

Managed Futures

How to Diversify with Trend Following

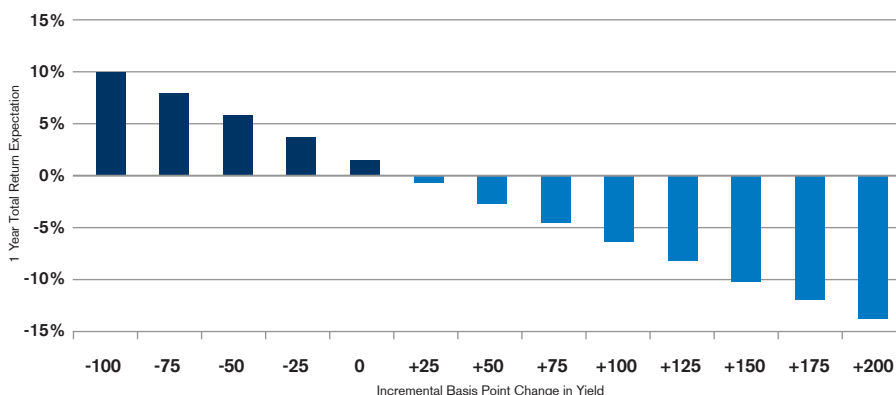
By design, the systematic nature of trend following strategies - which invest on a long/short basis across asset classes entirely on the basis of trend signals (not forecasts) - makes them an interesting complement to traditional, discretionary stock and bond portfolios. Traditional portfolios may be sensitive to macro factors such as growth expectations and changes in interest rates and investors seem to worry now more than ever, about how diversified their underlying holdings actually are.

In our last paper, *"Managed Futures: Portfolio Diversification for Challenging Markets"*¹ we reviewed how trend following strategies work as well as the role they can play as a diversifier within a portfolio, especially during crisis periods. In this paper, we seek to address several fundamental implementation questions regarding allocating to trend following, including why now might be an appropriate time to invest and how to fund and size a trend following allocation.

The Need for Diversification in a Rising Rate Environment

After eight years of accommodative monetary policy, the Fed appears poised to continue raising interest rates which could create losses for holders of Fixed Income assets. Figure 1 shows the expected impact a rise in rates could have on the return of 10-year US Treasuries, demonstrating that even a modest upward shift in rates would be painful for bondholders. For example, if the current issue 10-year Treasury yield increases +50 basis points over the next year, investors would expect to incur a -2.68% loss on a total return basis.

Figure 1: Total Return Expectations for On-the-Run 10 Year Treasury Bonds (2026 Maturity)²



Traditionally, the diversification implicit in a 60/40 portfolio framework might be expected to offset such a loss as equities tend to outperform bonds in rising rate environments. However, with equities trading close to historical valuation peaks on the back of an easy financing environment and accommodative monetary policy, many investors are reducing their return expectations for equities and ascribing the possibility of a higher than historical correlation between stocks and bonds in a rising rate environment. This presents a potentially daunting scenario for many investors.

¹ Please visit www.credit-suisse.com/managedfutures to download a copy of the paper.

² Source: Credit Suisse, Bloomberg. Performance calculated using on-the-run bond issue as of 6/30/2016 (quoted price of \$101.43, coupon of 1.625%). For total return, the semiannual coupon payment was considered, in tandem with the implied fair value price change.

Consequently, investors are scouring the investment universe for sources of return which are not correlated to traditional equity and fixed income performance. Trend following may offer an attractive return profile for such investors. Interest rate cycles are often lengthy as policy adjustments are effectuated over the course of months or years. As a result, these cycles may coincide with sustained trends, creating profit opportunities for trend followers. In this way, trend following has the potential to profit from a period of rising interest rates without depending upon positive equity market performance.

Trend Following: Tactical Holding or Core Diversifier?

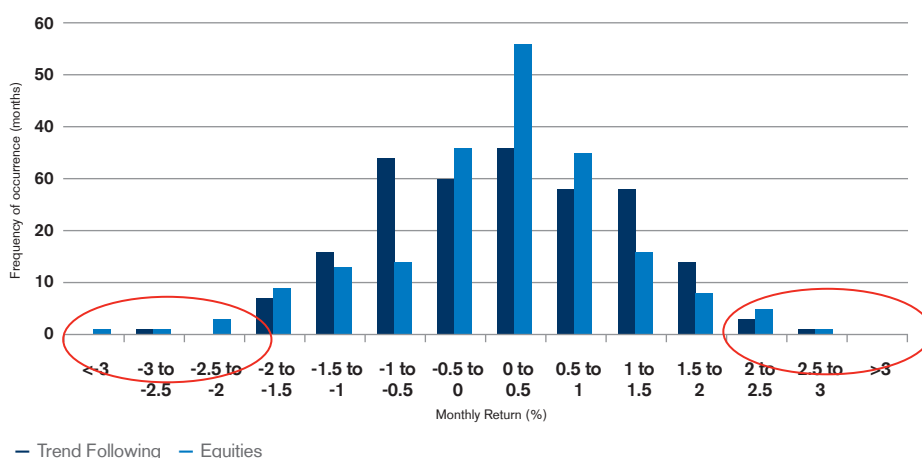
Figure 2 shows the correlation of trend following to a range of assets commonly held in investor portfolios, many of which have a high correlation to one another, reflecting a propensity to suffer steep losses concurrently. Trend following has not only demonstrated a low (or negative) correlation to equities and bonds over time, it is also uncorrelated from most other asset classes. As such, the introduction of trend following into traditional portfolios has historically represented an effective means of improving overall portfolio risk-return characteristics.

Figure 2: Correlation of Trend Following to Various Asset Classes³

	Trend Following	Equities	Bonds	High Yield Credit	Commodities	REITs
Trend Following	1.00					
Equities	(0.10)	1.00				
Bonds	0.28	(0.09)	1.00			
High Yield Credit	(0.08)	0.68	0.23	1.00		
Commodities	0.08	0.29	(0.03)	0.39	1.00	
REITs	0.03	0.61	0.18	0.63	0.16	1.00

In addition, there is a significant body of work to support the notion that the distribution of trend following returns is skewed to the positive, i.e., there are generally fewer scenarios where a disproportionately large amount of money is lost, and there tend to be several episodes where larger amounts are made (Figure 3).

Figure 3: Normalized Monthly Returns of Equities vs. Trend Following⁴

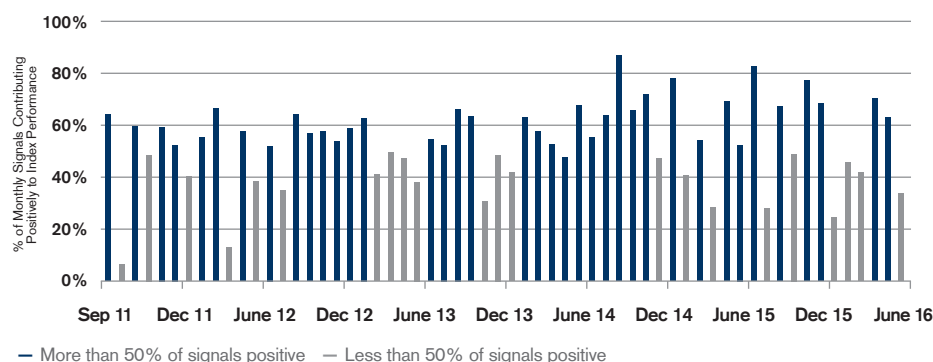


³ Source: Credit Suisse, Bloomberg. Data from January 2000 – June 2016. Trend following represented by the Credit Suisse Managed Futures Hedge Fund Index. Equities represented by S&P 500 TR Index. Bonds represented by Barclays U.S. Aggregate Bond Index. High Yield Credit represented by Bloomberg Barclays Global High Yield Index. Commodities represented by S&P Goldman Sachs Commodity Index. REITs represented by FTSE NAREIT All Equity REITS Total Return Index.

⁴ Source: Credit Suisse, Bloomberg. Data from January 2000 – June 2016. Trend following represented by the Credit Suisse Managed Futures Hedge Fund Index. Equities represented by S&P 500 TR Index.

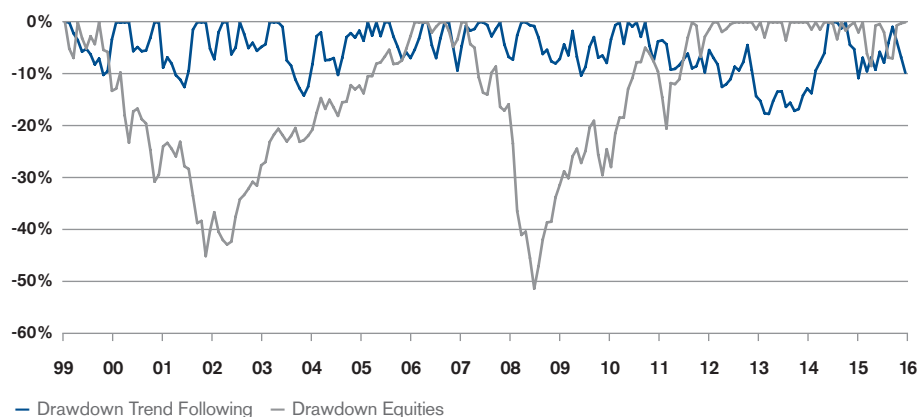
A well-diversified trend following strategy may also provide the potential to profit across a range of different market environments. For example, the analysis in Figure 4 illustrates that approximately 60% of the time, more than half of all signals generated by the Credit Suisse Managed Futures Liquid Index contributed positively to overall index performance.

Figure 4: Percentage of Positive Monthly Signals within the Credit Suisse Managed Futures Liquid Index⁵



Finally, trend following strategies have historically exhibited shallower drawdowns than equities. As illustrated in Figure 5, maximum drawdowns for trend following strategies tend to occur on the scale of 1.5x their annualized volatility (this compares to almost 3.5x for equities) and subsequent recovery times tend to be shorter than equities. In addition, trend following can significantly outperform during equity crisis periods, making the strategy particularly attractive to investors seeking to stabilize returns and reduce overall portfolio risk.

Figure 5: Drawdown Comparison of Equities vs. Trend Following⁶



	Equities	Trend Following
Maximum drawdown	-50.95%	-17.42%
Month	2/27/2009	9/30/2013
Number of months to recovery	37	14
Performance During Equity Market Drawdowns >10%		
Internet Bubble (9/30/00 – 9/30/02)	-44.73%	37.62%
Financial Crises (11/30/07 – 2/27/09)	-50.95%	16.74%

⁵ Data since inception of the Credit Suisse Managed Futures Liquid Index in February 2011.

⁶ Source: Credit Suisse, Bloomberg. Based on monthly data from January 2000 – June 2016. Maximum drawdown is defined the largest peak-to-trough decline over the time period. Trend following represented by the Credit Suisse Managed Futures Hedge Fund Index. Equities represented by S&P 500 TR Index.

The uncorrelated return profile of trend following, combined with its potential to generate positive returns across a range of market environments with less downside risk than equities, leads most investors to view the strategy not as a tactical allocation which can be timed, but rather as a core portfolio diversifier which can play an important role in achieving long term investment goals.

Funding an Allocation to Trend Following

Trend following differs from most long/short strategies in that it seeks to time its exposures (long or short) to markets, and thus does not provide a persistent beta to any particular market. This presents a challenge to investors seeking to incorporate trend following into their portfolios using traditional portfolio optimization techniques. As such, investors may need to alter their portfolio construction methodology in integrating trend following into their portfolios.

One approach may be to base allocation decisions on specific market outlooks; for instance, investors concerned about overextended stock prices may look to trend following as a replacement for specific equity exposures, while investors concerned about rising rates may fund their trend exposures from existing duration risk.

Alternately, investor allocations may be based on risk tolerance. While equities represent approximately 60% of exposure in a typical investor's portfolio in capital allocation terms, they are responsible for approximately 90% of the risk in such portfolios (Figure 6), and this risk concentration may leave portfolios susceptible to large losses during equity drawdowns.

Figure 6: Equity Risk Dominates Many Portfolios⁷

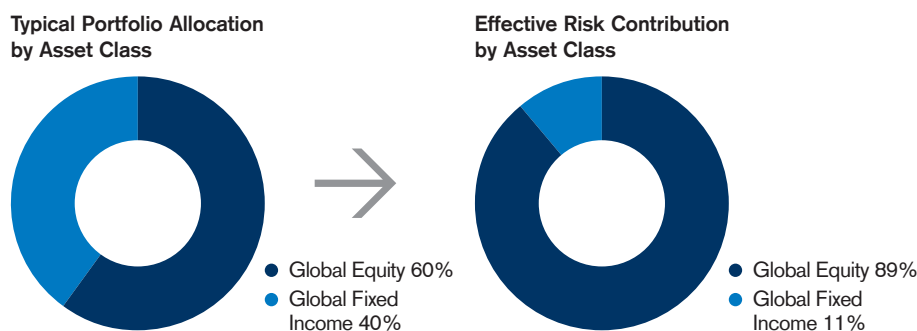


Figure 7 compares the performance of trend following versus equities and bonds since 2000. The analysis suggests that, similar to bonds, trend following has the ability to stabilize portfolios when equity markets decline while also generating positive performance when equity markets are rising. This suggests that investors seeking greater portfolio stability may prefer to fund their trend following exposure from equities.

Figure 7: Returns of Trend Following vs. Equities and Bonds⁸

	S&P 500 TR Index	Barclays US Aggregate Bond Index	Credit Suisse Managed Futures Hedge Fund Index
Annualized Return	4.17%	5.53%	5.29%
Annualized Volatility	15.05%	3.45%	11.66%
Performance when equities are positive (annualized)	43.86%	4.45%	7.38%
Performance when equities are negative (annualized)	-37.27%	7.26%	2.08%

⁷ Source: Credit Suisse, Bloomberg. Measurement of "portfolio risk" is based primarily on the variance of returns between equities and bonds from January 2000 to June 2016. Global Equities represented by the MSCI World TR Index. Global Fixed Income represented by the Barclays Global Aggregate Bond Index.

⁸ Data from January 2000 – June 2016. Performance when equities are positive/negative calculated using monthly returns when equity performance was greater/less than zero respectively. That performance was then annualized.

The potential drawback to this is that trend following (like most other investments) may lag equities during periods of very strong equity performance and return expectations should be adjusted accordingly.

Conversely, trend following has historically provided positive returns during crisis periods, while simultaneously delivering better performance than investment grade bonds in non-crisis periods. While this may position the strategy as an attractive bond substitute, it should be noted that most trend following strategies exhibit a higher volatility than traditional fixed income holdings, and as such, investors need to be comfortable accepting the potential for more risk and larger drawdowns.

Typically trend following strategies are calibrated to a pre-determined target volatility level, and investor allocation decisions based on risk tolerance requires an understanding of the level and use of leverage within their strategy allocation. Because volatility targets impact both the potential for returns and the magnitude of drawdowns, investors should adjust their drawdown expectations accordingly.

Taking these trade-offs into consideration, investors with a higher risk tolerance might consider funding from bonds, while investors with a lower risk tolerance might choose to fund from equities.

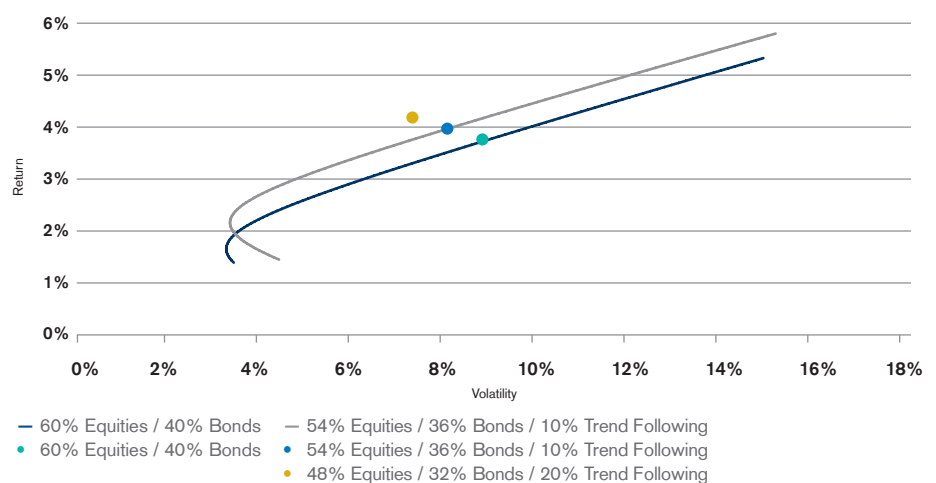
Sizing an Allocation to Trend Following

Ultimately, determining how much to allocate to a trend following strategy is subject to a variety of factors such as individual investment objectives and risk constraints, as well as the weights and correlations of existing portfolio holdings.

Based on our research, even a modest allocation to trend following can have a positive impact on portfolio performance. As shown in Figure 8, assuming that a 10% allocation to trend following is funded proportionately from stocks and bonds in a 60/40 portfolio, the resultant portfolio exhibits:

- A left shift of the efficient frontier
- A similar return with approximately 1.7% lower risk (standard deviation) per annum
- A 0.44% higher per annum return for the same level of risk (10% annualized in this example)

Figure 8: Efficient Frontier Analysis Using Stocks, Bonds and Trend Following⁹



⁹ Source: Bloomberg, Credit Suisse, Robert Shiller online database (<http://www.econ.yale.edu/~shiller/data.htm>). Data from January 2000 to June 2016. The indices used for the purpose of the calculation are: Stocks – S&P 500 TR Index, Bonds – Barclays US Aggregate Bond Index, Trend Following – Credit Suisse Managed Futures Hedge Fund Index. Return expectation based on values as of 6/30/2016. Bond return expectation of 10 year yield represented by 10y T-Bond. Equity return comprised of 1) S&P 500 Index dividend yield; 2) inflation expectations represented for US 10y TIPS 3) earnings growth expectation based on average real US earnings growth since 1871 sourced from Shiller stock market data. It is not possible to invest directly in an index. Past performance is not a guarantee or indicator of future results.

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Conclusion:

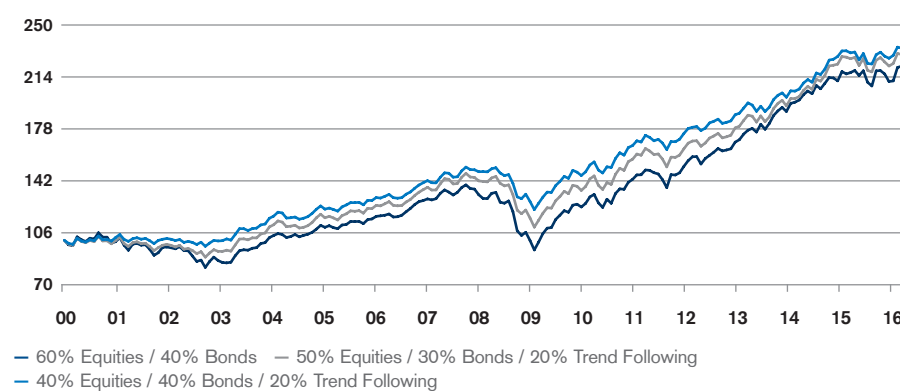
Trend following strategies may serve as an important portfolio diversification tool. They have generally served to reduce portfolio drawdowns in historical crisis periods while producing similar (or higher) returns than investment grade bonds during extended equity market rallies. Further, these strategies may not be susceptible to some of the same issues facing bond portfolios in a rising interest rate environment; to the contrary, they may have the potential to reduce duration risk and profit from a prolonged rising rate cycle.

Allocating to the space does present some interesting challenges, and determining how much to invest and how to fund an investment will depend largely on individual portfolio objectives and risk tolerances. When considering a trend following strategy we encourage investors to examine the total mix of risks, including:

- Level of strategy diversification and correlations to equity and interest rate risk
- Drawdown potential across different market environments
- Level and use of leverage
- Cash management policies
- Fees, which can vary significantly depending on implementation

While there is no “one size fits all” solution, as shown in Figure 9, our analysis indicates that over long histories, regardless of whether an allocation is funded more from equities or fixed income, the resulting portfolio produced higher overall returns with lower overall risk and mitigated portfolio drawdowns.

Figure 9: Performance Comparison of Portfolios Including Trend Following¹⁰



	60% Equities / 40% Bonds /	50% Equities / 30% Bonds / 20% Trend Following	40% Equities / 40% Bonds / 20% Trend Following
Annualized Return	5.03%	5.25%	5.37%
Annualized Volatility	9.01%	7.72%	6.41%
Sharpe Ratio	0.56%	0.68%	0.84%
Maximum Drawdown	-32.54%	-25.45%	-19.54%

About the Credit Suisse Managed Futures Strategy

The Credit Suisse Managed Futures Strategy is a systematic, highly transparent trend following strategy that provides diversified exposure to market trends across asset classes, geographies and time horizons. Performance of the strategy is published as the Credit Suisse Managed Futures Liquid Index and the Index is used by a variety of investment managers and service providers as a benchmark for the category.

¹⁰ Source: Credit Suisse, Bloomberg. Equities represented by the S&P 500 TR Index. Bonds represented by the Barclays US Aggregate Bond Index. Trend Following represented by the Credit Suisse Managed Futures Hedge Fund Index.

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End notes

Barclays U.S. Aggregate Bond Index: The Barclays U.S. Aggregate Bond Index measures the performance of the U.S. investment grade bond market.

Barclays Global Aggregate Bond Index: The Barclays Global Aggregate Bond Index is a flagship measure of global investment grade debt from 24 local currency markets from both developed and emerging markets issuers.

Bloomberg Barclays Global High Yield Index: The Bloomberg Barclays Global High Yield Index is a multi-currency flagship measure of the global high yield debt market. The index represents the union of the US High Yield, the Pan-European High Yield, and Emerging Markets Hard Currency High Yield Indices.

Credit Suisse Managed Futures Hedge Fund Index: The Credit Suisse Managed Futures Hedge Fund Index is a subset of the Credit Suisse Hedge Fund Index that measures the aggregate performance of managed futures funds. Managed futures funds (often referred to as CTAs or Commodity Trading Advisors) typically focus on investing in listed bond, equity, commodity futures and currency markets, globally. Managers tend to employ systematic trading programs that largely rely upon historical price data and market trends. A significant amount of leverage may be employed since the strategy involves the use of futures contracts. CTAs tend not to have a particular bias towards being net long or net short any particular market.

Credit Suisse Managed Futures Liquid Index: The Credit Suisse Managed Futures Liquid Index uses a pre-defined quantitative methodology to track the most liquid and widely traded instruments across a range of asset classes including: equities, fixed income, commodities and currencies.

FTSE NAREIT All Equity REITS Total Return Index; The FTSE NAREIT All Equity REITS Total Return Index is a free float adjusted market capitalization weighted index that includes all tax qualified REITs listed in the NYSE, AMEX, and NASDAQ National Market.

MSCI World: The MSCI World Index is a broad global equity benchmark without emerging markets exposure. It represents large and mid-cap equity performance across 23 developed markets countries.

S&P 500 Index: The Standard & Poor's 500 Index is a capitalization-weighted index of 500 stocks. The index is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.

S&P Goldman Sachs Commodity Index: The S&P GSCI is designed as a benchmark for investment in the commodity markets and as a measure of commodity market performance over time. Components of the index qualify for inclusion based on liquidity measures and are weighted in relation to their global production levels.

Investors cannot invest directly in an index.