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# CTA Market Size Factor: Bigger was Better in 2018

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Market trends can occur in many different shapes, sizes, and places. To capture these movements, trend following strategies trade a wide range of markets across geographic regions and asset classes. Over the long run, the addition of new and more esoteric markets can provide diversification from traditional market trends. In addition, more risk placed in smaller markets can provide return dispersion across different trend following managers as they seek to capture trends that occur in different places. In some years there may be more trends in smaller markets, while in other years larger traditional markets may trend more strongly than smaller markets. To help explain how market size matters, this paper discusses the relative size of futures markets and reviews the CTA market size factor.<sup>1</sup> Finally, to demonstrate the potential for return dispersion across CTA managers, this paper examines several CTA managers and finds varied exposure to the size factor in 2018. At the end of the day, when a manager has risk in the places where stronger trends occur the relative performance should be expected to be better, and vice versa.

## Sizing Up Futures Markets

Similar to individual stocks, futures markets vary in their size. Certain markets are very large, like the Eurodollar or S&P 500. There are also many small contracts like cocoa or soy oil. To explain the difference in market size, Figure 1 plots the size of 80 different futures markets across equity indices, bond indices, currencies, and commodities. The top ten contracts are substantially larger than many of the smaller markets. For example, using the metric in Figure 1, the S&P 500 futures contract is roughly 300 times the size of cocoa futures.

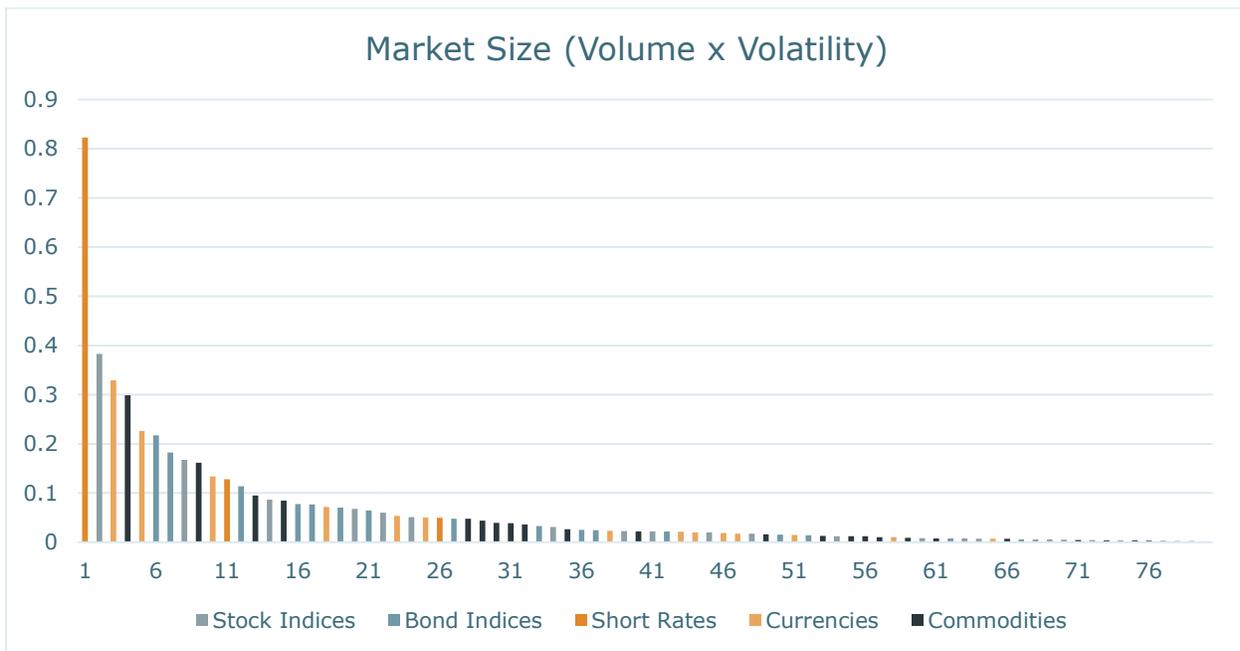


Figure 1: Market size snapshot from November 2018 (yearly average daily volume times rolling average daily volatility) for 80 futures and currency forward markets across equity indices, fixed income indices, currencies, and commodities. The largest contracts are Eurodollar, S&P 500, euro/USD, crude oil, yen/USD, U.S. 2-year Notes, German Bund, Brent crude oil, and the British pound/USD. The smallest contracts in this set are the Singapore dollar/USD, South African equities, Spanish IBEX, Swedish krona/USD, live cattle, soy oil, MSCI EAFE, cotton, the S&P TSX 60, and cocoa.

<sup>1</sup> Based on chapters 12 and 13 in Greyserman and Kaminski (2014).

## CTA Market Size Factor

Since the size of different futures markets varies from contract to contract, having risk in a number of smaller markets can provide better returns when these markets have distinctive trends. To measure trends in smaller markets, Greyserman and Kaminski (2014) defined a CTA market size factor that measures the difference between an equal weighted trend following system and a market capacity weighted trend following system. This is similar to an equal weighted equity index and a market capitalization weighted equity index. The size factor is positive when smaller markets exhibit more trends and negative when larger markets exhibit more trends. The size factor can be helpful for both understanding what is driving markets and helping to explain return dispersion between different trend following strategies. Figure 2 plots a version of the market size factor (small minus big, or SMB) which represents the difference in performance between a portfolio that has equal risk to all markets minus a portfolio that has more risk allocated to bigger markets as a function of their capacity.<sup>2</sup>

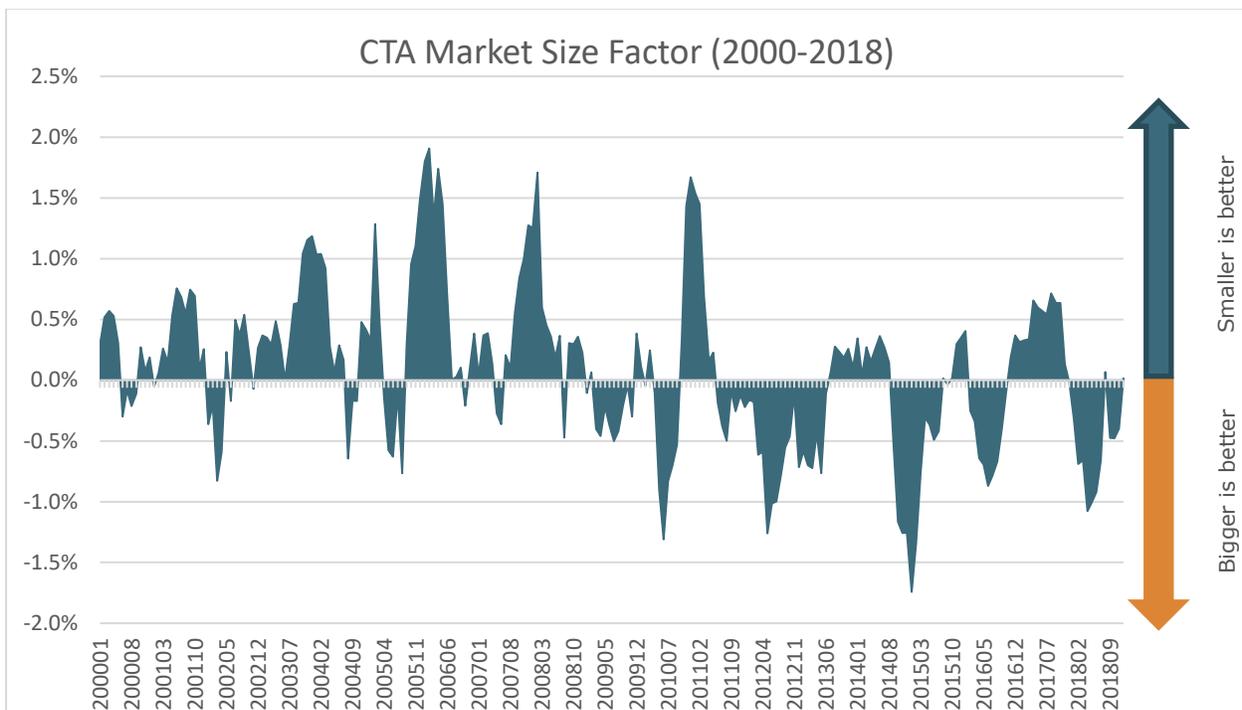


Figure 2: The CTA market size factor (SMB – small minus big) is the difference in monthly return between an equal risk weighted portfolio (evenly allocated to futures markets in each of commodities, equity indices, fixed income, and currencies) and a market capacity weighted portfolio. For the market capacity weighted portfolio, risk is allocated based on size intra-asset class, not across asset classes. For example, the market size of a particular equity index is compared only with the market size of other equity indices. The CTA market size factor represents the impact of allocating more capital to smaller and often less liquid markets, which are typically more constrained. The factor used in this figure uses a 10% volatility target (annualized) and a 63-day window for volatility sizing and covariance matrix with data from January 2000 to December 2018. Source: Bloomberg, AlphaSimplex. Past performance is not necessarily indicative of future results.

Over the long run, the CTA market size factor is positive, but it varies over time. Note that since 2011 the smaller markets have struggled more than pre-2011. This period marks a period of quantitative easing, low interest rates, and other macroeconomic and political issues

<sup>2</sup> The CTA market size factor (SMB) is discussed in length in Greyserman and Kaminski (2014).

that have seemed to drive bigger markets into more profitable trends than smaller markets. This is not uniform, however. In 2017 and 2014 smaller markets had more profitable trends than bigger markets. In 2018, smaller markets struggled more than bigger markets. To investigate this closer, Figure 3 plots the performance of the CTA market size factor (SMB) in 2018. From this figure, we can see that bigger markets like the S&P 500 outperformed smaller markets like the S&P TSX (Canada). In bonds, smaller markets like Italian bonds were more challenging than bigger bond markets like the U.S. 2-year note. In currencies, August was a stellar month for smaller currencies like the Swedish krona, while September was better for the larger currencies like the euro. In commodities, bigger markets like oil seemed to outperform smaller commodities like aluminum. In 2018, the CTA market size factor was down over 6%.

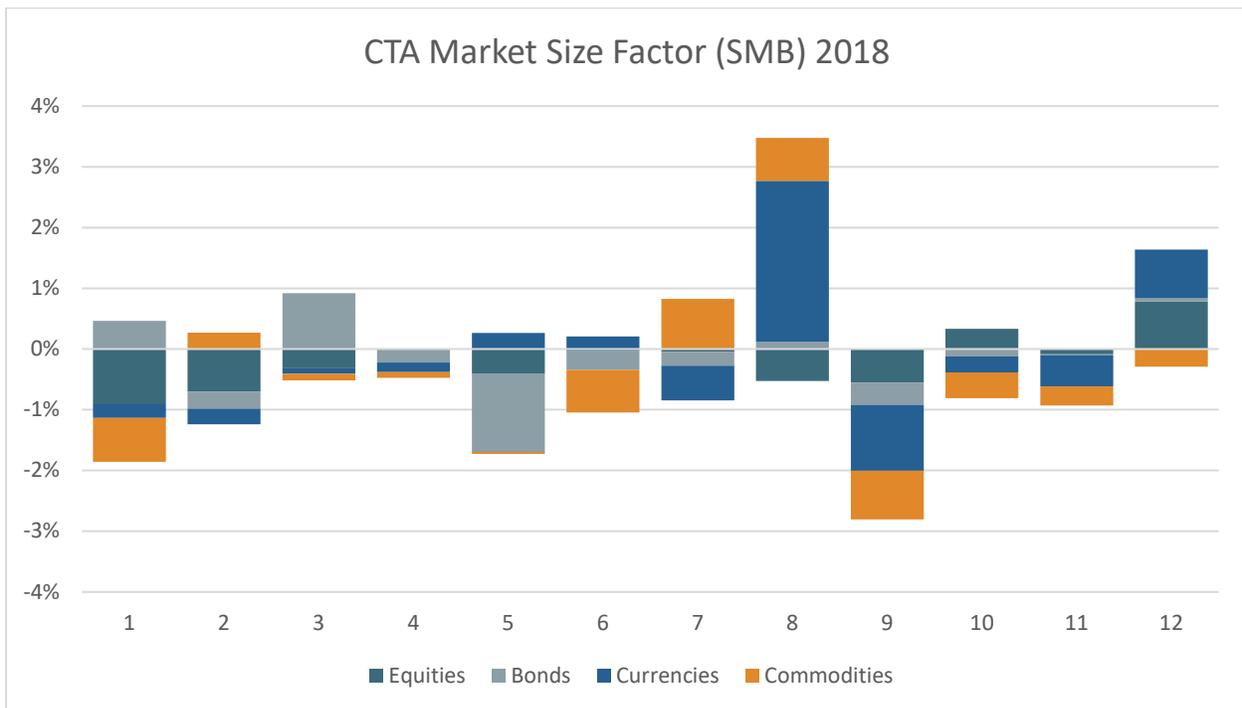


Figure 3: The CTA market size factor (SMB) return in 2018 (1/1/2018-12/31/2018) by asset class. Past performance is not necessarily indicative of future results.

## Do CTAs Have Exposure To The Size Factor?

The amount of risk allocated to smaller markets varies from manager to manager. Given the strong negative performance of the size factor in 2018, these different risk allocations can drive differences in returns from manager to manager. To examine this further, Figure 4 plots the estimated size factor loading for each of ten different Managed Futures '40 Act mutual funds. Table 1 lists the trend beta, the size factor loading (or beta), and the goodness of fit or R-squared value. There is substantial variation across managers. For example, CTA3 has a positive loading to the market size factor while CTA5 has a large negative loading to the size factor. This analysis shows that the risk allocation to big or smaller markets could result in very different returns in 2018.

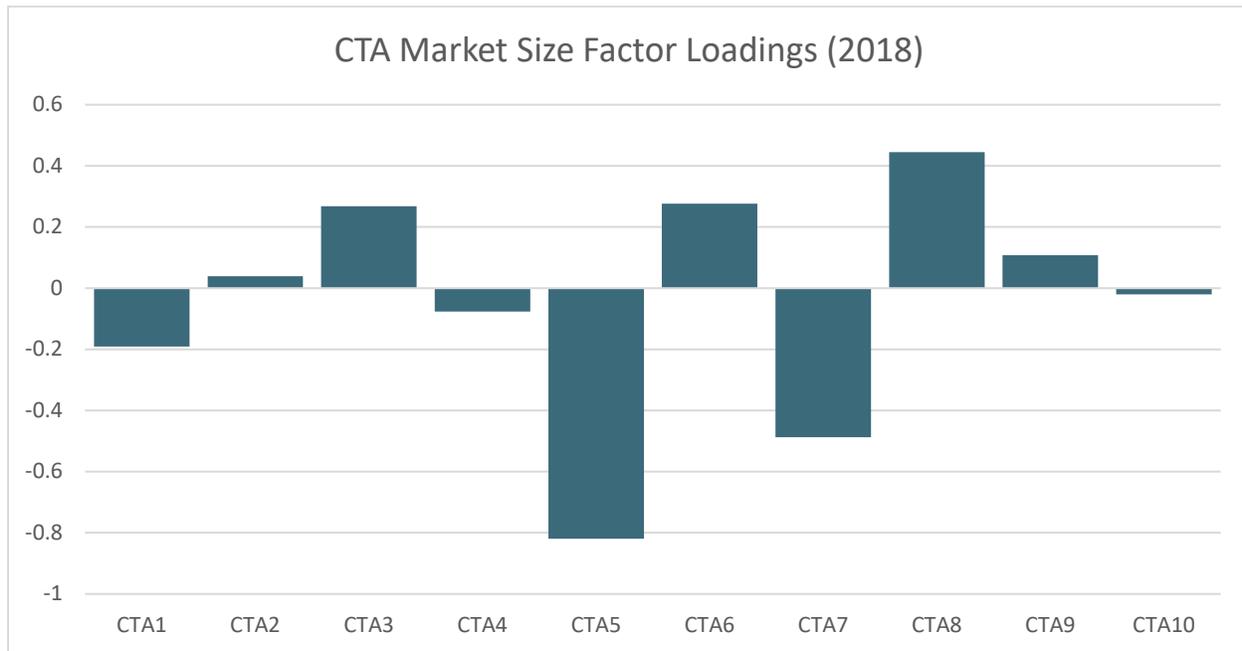


Figure 4: The CTA market size factor loadings for ten Managed Futures mutual funds in 2018 (1/1/2018-12/31/2018). These are ten of the constituents of the SG Mutual Fund Index. To account for asynchronous returns, weekly returns are regressed on the SG Trend Index and the CTA market size factor. The regression loadings and R-squared values are listed in Table 1. Past performance is not necessarily indicative of future results.

	Trend Beta (SG Trend Index)	Market Size Factor (SMB)	R-squared
<b>CTA1</b>	1.37	-0.19	0.89
<b>CTA2</b>	0.91	0.04	0.89
<b>CTA3</b>	1.26	0.27	0.94
<b>CTA4</b>	0.92	-0.08	0.89
<b>CTA5</b>	1.23	-0.82	0.81
<b>CTA6</b>	1.59	0.28	0.90
<b>CTA7</b>	1.60	-0.49	0.73
<b>CTA8</b>	0.69	0.44	0.82
<b>CTA9</b>	0.56	0.11	0.80
<b>CTA10</b>	0.99	-0.02	0.87

Table 1: Trend beta and market size factor loadings for ten Managed Futures mutual funds in 2018 (1/1/2018-12/31/2018). To account for asynchronous returns, weekly returns are regressed on the SG Trend Index and the CTA market size factor.

## Summary

2018 was a challenging year for trend following strategies. It was also a year where smaller market trends struggled more than larger market trends. Over the longer run, smaller markets have provided diversification and unique opportunities, but not in 2018. The CTA market size factor provides a method to measure how smaller markets impact CTA returns. The CTA market size factor was negative, down over 6% in 2018. A closer look at CTA manager returns shows that different managers have different exposures to size. Some managers focus on a wide range of markets, both big and small, while others focus on higher capacity markets like the S&P 500. In 2018, bigger certainly worked better.

## References

Greyserman, Alex, and Kathryn M. Kaminski. 2014. *Trend Following with Managed Futures: The Search for Crisis Alpha*. Hoboken, NJ: John Wiley & Sons, Inc.

## About the Author

Kathryn M. Kaminski, Ph.D., CAIA® is the Chief Research Strategist at AlphaSimplex Group. As Chief Research Strategist, Dr. Kaminski conducts applied research, leads strategic research initiatives, focuses on portfolio construction and risk management, and engages in product development. She also serves as a co-portfolio manager for the AlphaSimplex Managed Futures Strategy. Dr. Kaminski's research and industry commentary have been published in a wide range of industry publications as well as academic journals. She is the co-author of the book *Trend Following with Managed Futures: The Search for Crisis Alpha* (2014). Dr. Kaminski holds a B.S. in Electrical Engineering and Ph.D. in Operations Research from MIT.

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