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Accessing risk premia through the use of passive index-based portfolios has been gaining momentum in recent years. Although there is a vast body of decades-old literature on systematic factors,¹ or what we refer to here as “risk premia”, only recently have institutional investors accepted the notion of accessing them passively. As the number of options has proliferated, these risk-premia strategies are beginning to form a third and separate category of return, sandwiched between traditional alpha and beta.

Can risk premia subsume some of what has traditionally been ascribed to alpha? And in a related vein, should risk premia be viewed as a replacement for existing passive beta investments or active mandates? Prior research has shown that, relative to a market cap-weighted allocation, risk premia can offer improvements in return, volatility, and/or risk-adjusted return.

What about the efficacy of risk premia as a replacement for active mandates? Past research has shown that alpha is expensive and difficult to find. Specifically, many well-regarded studies have shown that the median active manager does not outperform the cap-weighted benchmark. In this article, we set out to understand the extent to which active manager returns (alpha) can be captured by risk-premia indices, long-only portfolios

that seek to capture certain systematic factors ex ante. Using 10 years of historical data, from January 2002 to March 2012, we find that a handful of risk-premia indices can account for a substantial portion of alpha: as much as 80%. These results are particularly intriguing, given that there is potentially a vast opportunity set of risk premia that has either not been identified or has not been implemented as long-only indices.

It is important to note that we do find that there are managers who can produce alpha on top of risk premia. In our view, these managers are likely the most effective at market timing (e.g., in sector or asset-class rotation), risk premia timing (commonly called factor timing), or in stock selection (timing individual stocks)—investment skills that are not easily captured by rules-based indices.

In addition, we illustrate a framework for incorporating managers who deliver the highest alpha, once risk premia are accounted for. The combination of these active managers with passive portfolios tracking risk-premia indices can (and historically has) yield stronger performance at lower costs.

First, we provide an overview of risk-premia indices and show their historical performance relative to cap-weighted indices. We discuss the past literature on the importance of risk premia in explaining stock returns and active strategies. We then intro-

duce the active manager database we have used and summarize the empirical characteristics of active funds. Next, we empirically test how much traditional active alpha can be captured by risk-premia indices. Finally, we present an effective way to construct an equity portfolio with risk-premia indices (passive) and active funds.

WHAT ARE RISK-PREMIA INDICES?

Traditionally, investors attributed portfolio returns to a combination of passive market exposure and active portfolio management. Returns in excess of the market return were considered value added (alpha) by active management. More recently, certain returns that were once considered alpha are now recognized as newly isolated forms of beta. Risk premia are part of this new category of alternative (or smart) beta that can be captured without the use of active management. Exhibit 1 shows the evolving definitions of alpha and beta.

A vast literature on systematic factors, beginning with Ross [1976], and empirically established by Fama and French [1992, 1993], Carhart [1997], and others, has identified well-known factors that explain the cross-section of returns. These factors include value, size, momentum, liquidity, and other stock characteristics.² Not only have these systematic factors been shown to explain a great deal of the cross-section of returns, they have also been found to account for a substantial part of long-term portfolio performance.

In recent years, index providers have developed a variety of new indices that let investors capture systematic risk-premia factors identified in the research literature, which were previously embedded inside active investment approaches. As distinguished from alpha, the key to these practical applications is that they use transparent, rules-based approaches to access each risk premium. With generally lower fees, portfolios that passively track these risk premia can offer investors a lower-cost alternative to active funds, at least the ones whose alphas are derived from risk-premia tilts.

Risk-premia strategies can be classified into two broad categories reflecting two primary ways to achieve superior risk-adjusted performance: 1) risk-based strategies that aim to lower risk or improve diversification, and 2) return-based strategies that aim to tilt towards a specific factor. The former include MSCI Equal Weighted Indices, MSCI Risk Weighted Indices, and MSCI Minimum Volatility Indices. The latter include MSCI Value Weighted Indices, MSCI High Dividend Yield Indices, and MSCI Factor Indices, which aim to capture Barra fundamental factors, such as Barra Momentum. Exhibit 2 displays select MSCI risk-premia Indices.

One important point is that risk premia appear to exhibit time variation. As shown in Melas et al. [2011], systematically tilting an equity portfolio toward any one fundamental factor does not guarantee long-term out-performance over the market portfolio. There have been periods of over- and under-performance, relative to the market, for all risk premia. However, certain risk premia (e.g., minimum volatility and value-weighted indices) have exhibited low long-term correlations. This suggests that multiple risk-premia allocations may benefit from diversification.

How have risk-premia indices performed relative to market-cap-weighted indices? Exhibit 3 shows the superior historical performance of four risk-premia indices, based on the MSCI World Index constituents: Risk Weighted, Minimum Volatility, Equal Weighted, and Value Weighted indices. From June 1988 to March 2012, each of the four risk-premia indices generated higher returns and higher Sharpe ratios than the parent MSCI World Index.

EXHIBIT 1

Today's Alpha Is Tomorrow's Beta

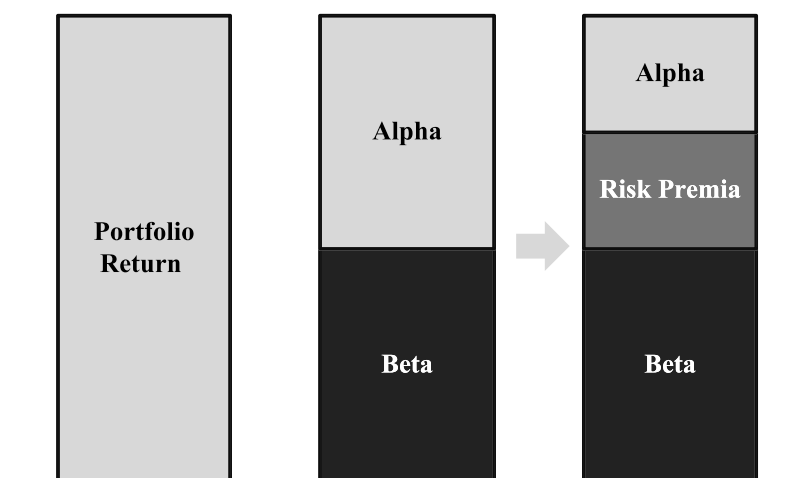


EXHIBIT 2

Select Risk-Premia Indices

Risk Based Strategy Indices	Return Based Strategy Indices
MSCI Minimum Volatility Indices Constructed using the minimum variance optimization	MSCI Value Weighted Indices Reweights the market cap index using earning, sales, book value, and cash flow
MSCI Risk Weighted Indices Reweights the market cap index based on the inverse of historical variance	MSCI High Dividend Yield Indices Reweights the market index based on dividend yield
MSCI Equal Weighted Indices Equal allocation across parent index constituents	MSCI Factor Indices Constructed using long/short portfolio optimization to capture Barra risk factors

EXHIBIT 3

Performance of Selected MSCI Risk-Premia Indices (June 1988 to March 2012)

	MSCI World	World Risk Weighted	World Min Vol	World Equal Wtd	World Value Wtd
Annual Return	6.9%	9.7%	7.8%	8.7%	8.8%
Annual Volatility	15.5%	13.8%	11.6%	16.4%	15.7%
Sharpe Ratio	0.45	0.70	0.67	0.53	0.56
Tracking Error	—	5.4%	6.9%	5.3%	3.6%
Historical Beta	—	0.84	0.68	1.00	0.98

Refining the Notion of Alpha: Where Do Risk Premia Fit in the Institutional Portfolio?

Relative to a cap-weighted allocation, risk-premia indices have offered attractive return and return-to-risk ratio improvement, as well as lower volatility over the long term for risk-based risk premia. Thus, they are potential substitutes for traditional cap-weighted allocations, with specific variants chosen based on an investors' return target and risk aversion.

Perhaps the more interesting question is whether risk-premia indices can substitute for existing active allocations. The case for replacing a portion of an active allocation with risk premia is strong, we suspect. Past research has shown that alpha is expensive and difficult to find. Specifically, empirical evidence confirms that it is difficult for active managers to earn alpha (e.g., Malkiel [1995], Gruber [1996], Wermers [2003], Jones and Wermers [2011]). In these studies, the median active manager generally does not outperform the cap-weighted benchmark. Even the small subset of those who do outperform are only able to maintain that outperformance for an average of about 36 months.

Nevertheless, there is still a strong case for retaining an allocation to active management. In theory, if we could account for all possible risk premia, active management would still play an important role with respect to market timing (e.g., asset class, country, style, size, sector), risk-premia timing (commonly called factor timing), or stock selection (essentially, timing individual stocks). Another way to say this is that indexation can never capture the returns from timing. In practice, however, active managers capture both this pure alpha and the tilts toward various risk premia. As more and more of the latter can be captured by indexation or rules-based portfolios, the ability to identify these pure alpha managers will become more and more important to an investment process's success.³ The challenge for institutional investors will be to find these managers.

We can compare the historical performance between risk-premia indices and active managers. To begin, we analyze several related dimensions:

- Risk-premia indices' performance, relative to active strategies
- Correlations of risk-premia indices to active strategies
- Risk premia's explanatory power in the context of active strategy return

The active manager database we use is from eVestment. This database contains thousands of institutional funds, U.S. and international, across different styles and capitalization segments. In this article, we focus on the U.S., given the breadth of coverage in the database for U.S. funds. Our sample includes 1,602 managers: 27% U.S. core managers, 36% U.S. value managers, and 37% U.S. growth managers.⁴ Total returns are

available for all these managers, and active returns (relative to the managers' chosen benchmarks) are available for 1,450 of these managers. We use long-only managers across all cap segments (i.e., large cap, mid cap, and small cap). All returns are gross of fees (only 10% of the funds in our sample report returns net of fees). We use monthly time series data from January 2002 to March 2012.⁵

Exhibit 4 summarizes the performance of the U.S. managers in our sample. Average and median active excess returns have been positive over the last decade, relative to manager benchmarks. The median manager's alpha (i.e., average annualized active return, relative to the reported benchmark) was 0.9%, 1.3%, and 1.1% for U.S. core, value, and growth managers, respectively.⁶ In addition, the median manager's alpha across all managers is 1.1%. (See Exhibit 4.) Although average excess returns are positive and do account for transactions costs, expense charges are not included. The average across managers was slightly higher than the median for all three segments. As in previous studies,⁷ there is significant dispersion in returns; the 25th percentile U.S. manager barely beat the benchmark by 20 basis points, while the 75th percentile manager more than doubled the median manager's performance, at 230 basis points. Both average and median annualized tracking errors ranged from 4% to 7%. Exhibit 4 also shows performance by subperiod, highlighting U.S. active managers' struggles from 2009 to 2012.

How have the MSCI Risk Premia indices performed, relative to the active manager sample? Exhibit 5 shows the annualized average active returns for four of the indices.⁸ If we compare the active returns of the four risk-premia indices to the median U.S. manager's annualized return of 110 basis points (shown in Exhibit 4), two of them exceed it (risk weighted and

equal weighted), one falls well below (value weighted), and one is slightly below (minimum volatility). Of the four risk-premia indices, the MSCI USA Value Weighted Index is the only index that performs relatively poorly, compared to the active managers in the sample.⁹

In Exhibit 5, we show where the indices' returns fall in the distribution of active managers. For instance, the active return of the MSCI USA Risk Weighted Index is equivalent to the 82nd percentile active manager, ranked by returns over the past decade, while its information ratio of 0.71 is equivalent to the 96th percentile of active managers' information ratios.

Next, we analyze the historic correlations between risk premia and manager returns. If active manager returns are highly correlated with risk premia, the data not only fuel the possibility that active funds are merely tilting on risk premia, but also weaken the argument that only active managers can provide diversification. Focusing on just the U.S. core manager sample, we use monthly data to calculate correlations between each manager and the four risk-premia indices. Exhibit 6 shows the median and average correlations, the percentage of managers with positive correlations, and other metrics in its top panel. The median and average managers have slightly positive correlations with only two of the risk-premia indices (minimum volatility and risk weighted). However, correlations at the 75th percentile for these two indices, and the maximum correlations for all four indices, are quite high. Clearly there are some managers, though not the majority, whose returns appear to be highly correlated with risk premia.

What if we repeat the analysis with only the top-performing managers, those who are above the median return? In other words, we want to know if the better-performing managers are more likely to have higher

EXHIBIT 4

Active Managers' Performance Relative to Their Chosen Benchmarks (January 2002 to March 2012, Based on Reported Monthly Time Series of Active Returns, Gross of Fees)

	Annualized Avg Active Return	Annualized Tracking Error	Return to Risk	Annualized Avg Active Return by Subperiod			
				January 2002– December 2004	January 2005– December 2007	January 2008– December 2008	January 2009– March 2012
Average	1.3%	5.9%	0.22	2.1%	2.0%	0.1%	0.7%
25th Percentile	0.2%	4.2%	0.04	–0.6%	–0.3%	–5.3%	–1.6%
Median	1.1%	5.4%	0.22	1.6%	1.6%	0.2%	0.3%
75th Percentile	2.3%	7.0%	0.41	4.3%	3.7%	5.2%	2.5%

Source: eVestment Alliance and MSCI. All return metrics are geometric averages, annualized based on monthly time series data from eVestment.

EXHIBIT 5

Comparing Active Managers and MSCI Risk-Premia Indices (January 2002 to March 2012, based on Reported Monthly Time Series of Active Returns, Gross of Fees)

	Average for U.S. Managers	MSCI USA Risk Weighted Index	MSCI USA Minimum Volatility Index	MSCI USA Equal Weighted Index	MSCI USA Value Weighted Index
Annualized Active Return	1.3%	2.8%	0.9%	2.7%	0.1%
Equivalent percentile among U.S. managers		82	44	81	23
Annualized Tracking Error	5.9%	3.9%	6.3%	5.0%	2.9%
Equivalent percentile among U.S. managers		20	66	43	6
Information Ratio (Return to Risk)	0.22	0.71	0.14	0.53	0.03
Equivalent percentile among U.S. managers		96	38	86	24

EXHIBIT 6

How Correlated Are Active Managers and Risk-Premia Indices? (U.S. Core Managers, January 2002 to March 2012, based on Reported Monthly Time Series of Active Returns, Gross of Fees)

	Min	25th	Median	Average	75th	Max	Percent of Managers with Positive Correlation
<i>Correlations with All Managers</i>							
USA Value Weighted	-0.71	-0.31	-0.15	-0.12	0.06	0.74	31%
USA Minimum Volatility	-0.67	-0.15	0.04	0.04	0.23	0.75	57%
USA Risk Weighted	-0.56	-0.07	0.06	0.07	0.21	0.65	63%
USA Equal Weighted	-0.68	-0.24	-0.02	-0.01	0.20	0.76	47%
<i>Correlations with Top Half of Managers (Annualized Returns Above Median)</i>							
USA Value Weighted	-0.67	-0.28	-0.12	-0.09	0.08	0.70	34%
USA Minimum Volatility	-0.62	-0.15	0.06	0.05	0.25	0.75	58%
USA Risk Weighted	-0.42	-0.03	0.09	0.11	0.25	0.65	70%
USA Equal Weighted	-0.66	-0.21	0.02	0.02	0.25	0.76	52%

correlations with the risk-premia indices. The bottom panel of Exhibit 6 confirms that they are indeed slightly higher.

So far we have found evidence that risk-premia indices compared favorably to active managers over the last decade. With respect to performance, two of the four risk premia outperformed the majority of managers (e.g., exhibited returns greater than the 75th percentile manager). We have also shown that a quarter of managers exhibited returns with correlations of approximately 0.20 and higher with at least three of the four risk premia. Managers who have historically beaten their peers have been slightly more correlated with risk premia than is the overall sample.

In the next section, we extend these general observations to regression-based analysis, which allows us to quantify the degree to which alpha can be attributed to risk premia more exactly.

FOR HOW MUCH OF ALPHA CAN RISK PREMIA ACCOUNT?

Here we quantify the degree to which alpha can be attributed to risk-premia indices. We follow a well-known and established framework developed by various academics over the past decades. Specifically, we employ time-series regressions on manager returns, following Sharpe [1992], Carhart [1997], Wermers [2003], Fama and French [2008], and Ang et al. Goetzmann, and Schaefer [2009]. Industry practitioners also commonly use this type of style analysis. The idea is to regress manager returns on variables that might explain what has driven the returns. The portion of the returns left over, or unexplained by the variables, is commonly referred to as alpha.

In the academic literature, the most widely used set of variables are the Fama and French [1992] portfolios.

These are long-short, zero-investment portfolios (characteristic portfolios) formed by sorting stocks by market capitalization and book-to-market price. A later article by Carhart [1997] included a momentum portfolio, which has also become an industry norm.

Using these portfolios, we first run regressions on our sample of manager returns, to confirm whether our results are similar to past empirical findings. Second, we rerun the regressions, this time using only the MSCI Risk Premia indices, to determine the extent to which alpha can be captured by actual investable indices. In a sense, the Fama–French–Carhart portfolios are not readily investable or actionable portfolios.¹⁰ In contrast, the MSCI Risk Premia indices have been designed with the primary objectives of investability and replicability.¹¹

The Four-Factor Model (Fama–French–Carhart Regressions)

The basic regression using the four-factor model, following Fama and French [2008], is as follows:

$$R_{it} - R_{ft} = a_i + b_i(R_{mt} - R_{ft}) + s_iSMB_t + h_iHML_t + m_iMOM_t + e_{it} \quad (1)$$

where R_{it} is the total return for fund i for month t , R_{ft} is the risk-free rate, R_{mt} is the market return, SMB_t , HML_t are the size and value-growth characteristic portfolios of Fama and French [1993], and MOM_t is the Fama and French [2008] version of Carhart's [1997] momentum portfolio. The alpha a_i is the average monthly return that is left unexplained by the factor portfolios.

Given the many empirical studies that have used this specification, we first run the regression using the original Fama and French factors, as well as the entire market and risk-free components,¹² to compare how our manager dataset compares to prior studies. Next, we proceed with the Fama–French specifications, using total returns from the eVestment database.¹³

Exhibit 7 shows the results of the Fama–French regressions with the U.S. manager dataset, using both the three-factor and four-factor models. The average manager delivered approximately 6 basis points of alpha monthly (or 66 to 72 basis points annually) out of an average 6.25 percentage points of total return for the sample, of which 130 basis points was active return.

This is somewhat higher than past estimates. For instance, Fama and French [2008] estimate 36 and 39 basis points of alpha per year, using gross returns for the three- and four-factor models over the period from 1984 to 2006. The difference may be due to the manager sample; most prior studies, including Fama and French [2008],

use the CRSP mutual fund sample, whereas eVestment is an institutional manager database. Other studies (e.g., Bauer et al. [2005]) have shown that the average institutional fund manager outperforms the average retail fund manager.

Our specific question: For what percentage of total active returns do risk premia account? The relevant measure here is the change in alpha once the risk premia are included, relative to the alpha when we use only the market factor. Once the size and HML factors are added, the average alpha for the managers decreases from 14.3 basis points to 6 basis points monthly, more than halving the alpha (see Exhibit 8). In other words, on average, the Fama–

EXHIBIT 7

Replication of Fama–French–Carhart Three- and Four-Factor Models (Total Returns from U.S. Manager Sample in eVestment, January 2002 to March 2012)

	Min	25th	Median	Average	75th	Max	Percent Significant
Three-Factor Model							
Alpha	−0.65%	−0.04%	0.05%	0.060%	0.15%	1.60%	
Beta							
Mkt-rf	0.23	0.90	0.96	0.96	1.03	1.56	100%
Size	−0.49	−0.02	0.21	0.28	0.58	1.29	71%
HML	−1.29	−0.17	0.01	−0.01	0.17	0.97	67%
Adjusted R²	0.15	0.88	0.92	0.90	0.95	0.99	
Four-Factor Model							
Alpha	−0.68%	−0.04%	0.05%	0.056%	0.15%	1.54%	
Beta							
Mkt-rf	0.16	0.91	0.98	0.98	1.05	1.48	100%
Size	−0.48	−0.03	0.20	0.28	0.58	1.32	71%
HML	−1.31	−0.17	0.01	0.00	0.17	0.93	68%
Momentum	−0.47	−0.03	0.02	0.03	0.08	0.50	54%
Adjusted R²	0.18	0.89	0.93	0.91	0.95	0.99	

EXHIBIT 8

Results of Fama–French Regressions with and without Risk Premia (January 2002 to March 2012, Monthly Returns)

Average Across Managers	Market Only	Three-Factor Model	Four-Factor Model
Core Managers			
Alpha	0.132%	0.060%	0.056%
Beta			
Mkt-rf	0.98	0.93	0.98
Size	N/A	0.23	0.28
HML	N/A	0.02	0.00
Momentum	N/A	N/A	0.03
Adjusted R²	0.89	0.90	0.91
Value Managers			
Alpha	0.204%	0.103%	0.106%
Beta			
Mkt-rf	1.01	0.94	0.93
Size	N/A	0.24	0.24
HML	N/A	0.22	0.22
Momentum	N/A	N/A	−0.01
Adjusted R²	0.86	0.91	0.91
Growth Managers			
Alpha	0.093%	0.019%	0.008%
Beta			
Mkt-rf	1.05	1.00	1.04
Size	N/A	0.36	0.35
HML	N/A	−0.24	−0.24
Momentum	N/A	N/A	0.06
Adjusted R²	0.84	0.89	0.90
All Managers			
Alpha	0.143%	0.060%	0.056%
Beta			
Mkt-rf	1.02	0.96	0.98
Size	—	0.28	0.28
HML	—	−0.01	0.00
Momentum	—	—	0.03
Adjusted R²	0.86	0.90	0.91

French–factors can account for more than half of managers’ alphas.

Regressions with Risk-Premia Indices

Now we rerun the same regressions, but replace the Fama–French factors with the relevant MSCI Risk Premia indices. To choose which indices to use, we first examine the correlations between the (active) returns of the MSCI Risk Premia indices’ active returns, relative to the MSCI USA Index. The MSCI Risk Premia indices we use are a subset of the full suite of indices available. These are the indices that capture the same types of risk premia as the Fama–French factors. The MSCI USA

Barra Momentum Index is the only MSCI Risk Premia Index from the subsuite of Barra Factor indices that we use in this analysis, as it is currently the only index that captures the performance of high- and low-momentum stocks.

Exhibit 9 shows correlations of monthly active returns between MSCI Risk Premia indices, as well as with the Fama–French factors. In general, the Fama–French factors have high correlations (greater than 0.7) with the most closely related MSCI Risk Premia indices. Intuitive relationships, such as the negative correlation between momentum and value and the negative correlation between small caps and minimum volatility are corroborated. Interestingly, the USA High Dividend Yield Index has negative active return correlations with the USA Small Cap, USA Momentum, and USA Equal Weighted indices, but a high active correlation with the USA Minimum Volatility Index. This suggests the use of dividend yield as a potential fourth risk premia, in addition to size, value, and momentum.

Next we choose combinations to most closely approximate the Fama–French factors. We also extend the regression to include the USA High Dividend Yield Index, which has had good performance and low correlation with the other MSCI Risk Premia indices. Note that the risk-free rate and market definitions are slightly different between the following regressions and those in the previous section; we use the USA Standard Index as the market and the three-month U.S. T-bill rate as the risk-free rate. We also use a slightly shorter time period than the Fama–French regressions, due to data availability.

Exhibit 10 shows the regressions’ results using various combinations of risk-premia indices. All regressions include the MSCI USA Value Weighted Index or one of the risk-based indices, the MSCI USA Minimum Volatility Index or the MSCI USA Risk Weighted Index. We then add the indices reflecting small-cap, momentum, and dividend yield risk premia.

The results are striking and provide evidence that allocations based on risk premia can account for a significant portion of alpha, on average. The change in alpha can be even greater when we use risk-premia indices in comparison to the Fama–French factors. Recall that, using the Fama–French regressions, we found that alpha (on average) decreased from 14.3 basis points to 6 basis points monthly, more than halving the alpha. In Exhibit 10, alpha decreases from 18.1 basis points to as low as 3 basis points monthly, a reduction of as much as 80%.¹⁴

EXHIBIT 9

Correlations of MSCI Risk Premia Indices and Fama–French Factors (June 2003 to March 2012, Monthly Active Returns)

	USA Value-Weighted	USA Minimum Volatility	USA Risk Weighted	USA Equal Weighted	USA High Dividend Yield	USA Small	USA Barra Momentum Index	Fama–French Size	Fama–French HML	Fama–French–Carhart Momentum
USA Value-Weighted	1.00									
USA Minimum Volatility	−0.11	1.00								
USA Risk Weighted	0.14	0.51	1.00							
USA Equal Weighted	0.45	−0.45	0.36	1.00						
USA High Dividend Yield	0.32	0.71	0.28	−0.42	1.00					
USA Small	0.30	−0.43	0.27	0.84	−0.44	1.00				
USA Barra Momentum Index	−0.65	0.00	−0.12	−0.29	−0.33	−0.13	1.00			
Fama French Size	0.13	−0.38	0.23	0.66	−0.40	0.92	−0.07	1.00		
Fama French HML	0.72	−0.06	0.05	0.27	0.29	0.31	−0.43	0.17	1.00	
Fama French—Carhart Momentum	−0.75	0.16	−0.16	−0.52	−0.11	−0.21	0.70	−0.06	−0.33	1.00

EXHIBIT 10

Results of Regressions with and without Risk Premia (Average across Managers, June 2003 to March 2012, Monthly Returns)

Average across Managers	Market Only	Market, Value Weighted, Min Vol	Market, Value Risk Weighted	Market, Small Cap, Value Weighted	Market, Small Cap, Value Weighted, Min Vol	Market, Small Cap, Value Weighted, HDY	Market, Value Weighted, Risk Wt, Momentum	Market, Small Cap, Value Weighted, Momentum
Alpha	0.181%	0.212%	0.060%	0.033%	0.053%	0.061%	0.053%	0.030%
Beta								
Mkt-rf	1.08	1.03	1.15	0.98	0.95	0.96	1.14	0.98
Small Cap	—	—	—	0.51	0.50	0.47	—	0.51
Value Weighted	—	−0.12	−0.42	−0.36	−0.31	−0.20	−0.20	−0.20
Min Vol/Risk Wtd	—	−0.22	0.55	—	−0.10	—	0.55	—
High Dividend Yield	—	—	—	—	—	−0.11	—	—
Momentum	—	—	—	—	—	—	0.22	0.15
Adjusted R²	0.86	0.87	0.88	0.91	0.92	0.92	0.88	0.92

In particular, the Risk Weighted Index and Small Cap Index have the greatest affect on alpha. Alpha reduction is not only consistent, but also occurs at a substantial rate, when the adjusted R² is greater than 0.90.

CONSTRUCTING A PORTFOLIO WITH RISK PREMIA AND ACTIVE FUNDS

In this last section, we outline a method for combining risk-premia indices and active funds in an institutional portfolio. In practice, we have observed that investors typically begin with the choice of risk premia. Prior to allocating to a risk-premia mandate, an institutional investor will arrive at a decision about a specific investment objective or goal: a reduction in portfolio risk or an enhancement of the portfolio's risk-adjusted

return. An investor might choose a single risk premium or combinations of risk premia, because empirical evidence suggests that using multiple risk premia may help diversify over long cycles.

Given a set of preselected risk premia, what is an optimal way to select active managers? Here we demonstrate that active managers should be chosen with the given risk premia in mind. Specifically, for any single or combination of risk premia, we run regressions of manager returns on the risk premia, just as we did in the previous section. We then select those managers with the highest remaining alpha—that is, the highest return not explained by the risk premia.

There are two reasons for doing so. First, the goal is to seek managers who can add performance in excess of risk premia. If risk premia can be captured more cost-

efficiently (passive replication tends to be substantially less costly than active management fees), it is sensible not to pay active managers to do the same.

Second, in selecting managers who produce higher alpha, the goal is to choose managers whose returns are least correlated with the risk premia, rather than equivalent managers with lower alpha. This diversification between alpha and the risk premia should potentially lower risk for the same level of return, thus improving the risk-adjusted return.

We illustrate this concept with the MSCI USA Risk Weighted and the USA Value Weighted indices. These two indices have historically low correlation and have exhibited solid performance over the long term. We simulate a portfolio that allocates 15% to each of these two indices (a combined 30% is allocated to risk-premia indices), with the remaining 70% of the portfolio equally allocated across active managers.¹⁵ Next, we select the managers from the whole universe of U.S. managers, using an in-sample period from February 2002 to February 2007, choosing managers with the highest alpha relative to the two risk-premia indices.

We then evaluate the portfolio's performance in the subsequent out-of-sample period from March 2007 to March 2012.

First, we plot the two indices' relative returns (relative to the MSCI USA Index) in Exhibit 11, to illustrate their performance during the in-sample and out-of-sample periods. During the first period, February 2002 to February 2007, both indices outperformed the MSCI USA Index, only losing ground after November 2006. During the second period, March 2007 to March 2012, the Risk Weighted Index experienced consistent outperformance, while the Value Weighted Index was tepid, underperforming the MSCI USA slightly. The variations in performance, at different times, further emphasize the use of two or more risk-premia indices to achieve diversification.

Next we show the results of forming a portfolio that allocates 30% to these two indices and 70% to the top 10 alpha managers. Overall, Exhibits 12 and 13 display higher returns to this portfolio, relative to using active managers alone.

EXHIBIT 11

Relative Performance of the MSCI USA Risk Weighted and MSCI USA Value Weighted Indices (December 1988 to November 2012)

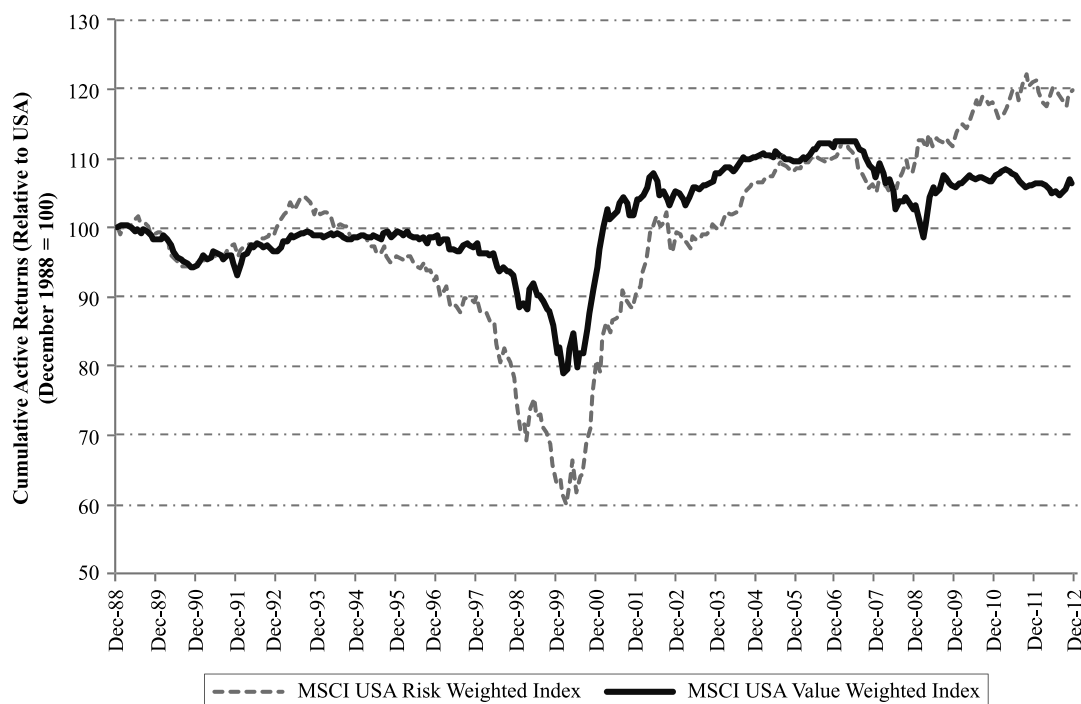


EXHIBIT 12

In-Sample Performance of MSCI USA Value Weighted and Risk Weighted Indices Combined with Top Alpha Managers (February 2002 to February 2007)

	MSCI USA	Average across Managers							Top 10 Alpha Mgrs + MSCI USA Risk Weighted & MSCI USA Value Weighted
		1st Quartile	2nd Quartile	3rd Quartile	4th Quartile	Below Median Mgrs	Above Median Mgrs	Top 10 Mgrs	
Annual Return (%)	5.92	4.98	8.66	11.69	16.68	6.81	14.16	29.31	17.54
Annual Risk (%)	12.48	12.62	12.56	12.92	13.73	12.55	13.28	15.89	11.79
Return to Risk Ratio	0.47	0.39	0.69	0.90	1.21	0.54	1.07	1.84	1.49
Tracking Error (%)	—	2.91	3.83	5.32	7.55	3.27	6.41	9.63	5.59
Information Ratio	—	−0.30	0.67	1.01	1.31	0.26	1.19	2.15	1.86

EXHIBIT 13

Out-of-Sample Performance of MSCI USA Value Weighted and Risk Weighted Indices Combined with Top Alpha Managers (March 2007 to March 2012)

	MSCI USA	Average across Managers							Top 10 Alpha Mgrs + MSCI USA Risk Weighted & MSCI USA Value Weighted
		1st Quartile	2nd Quartile	3rd Quartile	4th Quartile	Below Median Mgrs	Above Median Mgrs	Top 10 Mgrs	
Annual Return (%)	2.37	4.58	3.61	3.85	3.41	4.10	3.64	5.36	6.20
Annual Risk (%)	18.98	19.13	19.80	20.85	22.72	19.46	21.77	23.52	18.80
Return to Risk Ratio	0.12	0.24	0.18	0.18	0.15	0.21	0.17	0.23	0.33
Tracking Error (%)	—	2.98	2.75	3.92	6.26	2.77	5.05	8.28	3.72
Information Ratio	—	0.73	0.50	0.46	0.29	0.64	0.36	0.47	0.98

Exhibit 12 shows that, in sample, the portfolio formed using top alpha managers and risk premia beats the majority of managers; it outperforms even the average of the fourth quartile. In Exhibit 13, the portfolio outperforms even the top 10 managers, who were the top performers during the in-sample period. These results are significant and arguably impressive, given that at least one of the risk-premia indices, the MSCI USA Value Weighted Index, was weak during the out-of-sample period.

Manager rankings by quartiles, above/below median, and top 10 segments in both exhibits are conducted only in the first in-sample period. We then tracked and evaluated these same managers' performance in the out-of-sample period, as illustrated in Exhibit 13. Prior studies have shown that manager performance persistence is generally not high; this explains why the bottom quartile of managers in the in-sample period overwhelmingly outperformed all other managers in the out-of-sample period.

Furthermore, we note that all the active manager returns are gross of fees. Fees have historically been

substantially higher for actively managed funds than for passive, index-tracking funds. Accounting for fees, the performance differential between an active-only portfolio and active-plus-risk-premia portfolio would further improve.

The example we have shown is meant to illustrate the benefits of selecting active managers after accounting for risk-premia tilts. We stress, however, that the example depends on the risk-premia indices chosen and the time period. In particular, risk-premia performance and the persistence of the manager sample during a selected time period can affect the results significantly.

In summary, we present a general framework to incorporate risk-premia indices into the most- and least-correlated alpha funds. Using real investment objectives that are currently considered and adopted by institutional investors, we highlighted the fact that risk-adjusted return enhancement can potentially be obtained by allocating to risk-premia indices, in conjunction with certain active funds.

CONCLUSION

Institutional investors are increasingly adopting risk-premia indices, and some are investigating the possibility of combining risk-premia indices with active mandates. Two of the most important considerations are 1) the way in which premia indices relate to actively managed funds, and 2) the method for combining them.

To address these two points, we demonstrate empirically that risk premia can capture a considerable amount of alpha. We confirm this both with theoretical factors (the original Fama and French factors) and the MSCI Risk Premia indices, which provide investable versions of several risk premia. In fact, we find that certain combinations of the MSCI Risk Premia indices can account for even more alpha than the theoretical risk premia.

We then present a general framework for constructing a blended portfolio of risk-premia indices and actively managed funds. We find empirical evidence for selecting active managers who have the highest persistent alpha, once we have accounted for risk premia.

ENDNOTES

¹These types of portfolios can also be termed systematic beta, systematic strategies, factor strategies, and alternative beta.

²Closely related to this area of asset pricing literature is the research focusing on return anomalies. Return anomalies associated with asset growth, earnings revision, earnings surprise, and a host of other characteristics have been empirically identified; see Schwert [2003], Fama and French [2008], and Keim [2008] for a review of financial market anomalies.

³With the growing use of alternative beta and risk premia indices, it could become even more difficult for active managers to add value by merely tilting on these risk premia.

⁴We only include funds which have a full set of monthly return within the sample period. Hence, our sample is subject to a survivorship bias. This bias favors the performance of active managers making our task of showing that risk premia can account for performance more difficult, rather than less.

⁵Note that returns are not adjusted for the risk-free rate in the database.

⁶This is not inconsistent with prior results; once fees are accounted for, average or median returns can conceivably be negative.

⁷See Kang et al. [2011].

⁸For the risk-premia active returns, we subtract the MSCI USA Index's performance from the MSCI Risk Premia Indices.

⁹Our results are of course dependent on the sample period, which witnessed a significant deterioration of the value premium. The USA Value Weighted Index, for instance, soared in the first half of the 2000s, outpacing the MSCI USA Index by 481 basis points annually over the period from January 2000 to December 2006. However, our analysis with manager returns is constrained by the availability of returns in the eVestment database. Prior to the 2000s, the sample is much smaller.

¹⁰These portfolios contain small caps and micro caps, do not include any liquidity or investability screens, and are rebalanced monthly.

¹¹The constituents of the MSCI Risk Premia indices have all fulfilled the eligibility requirements set out in the Global Investable Market Indices Methodology.

¹²In the Fama and French papers, the risk-free rate is proxied by the one-month U.S. T-bill rate, and the market is proxied by a value-weight portfolio of NYSE, Amex, and NASDAQ stocks. All variables, including the market and risk-free rate returns, are available at Kenneth French's website. http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

¹³Manager returns in eVestment are available in two forms: total return and active return (defined relative to a manager's chosen benchmark). There are advantages and disadvantages to both. Active returns are what the managers themselves use to assess their performance, and many managers will argue that using benchmarks that are not geared toward their investment processes distorts performance. However, clearly there is a disadvantage to using a variety of benchmarks instead of a single consistent one. We run our regressions using total returns, given the precedent set by earlier articles. Note that we run individual regressions on manager returns, whereas Fama and French [2008] combine the managers into two portfolios (equal-weighted and value-weighted). The results using the equal-weighted portfolio are identical to the average of the resulting coefficients.

¹⁴Note that the sample period is slightly shorter, compared to the Fama–French regressions. Here we start in June 2003, as opposed to January 2002, due to limitations in history for the MSCI USA Barra Momentum Index.

¹⁵The choice of allocating 30% to risk premia is somewhat arbitrary. In practice, we have seen a range of allocations to risk premia, from 20% to 100%. The results using different allocations effectively scale linearly with the returns to the risk premia, relative to active managers. Qualitatively, the conclusions remain the same.

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