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THE SPEED FACTOR

How Trend Model Speed Has Driven Performance Dispersion and Equity Downside Protection Since 2023

#24 | NOVEMBER 2025

Executive summary

Over the past decade, model speed has been a key driver of performance dispersion among systematic trend-following CTAs. Although the largest trend-following managers by AUM remain highly correlated with an average monthly return correlation of around 0.9, their cumulative returns since 2023 have diverged by nearly 50%. This highlights that seemingly similar implementations of the same strategy can behave very differently. Our analysis shows that differences in trend-signal speed alone may explain a substantial share of this dispersion.

We evaluate hypothetical returns of a generic trend model across lookbacks from 10 to 1'000 business days and across both traditional and alternative markets. A 60-70 business-day half-life most closely replicates benchmark CTA behavior, providing a robust empirical definition of "trend-following beta". A similar 75-day half-life best captures the behavior of leading Alternative Markets-focused CTAs.

From 2015–2022, medium-term configurations with half-lives of 60-100 business days delivered the strongest and most robust cross-asset performance. These models were sufficiently fast to adapt to regime shifts yet slow enough to avoid excessive turnover and false signals, generating consistent contributions from fixed income, rates, and commodities. Trend-following in equities performed best only at slower speeds, reflecting structural exposure to the long-term equity risk premium rather than shorter-term trend inefficiencies.

Since 2023, this traditional 'sweet spot' has become far more fragile. Small changes in model speed have produced unusually large performance differences – over this period, a 50-business-day lookback underperformed a 150-business-day configuration by roughly 35% cumulatively. Faster models struggled with rapid reversals, particularly in fixed income and rates, while slower configurations benefited from persistent equity strength, helping explain the industry's unusually wide cross-manager dispersion.

An equity-regime analysis confirms that fast models excel in bear markets but pay a cost in normal and bull environments due to higher signal noise and turnover. Very slow models increasingly resemble static equity-risk-premium exposures and fail to respond to major market inflection points. Across the full 2015–2025 period, the 60-120 business-day speed range delivered the most attractive balance of long-term returns and reliable equity-downside protection.

Overall, our findings reaffirm that medium-term lookback windows remain the most robust foundation for building a diversified trend-following exposure. However, the post-2023 regime highlights the limitations of static model configurations and underscores the potential value of adaptive frameworks that adjust model speed to evolving market conditions – an increasingly important consideration for capturing the trend-following risk premium going forward.

Uniform on the Surface, Divergent in Outcome: Trend-Following Performance from January 2023 – September 2025

Between January 2023 and September 2025, the SG Trend Index[1], a widely recognized benchmark for traditional trend-following CTA strategies, declined by -3.8%, making it one of the most challenging periods for the industry as an aggregate in the past 25 years. On the surface, the index represents a notably homogeneous peer group: its current ten constituents exhibited an estimated average pairwise correlation of 0.91[2] over the past three years, suggesting substantial overlap in underlying exposures and systematic trend-following approaches.

Yet beneath this apparent uniformity lies remarkable performance dispersion. Individual returns across the index's ten constituent managers have ranged from -24.7% to +22.6% since 2023 – a return gap of almost 50-percent within a universe that is both highly correlated and typically viewed as highly homogenous[3]. This return divergence confirms once again that trend-following is anything but a "generic" strategy and underscores how differences in the underlying investment universe, signal generation

[1] 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 investable and does not reflect the actual performance of any specific investment product or managed account. Source: Société Générale.

[2] Presented for illustrative purposes only. Average cross-correlation is calculated on monthly returns from January 2023 to September 2025. The data referenced is sourced from third-party providers believed to be reliable; however, no assurance is given as to their accuracy or completeness.

[3] Presented for illustrative purposes only and not indicative of future results. The data referenced is sourced from third-party providers believed to be reliable; however, no assurance is given as to their accuracy or completeness.

and portfolio construction methodologies, asset-class risk exposure targets, risk allocation and position sizing methodologies[4] can translate into materially distinct outcomes over specific periods, even among managers employing seemingly identical approaches.

While each of the aforementioned factors may explain part of the performance dispersion observed among trend-following CTA managers, this paper explores how trend-signal speed influences the return sensitivity of trend-following strategies. We analyze generic trend-following performance across different lookback windows ranging from a few days to several years. We begin by introducing a generic trend-following framework and identifying the model speed that would have most closely replicated industry benchmark returns over the past decade. We then extend the framework to Alternative Markets to test the consistency of trend-speed effects across a broader investment universe. Building on this foundation, we analyze the sensitivity of trend-following performance to model speed over two distinct periods, first between 2015–2022, and then the more recent post–2023 environment. Finally, we condition model-speed sensitivity on distinct equity market regimes, distinguishing between bear, normal, and bull environments. By reconciling more recent market behavior with longer-term empirical results, we illustrate how the effectiveness of different model speeds varies across different market regimes and define the range of speeds that offer the most effective balance between long-term performance and desired equity risk mitigation of trend-following strategies.

From Fast to Slow: Building a Framework to Analyze Trend-Following Speed Sensitivity

To analyze the sensitivity of trend-following performance to the lookback window used for measuring trends, we employ a proprietary generic model applied to an investment universe consisting of 50 of the most liquid futures markets across equities, fixed income and short-term interest rates, currencies and commodities.

At their core, Quantica's generic trend-following signals are built on the exponentially weighted moving average (EWMA) of each market's past risk-adjusted returns. We define the model's "speed" as the half-life of the EWMA - that is, the lookback period over which the cumulative weight of past observations reaches 50%. The portfolio construction of our generic model is then based on a simple bottom-up volatility adjusted risk allocation and is rebalanced on a daily basis. To assess how performance varies with trend speed, we examine half-lives ranging from 10 business days (two weeks) to 1'000 business days (four years), thereby encompassing the full range from fast to slow trend implementations.

The 66-Day Horizon: A Model-Based Approximation of "Trend-Following Beta"

Our generic trend-following model is built around a single key design parameter, the half-life of the EWMA of past returns, which governs its effective lookback window. One key question, then, is: for which lookback window does this framework best replicate the return characteristics of a representative trend-following benchmark such as the SG Trend Index? Can we identify a trend speed that has

[4] For a study on how different position sizing methodologies may impact return characteristics of a trend-follower, please refer to *Let It Ride Or Lock It In*, Quantica Quarterly Insights, December 2024.

consistently mirrored industry returns over the past decade – thereby making our generic model a robust bottom-up representation of "trend-following beta"[5]?

To explore this, we measure, for each calendar year between 2015 and 2025, the correlation between the daily returns of our generic model and those of the SG Trend Index across the full range of trend speeds, from fast to slow.

The results, summarized in Figure 1, include the average correlation and corresponding confidence bands over the ten-year period as a function of model speed. Lookback horizons corresponding to half-lives between 35 and 140 business days replicate industry returns with average correlations exceeding 0.80. The correlation peaks at 0.87 for a half-life of 66 business days.

Hence, a 66-day half-life can be regarded as a reasonable parameterization for a "beta trend-following replication model", effectively capturing the core characteristics of trend-following CTA industry benchmark returns.

Figure 1: Correlation of a generic trend-following model with the SG Trend Index across different trend speeds (Jan. 2015 – Sep. 2025)

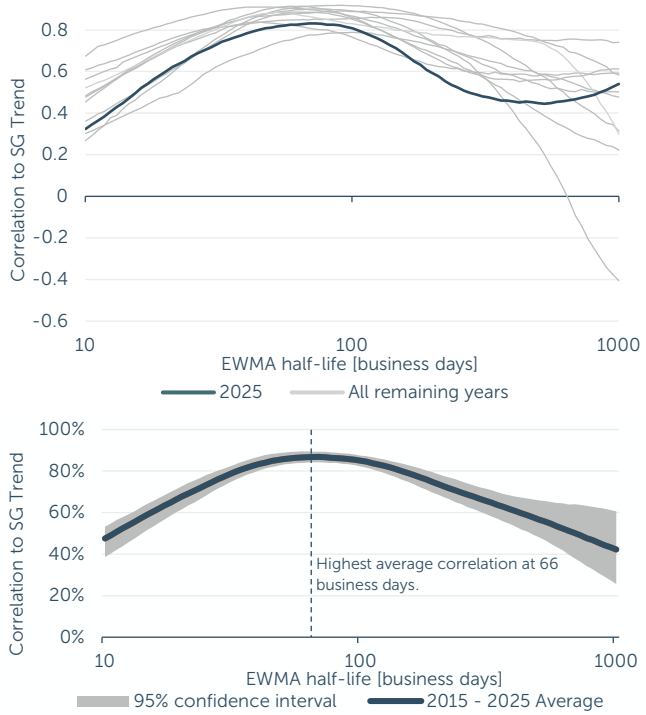

Figure 1: Year-by-Year (top) and average (bottom) correlations between the daily returns of Quantica's generic trend-following strategy (designed to replicate the return and risk profile of the SG Trend Index when applied to a cross-asset universe of 50 liquid futures markets) and the SG Trend Index as a function of model speed, expressed as the EWMA half-life in business days (log scale). The shaded area represents the 95% confidence interval across calendar years. The SG Trend Index is unmanaged, does not incur fees, and is not directly investable. Returns of the generic trend-following model are net funded returns, derived from simulated gross returns, including a representative return on cash and collateral (proxied as 70% of the prevailing 3-month USD interest rate), assuming hypothetical trading costs derived from a proprietary model, and are net of a management fee of 1% per annum & performance fees of 20%, crystallized annually. No guarantee is given that these trading costs or cash returns can be achieved in the future. Analysis period: Jan. 2015 – Sep. 2025. Source: Quantica Capital, Société Générale. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 3.

Extending the Framework to Alternative Markets: A Comparable Trend Speed

To assess whether the relationship between model speed and CTA performance extends beyond traditional markets, we replicated the analysis to an investment universe composed of 120 esoteric, harder-to-access alternative markets[6]. As detailed in the **Appendix**, the results indicate that the optimal trend speed for replicating the average performance of leading Alternative Market CTAs over 2015–2025 lies in a similar range – around a 75-business-day half-life – suggesting that comparable model dynamics apply despite higher trading frictions and implementation costs in these markets.

[5] In contrast to a replication-based approach – which derives positions from a purely backward-looking analysis of trend-following return time series and therefore requires no underlying trend model – our framework is model-driven and provides a clearer understanding of the mechanisms generating those returns.

[6] Please refer to *Gas, Power, and the Past: When Alternative Market Trends Break*, Quantica Quarterly Insights, September 2025. It should be emphasized that the two investment universes used in this research note – Traditional and Alternative Markets – are intended solely for illustrative and analytical purposes. They are not intended to precisely replicate or to be representative of the actual investment universes used by CTA managers in practice. Rather, they serve as stylized frameworks to highlight structural differences and portfolio dynamics across broad categories of market exposure.

In summary, empirical evidence from the past decade shows that our bottom-up, generic trend-following modeling framework provides a realistic and methodologically robust basis for replicating the average performance characteristics of both Traditional and Alternative Markets CTAs. It offers a sound quantitative foundation for assessing how differences in model speed can contribute to return dispersion across individual managers.

Long-Term Cross-Asset Performance Sensitivity to Trend Speed (2015 – 2022)

In the next step, we assess how model speed impacts overall gross hypothetical returns and the return contribution of major asset classes. Incorporating realistic trading costs[7], we simulate the performance of our generic trend-following model for a range of trend speeds corresponding to EWMA half-lives from 10 business days (two weeks) to 1'000 (four years) over the eight-year period from January 2015 to December 2022. Figure 2 shows the variation in gross annualized return contributions across asset classes as a function of model speed for Traditional Markets, while the corresponding analysis for Alternative Markets is provided in the **Appendix**.

Within the Traditional Markets CTA universe, aggregate hypothetical trend-following returns (net of trading costs) reach their maximum at trend signal half-lives of approximately 60–100 business days (dark blue line)[8]. Notably, this optimal range is not driven by any single sector but reflects a broad alignment of trend opportunities across markets. In retrospect, the most effective lookback horizon for capturing profitable trends over the 2015 – 2022 period appeared only marginally longer than the average model speed we estimated previously for the largest managers in the space over the same period. This indicates that, on average, the large CTAs were quite close to the empirical ex-post optimal choice of the trend-speed over the 2015-2022 period.

Analyzing asset class contributions over the period, fixed income, short term interest rates, and commodities stand out for their consistency, generating positive returns across nearly all horizons before fading at slower speeds, and underscoring their strategic importance within diversified trend-following portfolios. This persistence reflects the presence of both short-term price continuation dynamics and longer-term structural trends within these asset classes.

Figure 2: Asset class attribution of hypothetical generic trend-following gross returns for different model speeds (Jan. 2015 - Dec. 2022)

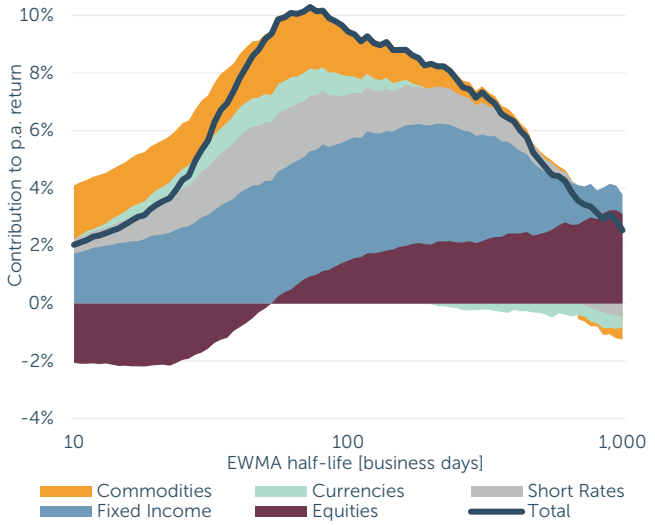

Figure 2: Annualized attribution of hypothetical gross excess-returns by asset class of a generic trend-following model designed to mimic the return and risk profile of a typical medium-term trend-following CTA strategy when applied to a universe of 50 liquid futures markets, as a function of the model's trend speed, represented as EWMA half-lives between 10 and 1'000 business days. Returns shown are net of hypothetical implementation costs, but gross of any management and performance fees and do not include any interest on cash. Period: Jan. 2015 – Dec. 2022. Source: Quantica Capital. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 3.

[7] Hypothetical returns of the generic trend-following models are reported net of trading costs derived from Quantica's proprietary market cost models.

[8] While the relationship between speed and performance is robust, trading implementation costs vary substantially across speeds. Faster models incur higher turnover and thus higher trading costs - approximately 2% per annum at a 10-day half-life, compared to roughly 0.5% for medium-speed models (100-day half-life) and 0.2% for slower models (1'000-day half-life). Accounting for these differences is essential when evaluating net performance across trend-following horizons.

Equities, by contrast, display a distinct speed-sensitivity profile – negative at half-lives below about 50 business days and increasingly positive at longer horizons – suggesting that equity trend-following returns have been driven more by exposure to the long-term equity risk premium than by exploitable short- and medium-term trend inefficiencies. Currencies, by contrast, have been a negative contributor for model speeds slower than 200 business days, offering only marginal upside across medium-term lookback horizons between 10 and 200 business days. This pattern underscores the ongoing challenge of extracting durable trend risk premium from currency markets in recent years.

Overall, the empirical results suggest that a medium-term half-life of roughly one to two calendar quarters (half-life of three to six months, which corresponds to a static lookback window of six to twelve months) was the most effective for capturing persistent, economically meaningful price trends over the 2015 – 2022 period, consistent with the findings published in our previous Quarterly Insights[9]. When the lookback horizon extends beyond 200 business days, the strategy increasingly resembles a static risk-premium exposure with aggregate trend-following performance declining as the model becomes too slow to adapt to regime shifts outside of equities. Over the past decade, equity buy-and-hold exposure has been well rewarded by a substantial risk premium, which could account for nearly all of the returns generated by a generic trend-following strategy employing multi-year lookback windows.

The Changing Speed Dynamics of Trend-Following since 2023

Having established the broader empirical context, we now turn to the recent period January 2023 – September 2025, a notably challenging environment for trend-following, characterized by weaker average industry performance.

Figure 3 illustrates the relationship between performance and trend lookback window, expressed as the EWMA half-life, since 2023. The corresponding results for Alternative Markets are presented in the **Appendix**.

Figure 3: Asset class attribution of hypothetical generic trend-following gross returns for different model speeds (Jan. 2023 - Sep. 2025)

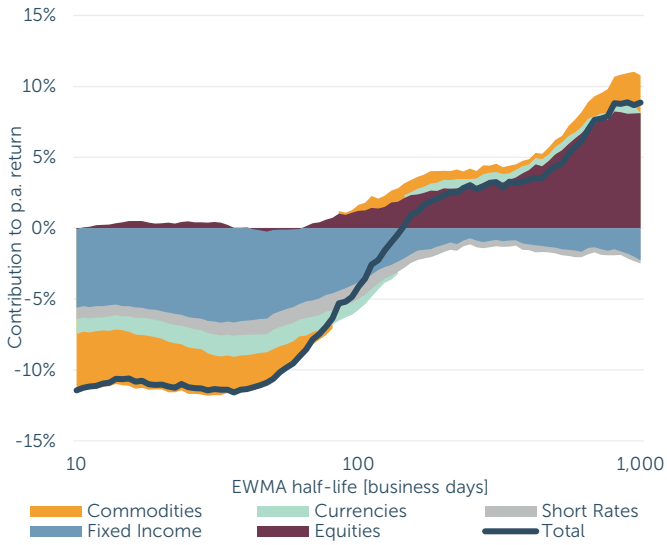

Figure 3: Annualized attribution of hypothetical gross excess-returns by asset class of a generic trend-following model designed to mimic the return and risk profile of a typical medium-term trend-following CTA strategy when applied to a universe of 50 liquid futures markets, as a function of the model's trend speed, represented as EWMA half-lives between 10 and 1'000 business days. Returns shown are net of hypothetical implementation costs, but gross of any management and performance fees and do not include any interest on cash. Period: Jan. 2023 – Sep. 2025. Source: Quantica Capital. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 3.

[9] A similar analysis covering the period from 2000 to 2022 and relying on a variation of the generic trend-following model was presented in a previous publication. In this paper, we showed that over the 2000-2022 period, a lookback window of around 63 trading days would have been the most profitable across the most liquid financial and commodity futures. For more details, please refer to *Quarterly Trends Are Your Best Friends*, Quantica Quarterly Insights, June 2023.

Several notable insights emerge from this analysis:

- The trend-speed sensitivity profile since 2023 has diverged sharply from what was observed in the previous eight years across all major asset classes – except for equities.
- Equity exposures showed a consistent, monotonic improvement in performance as model speed decreased, reflecting the dominant influence of long-term risk premia.
- The generic trend-following model with lookbacks shorter than 140 business days was posting overall negative returns, driven by adverse and frequently reversing market dynamics – particularly within fixed income and short-term interest rate markets.
- Fixed income and short-term rates have been negative contributors for all trend speeds since January 2023, underscoring the ongoing difficulty of capturing sustained trends in these sectors.

The most striking observation is that a relatively small lengthening of the lookback horizon – from 50 to 150 business days – resulted in a roughly 12% annualized performance differential (from -10.6% to +0.9%), based on a 12% annualized volatility target for the strategy. This highlights a pronounced sensitivity of trend-following returns to model speed since 2023. While hypothetical generic trend-following returns have been quite robust and similar for lookback windows with half-lives of 50-150 days for the period 2015-2022, the total return differences between 2023 and 2025 within this trend speed range was massive and reached up to a total of 35%. Despite this substantial return dispersion between a 50-day and a 150-day half-life trend speed, it is interesting to note that the empirical correlation between the generic returns of the two specifications has been surprisingly high at 77%. Once again, our results show that highly correlated trend-following models can lead to substantial return differences. Across Alternative Markets, a similar pattern of sensitivity is observed, albeit somewhat less pronounced, as is shown in the **Appendix**.

These results suggest an empirical explanation for at least part of the elevated return dispersion among trend-following managers since 2023. The long-standing "sweet spot" for a trend-following lookback window has shown signs of heightened sensitivity, with small variations in trend speed specifications producing disproportionately large differences in performance outcomes. Since 2023, a generic trend-following model designed to capture longer-term trends would have strongly outperformed a shorter-term implementation purely on speed considerations, all else being equal.

More generally, the above observations underscore the limitations of relying on static model configurations calibrated solely on historical or back-tested performance. Recent market dynamics highlight the value of more adaptive frameworks – models that are capable of dynamically filtering signal noise and adjusting to evolving market conditions rather than depending exclusively on conventional, static trend-following beta.

In the remaining part of this note, we discuss why we still believe a three- to six-month half-life lookback window continues to offer the most attractive balance of equity risk mitigation and long-term, risk-adjusted trend-following performance.

The Interaction Between Equity Market Regimes and Trend-Following Returns

Trend-following CTAs are frequently incorporated into portfolios for their ability to generate positive returns during extended equity market downturns, providing valuable and liquid

diversification when it is most needed at the portfolio level. The perception of trend-following as an effective equity risk mitigator is well supported by historical evidence. Over the past 25 years, trend-following CTAs, as measured by the SG Trend Index, have delivered positive returns with close to zero long-term correlation to global equity markets. Notably, they have tended to perform best during the most challenging equity market periods, such as in 2008 (SG Trend +20.9% vs S&P 500 -37.0%) and 2022 (SG Trend +27.4% vs S&P 500 -18.1%).

Since early 2023, however, global and U.S. equity markets have not experienced any sustained crises – only brief episodes of stress not lasting more than a few weeks, including the banking turmoil in March 2023, the Japanese yen dislocation in August 2024, and the Liberation Day selloff in April 2025. In fact, the S&P 500 TR Index has delivered an impressive, annualized return of +24.2% from January 2023 until September 2025.

Understanding Model Speed Sensitivity Through the Lens of Equity Market Regimes

To evaluate how the choice of model speed interacts with prevailing equity market conditions, we extend the previous model-speed sensitivity analysis by conditioning results on three distinct and complementary equity market regimes. Rather than decomposing trend-following performance by asset class contributions, we attribute returns to the Bear, Normal, and Bull equity regimes, as defined by non-overlapping quarterly S&P 500 total returns[10]. Figure 4 presents the breakdown of annualized log returns

Figure 4: Equity regime attribution of hypothetical generic trend-following gross returns for different model speeds (Jan. 2015 - Sep. 2025)

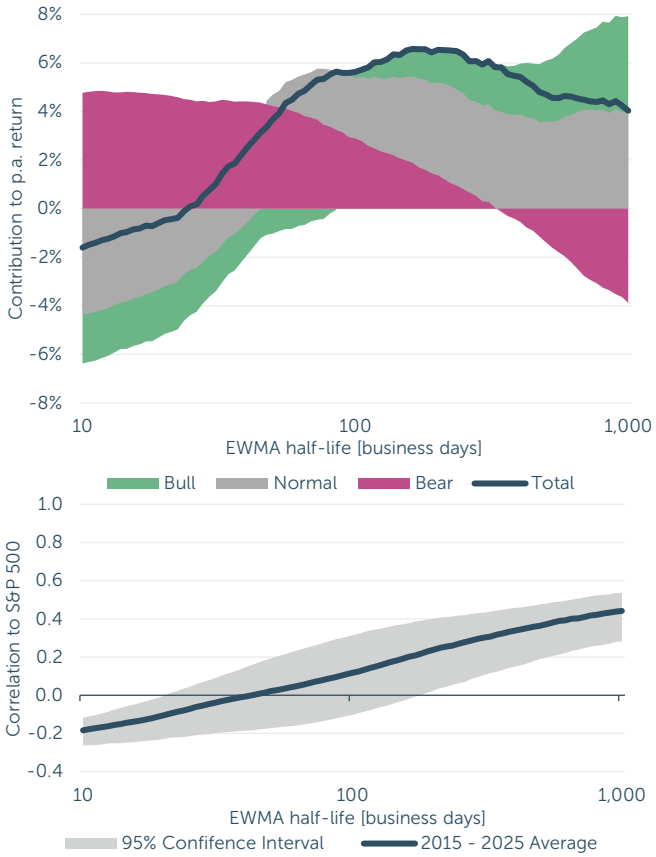

Figure 4: Annualized attribution of hypothetical log-returns by equity market regimes (top) and average correlation to S&P 500 total returns (bottom) for a generic trend-following model designed to mimic the return and risk profile of a typical medium-term CTA benchmark applied to an investment universe composed of 50 liquid futures markets, shown as a function of model speed (EWMA half-lives from 10 to 1'000 business days). The profile of aggregate returns (dark blue line) is equal to the sum of the returns in Figure 2 and Figure 3 (weighted by their length in years). Both the asset-class and equity market regime attributions sum up to the same total generic strategy returns. The bottom chart displays the average yearly correlation across the full sample period. The shaded area represents the 95% confidence interval across calendar years. Period: 2015–2025. Source: Quantica Capital. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 3.

across these regimes over the 2015 - 2025 period for our generic trend-following model applied to traditional markets and half-lives ranging from

[10] Our regime-conditional performance analysis is based on the series of quarters from January 2015 to September 2025. More specifically, we rank the 43 quarterly returns of the S&P 500 futures in ascending order from the worst (a loss of -20.1% in the first quarter of 2020) to the best (a gain of 20.7% in the second quarter of 2020), and define three different equity market regimes:

- a bear market (or "crisis") regime composed of the 7 worst performing calendar quarters,
- a bull market regime composed of the 7 most profitable calendar quarters, and
- a normal market regime composed of the remaining 29 calendar quarters in between the other two regimes.

Analyzing the performance and diversification characteristics of a medium-to-long-term trend-following CTA based on returns sampled at a quarterly frequency, is most consistent with its tactical investment horizon and average holding period of a few weeks to several months.

two weeks to four years. Figure 4 also illustrates how the correlation relationship between our generic trend-following model and the S&P 500 evolves with model speed. While shorter-term models perform very well in adverse equity market regimes, they pay a high premium in Normal and Bull market quarters. On the other end of the spectrum, very long-term models are highly correlated with market risk premia, performing well when equity markets do well, but poorly in the worst equity quarters.

The results highlight how the sensitivity of trend-following performance to model speed is highly dependent on the prevailing equity market regime. Performance in Equity Bear quarters is strongest for faster, shorter-term models, with average annualized returns of roughly +4.5% p.a. across a broad range of half-lives from 10 to 60 business days. Beyond this range, performance steadily declines as model half-lives increase, turning negative for lookbacks exceeding 330 business days. Intuitively, models with long half-lives become too slow or "stale" to adapt to rapid changes in market direction and cross-asset correlation structures. Conversely, faster models with half-lives below approximately 60 business days have historically incurred meaningful losses outside bear markets – during both normal and bull regimes. The magnitude of these losses increases as model speed accelerates, reflecting a combination of higher trading costs (from elevated turnover) and the effect of an accumulation of false signals triggered by short-lived equity pullbacks that fail to evolve into sustained downtrends. This dynamic can be viewed as an "insurance premium" paid for maximizing downside protection during crisis periods. Our analysis suggests that this trade-off breaks even around a 25-business-day (e.g., one month) half-life; below that, the costs begin to outweigh the benefits.

These findings are consistent with the relationship between model speed and correlation to the S&P 500 shown in the bottom panel of Figure 4. Over the past decade, a model with a 60-business-day half-life would have exhibited close to zero long-term correlation with the S&P 500. Faster configurations show increasingly negative correlations, enhancing diversification but at the expense of return stability. Conversely, as the model speed slows, correlations rise steadily, reaching approximately +0.4 for very long-term configurations (multi-year half-lives).

The Case for a 60-120 Day Lookback Window

For models with half-lives between roughly 90 and 330 business days, performance contributions remain consistently positive across all equity market regimes. Over the past ten years from 2015 to 2025, hypothetical aggregate trend-following performance peaks across a relatively broad horizon of 120-250 business days, slower than in the previously analyzed 2015–2022 window, indicating this as the most balanced and robust model-speed range over the full period. Considered alongside the strategy's risk-mitigation characteristics, these findings support using lookback windows with half-lives between 60 and 120 business days – roughly three to six months – as a robust foundation for a generic trend-following program. This range provides the most cost-effective combination of attractive positive risk-adjusted returns and effective equity risk mitigation, balancing downside protection during Bear markets while maintaining the ability to generate positive returns during more benign Normal or Bull market environments. Within this interval, a shorter lookback horizon (around 60 days) will emphasize equity risk mitigation at the expense of lower long-term returns, whereas a longer horizon (around 120-150 days) has historically delivered the strongest performance while still preserving meaningful equity downside protection benefits.

Conclusion

We analyzed the relationship between model speed of a generic trend-following model and its performance and equity risk mitigation properties over the past ten years, placing the post-2023 environment within its longer-term historical context.

Using an EWMA-based trend-following signal framework, we demonstrated the hypothetical effect of variations in trend signal speed half-life – ranging from a few days to several years – on both asset class and aggregate generic trend-following returns. We showed that a half-life of ca. 60–70 business days, corresponding to one calendar quarter, best replicates the return and risk characteristics of a trend-following CTA industry benchmark such as the SG Trend Index, making it a robust bottom-up representation of "trend-following beta".

Extending this analysis to a broader universe of Alternative Markets confirmed that the relationship between speed and performance is broadly consistent across a wider range of markets and asset classes.

Over the eight-year period from 2015 to 2022, trend speeds with half-lives of roughly 60-100 business days have delivered the strongest and most balanced performance across asset classes. In contrast, during the post-2023 period, the trend-speed sensitivity profile diverged materially from historical norms across most asset classes in both the Traditional and Alternative Market universes – with the notable exceptions of equities and credit. In these sectors, performance continued to improve monotonically with slower model speeds, reflecting the dominant influence of long-term risk premia. Faster models, by contrast, were consistently loss-making, driven by adverse and frequently reversing market dynamics – particularly within fixed-income and interest rate markets.

The most striking result is that a relatively modest shortening of the model lookback window – from 150 to 50 business days – led to a substantial performance deterioration of approximately 35% in total (11.6% p.a. at a 12% p.a. volatility) over the period from January 2023 to September 2025. This heightened sensitivity coincides precisely with (1) the model-speed range that represented the most robust generic trend-following performance (60–100 business days) and (2) the 66-day half-life that best replicates the average return characteristics of benchmark CTA returns.

The more recent period underscores that trend-following performance sensitivity to model speed is highly equity market regime-dependent. Faster models (10-60 business-day half-lives) tend to excel in equity Bear market quarters by capturing rapid trend reversals, while medium-term configurations (60–250 business days) generate the most consistent, positive results across all equity market regimes. Conversely, faster models underperform in Normal and Bull markets due to elevated turnover and false signals – consistent with the post-2023 experience – whereas overly slow models lag in adapting to shifting market dynamics. Consequently, the 60–120 business-day range offered the most robust balance, delivering attractive risk-adjusted returns and reliable equity downside mitigation. In essence, this range is fast enough to respond to sudden shifts in risk sentiment, yet slow enough to avoid excessive trading on false signals and to capture the most persistent trends over the long term.

Finally, the post-2023 period shows that trend-following models which dynamically adjust their speed in response to changing market conditions can offer meaningful advantages over traditional trend-following beta strategies, which typically rely on static model implementations.

Appendix: Performance Sensitivity of Alternative Markets CTAs to Model Speed

Building on the work presented in our previous Quarterly Insights publication[11], we extend the analysis by applying our generic trend-following model to the distinct Alternative Markets universe comprising 120 comparatively esoteric or harder-to-access markets across equities, credit, fixed income and rates, currencies, and commodities. This includes regional commodity contracts, niche financial futures, and centrally cleared swaps, all typically characterized by higher entry barriers and larger minimum trade sizes.

As a market benchmark for Alternative Markets CTA performance, we rely on an internally constructed hypothetical benchmark with publicly available net monthly performance data of a representative set of eight leading Alternative Market CTAs over the period 2015–2025[12].

A Comparable Trend Speed to that of Traditional Markets Best Captures the Return Characteristics of Leading Alternative Market CTAs (Jan. 2015–Sept. 2025)

As shown in Figure 5, when applied to the Alternative Markets universe, correlations peak within the 60- to 100-business-day range, reaching a maximum of 0.84 at a half-life of 73 business days. This suggests that a model speed half-life of roughly 75 business days most accurately replicates the average performance characteristics of Alternative Markets CTAs over

Figure 5: Correlation of a generic trend-following model applied to 120 alternative markets with our Alternative Markets CTA benchmark across different trend speeds (Jan. 2015 – Sep. 2025)

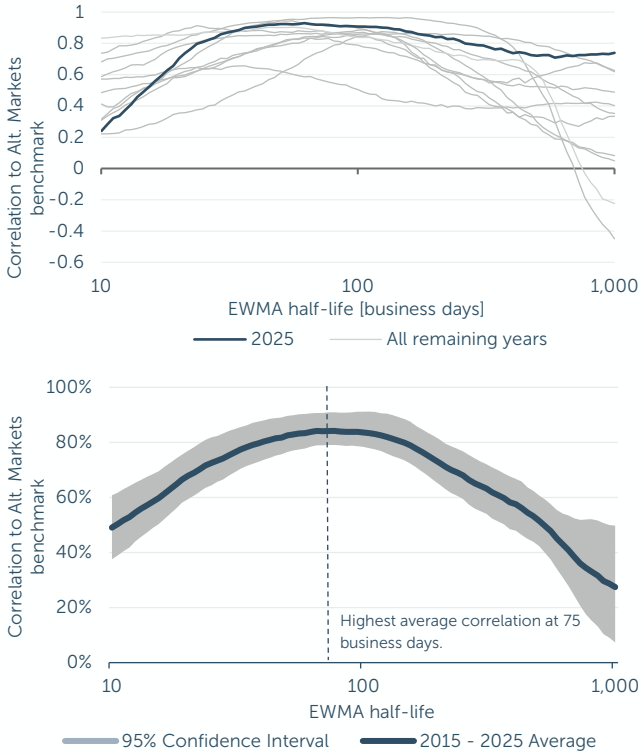

Figure 5: Year-by-Year (top) and average (bottom) correlations between the monthly hypothetical returns of Quantica's generic trend-following model and an internally constructed hypothetical Alternative Markets benchmark as a function of model speed, expressed as the EWMA half-life in business days (log scale). The shaded area represents the 95% confidence interval across calendar years. The Alternative Markets Benchmark is a hypothetical portfolio, rebalanced monthly with profits reinvested. It is composed of a set of 8 individual investment programs deemed representative of trend-following strategies that include alternative markets. A leverage is applied afterwards so that the annual realized volatility of the benchmark is 12%. The Alternative Markets Benchmark does not incur fees, is not based on any portfolio managed by Quantica and it is not possible to invest directly into it. Hypothetical returns of the generic trend-following model are net funded returns, derived from simulated gross returns, including a representative return on cash and collateral (proxied as 70% of the prevailing 3-month USD interest rate), assuming hypothetical trading costs derived from a proprietary model, and are net of a management fee of 1% per annum & performance fees of 20%, crystallized annually. No guarantee is given that these trading costs or cash returns can be achieved in the future. Analysis period: Jan. 2015 – Sep. 2025. Source: Quantica Capital. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 3.

[11] *Gas, Power, and the Past: When Alternative Market Trends Break*, Quantica Quarterly Insights, September 2025.

[12] The Alt. Mkts Benchmark is a hypothetical portfolio, rebalanced monthly with profits reinvested. It is composed of a set of 8 individual investment programs deemed representative of trend-following strategies that include alternative markets. A leverage is applied afterwards so that the annual realized volatility of the benchmark is 12%. The Alternative Markets Benchmark does not incur fees, is not based on any portfolio managed by Quantica and it is not possible to invest directly into it.

the past decade. Perhaps surprisingly, this speed is only slightly slower than the empirically optimal trend speed observed for traditional markets, despite the higher implementation costs and trading frictions in harder-to-access markets.

Robustness of Cross-Asset Performance Sensitivity to Trend Speed: Traditional vs. Alternative Market Universes

For Alternative Markets, as shown in Figure 6, the aggregate strategy return sensitivity across asset classes over the period 2015–2022 exhibits a broadly similar optimal trend speed range compared to the Traditional Markets universe, centering around a 100-business-day half-life, with no asset class detracting from performance at that horizon[13].

As in the traditional space, alternative commodities deliver consistently positive trend-following returns across nearly all model speeds, from 10-day to multi-year lookbacks, reflecting both short-term momentum and persistent long-term trends. Alternative fixed income behaves very similarly to traditional fixed income, with return contributions reaching their maximum for half-lives between 80-200 business days, after which they decrease and finally disappear. An illustration of the consistency and robustness of the hypothesis underlying trend-following: persistent profitable trends may occur and be systematically captured across any type of financial and commodity market. Alternative currencies, however, mirror their traditional counterparts in contributing negatively across all horizons, highlighting the absence of exploitable trend-following premia in FX over the past decade.

Equity (and by extension credit) performance in the Alternative Markets universe shows a risk-premium-type relationship with model speed, characterized by steadily improving returns at longer lookback horizons. The magnitude of this effect is somewhat muted compared to traditional markets, reflecting a smaller equity risk allocation that is supplemented by credit exposures, which themselves have been rewarded with elevated risk premia over the past ten years. Taken together, equity and credit exposures exhibit a speed sensitivity pattern similar to that observed for equities within the Traditional Markets CTA universe.

Figure 6: Asset class attribution of hypothetical generic Alternative Markets trend-following gross returns for different model speeds (Jan. 2015 - Dec. 2022)

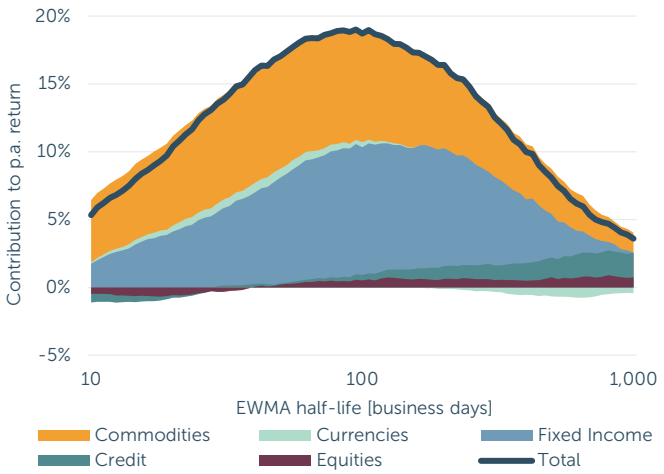

Figure 6: Annualized attribution of hypothetical gross excess-returns by asset class of a generic trend-following model designed to mimic the return and risk profile of a representative Alternative Markets CTA benchmark when applied to an investment universe composed of 120 alternative, less liquid, harder-to-access markets as a function of the model's signal half-lives between 10 and 1'000 business days. Returns shown are net of hypothetical implementation costs, but gross of any management and performance fees and do not include any interest on cash. Period: Jan. 2015 – Dec. 2022. Please refer to Figure 2 for the corresponding analysis on Traditional Markets. Source: Quantica Capital. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 3.

The Changing Speed Dynamics of Trend-Following since 2023

Like for traditional trend-following, the more recent period of January 2023 – September 2025

[13] Similarly, and even more so, than for Traditional Markets, implementation costs vary substantially across speeds. For Alternative Markets, faster models incur very highly penalizing trading costs - approximately 10.5% per annum at a 10-day half-life, compared to roughly 2.8% for medium-speed models (100-day half-life) and 1.5% for slower models (1'000-day half-life).

constituted an equally challenging environment for Alternative Markets CTA managers, characterized by broadly weak performance. Figure 7 illustrates the relationship between their hypothetical risk-adjusted performance and model speed, expressed as the EWMA half-life, since January 2023.

Like for Traditional Markets, the trend-speed sensitivity profile for Alternative Markets CTAs of the past 2.5 years has diverged sharply from what was observed in the 8 years before, across all major asset classes – except equities and credit.

Equity and credit exposures showed a consistent, monotonic improvement in performance as model speed decreased, reflecting the dominant influence of long-term risk premia. Faster trend-following models with lookbacks shorter than 180 business days were consistently loss-making (vs 140 business days for traditional markets), driven by adverse and frequently reversing market dynamics – particularly within fixed income and interest rate markets. Across both universes, fixed income and short-term rate exposures have been negative contributors at all model speeds since January 2023, except for multi-year lookbacks in Alternative Markets, underscoring the continued difficulty of capturing sustained trends in these sectors.

Figure 7: Asset class attribution of hypothetical generic Alternative Markets trend-following gross returns for different model speeds (Jan. 2023 - Sep. 2025)

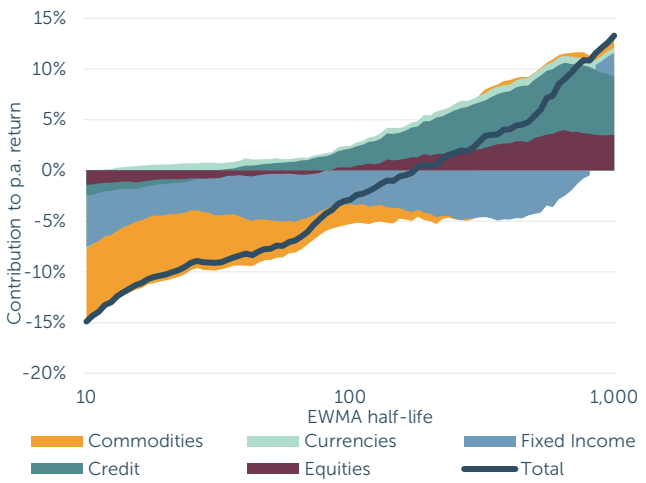

Figure 7: Annualized attribution of returns by asset class of a generic trend-following model designed to mimic the return and risk profile of a representative Alternative Markets CTA benchmark when applied to an investment universe composed of 120 alternative, less liquid, harder-to-access markets as a function of the model's signal half-lives between 10 and 1'000 business days. Returns shown are net of hypothetical implementation costs, but gross of any management and performance fees. Period: Jan. 2023 – Sep. 2025. Please refer to Figure 3 for the corresponding analysis on Traditional Markets. Source: Quantica Capital. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 3.

Understanding Model Speed Sensitivity Through the Lens of Equity Market Regimes

To evaluate how model speed interacts with prevailing equity market conditions in the context of Alternative Market CTAs, we condition the model-speed sensitivity analysis on the same three complementary equity regimes – Bear, Normal, and Bull – as used in the analysis of Traditional Markets. Figure 8 presents the breakdown of annualized log returns across these regimes over the 2015-2025 period for our generic trend-following model when applied to Alternative Markets and half-lives ranging from two weeks to four years. Figure 8 also illustrates how the correlation between our generic trend-following model and the S&P 500 evolves with model speed and over time.

Results indicate that the sensitivity of trend-following performance in Alternative Markets to model speed follows a broadly similar, though less pronounced, regime-dependent pattern than in traditional markets.

Performance in Equity Bear market quarters was again strongest for faster, shorter-term models, turning negative for configurations slower than roughly 420 business days. However, the peak magnitude is lower – around +3.8% p.a. compared with +4.8% p.a. in Traditional Markets – reflecting reduced convexity during prolonged equity drawdowns. As in Traditional Markets, slower models become too inert to react effectively to abrupt regime shifts and cross-asset

correlation reversals that often characterize risk-off episodes.

Outside Bear markets, shorter-term models (below 20 business days) exhibit increasingly negative contributions, driven by higher turnover costs and an accumulation of "false positive signals". This reinforces that the "insurance premium" for downside protection is higher in the Alternative Markets universe.

Figure 8: Equity regime attribution of hypothetical generic Alternative Markets trend-following gross returns for different model speeds (Jan. 2015 - Sep. 2025)

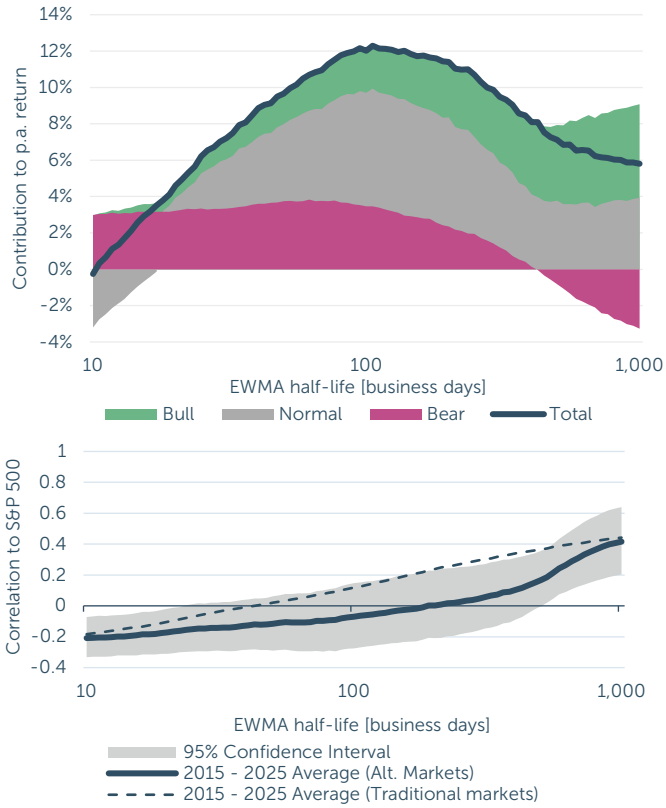

Figure 8: Annualized attribution of log-returns by equity market regimes (top) and average correlations to S&P 500 total returns (bottom) for a generic trend-following model designed to replicate the return and risk characteristics of a representative Alternative Markets CTA benchmark when applied to an investment universe composed of 120 alternative, less liquid, harder-to-access markets, shown as a function of model speed (EWMA half-lives from 10 to 1'000 business days). The bottom chart displays the average yearly correlation across the full sample period. The shaded area represents the 95% confidence interval across calendar years. Period: 2015–2025. Please refer to Figure 4 for the corresponding analysis on Traditional Markets. Source: Quantica Capital. HYPOTHETICAL RESULTS. PLEASE SEE IMPORTANT DISCLAIMERS ON PAGE 3.

Across the relatively wide range of approximately 20-420 business days – somewhat broader than for Traditional Markets – returns remain consistently positive across all equity regimes. The trend speed previously identified as best replicating the performance of leading Alternative Market CTAs also falls within this range and represents an attractive trade-off between responsiveness and stability.

Taken together, the results indicate that in Alternative Markets, a medium-term trend speed around a 100-business-day half-life remains a reasonable compromise – fast enough to capture major regime shifts while slow enough to mitigate the impact of transient noise and elevated trading frictions.

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 **Alternative Markets Benchmark** (or **Alt. Mkts Benchmark**) is a hypothetical portfolio, rebalanced monthly with profits reinvested. It is composed of a set of eight individual investment programs deemed representative of trend-following strategies that include alternative markets. As the monthly returns data for each constituent is not always available from the same dates, the target weights for each constituent evolve over time, so that the Alternative Markets Benchmark is consistently equal weighted between each constituent for which the data is available. A leverage is subsequently applied such that the long-term annual realized volatility of the constructed benchmark is 12%. The Alternative Markets Benchmark does not incur fees, is not based on any portfolio managed by Quantica and it is not possible to invest directly into it. Performance data may be inaccurate and is unlikely to correspond to an investor's actual return. Source: Quantica Capital.

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