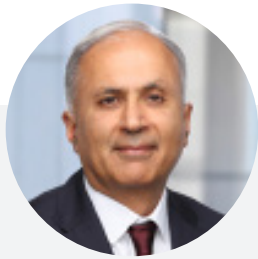


THE 60/40 PORTFOLIO AND THE DIVERSIFICATION BENEFITS OF MANAGED FUTURES STRATEGIES



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EXECUTIVE SUMMARY

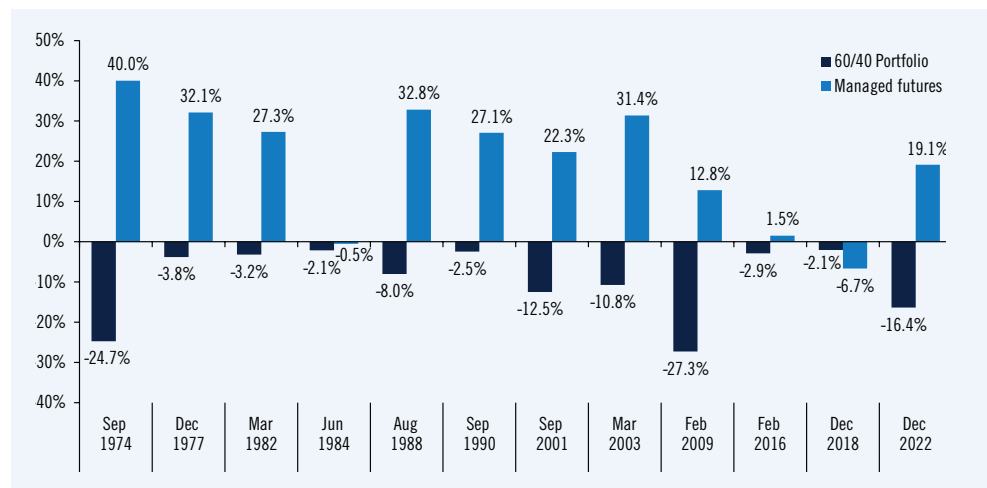
In this paper I argue that:

- Managed futures (CTA) strategies tend to perform well when traditional 60/40 portfolios do especially poorly.
- As 60/40 portfolios tend to fare poorly during periods of unexpectedly high inflation, CTA strategies can be thought of as a possible inflation hedge.
- Many investors allocate less to CTA strategies than might be recommended by conventional portfolio optimisation considerations. It's important to note that the average expected return of CTA strategies during periods when a 60/40 portfolio is rising is positive. Therefore, CTAs are quite unlike conventional tail-risk strategies that tend to lose money when equity markets go up.
- The current macro-economic outlook suggests an elevated risk of a recession. CTA strategies usually significantly outperform a 60/40 portfolio during recessions.
- Like most strategies, it is important to be patient when holding CTAs, as the return pattern is akin to “two steps forward, one step back.”

EVIDENCE FROM THE LAST FIVE DECADES

Investors were reminded of the diversification benefits of Managed Futures, or “Commodity Trading Advisors” (CTAs), in 2022 when, on average, such strategies comfortably outperformed a traditional 60% equity/40% bond portfolio. Indeed, what happened in 2022 is in line with what has occurred over the last five decades. Figure 1 shows that during the 10 (non-overlapping) occasions when a 60/40 portfolio made its biggest losses (in terms of 12 returns), CTAs made money in all of them.¹

Figure 1: Managed futures (CTAs) performance when a 60% equity/40 % bond portfolio does poorly*



Past performance is not a guarantee or reliable indicator of future results

From January 1973 to December 2022. Source: Bloomberg and PGIM Wadhvani.

*The bar graph displays the 60/40 and Managed Futures performance, based on monthly returns, during the worst 1-year losses in 60/40 portfolios. We calculate returns for a 60/40 portfolio to represent the returns on a traditional, long-only portfolio. For details of how we have measured returns of CTAs and of a 60/40 portfolio, please see the Data Appendix. For illustrative purposes only. Does not constitute investment advice and should not be used as the basis for any investment decision.

CTAs CAN BE AN INFLATION HEDGE

It is worth noting here that several (though by no means all) of the episodes when 60/40 portfolios did poorly coincided with periods when inflation was unexpectedly high and/or there were commodity shocks (including 1974, 1990, and 2022). Therefore, it is reasonable to think of CTAs as providing a measure of portfolio protection during periods of high and unexpected inflation. Indeed, one could argue that, in the last year, CTAs did rather better than some of the frequently touted inflation hedges (e.g., index-linked bonds or property).

¹ This updates the analysis in Wadhvani and Dicks (2012).



Notice that standard, Markowitz-style, mean-variance portfolio optimisation suggests that an allocation of about 18% would have been optimal over the period since 1973.

THE APPROPRIATE ALLOCATION TO CTAs IN PORTFOLIOS

Not only have CTA strategies tended to help when a 60/40 portfolio exhibits poor performance but, as Table 1 illustrates, CTAs tend to make money even when a 60/40 portfolio is doing well.

Table 1: Returns of the CTA strategies when the 60/40 portfolio goes up versus down (1973-2022)*

	CTA Index	60/40
Average ann. return when 60/40 portfolio is up:	8.6%	19.6%
Average ann. return when the 60/40 portfolio is down:	23.8%	-15.8%

Past performance is not a guarantee or reliable indicator of future results.

From January 1973 to December 2022. Source: Bloomberg and PGIM Wadhvani.

* The table shows the average annualised return when 60/40 portfolios are up/down, based on quarterly data. We calculate returns for a 60/40 portfolio to represent the returns on a traditional, long-only portfolio. For details of how we have measured returns of CTAs and of a 60/40 portfolio, please see the Data Appendix. For illustrative purposes only. Does not constitute investment advice and should not be used as the basis for any investment decision.

Specifically, CTA strategies have, on average, underperformed a 60/40 portfolio in good times, but comfortably outperformed in bad times.

It is, therefore, not surprising that conventional portfolio optimisation techniques suggest a highly significant allocation to these strategies (see Table 2).

Table 2: Managed futures allocation alongside a traditional 60/40 portfolio*

Mean-variance	18.0%
Maximising Sortino ratio	20.5%
Bayesian allocation approach	19.6%

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Source: Bloomberg and PGIM Wadhvani.

* The table shows the percentage allocation to managed futures when the various optimisation techniques are used to construct a portfolio. For details of how we have measured returns of CTAs and of a 60/40 portfolio, please see the Data Appendix. The Sortino ratio approach assumes a zero-benchmark rate of return. The Frost and Savarino (1986) methodology has been used for the Bayesian allocation approach, using an equally-weighted prior. The optimisations use a sample of returns from January 1973 to December 2022.

Notice that standard, Markowitz-style, mean-variance portfolio optimisation suggests that an allocation of about 18% would have been optimal over the period since 1973.

Moreover, if one dislikes mean-variance optimisation because it does not pay enough attention to tail risks, then a numerical technique that maximises the Sortino ratio (which, you may recall only penalises downside volatility) suggests a slightly higher allocation, of a little over 20%.

If, instead, one dislikes Markowitz optimisation because it tends to give too much weight to noisy data, then the use of a Bayesian “equal ignorance” prior in this case also suggests a significant allocation to managed futures strategies of a little under 20%.

Hence, the puzzle is why are real-world allocations to these strategies so much lower than would seem to have been optimal over the last 50 years? Of course, strategies that are very similar to managed futures, like global macro (discretionary or systematic), are also held, but most portfolios hold a relatively small fraction of the statistically “optimal” holding in global macro/CTA strategies.

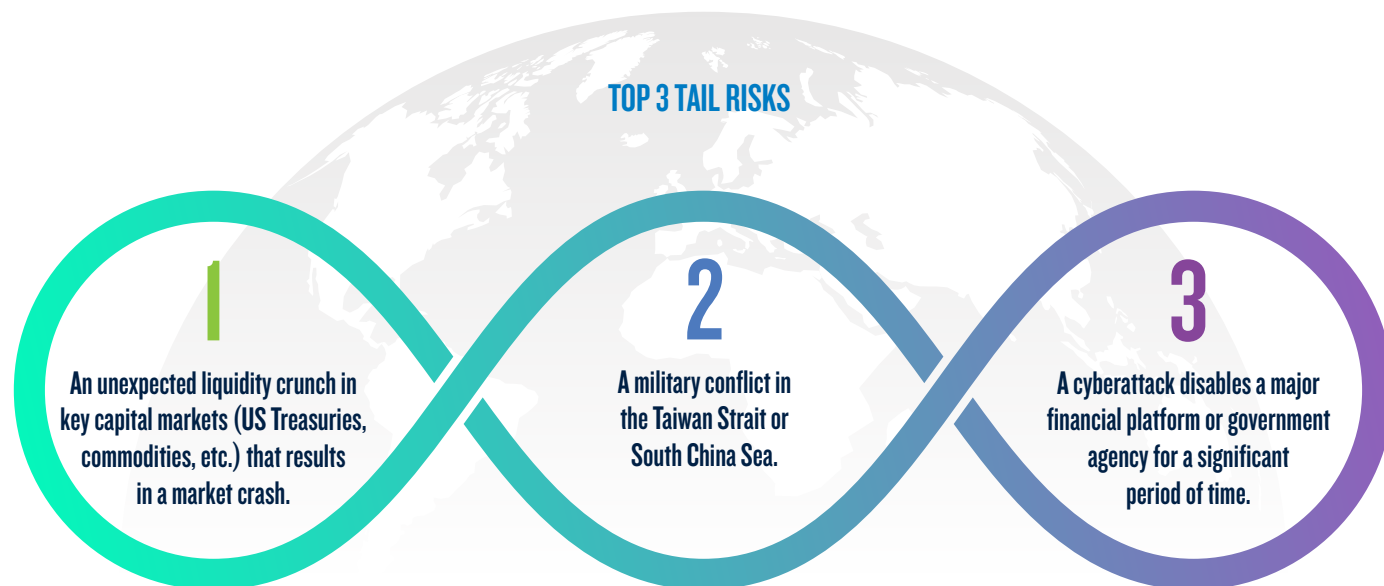
WHAT DOES THE CURRENT MACROECONOMIC OUTLOOK SUGGEST ABOUT THE APPROPRIATE STRATEGY ALLOCATION?

A long time ago, Keynes emphasised the distinction between risk and uncertainty, arguing that, “By ‘uncertain’ knowledge... I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty... The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest in 20 years hence... About these matters there is no scientific basis on which to form any calculable probability whatsoever. We simply do not know.”²

The distinction had actually been made quite some time earlier by Frank Knight (1921). Investors can be forgiven for believing that the macroeconomic outlook is uncertain: they see many esteemed talking heads coming up with widely divergent views on whether a soft landing might eventuate. Predicting recessions is challenging at the best of times but the pandemic has changed economic behaviour in a variety of ways that makes forecasting even more treacherous: see, for example, Ip (2023).

Given this degree of uncertainty about the longer-term outlook, just holding a conventional 60/40 allocation might be disadvantageous. It is not difficult to imagine scenarios in which the returns to such a portfolio might be negative again. Agile strategies under the managed futures umbrella could respond to the changing macro landscape and provide some much needed protection. Moreover, many investors feel that they need tail-risk protection lest “known unknowns” and “unknown unknowns” do materialise. Our colleagues in PGIM carried out a survey last year of 400 institutional investors and found that none of the top 3 tail risks they were most concerned about were “macro” ones, as detailed in Chart 1.

Chart 1: The big 3 tail risks for 2023



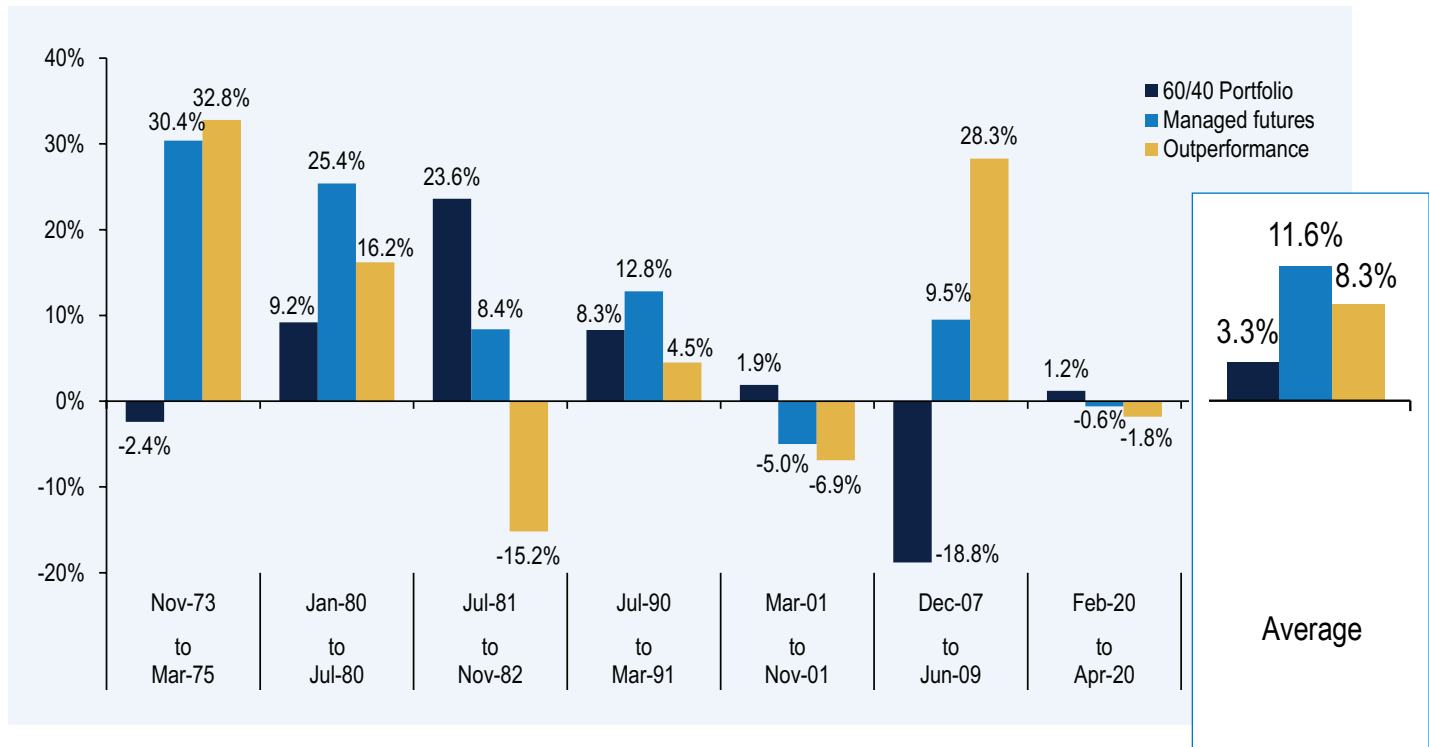
Source: PGIM <https://www.pgim.com/global-tail-risks>

² Keynes (1937).

Specifically, in his magisterial analysis of past US Federal Reserve (Fed) tightening cycles, Blinder (2022), in discussing the current cycle, concludes that, “What is clear, however, is that, between the COVID-induced supply disruptions, the oil shock, and the food shock, the luck factor has run strongly against them. To achieve another soft landing under these circumstances, the Fed will have to be skillful indeed.”

Were we to have a hard landing (either soon or eventually), then equities are likely to tumble and, historically, managed futures strategies have tended to outperform, as Figure 2 illustrates.

Figure 2: Managed futures tend to outperform a 60/40 portfolio during NBER-defined recessions



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The x-axis represents the start and end months of US recessions according to the NBER’s dating committee between the start of 1973 and the end of 2022. The blue and light-blue show returns for a 60/40 portfolio and CTAs during these recessions, with the last bar showing the out-/under-performance of CTAs. For details of how we have measured returns of CTAs and of a 60/40 portfolio, please see the Data Appendix.

Source: NBER, Bloomberg and PGIM Wadhvani.

Taking all NBER-defined recessions since 1973, note that CTAs have outperformed a 60/40 portfolio by, on average, 8.3%.

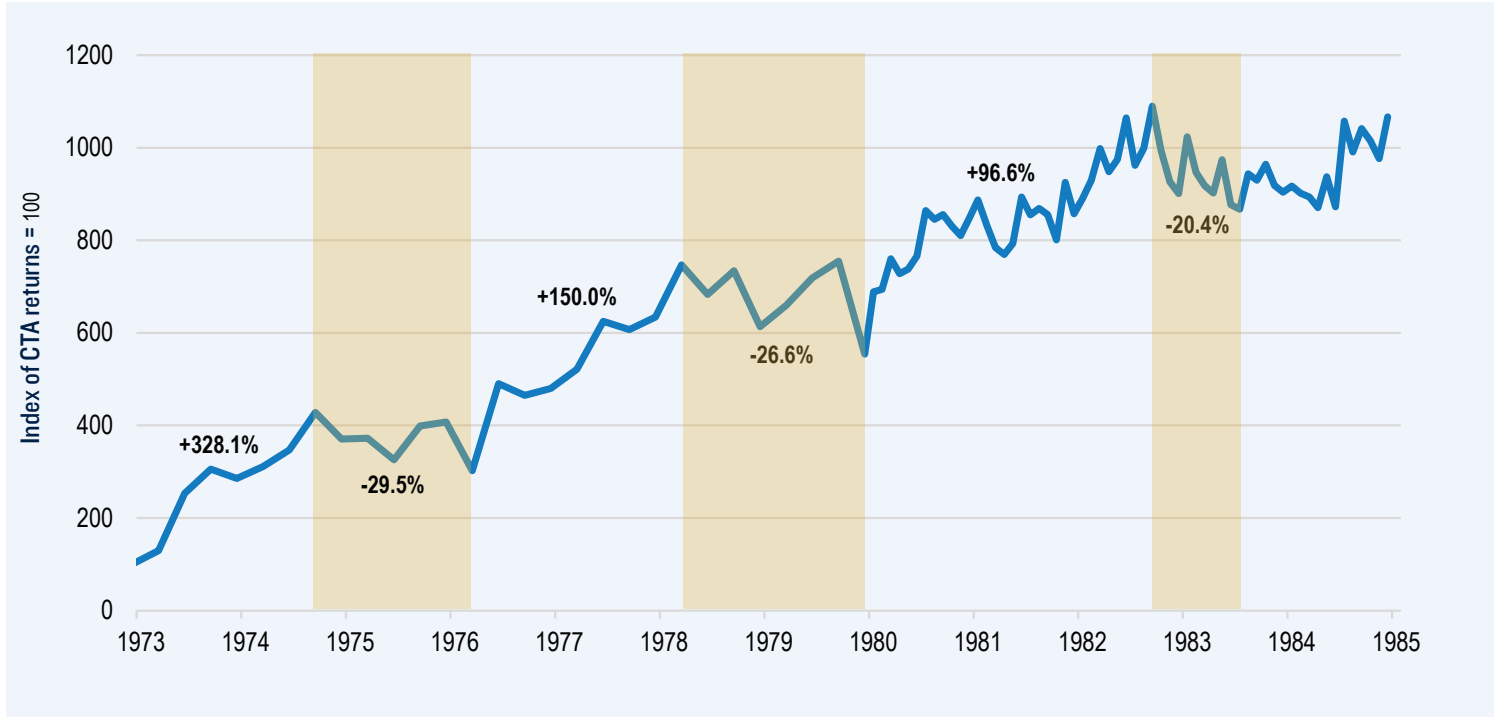
THE NEED FOR PATIENCE

Most investment strategies require patience and assets need to be held for the long run (e.g., see Siegel (1994) with regard to the role of equities in a portfolio). Drawdowns are inevitable and it is important to persevere with one's diversified allocation in order to reap the full benefits of a diversified portfolio.

Even if one looks at one of the best periods for CTAs (1973-84), it is striking that the strategy exhibited significant drawdowns (Chart 2).

Chart 2: Absolute CTAs performance (1973 to 1984)*

Index of CTA returns, end-1972 = 100



Past performance is not a guarantee or reliable indicator of future results.

From January 1973 to December 1984. Source: Bloomberg and PGIM Wadhvani.

* The chart shows CTA performance, based on monthly returns from 1980 onwards and quarterly returns before then. For details of how we have measured returns of CTAs, please see the Data Appendix. The shaded periods show episodes when the CTA index exhibited significant drawdowns.

CONCLUSIONS

To conclude, we believe that:

- CTA strategies tend to do well when traditional 60/40 portfolios do especially poorly.
- Many investors allocate less to CTA strategies than might be recommended by conventional portfolio optimization considerations.
- The current macroeconomic outlook suggests an elevated risk of a recession. CTA strategies usually significantly outperform a 60/40 portfolio during recessions.
- Like most strategies, it is important to be patient when holding CTAs, as the return pattern is akin to “two steps forward, one step back”.

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DATA APPENDIX

When constructing returns of a 60/40 portfolio, for equities we have used the MSCI USA total returns index for the US, while, for bonds, we have used the Barclays US Treasury Bond Index.

For managed future (CTA) returns, we have constructed a synthetic index based on the DJ CS Managed Futures Index (from 1994 onwards); the CISDM CTA Asset Weighted Index (from 1980 to 1993); and, in order to go back before 1979, the Campbell and Company Composite Index.

These series are spliced together so as to provide returns data back to the 1970s.

For the purposes of making the CISDM and Campbell returns indices comparable with the Credit Suisse returns data, we have used regression coefficients based on their overlap periods. Wherever possible, we used monthly data. However, the Campbell and Company Composite Index is only available on a quarterly basis.

The US Business Cycle Expansions and Contractions NBER data is taken from:
<https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions>

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