



Managed Futures and the KISS Effect

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Recent developments have not only driven numerous financial markets to record highs, but also significantly increased the correlations between various asset classes. Following one of the longest bull markets in history, current price levels and the co-movement behaviors of traditional asset classes suggest reduced expected returns and diversification benefits in the future. The question, therefore, is whether investment strategies exist that still provide an attractive risk/return profile and consistent diversification benefits.

The hypothesis and aim of this paper is to demonstrate that the unambiguous answer is yes! The risk premia of correlations between asset classes are time varying, and strategies that dynamically adjust to changing attractiveness and co-movements can harvest positive returns in various market environments. However, these strategies inherently need to be highly liquid to allow for dynamic exposure management. One type of alternative strategy that combines liquidity with adaptiveness is a managed futures strategy. This paper elaborates on the differences in the risk/return profiles of traditional balanced mandates and a long-short risk-balanced CTA strategy. It shows that the latter is not only well suited to withstand adverse bond or equity market conditions, but it may even find attractive return opportunities in turbulent times. We call this the King In Stress Scenarios (KISS) effect of long-short managed futures strategies. This robust and diversifying risk/return profile is mainly attributable to its broad and adaptively weighted investment portfolio, as well as the possibility of taking on short positions.

Data and Methodology

Using a broad set of different asset classes and a long data history¹, we analyzed the risk/return profile of a CTA strategy alongside two classical, statically balanced portfolios. We simulated a managed futures strategy (MF) that combines momentum and carry with a risk budgeting engine and allows for both long and short positions. The strategy measured the current attractiveness of the risk premia of the various asset classes based on momentum and carry. The more attractive an asset class, the bigger its share in the portfolio. In case of negative momentum and carry signals, the strategy took on short positions. To spread market risk evenly, a risk budgeting engine adjusts the positions by examining both the volatility of and co-movements between the individual assets. The more risk a specific asset exhibits, the smaller its share in the final allocation. In order to dynamically adapt exposure to changing market conditions, leveraged positions were allowed. Rebalancing took place daily, factoring in transaction costs.

The benchmark consisted of a classic, capital-weighted portfolio that always was fully invested 60% in bonds and 40% in equities. This portfolio is called the traditional benchmark (TB). While it still represents the point of reference for many institutional investors, its focus on only two asset classes forgoes significant diversification benefits. Therefore, we additionally simulate a portfolio invested 50% in bonds, 40% in equities and 10% commodities and call it the diversified benchmark (DB). Both benchmarks are rebalanced monthly.

To factor in various scenarios, we first compared the change in yield level with the average return delivered by the different strategies over a fixed twelve-month time window. In order to attain stably underpinned scenarios in the analysis, we divided the evolution of yield into quintiles. The same concept is then applied to changes in equity markets.

Interest Rate Scenarios vs. Empirical Risk/Return Characteristics

What basic findings did this empirical analysis bring to light? Let us first focus on the interest rate scenarios. The top section of Exhibit 1 compares the interest rate change over twelve months with the average return from the individual asset classes under the different yield scenarios. The returns from bonds are significantly inversely correlated with changes in interest rates. Equities also benefit from falling yields but, on average, maintain gains even during periods of strong interest rate increases. We attribute this to the fact that interest rates are usually positively correlated with the business cycle and therefore corporate profitability. Commodities and gold live up to their reputations as inflation hedges, if one takes interest rate levels as a proxy for inflationary pressures. They gain the most during periods of rising yields and associated inflation. Finally, FX shows a remarkably uncorrelated return pattern, with gains when interest rates stay relatively constant, and losses when they move disproportionately in either direction.

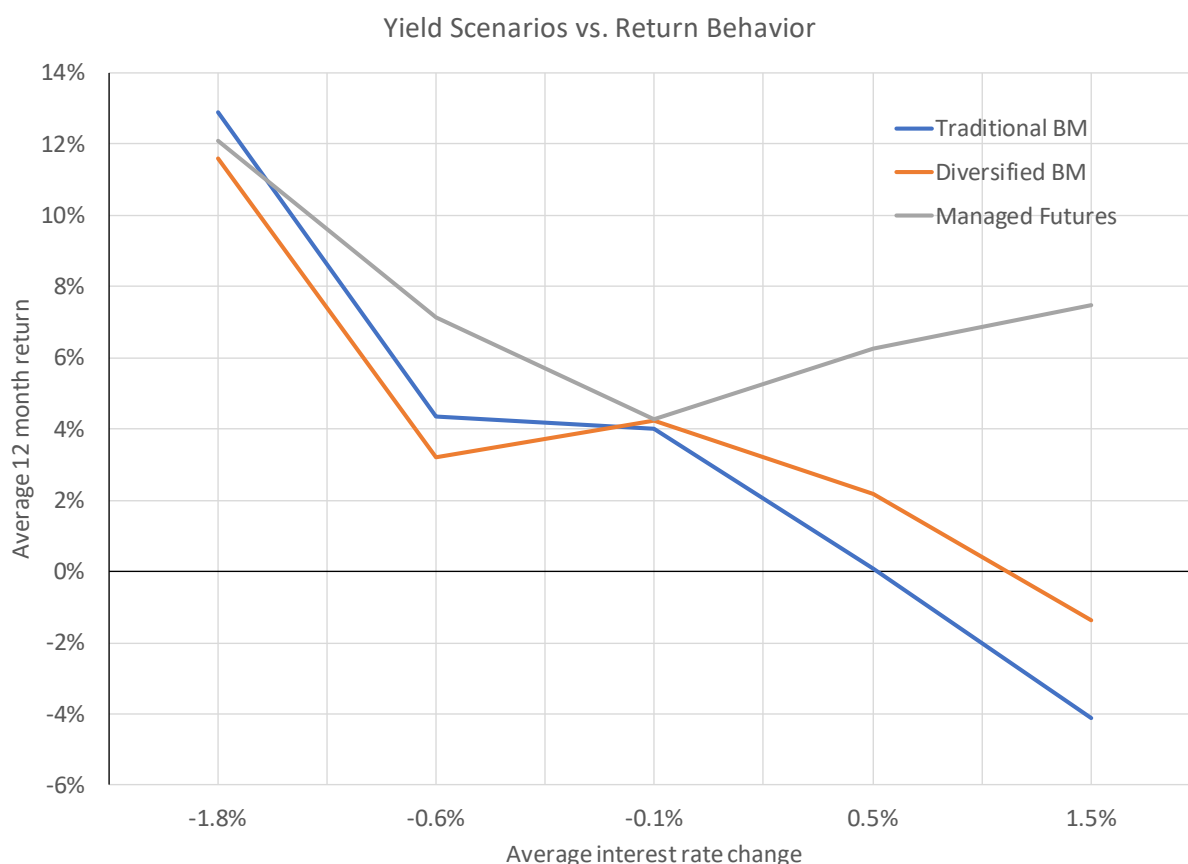


Exhibit 1: Interest Rate Scenarios vs. Return Behavior

Source: Aquila Capital Concepts GmbH, Bloomberg

	1st Qntl	2nd Qntl	3rd Qntl	4th Qntl	5th Qntl
Market environment and asset prices					
Change in interest rates	−1.8%	−0.6%	−0.1%	0.5%	1.5%
Return on bonds	14.3%	5.0%	0.7%	−3.7%	−10.8%
Return on equities	10.9%	3.3%	9.1%	5.9%	6.9%
Return on commodities	1.7%	−6.0%	2.8%	18.7%	18.0%
Return on gold	4.5%	2.3%	3.9%	3.7%	11.0%
Return on FX	−2.3%	2.4%	0.3%	−2.3%	−0.2%
Total return and return attribution					
Traditional benchmark (TB)	12.9%	4.4%	4.0%	0.1%	−4.1%
Diversified benchmark (DB)	11.6%	3.2%	4.2%	2.2%	−1.4%
Managed futures (MF) ²	12.1%	7.1%	4.3%	6.3%	7.5%
TB bonds	8.3%	3.0%	0.4%	−2.2%	−6.6%
DB bonds	6.9%	2.5%	0.4%	−1.8%	−5.6%
MF bonds	5.3%	2.0%	−0.5%	−0.3%	0.7%
TB equities	0.4%	0.2%	0.3%	0.2%	0.0%
DB equities	0.4%	0.2%	0.3%	0.2%	0.0%
MF equities	2.6%	1.0%	0.6%	0.5%	1.0%
TB commodities	0.0%	0.0%	0.0%	0.0%	0.0%
DB commodities	0.0%	0.0%	0.0%	0.1%	0.2%
MF commodities	0.6%	1.1%	0.9%	2.5%	1.6%
MF gold	0.3%	0.3%	0.4%	0.6%	1.0%
MF FX	3.1%	2.6%	2.9%	3.0%	3.1%
Net exposure data					
Total exposure	1.50	1.23	1.06	0.40	−0.02
Bond exposure	0.84	0.70	0.46	0.03	−0.23
Equities exposure	0.21	0.16	0.23	0.19	0.21
Commodities exposure	0.08	0.05	0.07	0.09	0.09
Gold exposure	0.04	0.02	0.04	0.04	0.03
FX exposure	0.00	0.06	0.03	0.02	−0.06

Exhibit 2: Interest Rate Scenarios

Source: Aquila Capital Concepts GmbH, Bloomberg

How well did the various asset allocation strategies exploit the diverse characteristics of the different asset classes to generate a stable performance? To glean an answer, the middle section of Exhibit 2 and Exhibit 1 (above) show the average twelve-month returns of the strategies. The two benchmark strategies obviously prefer falling rather than rising interest rates. For that matter, the traditional benchmark correlates most negatively with interest rates due to its significant bond exposure. The diversified benchmark tempers that dependency somewhat, benefiting from gains from commodities as yields rise. What's striking is the long interest rate volatility nature of the CTA strategy, which performs positively irrespective of the interest rate scenario, but is strongest the more pronounced the yield moves are.

What influences these different risk/return characteristics? The middle section of Exhibit 2 and Exhibit 3 provide initial answers; for each strategy they compare the returns from the individual asset classes under different interest rate scenarios. Regarding the return attribution for bonds, the findings indicate that the traditional benchmark exhibits the highest interest rate sensitivity in the extreme scenarios of the strongest 20% yield movements both to the up and down-side. The diversified benchmark manages to slightly decrease its bond dependency through a broader asset mix, yet still suffers significantly when rates increase. The CTA strategy, on the other hand, demonstrates a distinct convex return attribution from bonds. As with the capital-weighted benchmarks, bonds contribute positively to the managed futures strategy when yields decrease. However, they also provide a positive return when rates jump. Bond returns for the CTA strategy are only flat to slightly negative in steady interest rate scenarios where bonds show a non-trending behavior. But the CTA strategy not only copes best with falling bond prices, it also enjoys the broadest diversification benefits from other asset classes. When it comes to the return attribution for equities, it is remarkable that the managed futures program substantially gains from equities when yields jump, while the two benchmarks only benefit negligibly from equities in times of interest rate stress. The same holds true with respect to the commodity return attribution. The managed futures strategy profits the most from commodities markets, which are a hedge against inflation and yield shocks. Furthermore, the dynamically adjusted gold and FX exposures additionally stabilize the strategy when interest rates jump. It therefore provides a much stronger diversification by exploiting the inverse correlation between bonds and the other asset classes than the two benchmarks.

To confirm this supposition, the bottom section of Exhibit 2 and Exhibit 4 show the average net exposure of the CTA strategy under different interest rate scenarios. The overall net exposure is the highest when interest rates plummet the most. It decreases when yields rise and becomes virtually zero in the scenario of the 20% strongest rate increases. This effect is mainly driven by a significant decrease in bond and FX exposure, which both turn negative when yields spike. While, especially, the inverse relationship between bond exposure and interest rate level makes intuitive sense, the exposure patterns of the other asset classes are more interesting. Even though equities perform best in the negative interest rate change quintiles, their net exposure is kept relatively constant across the different scenarios. This is partly due to the elevated market volatility that often accompanies significantly falling yields during a flight to less-risky asset

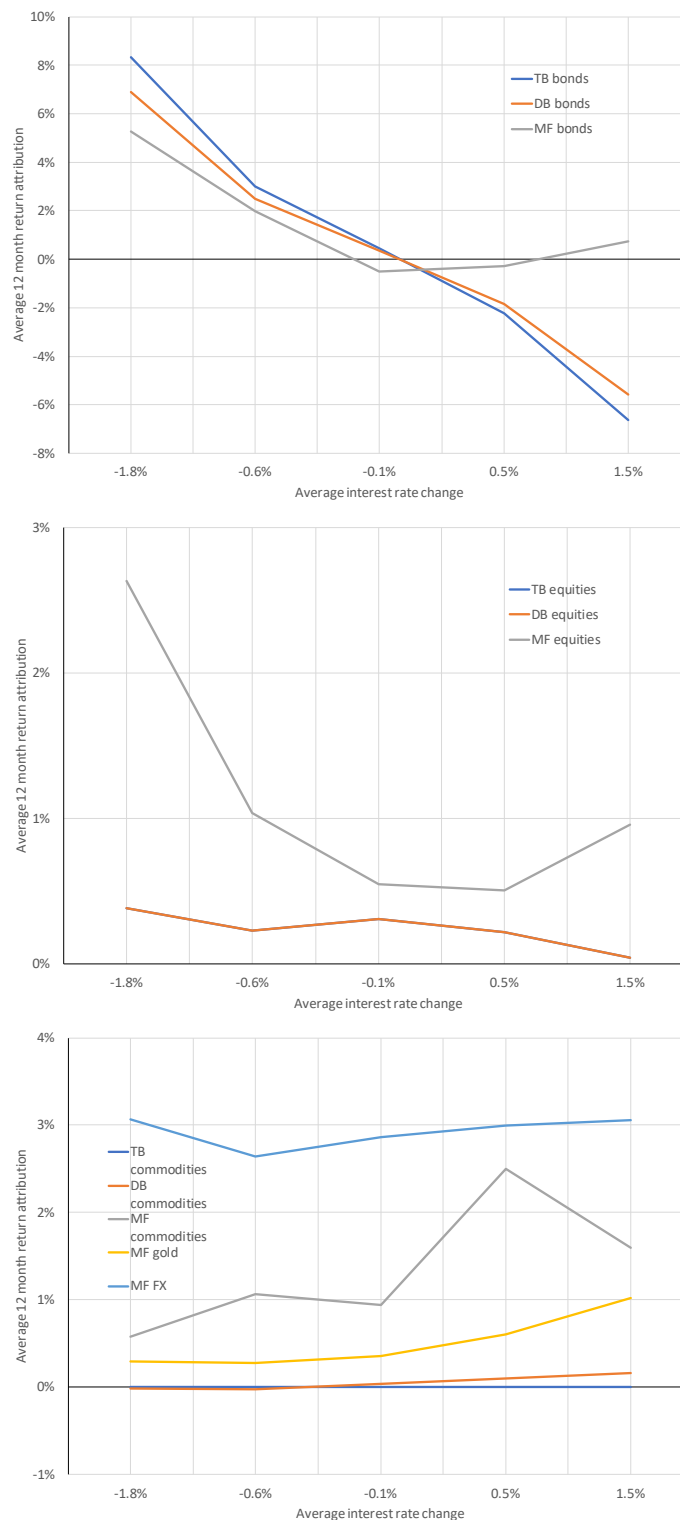


Exhibit 3: Interest Scenarios vs. Return Attribution
Source: Aquila Capital concepts GmbH, Bloomberg

classes. Another explanation is the negative correlation between bonds and equities, and its impact on the risk contribution to total portfolio volatility. When yields fall, both bonds and equities perform on average positively, resulting in a positive co-movement. Accordingly, the risk contributions of both asset classes increase on a ceteris paribus basis. On the other hand, bonds experience losses when yields jump, while equities uphold their on-average positive return contribution. Accordingly, the co-movement between these two asset classes becomes negative in higher interest rate change quintiles, reducing their risk contribution to total portfolio volatility – ceteris paribus.

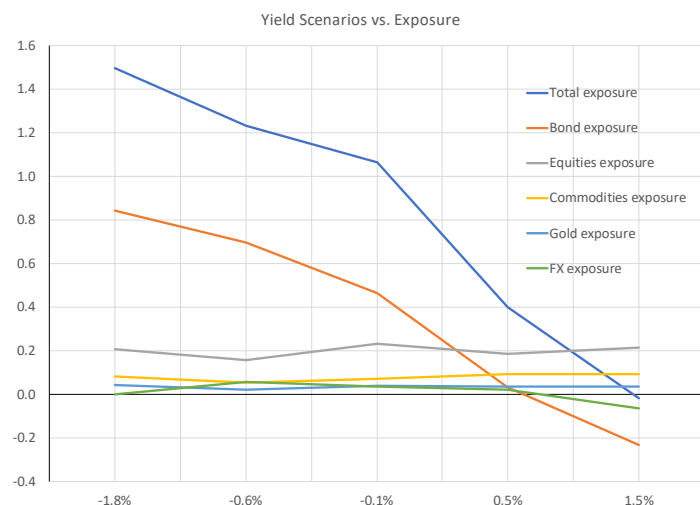


Exhibit 4: Interest Rates vs Exposure

Source: Aquila Capital Concepts GmbH, Bloomberg

Empirical evidence therefore confirms a negative correlation between the change in the overall interest rate level and returns from the benchmark strategies. While the CTA strategy also prefers falling rates, it manages to perform positively even when rates rise, by taking short positions in bonds and benefiting from compensating gains from the other asset classes. The traditional benchmark exhibits the highest interest rate sensitivity, due to its significant bond exposure and lack of diversification into other asset classes. Consequently, its returns match the gains of the managed futures strategy when yields plummet, but it suffers the most when they increase. The diversified benchmark enjoys diversification effects from its commodity exposure when interest rates advance. However, given its limitation to long-only positions and a restricted investment universe, the losses from bonds cannot be fully compensated.

Equity Scenarios vs. Empirical Risk/Return Characteristics

The question of how each asset allocation strategy has historically performed under different yield scenarios is only one side of the coin. Against the backdrop of record high equity valuations, a similarly pressing question relates to how the strategies have performed in explicit relation to the equity environment.

The top section of Exhibit 3 compares changes in equities over twelve months with the average returns from the individual asset classes under different equity scenarios. Interest rates and, consequently, the returns from bonds do not exhibit an unambiguous correlation structure with equity markets. They

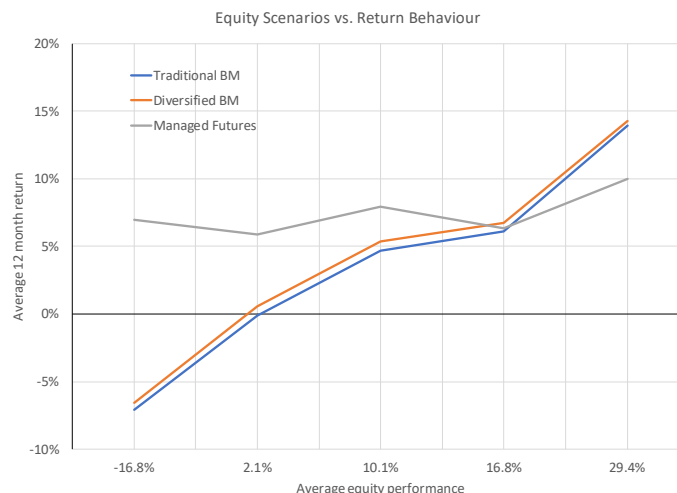


Exhibit 5: Equity Scenarios vs Return Behavior

Source: Aquila Capital Concepts GmbH, Bloomberg

perform on average positively when equity markets perform ordinarily, lose somewhat when equities return slightly more or less than average, and gain the most when stocks rally. The strong performance of bonds in the scenario of the strongest 20% of equity markets is, however, mainly attributable to the 1980s, when both bonds and equities rose. Commodities are not strongly linked to the development of stocks but tend to perform better when equities rise. Gold on the other hand proves a hedging characteristic by performing better when equity markets are weaker. Like bonds, FX performs best in an average equity market scenario, but loses in both extreme scenarios.

How does this translate into the risk/return profile of the different strategies? The middle section of Exhibit 3 and Exhibit 5 show that all three strategies significantly benefit from rising equity markets. The capital-weighted benchmarks perform the better the stronger equity markets are. However, they suffer significant losses when equities tumble. Only the managed futures strategy is, on average, able to avoid losses when equity markets slump. Noteworthy is the managed futures strategy's ability to perform positively almost detached from the different equity scenarios.

What lies behind these different risk/return characteristics? The middle section of Exhibit 6 and Exhibit 7 show that, irrespective of the scenario, the balanced portfolios consistently allocate more capital to equities than the managed futures strategy. Therefore, they benefit more when equity markets rise, but suffer significantly more when they fall. The CTA strategy struggles somewhat in trendless equity markets, but almost manages to avoid losses even in the quintile of the most severe equity losses. Interesting to see is the bond contribution, which looks similar in the various scenarios for the two benchmarks, with a positive spike when equities jump. The managed futures strategy, on the other hand, benefits from its bond exposure irrespective of the equity market scenario. The positive return contribution is higher the weaker equity markets are. Accordingly, the managed futures strategy exploits a more pronounced diversification effect from bonds than its two capital-weighted peers. The bottom chart of Exhibit 7 indicates that both commodities and gold provide considerable diversification benefits when equity markets are falling. However, it is particularly the FX exposure that helps to compensate for equity drawdowns. By accessing two further,

	Falling equity markets		Rising equity markets		
	1st Qntl	2nd Qntl	3rd Qntl	4th Qntl	5th Qntl
Market environment and asset prices					
Change in interest rates	0.0%	0.2%	−0.2%	0.1%	−0.6%
Return on bonds	0.0%	−1.6%	1.2%	−0.5%	4.7%
Return on equities	−16.8%	2.1%	10.1%	16.8%	29.4%
Return on commodities	5.7%	5.3%	8.2%	5.9%	8.1%
Return on gold	4.2%	10.0%	9.5%	1.7%	0.8%
Return on FX	−1.0%	−0.6	0.4%	0.7%	−1.7%
Total return and return attribution					
Traditional benchmark (TB)	−7.1%	−0.1%	4.7%	6.1%	13.9%
Diversified benchmark (DB)	−6.6%	0.6%	5.4%	6.8%	14.3%
Managed futures (MF) ²	7.0%	5.9%	7.9%	6.3%	10.0%
TB bonds	0.0%	−0.9%	0.7%	−0.3%	2.8%
DB bonds	0.0%	−0.8%	0.6%	−0.2%	2.3%
MF bonds	2.0%	1.7%	1.4%	0.6%	1.4%
TB equities	−7.1%	0.8%	3.9%	6.4%	10.9%
DB equities	−7.1%	0.8%	3.9%	6.4%	10.9%
MF equities	−1.3%	−0.9%	0.6%	2.3%	5.0%
TB commodities	0.0%	0.0%	0.0%	0.0%	0.0%
DB commodities	0.6%	0.5%	0.8%	0.6%	0.8%
MF commodities	1.6%	1.3%	1.5%	1.1%	1.1%
MF gold	0.4%	0.8%	0.9%	0.3%	0.2%
MF FX	4.2%	3.0%	3.3%	2.0%	2.2%
Net exposure data					
Total exposure	0.10	0.47	0.97	0.95	1.52
Bond exposure	0.13	0.17	0.44	0.32	0.43
Equities exposure	−0.01	0.18	0.26	0.28	0.30
Commodities exposure	0.07	0.05	0.09	0.09	0.09
Gold exposure	0.04	0.05	0.04	0.02	0.02
FX exposure	−0.11	−0.02	−0.04	0.04	0.22

Exhibit 6: Equity Scenarios

Source: Aquila Capital Concepts GmbH, Bloomberg

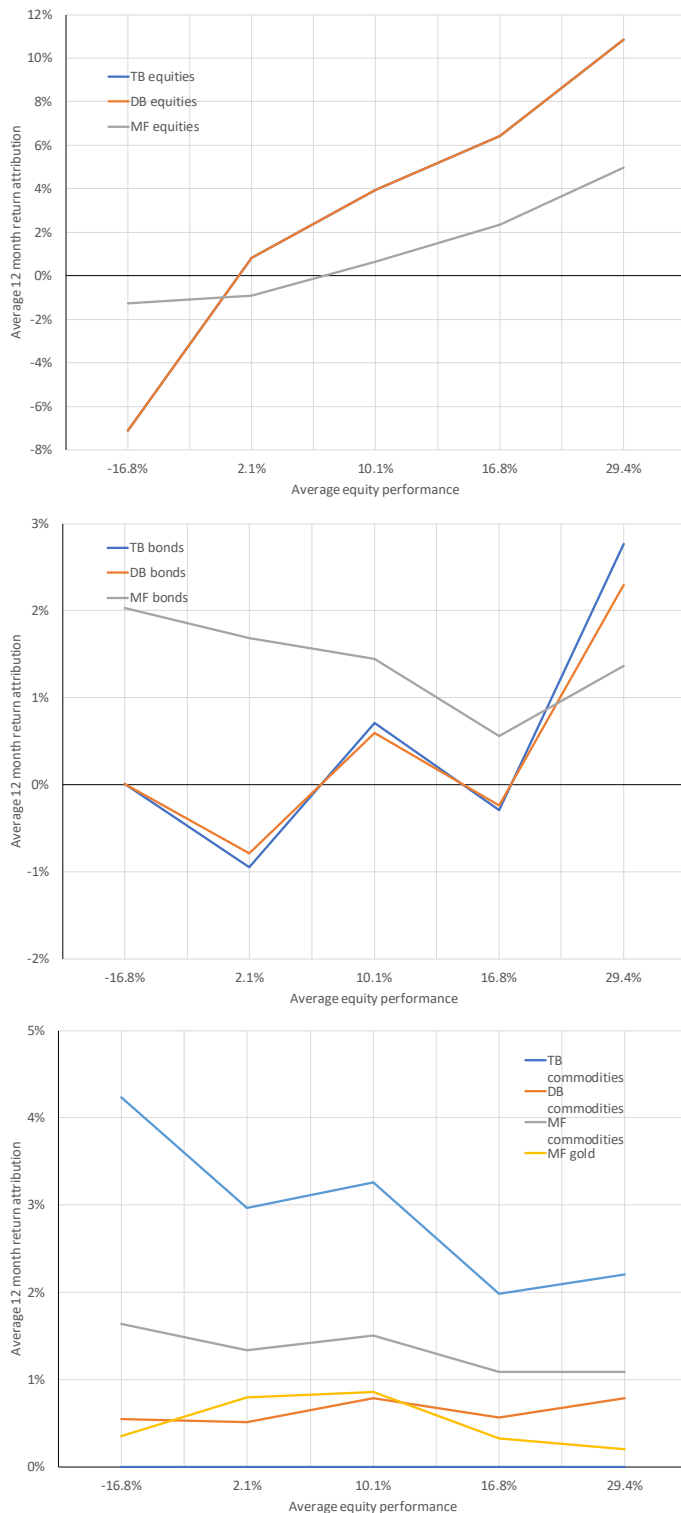


Exhibit 7: Equity Scenarios vs. Return Attribution
Source: Aquila Capital Concepts GmbH, Bloomberg

uncorrelated return sources such as gold and FX, the CTA strategy therefore achieves the most robust risk/return profile when equities plummet.

The bottom section of Exhibit 6 and Exhibit 8 show the average net exposure of the CTA futures strategy under different equity scenarios. If the net exposure is higher, the equity markets perform better. It decreases when equities fall and becomes almost zero for the strongest market correction. This effect is mainly driven by a significant correlation between total net exposure and the exposures to bonds, equities and FX, which all move relatively in sync with average equity market returns. This is not surprising given the result of the top section of Exhibit 6, which shows that bonds exhibit an astonishingly unstructured return pattern across the different equity scenarios, but with a tendency to rally when stocks perform the strongest. The commodity exposure remains relatively constant irrespective of equity market returns, given its stable risk/return profile across the various scenarios. The gold exposure, on the other hand, is negatively correlated with equity market performance, allowing the managed futures strategy to fully exploit the diversification potential of this asset class.

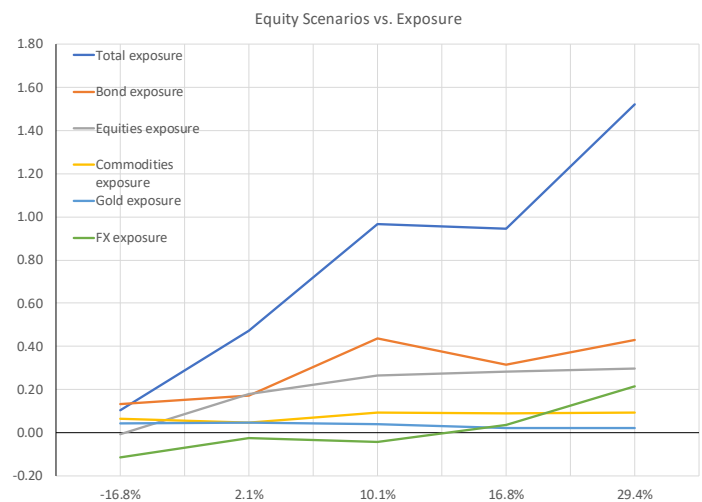


Exhibit 8: Equity Scenarios vs. Exposure
Source: Aquila Capital Concepts GmbH, Bloomberg

To summarize, empirical evidence highlights that equity performance considerably impacts the two benchmark strategies, while the CTA strategy seems to be quite immune to equity market movements. The significant sensitivity of the benchmark strategies to equity markets is caused by their distinct equity exposures and lack of diversification into other asset classes. Even though the diversified benchmark benefits in all scenarios from its commodities exposure, it is not able to fully exploit the diversification benefits, given that it holds its asset allocation steady across all scenarios. The CTA strategy, on the other hand, adapts its allocation swiftly on two dimensions. First, it dynamically reduces its exposure to losing asset classes to minimize losses or even gain slightly on short positions. Second, it shifts its allocation into diversifying asset classes that provide a more attractive risk/return profile, under a given market scenario.

Conclusion

By means of an empirical analysis that takes the US as a point of reference, we have demonstrated that a long-short managed futures strategy that focuses on balancing the risk contributions within a portfolio and accounts for both momentum and carry effects is well suited to not only withstand adverse market conditions, but even benefits from market turmoil, whether that turmoil is impacting bonds or equities. By these means, it not only stands up well from an absolute perspective, but also against traditional capital-weighted portfolios over a period that dates back as far as the 1970s. This added value in the risk/return profile is attributable to three main factors:

- The long-short managed futures strategy invests in the broadest investment universe.
- The high dynamism of the strategy better exploits the diversified characteristics of the different asset classes.
- The possibility of taking on short positions allows the strategy to perform positively even when underlying markets fall.

These favorable findings predestine the strategy to be an effective hedge against market turmoil in traditional asset classes. It is therefore well suited to diversifying portfolios against the current backdrop of historically high equity valuations and record low interest rates. Nevertheless, it should be kept in mind that there exists a wide variety of different managed futures strategies. The question of which trend is your friend should, therefore, always be answered by a holistic portfolio setup.

Disclosure: Please note that all information has been collected and examined carefully and to the best of our knowledge; however, the information is provided without any guarantee. All information is believed to be reliable, but we are not able to warrant its completeness or accuracy.

Authors' Bio



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Urs Schubiger has comprehensive experience in the research, development and implementation of quantitative investment strategies as well as leading business development initiatives. Prior to founding prime Capital and Achievement AM's Swiss subsidiary, he held senior positions at leading companies including Vescore Ltd, 1741 Asset Management Ltd, Wegelin & Co. Private Bankers and UBS O'Connor. Mr Schubiger holds master's degrees in Mathematics from the ETH in Zurich and in Law from the University of Basel.



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Egon Ruetsche has in-depth experience in the development and modelling of quantitative investment strategies. He was a partner of the Swiss subsidiary of Achievement AM LLC before joining AQ Investment AG. Prior to that, Mr Ruetsche was a senior quantitative researcher and portfolio manager at Man AHL where he developed momentum and carry models and shared responsibility for managing volatility strategies. Egon Ruetsche holds a master's degree in Mathematics and a PhD in Arithmetic Geometry from the ETH in Zurich.



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Fabian Dori has more than ten years' experience in fund management and was previously Chief Investment Officer and member of the Management Board of La Roche Private Bank. Prior to this, he was Head of Portfolio Management and a member of the Management Board at 1741 Asset Management, as well as a portfolio manager at Wegelin & Co. Private Bankers. Fabian Dori holds a master's degree in Quantitative Economics and Finance from the University of St. Gallen and is Certified Risk Manager and Chartered Financial Analyst.