5% US Treasury bonds, 33.6% US investment grade corporate bonds, 0.6% US high yield corporate bonds, 1.6% international bonds, 1.2% gold, and 2.1% other commodities. The thought-experiment portfolio is passive in that it eschews forecasts, predictions, or estimates of the future. Instead, it makes use of a simple observation, i.e., relative winners have a tendency to repeat for just one more month. And the same is true for relative losers. As a consequence, the thought-experiment portfolio heavily overweights the seven asset categories exhibiting the greatest relative trending over the last eleven months and strongly underweights (or excludes) the rest.

As a consequence, this portfolio has the average asset allocation described above, but at any instant in time, will deviate from this average so as to heavily overweight recent relative winners (and exclude or underweight the rest). The thought-experiment portfolio is continuously reshaping itself so as to remain in strong alignment with what has been working in the recent past.

To make the results more realistic, we assumed transactions costs for each trade - examples include 37 bps (0.37%) for a one-way trade of Palladium or 3½ bps (0.035%) for a one-way trade of generally investment grade international bonds.

Provide comparative passive index benchmarks - Three comparative benchmarks are provided. A simple narrow benchmark utilizing only the S&P 500 and the 10-year US Treasury bond. A broad domestic benchmark ultra-diversified across all US stock and bond categories. And a broad global benchmark ultra-diversified across all US and foreign stock and bond categories. All benchmarks are allocated 25% to stocks and 75% to bonds. This means that the three benchmarks are consistent and appropriate for a Bucket-2 investment solution, one serving spending needs that are between five and ten years in the future.

Julex Capital
40 Grove Street, Suite 140 • Wellesley, MA 02482
Phone 781-489-5398 • Website www.julexcapital.com

JULEX CAPITAL

Results . . .

When interest rates were . . .		TAA thought-experiment portfolio	Narrow U.S. benchmark 25% S&P 500 Index, 75% 10-year US Treasury bonds	Broad U.S. benchmark 25%/75% mix broadly diversified across all US stocks and bonds	Broad global benchmark 25%/75% mix broadly diversified across all US and int'l stocks and bonds
Rising the fastest	304 months (25% of the time) when interest rates rose the fastest	8.2%	-4.7%	-1.4%	0.2%
Rising a little bit	303 months (25% of the time) when interest rates rose only modestly	10.8%	4.9%	5.5%	4.1%
Falling a little bit	304 months (25% of the time) when interest rates fell only modestly	13.1%	9.7%	9.7%	8.8%
Falling the fastest	303 months (25% of the time) when interest rates fell the fastest	16.5%	18.8%	15.6%	13.3%

What happens when inflation rises?

To answer this second question, we followed a similar process. But now we broke our 1,214 months into four equal length periods each exhibiting a different level of inflation growth or decline.

When inflation was . . .		TAA thought-experiment portfolio	Narrow U.S. benchmark 25% S&P 500 Index, 75% 10-year US Treasury bonds	Broad U.S. benchmark 25%/75% mix broadly diversified across all US stocks and bonds	Broad global benchmark 25%/75% mix broadly diversified across all US and int'l stocks and bonds
Rising the fastest	303 months (25% of the time) when inflation rose the fastest	9.9%	4.8%	5.7%	4.9%
Rising a little bit	304 months (25% of the time) when inflation rose only modestly	12.9%	7.9%	8.3%	7.4%
Falling a little bit	304 months (25% of the time) when inflation fell only modestly	12.8%	7.6%	7.6%	7.0%
Falling the fastest	303 months (25% of the time) when inflation fell the fastest	12.8%	7.0%	7.0%	6.5%

JULEX CAPITAL

Conclusions

TAA's relative performance - The TAA thought-experiment portfolio performed well in all environments. It didn't matter whether interest rates or inflation were rising or falling. In contrast, the passive benchmark allocations suffered mightily during periods of rapidly rising interest rates and inflation.

Trust but verify - One of our nation's past presidents often used the phrase "trust but verify." This is a prudent approach when dealing with all investment strategies. Thankfully, the portfolio construction rules and the underlying data that define the thought-experiment portfolio are fully transparent and readily available. It is a simple and straightforward exercise to confirm the validity of the numbers presented above. And we will help anyone who would like to give it a try.

Next steps

Your financial advisor has a menu of possible investment solutions. The solution that is most appropriate to your unique needs and circumstances can only grow out of a meaningful discussion with your advisor. Reach out to them, talk with your advisor.

Rob Brown, CFA, PhD
Julex Capital Advisory Board Member
Website www.robbrownonline.com

JULEXCAPITAL

Important disclosures

It is not possible to invest, directly, in an index.

It is not possible to invest, directly, in any index referred to in this document.

Past performance is not an indicator of future results.

All performance appearing in this document is hypothetical and back-tested. Any hypothetical back-tested information provided herein is illustrative only and derived from a proprietary model designed with the benefit of hindsight based on certain data (which may or may not correspond with the data that someone else would use to back-test the portfolio) and assumptions and estimates (not all of which may be specified herein and which are subject to change without notice). The results obtained from different models, assumptions, estimates and/or data may be materially different from the results presented herein and such hypothetical back-tested information should not be considered indicative of the actual results that might be obtained from an investment or participation in a financial instrument or transaction referencing the portfolio.

Fees, internal embedded expense ratios, and sales charges have not been subtracted from any of the performance results appearing in this document.

The information in this document is for the purpose of information exchange.

This is not a solicitation or offer to buy or sell any security.

You must do your own due diligence and consult a professional investment advisor before making any investment decisions.

The use of a proprietary technique, model, or algorithm does not guarantee any specific or profitable results.

The risk of loss in trading securities can be substantial. You should therefore carefully consider whether such trading is suitable for you in light of your financial condition. No strategy, including asset allocation and diversification, can assure success or protect against loss. Stock investing involves risk, including loss of principal. Bonds are subject to market and interest rate risk if sold prior to maturity. Bond values will decline as interest rates rise and bonds are subject to availability and change in price. International debt securities involve special additional risks. These risks include, but are not limited to, currency risk, geopolitical and regulatory risk, and risk associated with varying settlement standards. These risks are often heightened for investments in emerging markets. International debt securities involve special additional risks. These risks include, but are not limited to, currency risk, geopolitical and regulatory risk, and risk associated with varying settlement standards. These risks are often heightened for investments in emerging markets. The fast price swings in commodities and currencies will result in significant volatility in an investor's holdings.

All information contained in this document is believed to come from reliable sources. We do not warrant the accuracy or completeness of information made available and therefore will not be liable for any losses incurred.

The composition of a benchmark, index, or portfolio may not reflect the manner in which a Julex portfolio is constructed in relation to expected or achieved returns, investment holdings, portfolio guidelines, restrictions, sectors, correlations, concentrations, volatility, or tracking error targets, all of which are subject to change over time.

No representation or warranty is made as to the reasonableness of the assumptions made herein.

The data underlying the results, is monthly total return index data. This index data starts on 01/31/1919 and ends on 2/1/2021 and was provided by Global Financial Data, Inc., San Juan Capistrano, CA on 2/24/2021. Global Financial Data, Inc. can be reached at www.globalfinancialdata.com.

The thought-experiment portfolio was constructed as follows:

- The portfolio consists of the seven best performing asset classes, as measured over the prior eleven months, just completed.
- The seven best performing asset classes are revised once each month at month-end closing values.
- The portfolio is rebalanced monthly, and uses equal-weights) at all times.
- The seven best performing asset classes are selected from the 31 passive indices listed below under the sections titled: U.S. Stock Indices, U.S. Bond Indices, International Stock Indices, International Bond Indices, and Commodities.

Julex Capital
40 Grove Street, Suite 140 • Wellesley, MA 02482
Phone 781-489-5398 • Website www.julexcapital.com

- The term “seven best performing” is defined as which seven asset classes (drawn from the 31 passive indices) had current month-end index values that were the furthest above (in proportionate percentage terms) their respective average levels over the just completed eleven months (using month-end total return index levels).
- You may request to receive the:
    - Historical monthly asset class weightings for the portfolio from your advisor. This data shows the exact composition of the portfolio, month-by-month, throughout its entire history.
    - Average weightings to the eight major asset categories comprising the portfolio since inception. These major asset categories are defined as: U.S. stocks, International stocks, U.S. Treasury bonds, Liquid investment grade U.S. corporate bonds, U.S. high yield bonds, International fixed income, Gold, and Other commodities.
    - Assumed one-way transactions costs for each of the 31 asset categories. These range from a low of 0 basis points for the GFD Indices USA Total Return T-Bill Index to a high of 32.95 basis points for a basket of precious metals consisting of gold (0.030oz), silver (1.100oz), platinum (0.004oz), and palladium (0.006oz).

U.S. Stock Indices - (1) S&P 500 Total Return Index (w/GFD extension), (2) S&P 500 Utilities Total Return Index 55, (3) Dow Jones Industrials Total Return Index, (4) Dow Jones Transportation Average Return Index, (5) S&P 500 Industrials Total Return Index 20, (6) Energy (Fama French, Market value-weighted portfolio, Total returns, Market broken into 10 industry portfolios), and (7) HiTech (Fama French, Market value-weighted portfolio, Total returns, Market broken into 10 industry portfolios).

U.S. Bond Indices - (1) GFD Indices USA Total Return T-Bill Index, (2) USA 30-year Government Bond Return Index, (3) USA 5-year Government Note Total Return Index, (4) USA 3-year Government Note Return Index, (5) GFD Indices USA 10-year Government Bond Total Return Index, (6) BofA Merrill Lynch US Inflation-Linked Treasury Total Return Index, (7) Dow Jones Corporate Bond Return Index, (8) GFD Indices USA Total Return AAA Corporate Bond Index, and (9) Bloomberg Barclays US Aggregate Bond Index

International Stock Indices - (1) UK FTSE All-Share Return Index (w/GFD extension), (2) Japan Topix Total Return Index, (3) Germany CDAX Total Return Index (w/GFD extension), (4) Australia ASX Accumulation Index-All Ordinaries, (5) OMX Helsinki All-Share Gross Index - Finland, (6) OMX Stockholm Benchmark Gross Index (GFD extension - Sweden, (7) OMX Copenhagen All-Share Gross Index - Denmark, (8) France CAC All-Tradable Total Return Index, and (9) Brussels All-Share Return Index (w/GFD extension) - Belgium.

International Bond Indices - (1) GFD Indices World x/USA Countries Government Bond GDP-weighted Return Index.

Commodities - (1) Gold Bullion Price-New York (US$/Ounce), (2) A basket of precious metals consisting of gold (0.030oz), silver (1.100oz), platinum (0.004oz), and palladium (0.006oz), (3) Reuters CRB Total Return Index (w/GFD extension), (4) Silver Cash Price (US$/Ounce), (5) Palladium (USD per Troy Ounce).

Julex Capital
40 Grove Street, Suite 140 • Wellesley, MA 02482
Phone 781-489-5398 • Website www.julexcapital.com