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QUARTERLY INSIGHTS

FROM TARIFFS TO TRENDS: HOW TIME HORIZON SHAPES DIVERSIFICATION

Insights from the April 2025 market shock

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Executive summary

The sharp equity market correction triggered by unexpected U.S. tariff announcements in April 2025 provided a stress test for traditional portfolio diversifiers. Over just four trading days, the S&P 500 fell by 12.1% – its fifth-largest decline over such short period since 1990. Yet the performance of traditional crisis hedge strategies was mixed: trend-following CTAs declined by 6.1%, 10-year U.S. Treasuries were flat, and Gold dropped 5.6% over the same four trading days period.

This episode raises a broader question: when do liquid diversifiers meaningfully mitigate equity drawdowns, and over what time horizons? To answer this, we examine the term structure of diversification – how the protective characteristics of trend-following CTAs, U.S. Treasuries, and Gold behave in equity drawdowns of varying duration and intensity and how they perform across equity stress regimes of weekly, monthly, and quarterly horizons.

One clear pattern emerges: while short-term reversals in equities often challenge these strategies, their diversification benefits grow significantly as crises persist in time.

During the worst 10% of quarterly equity periods since 1990, and based on returns normalized to 12% annualized volatility, trend-following CTAs returned +6.8% on average, U.S. Treasuries +10.3%, and Gold +4.2%, helping offset the S&P 500's average loss of -14.1% in these quarters. Crucially, all these diversifiers also posted positive returns during strong equity market periods. In the top 10% of equity market quarters, trend-following CTAs returned an average of +1.0%, while U.S. Treasuries and Gold each delivered +0.9%, highlighting the favorable return asymmetry across all three diversifiers.

When combined with equities into a traditional 60/40 portfolio framework, each of these liquid diversifiers improved long-term risk adjusted returns – but the best results came from a balanced allocation to all three. This composite portfolio consistently achieved the highest and most stable risk-adjusted return improvements across market regimes, achieving a Sharpe ratio of 0.72 from 1990 to 2025, well above the 0.49 Sharpe ratio of U.S. equities alone. Over the long-term, diversification across diversifiers may be the most reliable quarterly hedge of all.

The Tariff Shock of April 2025 and the Limits of Short-Term Crisis Protection

Between April 3 and April 8, 2025, global equity markets suffered one of their sharpest short-term declines of the last 35 years, triggered by unexpected tariff announcements from the U.S. administration. U.S. equities recorded their fifth-largest four-day decline since 1990, with the S&P 500 Total Return Index dropping 12.1%, as shown in Table 1. Trend-following CTAs – typically known for their convex payoff profiles during equity crises – were not immune this time. The April 2025 episode marked their worst performance for any U.S. equity sell-off exceeding -9% over a four-day span. The SG Trend Index – a widely followed benchmark for trend-following strategies – fell by 6.1% over the four-day period[1]. This decline was notably steeper than the -4.5% drop recorded during the initial phase of the COVID-19 crisis in February 2020, which until then had marked the sharpest drawdown for CTAs in a short-term equity reversal.

The April 2025 decline ranks as the ninth worst four-day return for the SG Trend Index since its inception in 2000, and the third worst since 2007 – surpassed only by the 'Volmageddon' shock of February 2018 and the banking crisis of March 2023, as illustrated in Table 2.

Other traditional liquid diversifiers posted mixed results: 10-year U.S. Treasuries held steady with a 0% return, while Gold dropped by -5.6%. Although equity markets staged a swift and robust rebound by month-end – with the S&P 500 closing April down just 0.7% – the recovery among diversifiers was uneven. The SG Trend Index closed the month with a 4.9% loss, having recovered only a small portion of its earlier drawdown. In contrast, Gold rebounded sharply, fully recouping its losses and ending the month up 5.4%, while 10-year U.S. Treasuries posted a modest gain of 0.9%.

#	Start Date	End Date	S&P 500 TR	SG Trend Index[1]	Gold futures	10yr U.S. Treasury futures	SG Short Term Traders Index[1]
1	06.10.2008	09.10.2008	-17.2%	3.1%	6.4%	-2.1%	0.5%
2	11.03.2020	16.03.2020	-17.2%	-0.9%	-10.5%	0.2%	-0.7%
3	17.11.2008	20.11.2008	-13.8%	1.9%	0.8%	3.2%	0.2%
4	26.08.1998	31.08.1998	-12.4%	n/a	-2.8%	1.1%	n/a
5	03.04.2025	08.04.2025	-12.1%	-6.1%	-5.6%	0.0%	-0.4%
6	18.07.2002	23.07.2002	-12.0%	0.2%	-1.6%	1.6%	n/a
7	18.03.2020	23.03.2020	-11.5%	1.7%	2.7%	1.7%	-0.5%
8	22.10.2008	27.10.2008	-11.1%	2.8%	-3.3%	0.5%	1.0%
9	24.02.2020	27.02.2020	-10.7%	-4.5%	-0.4%	1.2%	-1.0%
10	03.08.2011	08.08.2011	-10.7%	-2.2%	4.2%	1.3%	0.8%
11	20.08.2015	25.08.2015	-10.2%	-0.1%	0.9%	0.0%	1.6%
12	08.06.2022	13.06.2022	-9.9%	4.5%	-1.1%	-2.7%	2.0%
13	17.09.2001	20.09.2001	-9.8%	-0.8%	-0.9%	-1.3%	n/a
14	11.04.2000	14.04.2000	-9.8%	-1.2%	0.2%	-0.7%	n/a
15	22.10.1997	27.10.1997	-9.8%	n/a	-3.6%	1.4%	n/a
16	25.02.2009	02.03.2009	-9.3%	1.2%	-3.0%	0.3%	0.4%
		Average	**-11.7%**	**0.0%**	**-1.1%**	**0.4%**	**0.3%**
		Std Dev.	2.4%	2.8%	3.8%	1.5%	0.9%
	Correlation to S&P 500 TR		1	-0.12	0.08	0.00	0.37

Table 1: Worst non-overlapping 4-day returns exceeding -9% for the S&P 500 Total Return Index (Jan 1, 1990 – Apr 30, 2025), with corresponding performance of the SG Trend Index, Gold and 10yr U.S. Treasury futures, and the SG Short-Term Traders (STT) Index. The SG Trend and STT Indexes have inception dates of January 1, 2000, and January 1, 2008, respectively. Correlation to S&P 500 TR, average, and standard deviation statistics are calculated using the 4-day periods included in the table. Source: Societe Generale, S&P, Quantica Capital.

[1] The SG Trend Index and the SG Short-Term Traders (STT) Index are not investable and do not reflect the actual performance of any specific investment product or managed account. They are an industry benchmark constructed and published by Société Générale, based on a select group of CTAs that meet inclusion criteria. Please refer to Page 13 for index definitions.

#	Start Date	End Date	SG Trend Index
1	13.11.2001	16.11.2001	-10.6%
2	10.03.2023	15.03.2023	-10.3%
3	27.02.2007	02.03.2007	-10.2%
4	02.02.2018	07.02.2018	-9.7%
5	13.03.2003	18.03.2003	-9.0%
6	24.07.2007	27.07.2007	-8.7%
7	31.08.2001	05.09.2001	-7.9%
8	21.09.2000	26.09.2000	-7.3%
9	**02.04.2025**	**07.04.2025**	**-6.4%**
10	10.04.2001	13.04.2001	-6.3%
11	11.11.2010	16.11.2010	-6.3%
12	08.09.2016	13.09.2016	-6.3%
13	10.03.2011	15.03.2011	-6.2%
14	25.11.2021	30.11.2021	-6.0%
15	27.06.2017	30.06.2017	-6.0%

Table 2: Largest non-overlapping four-day drawdowns exceeding -6% for the SG Trend Index between January 1, 2000, and April 30, 2025. Source: Societe Generale, Quantica Capital.

In this research note, we use the April 2025 tariff shock as a case study to explore when and how different liquid equity diversifiers – namely trend-following CTAs, U.S. Treasuries, and Gold – deliver on their promise of portfolio protection. We begin by dissecting what drove trend-followers' losses in the immediate aftermath of the April 2025 tariff announcement, and why these strategies – often credited with crisis protection – failed to provide meaningful downside mitigation. We then place this episode in historical perspective, evaluating trend-following CTA performance across all major U.S. equity sell-offs over varying length since 1990.

This leads to a deeper analysis of the time horizon of diversification: how the protective benefits of each diversifier evolve across short, medium, and long-duration equity drawdowns. Finally, we examine the incremental contributions of each diversifier to risk-adjusted returns within a U.S. equity allocation across three distinct periods: 1990 – 1999, 2000 – 2014, and 2015 – 2025. Together, these sections offer a comprehensive framework for how trend-following and other liquid diversifiers can work – individually and even more so in combination – to enhance portfolio resilience over time.

Nowhere to Hide: Trend-Following CTAs Struggled in April 2025

The starting point of our analysis is: what drove trend-following CTAs to underperform in the wake of the April 2025 market shock? Table 3 presents our estimated asset class return attribution for trend-following CTA performance over the April 3–8, 2025 window, based on a representative medium-term trend-following model[2].

03.04. - 08.04.25	Asset class / Sector	Gross returns
Quantica generic trend-following model (hypothetical)	Equities	-1.7%
	Fixed Income & Rates	-1.3%
	Currencies	+0.1%
	Commodities	-3.7%
	Energy	-0.4%
	Metals	-3.5%
	Agriculturals	+0.2%
	Total (gross)	**-6.1%**
SG Trend Index	Total	**-6.1%**

Table 3: Estimated asset-class gross return attribution and total gross return for the period April 3–8, 2025, based on a replication of a trend-following benchmark. The analysis is derived from Quantica's internally developed, medium-term generic trend-following model, which incorporates realistic trading costs based on proprietary estimates. The model exhibited a daily return correlation of 0.9 with the SG Trend Index since 2020. For illustrative purpose only. The actual performance of any trend-following strategy may differ significantly from the estimates provided due to various market factors, model assumptions, and other variables. No assurance is given that any investment or trading program will achieve results similar to those of Quantica's generic trend-following model. The SG Trend Index is unmanaged, does not incur fees, and is not directly investable. Source: Quantica Capital, Societe Generale. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 2.

Losses during the April 3–8 period were broad-based, spanning equities, fixed income, and commodities. Commodities – particularly precious and base metal futures – were the largest detractors to performance in our generic trend-following model, contributing an estimated -3.5% and accounting for roughly half of the total losses. The remaining half was split evenly between fixed income and equities. With

[2] Our generic trend-following model measures trends based on an exponentially weighted moving average with a half-life of one calendar quarter. It relies on a representative investment universe of 50 of the most liquid exchange-traded futures contracts across equities, government bonds, short-term interest rates, currencies, and commodities. The strategy targets a long-term portfolio volatility of 12% p.a.

currencies having a largely neutral impact over the period, traditional trend-followers had virtually nowhere to hide from the equity-driven turmoil.

The extent of the reversal is best captured in Figure 1, which shows the four-day return contribution between April 3 and April 8 of each of the 50 instruments in our representative investment universe as a function of their risk allocation as per April 2 in our replication model. The striking relationship between the risk allocated and the subsequent negative return is a classic illustration of the occurrence of an extreme trend reversal, that reverberated across all asset classes. The tariff announcement shock translated into a Value-at-Risk shock[3] for many of the positions in the portfolio. 29 out of 50 instruments (58%) experienced at least one daily Value-at-Risk shock during the four days.

As such, April 2025 offers yet another example of how the performance of trend-following CTAs operating on a medium-term horizon – typically spanning several months – is largely determined by the portfolio's risk positioning immediately before an abrupt and broad-based market trend reversal[4].

Trend-Following's Mixed Track-Record During Short-Term Equity Market Declines

The April 2025 episode aligns with a broader historical pattern: trend-following performance during sharp equity sell-offs has been highly variable, with outcomes ranging from strong gains to notable losses, highlighting the strategy's vulnerability to abrupt reversals.

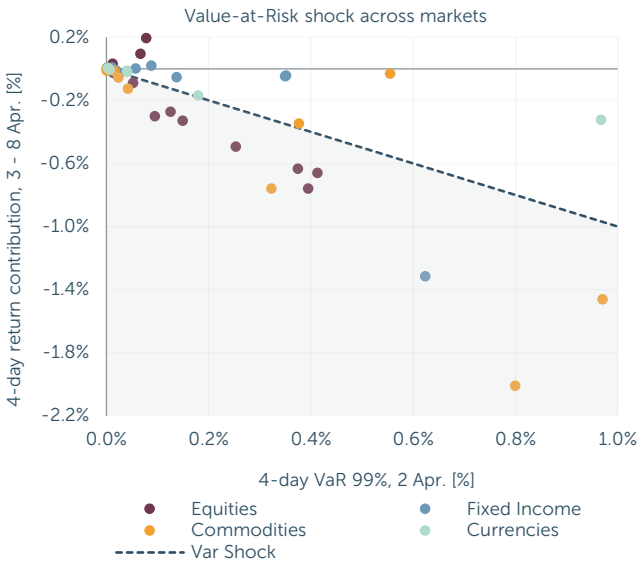


Figure 1: Simulated returns from April 3 to April 8, 2025, for the 50 instruments within the underlying investment universe of Quantica's benchmark trend-following replication model, plotted against their respective risk exposures as of April 2, 2025. Individual instrument risk exposures are measured by the 4-day Value-at-Risk at 99% confidence, relying on the parametric method with an exponentially weighted volatility estimator using a 0.94 decay factor.
Source: Quantica Capital. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 2.

As shown in Table 1, across the 14 instances since 2000 when the S&P 500 declined by more than 9% over four days, the SG Trend Index delivered an average return of 0.0%, with a standard deviation of 2.8%. Put simply, the past 25 years offer limited evidence that trend-following CTAs consistently generate positive returns during sudden, short-lived equity market crises – such as the one in April 2025. Despite this, trend-following returns have remained *uncorrelated* with equities and were positive in 50% of the worst four-day equity selloffs over the past 25 years.

[3] An *n*-day "Value-at-Risk shock" is defined as a negative return from days *T* to *T+n* that exceeds the *n*-day 99% Value-at-Risk, calculated using a parametric approach with an exponentially weighted volatility estimator with a 0.94 decay factor on returns up to day *T–1*.
[4] In the case of a sharp and sudden decline in interest rates – such as during the March 2023 crisis – the performance of a trend-follower in the immediate aftermath will be driven primarily by its beta to interest rates. Conversely, during an abrupt equity sell-off, performance during the first couple of days will be driven by its beta to equity markets. Similarly, the effectiveness of U.S. Treasuries as an equity diversifier depends on their beta to equities *during* the stress episode (the equity–bond correlation can shift materially during a crisis, diverging from the relationship observed immediately prior to the shock).

Remarkably, the SG Short-Term Traders Index[5] – a proxy for short-term trend-following strategies that, due to its higher reactivity, is expected to exhibit stronger convexity in such periods – has delivered only a modest average return of +0.3% during these episodes. Returns were positive in 7 of 11 instances since the benchmark's 2008 inception yet showed a positive 0.4 correlation with equities during those correction periods.
How does this compare to the traditional liquid diversifiers such as U.S. Treasuries and Gold?

Gold and Treasuries' Track Record in Equity Selloffs

As illustrated in Table 1, since 1990, during the 16 largest non-overlapping four-day equity drawdowns, Gold has averaged a loss of 1.1%, while U.S. Treasuries have offered a modest average return of +0.4%. These results highlight a broader challenge: few, if any, liquid assets have consistently provided meaningful protection during abrupt and severe equity market reversals. Despite this, U.S. Treasuries have long been viewed as the diversifier of choice for equity risk – thanks largely to their historical tendency to exhibit negative correlation with equities during risk-off environments. This defensive characteristic has made them a cornerstone of the classic 60/40 portfolio. However, Treasuries are not without vulnerabilities – particularly during inflationary regimes, which can erode their traditional safe-haven appeal. A notable example occurred in June 2022 (8th to 13th), when the S&P 500 declined by 9.9% while 10-year U.S. Treasuries fell by 2.7%, equivalent to a volatility-normalized loss of 4.4% at a 12% annualized rate, which is broadly in line with the typical volatility of the SG Trend Index.

Gold, though generally more volatile in its behaviour, is also widely regarded as a safe-haven asset, especially during periods marked by inflation, geopolitical uncertainty, or currency market stress. However, unlike Treasuries, Gold can at times behave more like a risk asset, rendering it vulnerable to sell-offs alongside equities during sudden spikes in market volatility. A prime example is March 2020 (11th to 16th), when Gold fell by 10.5% in the same week that pandemic lockdowns were implemented, mirroring the equity market's sharp decline.

If trend-followers fail to deliver compelling downside protection benefits during episodes like April 2025, it prompts a critical question: how long must a crisis persist before the odds of a trend-follower generating positive returns begin to meaningfully increase? More broadly, how do the diversification characteristics of trend-following evolve over different investment horizons – and how do they compare to those of traditional liquid diversifiers such as U.S. Treasuries and Gold?

Long-Term Performance and Risk Profile of Liquid Equity Diversifiers (1990–2025)

Prior to evaluating their crisis-hedging efficacy over varying time horizons, we begin by examining the attributes that qualify U.S. Treasuries, Gold, and trend-following CTAs as credible liquid equity diversifiers.
Table 4 provides a comparative analysis of key performance and risk metrics for U.S. equities, trend-following CTAs, Gold, and U.S. Treasuries

[5] The SG Short-Term Traders Index is a benchmark that tracks the daily performance of a group of short-term, CTA and Global Macro managers executing diversified trading strategies with a less than 10-day average holding period. These managers typically employ systematic, model-driven strategies that operate on shorter time horizons – ranging from intraday to several days – compared to traditional trend-following CTAs, which often use multi-week or multi-month signals. The index is not an investable and does not represent the actual performance of any specific fund, manager, or investor account. It is constructed and maintained by Société Générale. It may not be representative of the broader managed futures industry.

over the period 1990–2025[6]. To facilitate a meaningful comparison, U.S. Treasury and Gold returns have been scaled to achieve a long-term volatility around 12% per annum[7]. We use the BarclayHedge BTOP50 Index as a proxy for trend-following CTA performance prior to the inception of the SG Trend Index in January 2000[8]. All references to trend-following CTA returns since 1990 reflect this benchmark definition, using the BarclayHedge BTOP50 Index prior to January 2000[9], and the SG Trend Index thereafter.

Jan. 1990 – Apr. 2025	U.S. Equities	TF CTAs	Gold	U.S. Treasuries
Return (annualized)	10.3%	6.2%	5.1%	8.2%
Volatility (annualized)	14.9%	12.4%	13.2%	13.1%
Sharpe ratio (risk free rate = 3m USD)	0.49	0.27	0.17	0.41
Max. drawdown	-50.9%	-20.7%	-50.1%	-40.8%
Correl. to U.S. equities	1	-0.10	-0.03	-0.03

Table 4: Long-term performance and risk metrics for U.S. equities (S&P 500 Total Return Index), trend-following CTAs (proxied by the BarclayHedge BTOP50 Index prior to January 2000 and the SG Trend Index thereafter), Gold (Gold futures), and U.S. Treasuries (10-year U.S. Treasury futures) over the period January 1990 to April 2025. Excess returns for Gold and Treasury futures are volatility-scaled to an annualized target of 12%, with a representative cash yield added to enable meaningful comparison with equity returns. All metrics are computed using monthly return data. Source: Quantica Capital, BarclayHedge, Societe Generale.

In addition to offering ample liquidity, which enables timely and efficient portfolio rebalancing with minimal market impact, trend-following CTAs, U.S. Treasuries, and Gold also satisfy a critical requirement for effective equity diversification: low long-term correlation to equities. Over the 1990–2025 period, their respective correlations to the S&P 500 have been modestly negative: -0.10 for trend-following CTAs, -0.03 for Gold, and -0.03 for U.S. Treasuries. Beyond their low correlation to equities and high liquidity, all three assets have also delivered strong long-term returns. Since 1990, for comparable levels of long-term volatility, trend-following CTAs have produced annualized returns of 6.2%, U.S. Treasuries 8.2%, and Gold 5.1%. This combination of liquidity, equity uncorrelation, and positive return profiles makes them compelling candidates for diversifying long equity risk exposure.

However, these returns were also accompanied by significant drawdowns: -50% for Gold, -41% for U.S. Treasuries, and -21% for CTAs over the full period. The maximum drawdowns of Gold and Treasuries were only slightly less severe than that of U.S. equities, which experienced a peak drawdown of -51% during the GFC (2007-2009).

In the remainder of this note, we examine how the diversification benefits of trend-following CTAs, Gold, and U.S. Treasuries evolved across different short, medium, and long-term horizons.

The Term Structure of Diversification: Performance Across Market Extremes

To evaluate the effectiveness of each diversifier in mitigating equity market losses across crises of varying duration – from brief episodes spanning just a few days, such as the selloffs in April 2025 or March 2020, to more extended downturns like those in 2022 or 2008 – we analyse their average returns conditional on the worst 10% of S&P 500 return periods measured across weekly, monthly,

[6] Returns for Gold and U.S. Treasuries are based on their respective futures, with an added cash yield component to enable a fair comparison with equity total returns.
[7] From January 1990 to April 2025, the annualized returns of 10-year U.S. Treasury futures and Gold futures were approximately 2.7% and 3.0%, respectively, with corresponding annualized volatilities of 6% and 16%.
[8] Like the SG Trend Index, the BTOP50 Index is broadly recognized as a representative benchmark for managed futures programs. The BTOP50 Index seeks to replicate the overall composition of the managed futures industry with regard to trading style and overall market exposure. The BTOP50 employs a top-down approach in selecting its constituents. The largest investable trading advisor programs, as measured by assets under management, are selected for inclusion in the BTOP50. Source: BarclayHedge. Please refer to Page 13 for index definitions.
[9] Note that BTOP50 returns prior to 2000 are only available at a monthly frequency and were therefore excluded from our analysis of trend-following CTA performance over four-day periods.

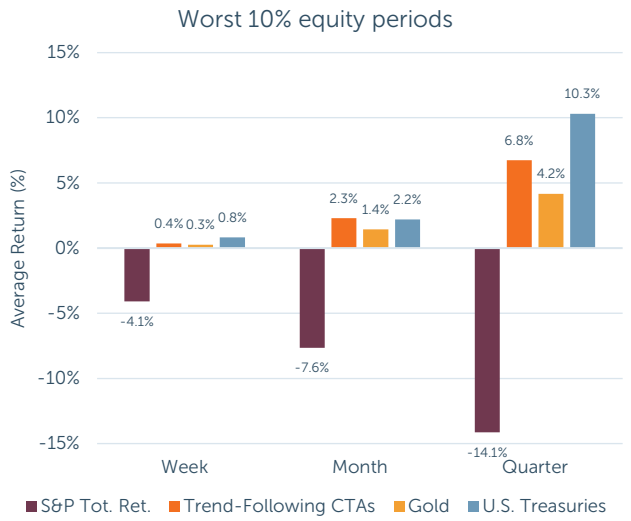
and quarterly horizons[10]. For comparability, the returns of each diversifier are scaled to a long-term annualized volatility of 12%.

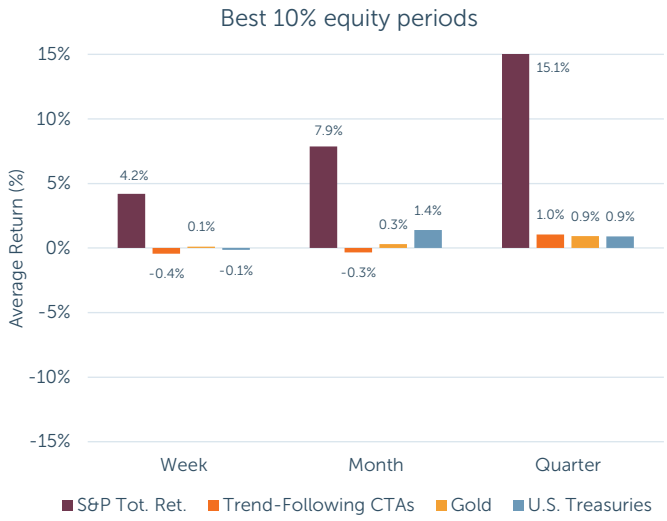
Importantly, the value of a diversifier is not defined solely by its performance during market stress. A truly effective diversifier should also avoid imposing a significant performance drag during favourable equity market conditions. Therefore, we also examine the average return characteristics of each strategy during the best 10% of S&P 500 return periods, using the same set of weekly, monthly, and quarterly horizons.

The full set of results is summarized in Figure 2, highlighting how each strategy behaved under extreme equity market conditions.

For robustness, we confirm that similar results hold when extending the analysis to the worst and best 33% of equity return periods, as presented in the Appendix.

Between 1990 and 2025, during the worst 10% of return periods, the S&P 500 posted average losses of -4.1% on a weekly basis, -7.6% over one month, and -14.1% over a quarter. By contrast, during the best 10% of periods, the index recorded average gains of +4.2% weekly, +7.9% monthly, and +15.1% quarterly.





	Correlation to U.S. Equities					
	Worst 10% equity periods			Best 10% equity periods		
	Week	Month	Quarter	Week	Month	Quarter
Trend-Following CTAs	-0.06	-0.30	-0.25	-0.27	-0.11	-0.37
Gold	0.13	0.36	0.01	0.15	-0.14	-0.16
U.S. Treasuries	-0.10	-0.13	-0.09	0.04	0.12	0.05

Figure 2: Average returns (Top) and Correlation to U.S. Equities (Bottom) of U.S. equities (S&P 500 Total Return Index), trend-following CTAs (based on the BTOP50 Index and SG Trend Index), Gold (Gold futures), and U.S. Treasuries (10-year Treasury futures) during the best and worst 10% of U.S. equity return periods. Returns are shown over weekly, monthly, and quarterly horizons. Gold and Treasury returns are volatility-scaled to 12% per annum with a representative cash yield added to enable meaningful comparison with equity returns. Weekly trend-following CTA benchmark returns are constructed between 1990 and 1999 using our generic trend-following replication model, and the SG Trend Index returns from 2000 onwards. Source: Quantica Capital, BarclayHedge, Societe Generale.

[10] As there is no trend-following CTA benchmark available with a higher frequency than monthly data before the year 2000, we construct a proxy for the trend-following industry using the daily returns of our generic trend-following replication model before 2000, and the SG Trend Index returns thereafter.

First, over a weekly horizon, the results align with our earlier observation that trend-following CTAs have historically delivered flat performance during sharp, short-lived equity drawdowns. Over the worst 10% of all weeks between 1990 and 2025 – a total of 184 weeks based on Friday-to-Friday returns – trend-following CTAs posted an average return of just 0.4%. During these same 184 weeks, U.S. Treasuries delivered a higher average return of 0.8%, offering better short-term diversification compared to both Gold (0.3%) and trend-following CTAs. This outperformance reflects Treasuries' role as a classic "risk-off" asset, with their correlation to equities often turning sharply negative in response to market stress.

The key takeaway from these results is that the longer an equity crisis persists, the greater the likelihood that all three diversifiers – trend-following CTAs, U.S. Treasuries, and Gold – will deliver meaningful protection. Whether through the convexity of trend-following strategies or the flight-to-safety dynamics of Treasuries and Gold, the probability of positive performance increases as equity drawdowns deepen and extend over time.

When adjusted to a common 12% annualized volatility, U.S. Treasuries delivered the strongest performance across the worst 10% of calendar quarters (a total of 14) between January 1990 to April 2025 – returning an average of +10.3% during quarters when the S&P 500 posted an average loss of -14.1%. Over these same periods, trend-following CTAs returned an average of +6.8%, while Gold delivered +4.2%.

In short, the longer the crisis lasts, the more pronounced the benefit of holding diversifying assets.

Conversely, during strong equity market environments – when portfolio diversification is less needed – the return characteristics of the three diversifiers diverge meaningfully from their behaviour during periods of equity stress. While all three diversifiers tend to deliver consistently positive returns at monthly and quarterly frequencies during these favourable periods, the magnitude of returns is more muted than during market downturns. This reflects the implicit cost of holding assets that are designed to provide *expected* negative correlation to equities during periods of severe stress without paying a premium in terms of expected negative correlation (and hence negative returns) during bullish periods.

In the top 10% of quarterly equity market periods, CTAs achieved an average return of 1.0%, slightly outpacing Gold and Treasuries (both returning an average 0.9%). In other words, our three diversifiers share a key characteristic: the ability to preserve capital during protracted equity drawdowns while also participating in extended market rallies – making them particularly attractive components for long-term institutional portfolios.

Balancing Crisis Protection and Long-Term Efficiency: Choosing the Right Diversifier in a 60/40 Portfolio Framework

There are certainly strategies that are better designed to offer strict downside protection than trend-following CTAs, U.S. Treasuries, or Gold. For example, holding put options on U.S. equity indices or a long VIX futures position. While such strategies can provide almost guaranteed positive returns during crises, their long-term premium or holding cost is substantial and tend to be prohibitively expensive over time.

Although understanding the regime-dependent return characteristics of a diversifier is important, the true value of any diversifying asset is arguably best assessed through its incremental contribution to a portfolio's long-term risk-adjusted returns. This perspective balances two critical objectives: delivering protection during equity market drawdowns while minimizing the performance drag or premium paid by holding on to the diversifier the rest of the time.

In the following section, we assess the contribution of each diversifier – 10-year U.S. Treasuries, Gold, and trend-following CTAs – to the longer-term Sharpe ratio of a core U.S. equity portfolio. Each diversifier is incorporated via a 40% allocation with futures excess returns scaled to an annualized volatility of 12% and including a contribution from cash to ensure a consistent basis for comparison. The remaining 60% is invested in the S&P 500 Total Return Index.

Table 5 presents the resulting Sharpe ratios for the various 60/40 portfolio combinations over the full period from January 1990 to April 2025, as well as across three distinct and complementary sub-periods:

- January 1990 – December 1999
- January 2000 – December 2014
- January 2015 – April 2025

1990 – 2025: The Strategic Long-Term Value of Treasuries, Gold, and Trend-Following CTAs

Over the full 35-year period from 1990 to 2025, the S&P 500 has delivered a long-term Sharpe ratio of 0.49. By comparison, a traditional 60/40 portfolio – comprising 60% S&P 500 and 40% U.S. Treasuries, with the fixed income leg scaled to achieve 12% annualized volatility – would have achieved a significantly higher Sharpe ratio of 0.69.

Replacing U.S. Treasuries with a 40% allocation to trend-following CTAs would have resulted in a comparable increase in the portfolio's Sharpe ratio, reaching 0.64. While a 60/40 mix with Gold yields a slightly lower Sharpe ratio of 0.56, it still marks a significant improvement compared to equities alone. In short, all three diversifiers have consistently enhanced the risk-adjusted performance of a core equity portfolio over the past three and a half decades. However, this long-term perspective masks meaningful variation across different market regimes. Each of the three diversifiers has experienced extended periods during which their effectiveness in mitigating equity risk came into question. To better illustrate this point, we analyse their incremental contribution to performance when combined with a U.S. equity portfolio over three distinct periods: 1990–1999, 2000–2014, and 2015–2025.

1990 – 2000: The Rise of Trend-Following CTAs

During the decade from 1990 to 2000, U.S. equities delivered exceptional performance, producing annualized returns of 18% with a Sharpe ratio of 0.93. This period marked one of the strongest bull markets in recent history. In contrast, Gold was a significant underperformer, posting a negative return of -4.3% p.a. over the period. As a result, a 60/40 equities/Gold portfolio during this era would have led to a 55% reduction in the portfolio's Sharpe ratio!

Trend-following CTAs, though not yet a mainstream alternative strategy and managing only a modest share of institutional assets at the time, proved a highly effective diversifier. With limited correlation to equities and strong risk-adjusted performance, a 60/40 portfolio split between U.S. equities and trend-following CTAs would have produced a remarkable Sharpe ratio of 1.08 over the 1990-2000 decade.

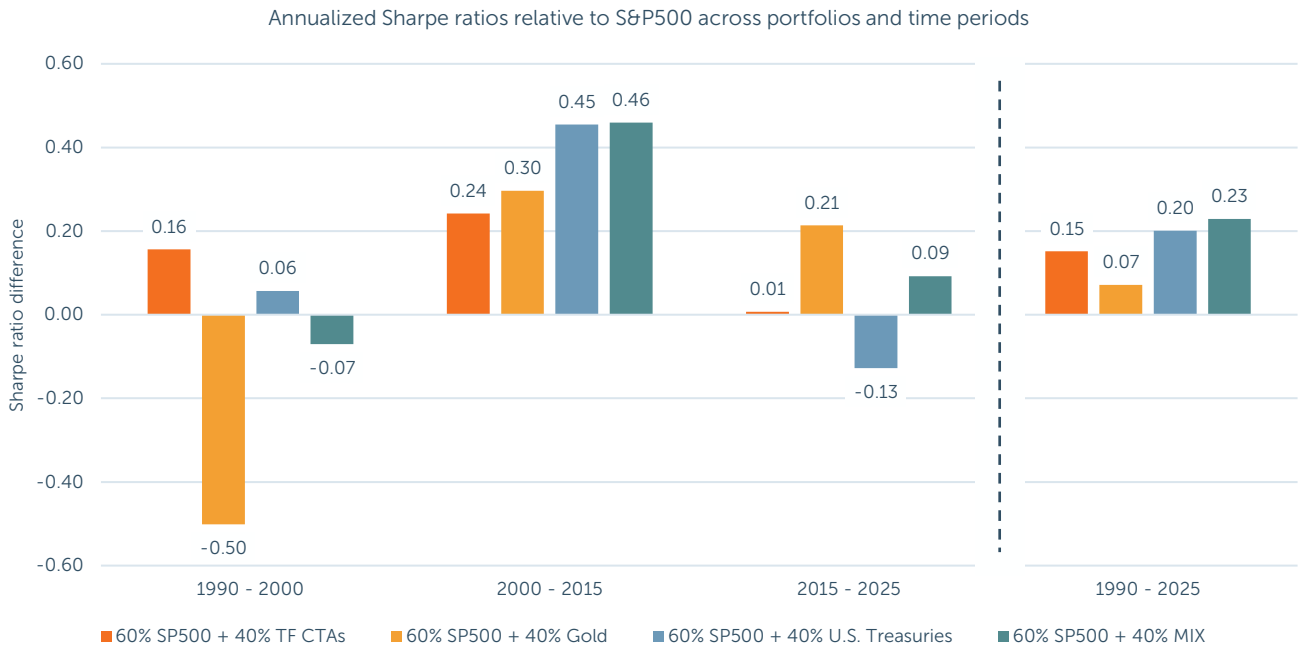


Figure 3: Sharpe ratios difference relative to a 100% S&P 500 portfolio, highlighting the contribution of each diversifier to long-term portfolio efficiency across different market regimes. The various diversified portfolios combine 60% U.S. equities (S&P 500 Total Return Index) with 40% allocations to individual liquid equity diversifiers—Trend-Following CTAs (BTOP50 Index from 1990 to 1999 and SG Trend Index from 2000 onwards), Gold (Gold futures), and US Treasuries (10-Year U.S. Treasury futures) —as well as an equally weighted mix of all three ("MIX"), each scaled to 12% annualized volatility. Results are shown across three sub-periods (1990–2000, 2000–2015, and 2015–2025) and for the full sample period (1990–2025). The time periods presented were selected arbitrarily and may not reflect all possible market conditions. Indices are unmanaged and not available for direct investment. The performance shown is hypothetical and for illustrative purposes only. Past performance is not necessarily indicative of future results.
Source: Quantica Capital. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 2.

	Annualized Sharpe ratio (risk free rate = 3m USD rate)			
Portfolios	1990 - 2000	2000 - 2015	2015 - 2025	1990 - 2025
100% SP500	0.93	0.15	0.65	0.49
60% SP500 + 40% TF CTAs	1.08	0.39	0.66	0.64
60% SP500 + 40% Gold	0.42	0.45	0.87	0.56
60% SP500 + 40% U.S. Treasuries	0.98	0.60	0.53	0.69
60% SP500 + 40% MIX	0.86	0.61	0.75	0.72

Table 5: Sharpe ratios of various portfolios combining 60% U.S. equities (S&P 500 Total Return Index) with 40% allocations to individual liquid equity diversifiers—Trend-Following CTAs (BTOP50 Index from 1990 to 1999 and SG Trend Index from 2000 onwards), Gold (Gold futures), and US Treasuries (10-Year U.S. Treasury futures) —as well as an equally weighted mix of all three ("MIX"), each scaled to 12% annualized volatility. Results are shown across three sub-periods (1990–2000, 2000–2015, and 2015–2025) and for the full sample period (1990–2025). The time periods presented were selected arbitrarily and may not reflect all possible market conditions. Indices are unmanaged and not available for direct investment. The performance shown is hypothetical and for illustrative purposes only. Past performance is not necessarily indicative of future results.
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2000 – 2015: Treasuries Shine amid Equity Market Turbulence

The 15-year period from 2000 to 2015 encompassed two major equity market crises: the bursting of the dot-com bubble and the global financial crisis. During this time, U.S. equities suffered two drawdowns greater than -30%, resulting in subdued overall performance – with annualized returns of just 4.2% and a Sharpe ratio of only 0.15.

During this challenging environment for equities, all three liquid diversifiers – Trend-following CTAs, Gold, and U.S. Treasuries – provided substantial value. When paired in a 60/40 allocation with the S&P 500 and scaled to 12% annualized volatility, each diversifier significantly improved the portfolio's risk-adjusted returns. Both CTAs and Gold raised the Sharpe ratio to 0.39 and 0.45, while U.S. Treasuries delivered the strongest performance, boosting the Sharpe ratio to 0.60 – the highest among the single-asset combinations.

2015 – 2025: Gold Emerges as the Leading Diversifier

Over the last decade (January 2015 to April 2025), U.S. equities have delivered strong returns, annualizing at 12.1%, well above their long-term average. With an annualized volatility of 15.3%, this equates to a Sharpe ratio of 0.65. However, combining this equity exposure with 10-year U.S. Treasuries – again scaled to a 12% annualized volatility – in a 60/40 portfolio would have resulted in a lower Sharpe ratio of 0.53, reflecting the negative returns generated by bonds over this period.

In contrast, adding trend-following CTAs did not impact performance over the same period. Despite undergoing their deepest and longest drawdown during this period – a -20.7% decline and a six-year time-under-water stretch between April 2015 and March 2021 – CTAs maintained their contribution to portfolio risk-adjusted returns, with the overall Sharpe ratio holding steady at 0.66[11].

Yet, the most effective diversifier over this period was Gold. With an annualized return of 8.5% and an effectively zero correlation to U.S. equities, Gold materially boosted risk-adjusted performance. A 60/40 portfolio combining equities with Gold would have achieved a Sharpe ratio of 0.87, the highest among all tested combinations in the past decade.

The Case for a Multi-Diversifier Approach

The three time periods examined above may appear arbitrary. While they are not meant to represent formal economic cycles, they were deliberately chosen to highlight the variability in the performance of each diversifier across distinct market environments – often spanning different macro-economic and financial conditions over extended time horizons.

Given the inherent difficulty in predicting which diversifier will outperform over the next 5 to 10 years, it naturally raises the question: might the most effective approach be to combine all three into a single, diversified allocation?

Asset	TF CTAs	Gold	U.S. Treasuries
TF CTAs	1	0.14	0.17
Gold	0.14	1	0.15
U.S. Treasuries	0.17	0.15	1

Table 6: Pairwise correlations between three liquid equity diversifiers: Trend-following CTAs (BTOP50 Index from 1990 to 1999 and SG Trend Index from 2000 onwards), Gold (Gold futures), and US Treasuries (10-Year U.S. Treasury futures) over the period from 1990 to 2025. Correlations are calculated based on monthly returns. Source: Quantica Capital.

[11] Notably, in 2022, while the S&P 500 Total Return Index declined by 18.1%, a hypothetical portfolio with a 60% allocation to U.S. equities and 40% to the Trend-following CTAs would have posted a much smaller loss of approximately -0.8%. In contrast, a 60/40 U.S. equity and Treasury portfolio – assuming the fixed income allocation was scaled to a comparable 12% annualized volatility – would have fared even worse, recording a loss of -19%.

This perspective is reinforced by the correlation matrix of monthly returns (1990–2025) shown in Table 6, which highlights the low pairwise correlations among the three diversifiers.

Figure 3 reports the incremental Sharpe ratio improvement relative to a 100% S&P 500 portfolio, for a strategy that combines 60% U.S. equities with a 40% allocation to an equally weighted mix of the three diversifiers – Trend-Following CTAs, Gold, and U.S. Treasuries – scaled to 12% annualized volatility. Results are shown across three distinct market periods as well as the full 1990–2025 horizon.

Across all four periods examined, the 60/40 MIX portfolio consistently delivers the strongest and most stable improvement in risk-adjusted performance. With a Sharpe ratio of 0.72 over the full 1990–2025 period, the MIX portfolio outperforms all single-diversifier combinations. Notably, the MIX strategy also shows the highest average Sharpe ratio improvements relative to equities alone in both crisis-heavy (2000–2015: +0.46) environments and more benign (2015–2025: +0.09) market conditions.

In summary, the most effective diversification did not come from relying on a single hedge or risk-mitigating strategy, but from combining multiple diversifiers with distinct and complementary return drivers. By allocating equally on a risk-adjusted basis across Treasuries, Gold, and trend-following CTAs, investors can build portfolios that could be better positioned to navigate shifting macroeconomic regimes, evolving policy cycles, and unexpected market shocks. The superior and consistent risk-adjusted returns of the MIX portfolio across vastly different decades underscore the power of diversification across sources of diversification itself – likely leading to a more resilient and adaptive equity portfolios.

Index Definitions

The **SG Trend Index** is designed to track the 10 largest trend following CTAs (by AUM) which meet a list of criteria (as defined by SG) and be representative of the trend-followers in the managed futures space. The SG Trend Index is equally weighted, and rebalanced and reconstituted annually. The Index is not directly investable. Source: Société Générale.

The **SG Short Term Traders (STT) Index** is designed to track the 10 largest short-term, diversified CTA and Global Macro managers (by AUM) which meet a list of criteria (as defined by SG). The SG STT Index is rebalanced and reconstituted annually. The Index is not directly investable. Source: Société Générale.

The **BTOP50 Index** seeks to replicate the overall composition of the managed futures industry with regard to trading style and overall market exposure. The BTOP50 employs a top-down approach in selecting its constituents. The largest investable trading advisor programs, as measured by assets under management, are selected for inclusion in the BTOP50. The BTOP50 Index is equally weighted, and rebalanced and reconstituted annually. The Index is not directly investable. Source: BarclayHedge.

The **S&P 500 Index** is widely regarded as the best single gauge of large-cap U.S. equities. The index includes 500 leading companies and covers approximately 80% of available market capitalization. The Index is not directly investable. Source: S&P Global.

Conclusion

The April 2025 tariff shock served as a vivid reminder of the speed and unpredictability of equity market sell-offs – and a revealing case study in the limitations of traditional liquid portfolio diversifiers. While the S&P 500 plunged more than 12% in just four trading days, diversifiers such as trend-following CTAs, U.S. Treasuries, and Gold posted mixed or disappointing results. Most notably, trend-following strategies – often lauded for their crisis convexity – declined -6.1% over the same period. This highlights a critical aspect of such strategies: their performance in the face of short-term reversals is heavily influenced by how the portfolio was positioned immediately prior to the market shock.

Yet rather than undermining the rationale for diversification, this episode underscores the importance of a more nuanced understanding of how – and when – different diversifiers are effective. Our analysis demonstrates that the efficacy of CTAs, Treasuries, and Gold is not static; it evolves with the nature and duration of market stress.

While none can be relied upon to consistently perform during every abrupt sell-off, all three have demonstrated robust crisis protection over longer time horizons, particularly during prolonged and broad-based drawdowns.

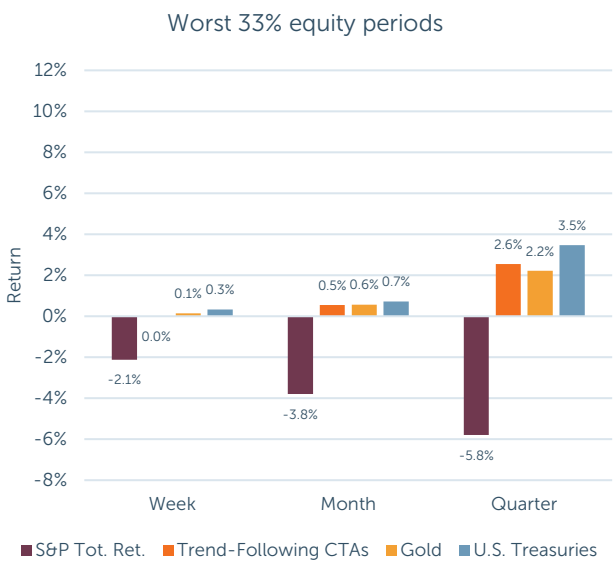
Short-term protection may be limited or inconsistent, but over medium- to long-term crisis horizons, the likelihood of achieving positive returns increases significantly. Importantly, each of these diversifiers offers different performance asymmetries and correlations – not only to equities but also to each other.

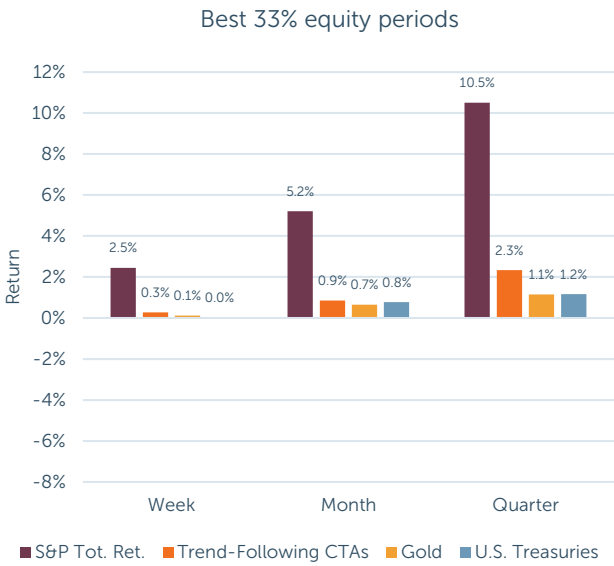
In combination, CTAs, Gold, and Treasuries may enhance portfolio protection more effectively than any one asset on its own. A 60/40 portfolio pairing equities with an equal-weighted mix of these three liquid diversifiers consistently delivered the highest and most stable Sharpe ratios across a wide range of market regimes – from bull markets and low-rate environments to crisis periods and inflationary shocks. We believe that constructing portfolios with multiple, uncorrelated diversifiers remains one of the most effective strategies for enhancing long-term risk-adjusted returns, preserving capital, and building resilience through shifting macroeconomic cycles.

Finally, while our analysis focused on a select set of liquid diversifiers, the list is by no means exhaustive. While U.S. Treasuries are widely acknowledged as effective crisis hedges – albeit with well-understood limitations, trend-following remains underrepresented in institutional portfolios, often due to perceived complexity, higher costs, or its classification as an "alternative". We hope this note has illustrated the strong rationale for including multiple uncorrelated and liquid diversifiers – such as trend-following CTAs – each offering distinct performance asymmetries and diversification profiles, not only relative to equities but also to one another, as part of a robust and forward-looking portfolio construction framework. This is especially relevant in today's market environment, where long-standing assumptions about traditional 'safe havens' are increasingly being challenged, casting doubt on the continued effectiveness of U.S. Treasuries as a reliable source of positive returns during periods of equity market stress.

Appendix: The Time Horizon of Diversification

To evaluate the effectiveness of each diversifier in mitigating equity market losses across crises of varying duration, we analyze their average returns conditional on the worst 33% of S&P 500 return periods measured across weekly, monthly, and quarterly horizons. For comparability, the returns of each diversifier are scaled to a long-term annualized volatility of 12%. A truly effective diversifier should also avoid imposing a significant performance drag during favorable equity market conditions. To capture this balance, we further examine the average return characteristics of each strategy during the best 33% of S&P 500 return periods, using the same set of weekly, monthly, and quarterly horizons.





	Correlation to U.S. Equities					
	Worst 33% equity periods			Best 33% equity periods		
	Week	Month	Quarter	Week	Month	Quarter
Trend-Following CTAs	-0.10	-0.35	-0.43	-0.28	-0.22	-0.20
Gold	0.02	-0.06	-0.17	0.07	-0.08	0.01
U.S. Treasuries	-0.16	-0.17	-0.50	-0.04	0.10	0.06

Figure 4: Average returns (Top) and Correlation to U.S. Equities (Bottom) of U.S. equities (S&P 500 Total Return Index), trend-following CTAs (based on the BTOP50 Index), Gold (Gold futures), and U.S. Treasuries (10-year Treasury futures) during the best and worst 33% of U.S. equity return periods. Returns are shown over weekly, monthly, and quarterly horizons. Gold and Treasury returns are volatility-scaled to 12% per annum with a representative cash yield added to enable meaningful comparison with equity returns. Weekly trend-following CTA benchmark returns are constructed between 1990 and 1999 using our generic trend-following replication model, and the SG Trend Index returns from 2000 onwards. Source: Quantica Capital, BarclayHedge, Societe Generale.

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