

Blending Tactical and Strategic Strategies: Science and Art

Authors:

Neil R. Peplinski

John Hanley

David Armstrong

ABSTRACT

Tactical strategies can be a valuable tool in overall investment portfolio construction. Utilizing a sample of tactical strategies we have created tactical datasets (referred to here in as “Tactical Portfolios”) for domestic and global equities as well as domestic fixed income and demonstrate how these Tactical Portfolios have historically performed better than a relevant strategic benchmark. This is the science. While this may suggest fully tactical would be preferred over strategic or blended, there are other considerations that are important. This leads to the notion that when looking to implement tactical strategies into an overall investment portfolio a more conservative allocation range of 20%-50% may be more desirable. This is the art. Finally, we illustrate that tactical strategies in some ways behave more like individual stocks than broadly diversified investment portfolios (likely due to model risk) and as such utilizing more than one tactical strategy may provide benefits from a risk perspective.

NOTE: Refer to the Important Disclosures section and Appendix A for information on the compilation methodology for the Tactical Portfolios as well as relevant information on the data source.

INTRODUCTION

Introducing tactical strategies into an investment portfolio can prove to be beneficial for overall performance. However, doing this in an “optimal” fashion requires some science as well as art. Utilizing a sample of tactical strategies, we created Tactical Portfolios, which combine the performance of selected tactical strategies, across domestic and global equities as well as fixed income in order to compare tactical performance to more traditional strategic benchmarks. In the analysis outlined herein, each of the Tactical Portfolios demonstrates better risk-adjusted performance than the corresponding benchmark. This is the science. However, while this may suggest fully tactical would be preferred over fully strategic or blended, there are other considerations that are important. In particular, the greater the tactical allocation used, the larger the likelihood the investment portfolio will deviate from broadly followed benchmarks. While this is generally favorable during down markets as tactical strategies tend to have defensive elements that work to preserve capital or limit losses, it can prove problematic during other market environments. As such, the amount of tactical exposure becomes more of a preferential choice than a predefined level based on straight optimization.

In this paper we begin by explaining the custom Tactical Portfolios utilized to explore these concepts, followed by reviewing the Tactical Portfolios for performance comparisons. After making applicable performance

comparisons we explore the topic of determining how much tactical exposure might be useful to an overall investment portfolio. We then demonstrate how in the case of tactical solutions, allocation across multiple strategies is important for proper implementation.

TACTICAL PORTFOLIOS

The Morningstar ETF strategist database was utilized as the source to create the Tactical Portfolios. A time period spanning back to the start of 2000 was chosen such that multiple market environments would be included in the analysis: namely the weaker market environments of 2000-2002 and 2008 as well as the stronger market periods from 2003-2007 and 2009-2014.

To explore the tactical concept across multiple asset categories, combinations of universe and asset breadth fields were used to identify three distinct groupings: US equity, global equity and US fixed income.

Strategies were then screened using a combination of beta and correlation to the stated benchmark. The main intent here was to eliminate strategies that were identified as tactical yet essentially behaved like the benchmark, even over varying market environments, hence being more strategic in nature.

Finally, to reduce the impacts of survivorship bias, if a strategy did not exist for the entirety of the analysis period, it was included for the time periods where returns were available. In other words, if a manager stopped reporting performance to the Morningstar database, the strategy was still included to the extent possible.

TACTICAL PORTFOLIO COMPARISONS

Using the data described in the previous section and combining strategies in an equally weighted fashion, three Tactical Portfolios were created: Tactical US Equity, Tactical Global Equity and Tactical US Fixed Income. Figure 1, Figure 2 and Figure 3 illustrate the performance metrics for each Tactical Portfolio relative to a strategic benchmark. Note: all performance metrics are reported gross-of-fees and expenses.

Performance Metrics*		
	Tactical US Equity Portfolio	S&P 500 Total Return Index
APR	8.72%	4.24%
Cumulative	250.68%	86.48%
Volatility	10.96%	15.22%
Alpha	5.42%	*
Beta	0.50	1
R ²	0.48	1
Correlation	0.70	1
Sortino Ratio	1.83	0.56
Sharpe Ratio	0.65	0.23
Best Month	20.99%	10.93%
Worst Month	-6.50%	-16.79%
Max Drawdown	-21.74%	-50.95%
Upside Capture	73.98%	100%
Downside Capture	45.81%	100%

Figure 1: Tactical US Equity Portfolio metrics 12/31/1999 to 12/31/2014 (Source: Internal, Morningstar).

Performance Metrics		
	Tactical Global Equity Portfolio	MSCI ACWI Daily Net TR Index
APR	6.02%	3.26%
Cumulative	140.41%	61.77%
Volatility	10.90%	16.22%
Alpha	3.28%	*
Beta	0.50	1
R ²	0.55	1
Correlation	0.74	1
Sortino Ratio	1.26	0.44
Sharpe Ratio	0.43	0.17
Best Month	21.82%	11.80%
Worst Month	-6.00%	-19.82%
Max Drawdown	-28.57%	-54.92%
Upside Capture	70.24%	100%
Downside Capture	53.52%	100%

Figure 2: Tactical Global Equity Portfolio metrics 12/31/1999 to 12/31/2014 (Source: Internal, Morningstar).

As illustrated, each of the Tactical Portfolios delivered better risk-adjusted returns over the time period as measured by both the Sharpe and Sortino ratios. With the exception of Fixed Income, the Tactical Portfolios also produced lower max drawdowns, another desirable

characteristic when looking to incorporate into an investment portfolio.

Performance Metrics		
	Tactical US Fixed Income Portfolio	Barclays Agg Total Return Index
APR	9.16%	5.70%
Cumulative	272.40%	129.67%
Volatility	5.51%	3.49%
Alpha	6.06%	*
Beta	0.29	1
R ²	0.03	1
Correlation	0.18	1
Sortino Ratio	4.05	3.30
Sharpe Ratio	1.29	1.10
Best Month	7.78%	3.73%
Worst Month	-4.73%	-3.36%
Max Drawdown	-6.46%	-3.83%
Upside Capture	96.83%	100%
Downside Capture	-43.66%	100%

Figure 3: Tactical US Fixed Income Portfolio metrics 12/31/1999 to 12/31/2014 (Source: Internal, Morningstar).

Calendar Year Returns				
Year	Tactical US Equity Portfolio	S&P 500 Total Return Index	Tactical Global Equity Portfolio	MSCI ACWI Daily Net TR Index
2000	17.40%	-9.10%	10.29%	-14.21%
2001	0.31%	-11.89%	-5.08%	-16.21%
2002	-4.12%	-22.10%	-6.49%	-19.32%
2003	35.91%	28.68%	27.06%	33.99%
2004	10.40%	10.88%	8.19%	15.23%
2005	6.60%	4.91%	10.86%	10.84%
2006	11.22%	15.79%	12.90%	20.95%
2007	5.79%	5.49%	12.90%	11.66%
2008	-10.80%	-37.00%	-19.58%	-42.20%
2009	19.23%	26.46%	19.54%	34.63%
2010	9.86%	15.06%	11.87%	12.67%
2011	-0.74%	2.11%	-6.74%	-7.35%
2012	9.05%	16.00%	7.21%	16.13%
2013	24.71%	32.39%	13.02%	22.80%
2014	4.61%	13.69%	4.04%	4.16%

Figure 4: Calendar year returns for Tactical Equity Portfolios (US & Global) (Source: Internal, Morningstar).

However, despite the overall outperformance, market environments do exist where tactical approaches can underperform. As Figure 4 highlights tactical approaches, particularly in the equity asset class, tend to provide outperformance during periods of market stress (highlighted periods) but can trail the broader markets during rallies. This characteristic is an important consideration when determining how much tactical to include in an overall portfolio allocation.

HOW MUCH TACTICAL?

When adding tactical strategies, it is necessary to decide how large an allocation should be. Reviewing the data presented in the previous section might lead to the conclusion that tactical would be preferred over a strategic or blended choice given the general outperformance of the Tactical Portfolios¹. For an investor who is not concerned with benchmark tracking, this may be a reasonable direction. However, given most investors will likely compare performance to a given benchmark, it becomes important to consider the potential for deviation from the stated benchmark. As illustrated in the previous section, the better performance metrics offered by the Tactical Portfolios can be accompanied by significant departures from benchmark performance. This potential for deviation is evident in the annual returns table (Figure 4) and is captured quantitatively through beta and correlation. As shown, the deviation to the benchmark can be positive (i.e., beating the benchmark) or negative (i.e., trailing the benchmark). Investors may be accepting of outperformance, leaving underperformance the main concern. In short, for an investor that is benchmark conscious the concern is to not only have general outperformance over a longer time frame, but to also experience limited negative deviation during more positive market environments. This is the art of blending tactical and strategic approaches.

One way to guide a decision on how much tactical exposure might be desirable is to consider the likelihood that a given investment portfolio will underperform a stated benchmark by a certain percentage or greater. For example, a particular strategy that is generally expected to outperform a benchmark over the long run but has a 20% chance of underperforming the benchmark by 10% or more in any given year may be acceptable to some investors while others may prefer a lower chance of such an occurrence.

The chances of performance deviation from a benchmark will be driven mainly by expected returns, volatility and correlation. The focus here is on correlation. To get a sense for this, it is possible to make some simplifying assumptions about return distributions and then calculate the likelihood of deviation. As an example, consider two strategies with the same annualized expected return and volatility (10% and 15% respectively in this case) but varying degrees of

¹ Barring explicit restrictions specified during set-up, an optimization routine may lead to a 100% tactical allocation based on the favorable risk-adjusted metric offered by the Tactical Portfolios.

correlation. Figure 5 quantifies the chances of a given return difference over a twelve month period for multiple correlations.

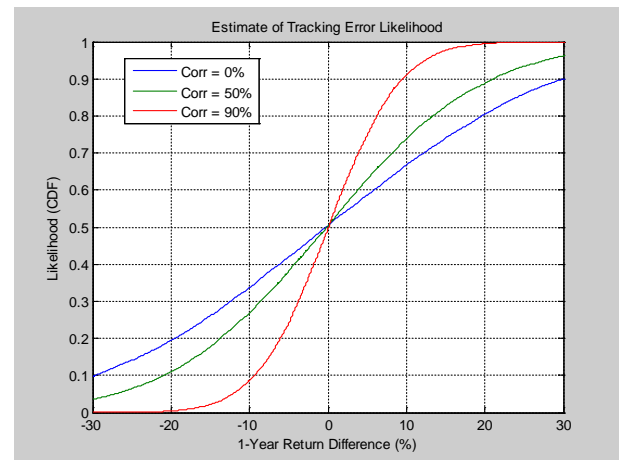


Figure 5: Simulation results for estimating likelihood of performance deviation between strategies (Source: Internal). *For Illustrative Purposes.*

To read the above chart, pick a desired return difference along the x-axis and then read off the associated likelihood from the y-axis. For example, based on this analysis, we can estimate the chances that a strategy will trail the benchmark by 10% or more by reading vertically from the -10% x-axis point. Doing so provides the values in Figure 6.

Correlation	Likelihood of -10% or Worse Performance Difference
0%	34%
50%	27%
90%	9%

Figure 6: Estimated chances of underperforming a strategy by 10% or more (Source: Internal). *For Illustrative Purposes.*

As expected, the greater the correlation, the lower the chances of a performance deviation.

This same approach can be used to estimate how an investment portfolio that combines both strategic and tactical strategies might perform against the strategic benchmark. Figure 7 below shows various blends of the strategic benchmark and the Tactical US Equity Portfolio detailed above in various proportions with an estimate of the likelihood of a 10% underperformance over a 12-month period.

Tactical Exposure	APR	Volatility	Max Drawdown	R (Corr)	Estimated Probability of 10% Underperformance over 12-months
0%	4.24%	15.22%	-50.95%	100%	0%
10%	4.74%	14.48%	-48.50%	100%	0%
20%	5.23%	13.78%	-45.96%	99%	0%
30%	5.70%	13.14%	-43.31%	98%	0%
40%	6.17%	12.57%	-40.56%	97%	1%
50%	6.62%	12.07%	-37.71%	95%	3%
60%	7.06%	11.65%	-34.75%	91%	8%
70%	7.49%	11.32%	-31.67%	87%	12%
80%	7.91%	11.10%	-28.48%	82%	15%
90%	8.33%	10.97%	-25.17%	76%	19%
100%	8.72%	10.96%	-21.74%	70%	22%

Figure 7: Performance metrics for various tactical allocation amounts blended with the strategic benchmark for the US Equity Portfolio 12/31/1999 to 12/31/2014. (Source: Internal, Morningstar)

From Figure 7, one might insinuate that a reasonable tactical allocation when also considering benchmark tracking would likely fall in the 20% to 60% range.

While ultimately the “right” amount of tactical will be a personal choice, the range suggested above can be further supported, at least anecdotally in the US equity category, by reviewing some of the risk-adjusted metrics. The Sortino Ratio data shown in Figure 8 and Figure 9 below illustrate the point. As seen, over the full time period observed, the max Sortino Ratio is achieved with a fully tactical allocation. However, over the last three to five years (i.e., strong overall market period) the maximum Sortino Ratio is achieved using a tactical allocation in the 30% to 50% range.

Interestingly, however, this pattern is not evident in the Global Equity category where the max Sortino Ratios, even at the 3-Yr and 5-Yr points, are still achieved with a full allocation to tactical as show in Figure 10.

DIVERSIFYING WITHIN TACTICAL

The previous sections attempt to make the case that a general blending of tactical and strategic approaches leads to a better overall solution. And as was detailed, the amount of tactical exposure tends to be a personal decision based on tolerance to benchmark tracking, particularly in positive market environments. A remaining key element to the successful implementation of a tactical allocation centers on how to assign the target exposure to the multitude of available tactical strategies.

Tactical Exposure	APR	Volatility	Sortino Ratio (3-Yr)	Sortino Ratio (5-Yr)	Sortino Ratio (Inception)
0%	4.24%	15.22%	4.44	2.30	0.56
10%	4.74%	14.48%	4.49	2.31	0.64
20%	5.23%	13.78%	4.53	2.31	0.72
30%	5.70%	13.14%	4.56	2.32	0.82
40%	6.17%	12.57%	4.59	2.32	0.93
50%	6.62%	12.07%	4.60	2.32	1.05
60%	7.06%	11.65%	4.56	2.31	1.19
70%	7.49%	11.32%	4.47	2.30	1.34
80%	7.91%	11.10%	4.32	2.26	1.50
90%	8.33%	10.97%	4.11	2.21	1.66
100%	8.72%	10.96%	3.85	2.15	1.83

Figure 8: Risk metrics for various tactical allocation amounts blended with the strategic benchmark for the US Equity Portfolio 12/31/1999 to 12/31/2014. (Source: Internal, Morningstar)

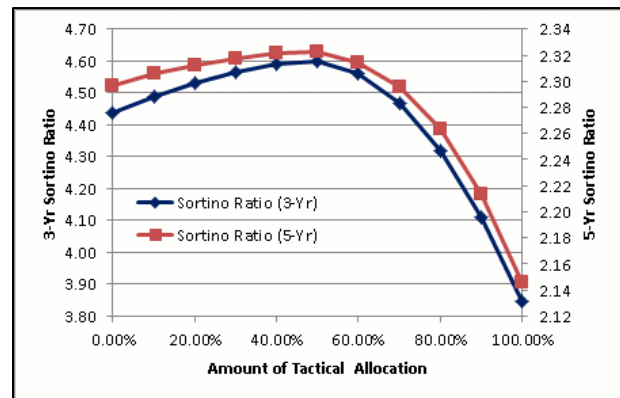


Figure 9: Sortino ratio for various tactical allocation amounts blended with the strategic benchmark for the US Equity Portfolio. (Source: Internal, Morningstar)

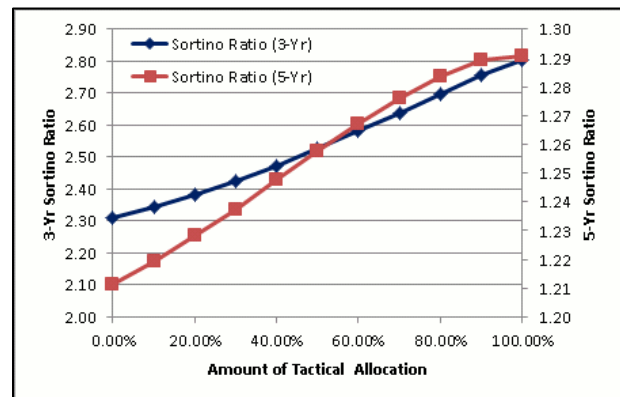


Figure 10: Sortino ratio for various tactical allocation amounts blended with the strategic benchmark for the Global Equity Portfolio. (Source: Internal, Morningstar)

In other words, can one tactical strategy be used to fulfill the target allocation or is there reason to utilize multiple strategies?

It is from this perspective that tactical strategies should be viewed more like individual stocks than perhaps broadly diversified investment portfolios, largely due to the presence of model risk, which is different for each strategy in the same way individual stocks have unique risk. This is a departure from the typical thinking when looking to fill strategic portions of an investment portfolio. For example, when looking to select a long only large cap strategy, there may be little differentiation between most of the choices available that even a random selection of one will typically suffice. Figure 11 shows the correlation for five of the largest US large cap mutual funds as reported to the Morningstar database as of May 2015. As seen, the funds are highly correlated to each other.

	Strategic 1	Strategic 2	Strategic 3	Strategic 4	Strategic 5
Strategic 1	1				
Strategic 2	1.00	1			
Strategic 3	1.00	1.00	1		
Strategic 4	1.00	1.00	1.00	1	
Strategic 5	0.99	0.99	0.99	0.99	1

Figure 11: Correlation among US large cap mutual funds 1/2008-12/2014. (Source: Internal, Morningstar) For Illustrative Purposes.

As Figure 12 illustrates, however, this concept generally does not translate to the tactical space. Here even strategies categorized similarly have correlations to each other that are much more diverse. Figure 12 shows the correlations for five of the largest US Tactical Equity separately managed accounts as reported to the Morningstar database as of May 2015.

	Tactical 1	Tactical 2	Tactical 3	Tactical 4	Tactical 5
Tactical 1	1				
Tactical 2	0.49	1			
Tactical 3	0.44	0.50	1		
Tactical 4	0.52	0.93	0.50	1	
Tactical 5	0.48	0.50	0.94	0.49	1

Figure 12: Correlation among US Tactical Equity strategies 1/2008-12/2014. (Source: Internal, Morningstar)

As such, selection of tactical managers becomes more involved. In fact, diversification among multiple managers tends to make the most sense from a risk reduction perspective.

Much like how classical finance theory dictates that holding multiple stocks diversifies the single stock risk

(i.e., idiosyncratic risk) for which investors are generally not compensated, diversifying across multiple tactical strategies can help reduce the model risk may be inherent to using any single strategy. This concept may be best illustrated by looking at how the average risk in a combination of strategies decreases as number of strategies included in the portfolio increases. Figure 13 shows how the average standard deviation in a tactical investment portfolio may drop as more strategies are added. Similarly, adding additional strategic strategies may have little to no impact on the standard deviation.

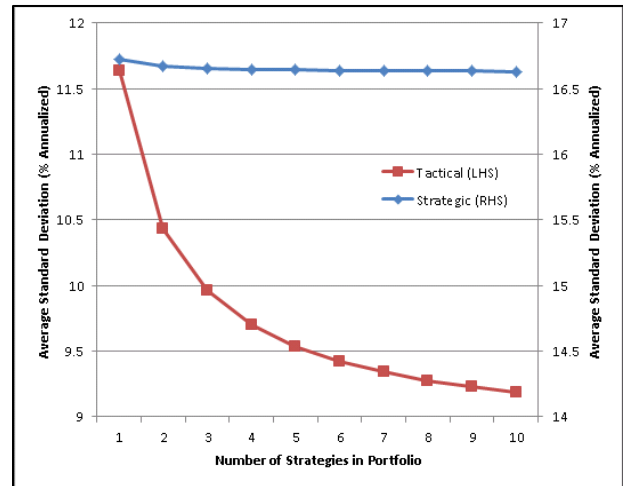


Figure 13: Changes in average investment portfolio standard deviation as number of strategies varies 1/2008-12/2014. (Source: Internal, Morningstar)

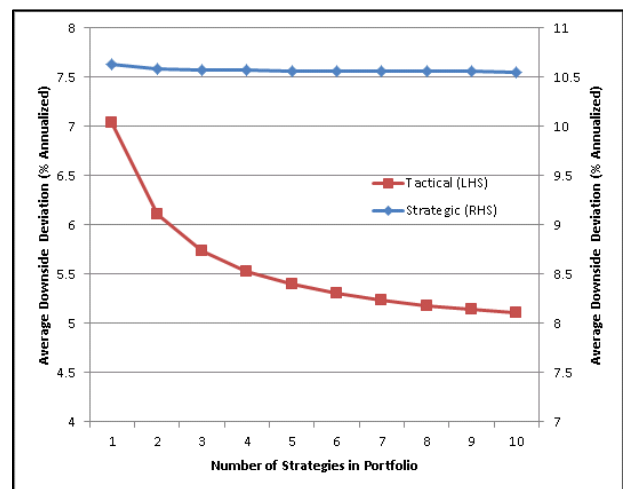


Figure 14: Changes in average investment portfolio downside deviation as number of strategies varies 1/2008-12/2014. (Source: Morningstar, Internal)

While standard deviation is a popular measure of risk, it includes both upside deviation (generally assumed to be desirable) and negative deviation (the undesirable type). Reproducing the above analysis to focus just on

downside deviation results in Figure 14. Again, we see the same pattern. Adding tactical strategies may reduce average risk while adding strategic strategies may not have an impact.

In both instances adding three to five tactical strategies captures a significant amount of the diversification benefit.

CONCLUSION

Introducing tactical strategies into an investment portfolio can prove to be beneficial for overall performance. However, doing this in an “optimal” fashion requires some science as well as art. In the analysis outlined herein, each of three broad Tactical Portfolios was shown to demonstrate better risk-adjusted performance than the corresponding benchmark. This is the science. However, while this may suggest that fully tactical would be preferred over fully strategic or blended, there are other considerations that are important. In particular, the greater the tactical allocation used, the potential for a larger likelihood of deviation from broadly followed benchmarks. As such, the appropriate amount of tactical exposure becomes more of a preferential choice than a predefined level based on straight optimization, with 20% to 50% being a range that may be practical for benchmark conscious investors. This is the art.

Finally, when adding tactical approaches to an investment portfolio one should consider diversifying across strategies in order to reduce associated model risk. Based on traditional risk analysis, adding approximately three to five tactical approaches to a tactical sleeve may provide significant diversification benefits.

IMPORTANT DISCLOSURES

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Past performance is not a guarantee of future results. As with any investment, there is a potential for profit as well as the possibility of loss.

Performance information for each of the Tactical Portfolios is presented gross-of-fees and does not include the deduction of any investment management fees or expenses, both of which would decrease the performance results presented.

It is not possible to invest directly in an index (benchmark). Indexes are unmanaged and do not reflect the deduction of fees or other expenses.

Historical performance results for market indices and/or categories generally do not reflect the deduction of transaction and/or custodial charges or the deduction of an investment-management fee, the incurrence of which would have the effect of decreasing historical performance results. Economic factors, market conditions, and investment strategies will affect the performance of any investment portfolio and there are no assurances that it will match or outperform any particular benchmark.

The S&P 500 TR Index is a capitalization weighted index of 500 stocks designed to measure the performance of the broad domestic economy. The total return index included the effects of dividends.

MSCI ACWI Daily Net TR Index is a total return market capitalization weighted index designed to provide a broad measure of equity-market performance throughout the world. The MSCI ACWI is maintained by Morgan Stanley Capital International, and is comprised of stocks from both developed and emerging markets.

The Barclays Aggregate Bond Index is index designed to provide a measure of the performance of the U.S. investment grade bonds market, which includes investment grade U.S. Government bonds, investment grade corporate bonds, mortgage pass through-securities and asset-backed securities that are publicly offered for sale in the United States. The securities in the index must have at least 1 year remaining to maturity. In addition, the securities must be denominated in US dollars and must be fixed rate, nonconvertible, and taxable.

ABOUT THE AUTHORS

Note: The Authors are dual employees of Cedar Capital, LLC and an affiliated registered investment adviser, Good Harbor Financial, LLC.

Neil Peplinski, CFA, is the Chairman, Chief Investment Officer and Co-founder of Good Harbor Financial. With over 20 years of professional experience, Neil is responsible for research, investment analysis and the development /oversight of new investment strategies and models. Prior to co-founding Good Harbor, he served as a portfolio manager and quantitative analyst for Allstate Investments. Neil earned a MBA with High Honors from The University of Chicago Booth School of Business, a MSEE from The University of Michigan and a BSEE from The Michigan Technological University.

John Hanley, CFA is a Senior Product Specialist for Good Harbor Financial. John works to support the firm with in depth analysis and research on investment products. John is focused on the Tactical Equity Income strategy and Currency Strategy and also examines how non-traditional investments can be utilized in investment portfolios. Prior to joining Good Harbor in 2012, John worked at Northern Trust and the Chicago Board Options Exchange. John earned a BA from Roosevelt University.

David Armstrong is a Portfolio Manager and Partner of Good Harbor Financial. With over 28 years of professional experience, David is responsible for portfolio management and working with investors to understand tactical investing and portfolio construction. David earned an MBA from The University of Chicago Graduate School of Business, and a BA from Knox College.

APPENDIX A: TACTICAL PORTFOLIO CREATION

Certain source data presented herein were obtained from Morningstar. Cedar Capital cannot confirm the accuracy of information related to other investment advisers or past performance represented herein.

There may be strategies or mutual funds managed by investment advisers affiliated with Cedar Capital contained in the analysis presented. Cedar Capital is not attempting to solicit for those strategies or mutual funds by presenting this analysis.

Each of the Tactical Portfolios is presented gross-of-fees and expenses. The Strategic Mutual Fund data is presented net-of-fees as reported to Morningstar.

The Tactical Portfolios were created using Morningstar's ETF Managed Portfolio database which tracks separate

account investment advisers that typically have more than 50% of investment portfolio assets invested in ETFs. Specifically, the Tactical category (approximately 330 strategies as of April 2015) was utilized to provide the starting sample population. Given a specific set of criteria (described herein), each of the respective Tactical Portfolios were created.

Criteria for selection: (i) categorized as US Equity, Global Equity and US Fixed Income; (ii) strategy inception date prior to 2008; (iii) variation from benchmark chosen by Cedar Capital with a beta * correlation of 0.75 or lower.

The remaining strategies in each of the three categories were then equal weighted on a monthly basis using all strategies that reported returns for the month independent of whether or not they were still reporting returns as of the date that the data was sourced.

APPENDIX B: DEFINITIONS

Alpha: Alpha is a measure of actual returns and expected performance, given its level of risk (as measured by beta).

Beta: Beta is a measure of the volatility, or systematic risk, of the composite portfolio in comparison to the market as a whole.

Correlation: A statistical measure of how two securities move in relation to each other.

Downside Deviation: Downside deviation is a risk statistic measuring the negative portion of volatility. It is a variation of standard deviation which measures only returns that fall below a minimum acceptable return.

Drawdown: Drawdown measures the peak-to-trough percentage decline in portfolio value. Max drawdown is an indicator of the risk of a portfolio.

Sharpe Ratio: A ratio developed by William F. Sharpe defined as return above the risk-free rate divided by standard deviation. It is meant to provide a risk-adjusted measure of investment performance. Higher Sharpe Ratio is better, all else being equal. When comparing investment approaches using the Sharpe Ratio it is important to use the same risk-free rate in both calculations.

Sortino Ratio: A modification of the Sharpe ratio that differentiates harmful volatility from general volatility by taking into account the standard deviation of negative asset returns, called downside deviation. The Sortino ratio subtracts the risk-free rate of return from the

portfolio's return, and then divides that by the downside deviation. A large Sortino ratio indicates there is a low probability of a large loss. Higher Sortino ratio is better.

Standard Deviation: Standard deviation measures the dispersion of returns; a large dispersion shows higher volatility.

Upside Capture: A ratio defined as the average return of a strategy during the positive months of a specific benchmark divided by the average return of the benchmark during those same positive months. An Upside Capture ratio of 100% suggests an investment strategy is earning the same average return as the benchmark during the benchmark's positive months. All else being equal, higher Upside Capture ratios are desirable.

Downside Capture: A ratio defined as the average return of a strategy during the negative months of a specific benchmark divided by the average return of the benchmark during those same negative months. A Downside Capture ratio of 100% suggests an investment strategy is earning the same average return as the benchmark during the benchmark's negative months. All else being equal, lower Downside Capture ratios are desirable.

Volatility: A statistical measure of the dispersion of returns for a given security or market index. Volatility can either be measured by using the standard deviation or variance between returns from that same security or market index. Commonly, the higher the volatility, the riskier the security.

R-squared: R-squared indicates how much of the composite portfolio's fluctuations are attributable to movements of its benchmark.