
# Dynamic Asset Allocation Systematic Methodology

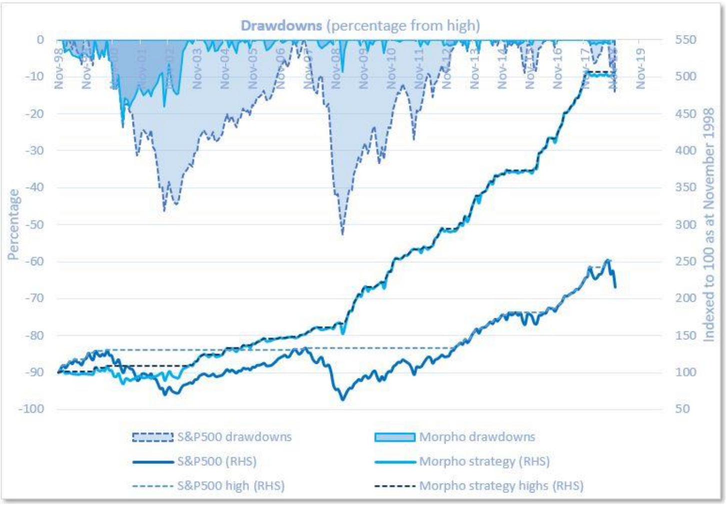
## Market Risk

Utilising a proprietary Market Risk identification methodology, Morpho Advisory has developed an alternative approach to the problem of Asset Allocation. The traditional asset allocation methodology is premised upon holding a bit of equity risk and a bit of fixed income risk hoping they act as diversifiers in an investment portfolio to ameliorate the worst market events.

In this document we illustrate the efficacy of our systematic methodology by using the SPDR SPY (S&P 500) ETF for the equity component and the Vanguard VFITX (Intermediate-Term Treasury) ETF for the fixed income component of an investment portfolio. The lack of any factor tilt in the equity allocation and both credit & duration risks in the fixed income allocation further demonstrate the power of our strategy when compared to market indices. The respective fees of each ETF have been included in return calculations as has a generous 0.50% p.a. allowance for transaction slippage. This slippage component is especially generous in light of the fact that the strategy only trades less than once per annum, on average. At the end of the document there are illustrations of other classes of risk assets using the same proprietary signal. These illustrations include the same provision for fees and slippage.

## Performance

Over a 20 year period from November 1998, our S&P 500 asset allocation process demonstrates significantly higher returns, lower volatility and reduced drawdowns compared to a passive S&P 500 investment. This was achieved using the two most highly liquid markets in the world: U.S. Treasuries and the S&P 500.




The strategy delivered approximately 4.5% per annum more than a passive investment, and with 38% less volatility in returns, for that 20 year period. An initial investment in the strategy in November 1998 would be 2.35 times larger today than if it were a passive investment in the S&P 500.

Our asset allocation methodology is systematic and not tied to matching an Index. As such, short-term returns can underperform a passive market investment. However, deviations from a passive risk asset investment are only ever undertaken in anticipation of higher returns over the medium-term. This is illustrated by how much smaller (and shorter) the drawdowns are from the strategy's return highs relative to those of the S&P 500.

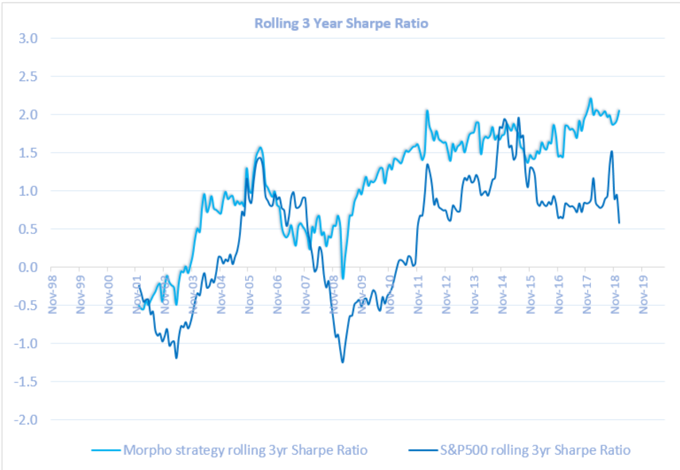
The following table summarises our strategy relative to the S&P 500 over the last 20 years, on average. Unless specified, all numbers are annualised.

| Strategy | Total Return | Return (annualised) | Sharpe Ratio | Sortino Ratio | Treynor Ratio | Standard Deviation | Skewness (Avg. Roll. 3yr) | Beta | Jensen's Alpha |
|---|---|---|---|---|---|---|---|---|---|
| S&P 500 | 115.43% | 3.90% | 0.21 | 0.28 | 0.9% | 14.50% | -0.26 | 1.00 | 0.00% |
| Morpho | 408.16% | 8.43% | 0.74 | 0.95 | 5.4% | 9.00% | 0.17 | 0.36 | 5.88% |

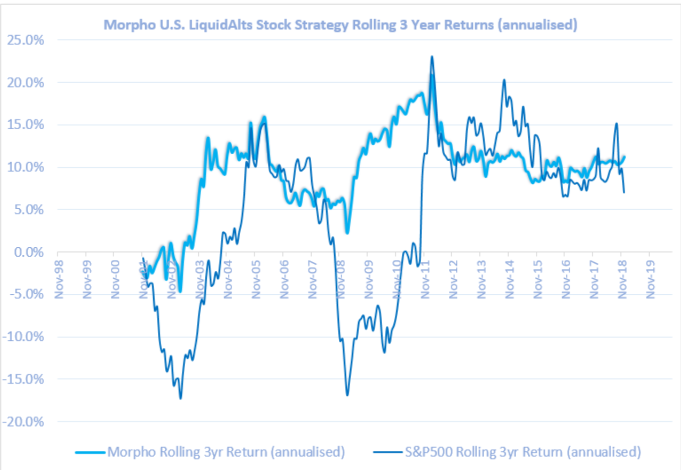
## Risk

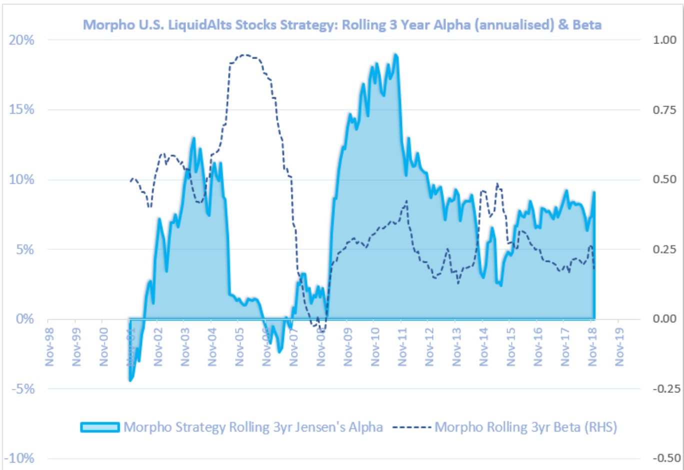
The risk-adjusted return and other risk metrics of our asset allocation process are where our strategy really shines. Relative to passive holdings and static allocations to risk assets such as the S&P 500 our strategy is consistently better, especially when it needs to be.


Averages, such as those in the table above, don't always tell the whole story. The following charts illustrate the respective risk metrics on a rolling 3 year basis, which better demonstrate the consistency of our strategy over the medium to long-term.


Over the long-term, the actions the strategy undertakes either improve return or reduce risk (usually both).



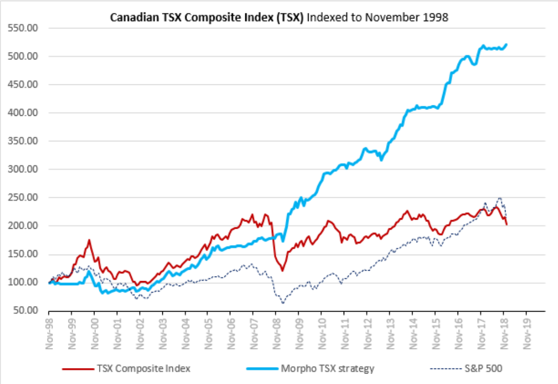

The ability of our strategy to reliably deliver more positive returns, with lower volatility, and a significantly reduced correlation relative to the overall market, results in the consistent generation of a meaningful level of investment alpha.

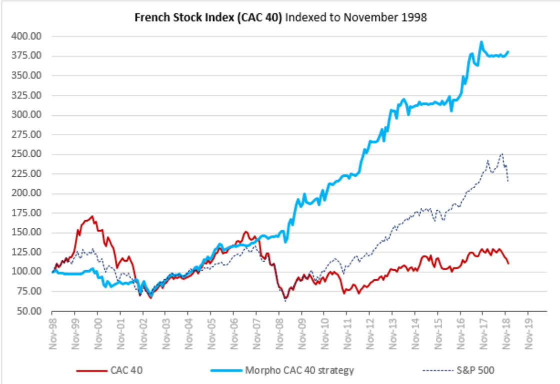
Drawdowns under Morpho's asset allocation methodology are also significantly lower, as illustrated by the chart at the top of Page 1. Over the last 20 years, the maximum drawdown of our strategy has been 22% compared to that of the S&P 500 at 53%.

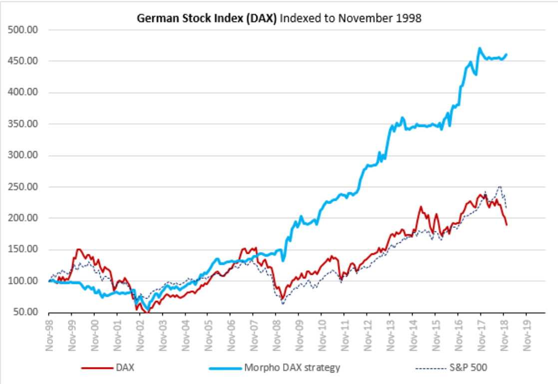
## Other Markets

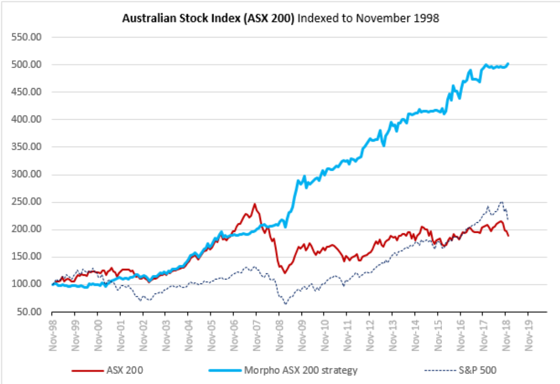
Our strategy was intentionally developed based on the U.S. market due to the U.S. hegemony, which impacts all financial markets globally. Our strategy is transferable across markets due to their strong correlation. The efficacy of the strategy (and high correlation of global markets) is evidenced in the following charts, where we have simply replaced the S&P 500 with risk assets of other markets (U.S. & foreign, developed & emerging) with the result of similar outperformance and reduced volatility, as per the S&P 500 strategy.

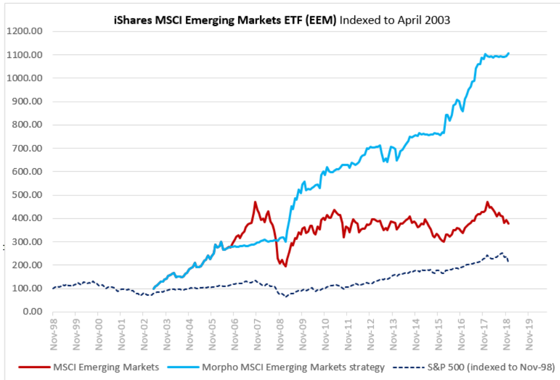

Developed Market Stocks, Emerging Market Stocks and U.S. Credit markets:

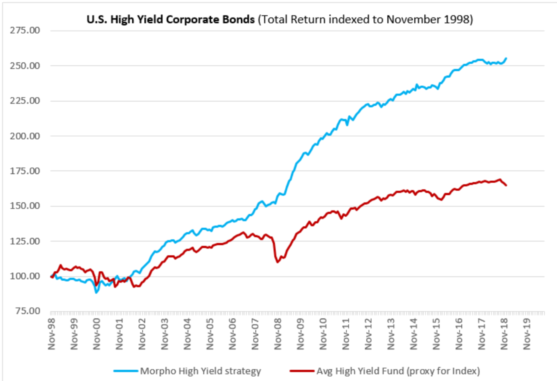


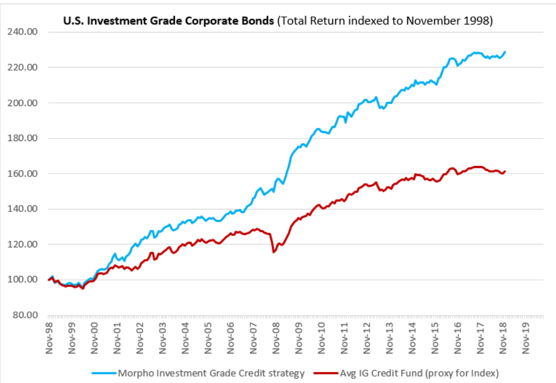




NOTE:

Whilst non-U.S. stock markets replace the S&P 500 in these charts (with returns shown in local currency terms, except for the iShares MSCI Emerging Markets ETF), the use of Intermediate-Term U.S. Treasuries was not changed to the local market equivalent. This may result in some variance in actual returns to those illustrated due to low or negative yields in some countries and/or the impact of currency hedging. However, the most material aspect will remain the impact on returns of risk asset prices and these charts are primarily for the purpose of illustrating how our strategy successfully navigates these over the medium-term for superior cumulative long-term results.