FACTOR DIVERSIFICATION AND WHY IT MATTERS IN A NEW MARKET REGIME

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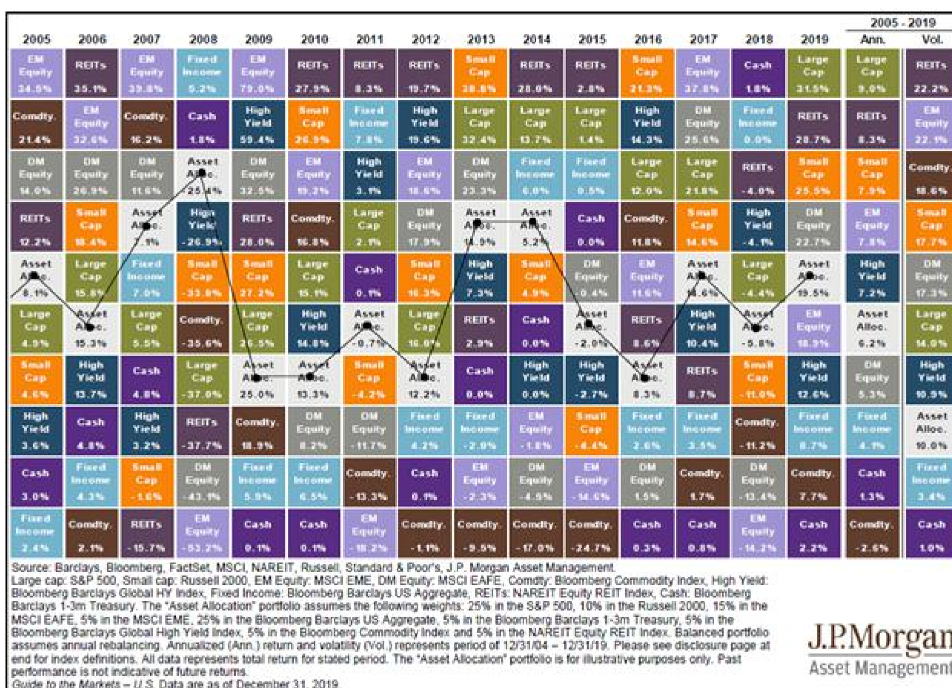
Most investment professionals are familiar with "asset allocation performance quilts," which summarize how different global asset classes perform relative to each other over different time periods. Here is a recent example from JP Morgan Asset Management, showing historical performance through the end of 2019:



2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2005 - 2019	
															Ann.	Vol.
EM Equity 34.5%	REITs 35.1%	EM Equity 39.8%	Fixed Income 5.2%	EM Equity 79.0%	REITs 27.9%	REITs 8.3%	REITs 19.7%	Small Cap 38.8%	REITs 28.0%	REITs 2.8%	Small Cap 21.3%	EM Equity 37.8%	Cash 1.8%	Large Cap 31.5%	Large Cap 9.0%	REITs 22.2%
Comdty. 21.4%	EM Equity 32.6%	Comdty. 16.2%	Cash 1.8%	High Yield 59.4%	Small Cap 26.9%	Fixed Income 7.8%	High Yield 19.6%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	High Yield 14.3%	DM Equity 25.6%	Fixed Income 0.0%	REITs 28.7%	REITs 8.3%	EM Equity 22.1%
DM Equity 14.0%	DM Equity 26.9%	DM Equity 11.6%	Asset Alloc. -25.4%	DM Equity 32.5%	EM Equity 19.2%	High Yield 3.1%	EM Equity 18.6%	DM Equity 23.3%	Fixed Income 6.0%	Fixed Income 0.5%	Large Cap 12.0%	Large Cap 21.8%	REITs -4.0%	Small Cap 25.5%	Small Cap 7.9%	Comdty. 18.6%
REITs 12.2%	Small Cap 18.4%	Asset Alloc. 7.1%	High Yield -26.9%	REITs 28.0%	Comdty. 16.8%	Large Cap 2.1%	DM Equity 17.9%	Asset Alloc. 14.9%	Asset Alloc. 5.2%	Cash 0.0%	Comdty. 11.8%	Small Cap 14.6%	High Yield -4.1%	DM Equity 22.7%	EM Equity 7.8%	Small Cap 17.7%
Asset Alloc. 8.1%	Large Cap 15.8%	Fixed Income 7.0%	Small Cap -33.8%	Small Cap 27.2%	Large Cap 15.1%	Cash 0.1%	Small Cap 16.3%	High Yield 7.3%	Small Cap 4.9%	DM Equity -0.4%	EM Equity 11.6%	Asset Alloc. 14.6%	Large Cap -4.4%	Asset Alloc. 19.5%	High Yield 7.2%	DM Equity 17.3%
Large Cap 4.9%	Asset Alloc. 15.3%	Large Cap 5.5%	Comdty. -35.6%	Large Cap 26.5%	High Yield 14.8%	Asset Alloc. -0.7%	Large Cap 16.0%	REITs 2.9%	Cash 0.0%	Asset Alloc. -2.0%	REITs 8.6%	High Yield 10.4%	Asset Alloc. -5.8%	EM Equity 18.9%	Asset Alloc. 6.2%	Large Cap 14.0%
Small Cap 4.6%	High Yield 13.7%	Cash 4.8%	Large Cap -37.0%	Asset Alloc. 25.0%	Asset Alloc. 13.3%	Small Cap -4.2%	Asset Alloc. 12.2%	Cash 0.0%	High Yield 0.0%	High Yield -2.7%	Asset Alloc. 8.3%	REITs 8.7%	Small Cap -11.0%	High Yield 12.6%	DM Equity 5.3%	High Yield 10.9%
High Yield 3.6%	Cash 4.8%	High Yield 3.2%	REITs -37.7%	Comdty. 18.9%	DM Equity 8.2%	DM Equity -11.7%	Fixed Income 4.2%	Fixed Income -2.0%	EM Equity -1.8%	Small Cap -4.4%	Fixed Income 2.6%	Fixed Income 3.5%	Comdty. -11.2%	Fixed Income 8.7%	Fixed Income 4.1%	Asset Alloc. 10.0%
Cash 3.0%	Fixed Income 4.3%	Small Cap -1.6%	DM Equity -43.1%	Fixed Income 5.9%	Fixed Income 6.5%	Comdty. -13.3%	Cash 0.1%	EM Equity -2.3%	DM Equity -4.5%	EM Equity -14.6%	DM Equity 1.5%	Comdty. 1.7%	DM Equity -13.4%	Comdty. 7.7%	Cash 1.3%	Fixed Income 3.4%
Fixed Income 2.4%	Comdty. 2.1%	REITs -15.7%	EM Equity -53.2%	Cash 0.1%	Cash 0.1%	EM Equity -18.2%	Comdty. -1.1%	Comdty. -9.5%	Comdty. -17.0%	Comdty. -24.7%	Cash 0.3%	Cash 0.8%	EM Equity -14.2%	Cash 2.2%	Comdty. -2.6%	Cash 1.0%

Source: Barclays, Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor's, J.P. Morgan Asset Management.
Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, Comdty: Bloomberg Commodity Index, High Yield: Bloomberg Barclays Global HY Index, Fixed Income: Bloomberg Barclays US Aggregate, REITs: NAREIT Equity REIT Index, Cash: Bloomberg Barclays 1-3m Treasury. The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Bloomberg Barclays US Aggregate, 5% in the Bloomberg Barclays 1-3m Treasury, 5% in the Bloomberg Barclays Global High Yield Index, 5% in the Bloomberg Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. Annualized (Ann.) return and volatility (Vol.) represents period of 12/31/04 – 12/31/19. Please see disclosure page at end for index definitions. All data represents total return for stated period. The "Asset Allocation" portfolio is for illustrative purposes only. Past performance is not indicative of future returns.
Guide to the Markets – U.S. Data are as of December 31, 2019.

J.P.Morgan Asset Management

You cannot invest directly in an index.

For definitions of terms in the chart, please visit our glossary.

The well-intentioned point of these "performance quilts" is to illustrate how difficult it is to predict which asset classes will perform best at any given time, thereby highlighting the importance of *asset class* diversification within a portfolio (the light gray boxes labeled "Asset Alloc." in the above chart).

But is asset class diversification sufficient for building more robust portfolios? We think it is a necessary condition, but investors and advisors can build better portfolios by also considering risk factor diversification.

Asset classes—or, more specifically, the securities that fall within a given asset class—can be thought of (somewhat simplistically) as convenient little bundles of specific risk factors. Because of this, however, seemingly diversified asset class portfolios do not always deliver the expected level of protection during disruptive markets (as we are witnessing firsthand right now)—they are often exposed to similar or comparable risk

factors.

Consider the simple example of large-cap U.S. stocks, emerging markets (EM) stocks and high-yield bonds. These are all very different asset classes, but they all have highly correlated risk factor profiles. (Specifically, they are all heavily influenced by the equity risk factor.)

So when a disruptive market event occurs, they tend to fall together. The logical conclusion of this avenue of thought is that better diversification might be achieved by allocating across *risk factors* as well as across *asset classes*.

A “risk factor performance quilt,” similar to the more familiar “asset class quilt” and incorporating a variety of the risk factors embedded in different WisdomTree ETFs, looks like this:

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Momentum (-11.18%)	Value (46.42%)	Correlation (24.04%)	Quality (15.80%)	Volatility (19.36%)	Quality (10.93%)	Volatility (-23.16%)	Value (58.13%)	Quality (25.67%)	Volatility (12.31%)
Volatility (-13.14%)	Correlation (34.08%)	Multifactor (21.43%)	Value (15.24%)	Momentum (17.42%)	Correlation (7.33%)	Momentum (-25.75%)	Quality (38.07%)	Value (20.57%)	Momentum (12.08%)
Multifactor (-13.72%)	Quality (32.91%)	Value (19.65%)	Correlation (15.00%)	Value (17.36%)	Size (7.18%)	Multifactor (-32.59%)	Correlation (32.81%)	Correlation (20.12%)	Multifactor (10.85%)
Quality (-14.37%)	Multifactor (30.97%)	Volatility (18.53%)	Multifactor (14.05%)	S&P 500 (15.79%)	Multifactor (5.85%)	Quality (-35.08%)	Size (32.79%)	Momentum (17.56%)	Correlation (4.41%)
Correlation (-16.35%)	Size (30.19%)	Quality (17.46%)	Size (7.59%)	Multifactor (15.42%)	Momentum (5.59%)	Size (-36.67%)	S&P 500 (26.46%)	Multifactor (17.38%)	Quality (3.40%)
S&P 500 (-22.10%)	S&P 500 (28.68%)	Momentum (17.02%)	Momentum (5.59%)	Size (13.39%)	S&P 500 (5.49%)	S&P 500 (-37.00%)	Multifactor (24.59%)	Volatility (15.94%)	S&P 500 (2.11%)
Value (-23.09%)	Volatility (27.01%)	Size (13.16%)	Volatility (5.07%)	Quality (12.57%)	Volatility (1.14%)	Value (-38.47%)	Volatility (20.20%)	S&P 500 (15.06%)	Size (1.05%)
Size (-23.78%)	Momentum (25.57%)	S&P 500 (10.88%)	S&P 500 (4.91%)	Correlation (11.24%)	Value (0.27%)	Correlation (-41.00%)	Momentum (15.13%)	Size (14.50%)	Value (-1.34%)

2012	2013	2014	2015	2016	2017	2018	2019	YTD (3/31)
Quality (18.82%)	Value (44.45%)	Volatility (17.20%)	Momentum (7.46%)	Value (19.44%)	Quality (25.42%)	Volatility (-1.27%)	S&P 500 (31.29%)	Correlation (-19.36%)
Value (17.73%)	Size (35.77%)	Multifactor (16.54%)	Volatility (5.32%)	Quality (13.23%)	Size (22.21%)	Momentum (-2.14%)	Size (28.03%)	S&P 500 (-19.60%)
Size (16.70%)	Correlation (34.81%)	Correlation (15.55%)	Quality (1.50%)	Volatility (13.06%)	S&P 500 (21.83%)	Correlation (-3.67%)	Quality (27.97%)	Momentum (-20.58%)
S&P 500 (16.00%)	Quality (33.78%)	Momentum (15.32%)	S&P 500 (1.38%)	S&P 500 (11.96%)	Value (19.10%)	Multifactor (-4.01%)	Value (27.75%)	Size (-20.80%)
Multifactor (15.67%)	S&P 500 (32.39%)	Size (14.29%)	Size (0.60%)	Size (11.59%)	Momentum (18.77%)	Size (-4.38%)	Volatility (27.45%)	Volatility (-21.50%)
Correlation (15.52%)	Multifactor (32.23%)	S&P 500 (13.69%)	Multifactor (0.55%)	Momentum (9.95%)	Multifactor (17.32%)	S&P 500 (-4.38%)	Momentum (26.01%)	Multifactor (-22.28%)
Momentum (13.15%)	Momentum (27.99%)	Value (13.58%)	Value (-5.90%)	Multifactor (7.97%)	Volatility (17.24%)	Quality (-6.65%)	Correlation (23.15%)	Quality (-24.16%)
Volatility (12.90%)	Volatility (23.72%)	Quality (13.52%)	Correlation (-7.79%)	Correlation (7.59%)	Correlation (13.51%)	Value (-13.20%)	Multifactor (20.11%)	Value (-34.67%)

Source: Bloomberg, as of 3/31/20. The starting universe for the referenced “factor portfolios” consists of the 800 largest companies listed in the U.S. Securities in the Low Correlation portfolio are selected based on their trailing 6- and 12-month correlation versus the broad market. Securities in the Low Volatility portfolio are selected based on their trailing 12-month standard deviation. Securities in the Momentum portfolio are selected based on their trailing 6- and 12-month risk-adjusted performance. Securities in the Quality portfolio are selected based on stronger current and historical (three-year) measures of profitability compared to their peers in the same GICS industry using four main variables: return on equity, return on assets, gross profits over assets and cash flow over assets. Securities in the Value portfolio are selected based on more attractive valuation metrics compared to their peers in the same GICS industry using six main variables: sales-to-price, book-to-price, earnings-to-price, estimated earnings-to-price, EBITDA-to-enterprise value and operating cash flow-to-price. Securities in the Size portfolio are selected based on their market capitalization compared to their peers in the starting universe. Securities in the Multifactor portfolio are selected based on a composite score calculated by equally weighting their low correlation, momentum, quality and value scores.

For definitions of terms in the chart, please visit our glossary.

Just focusing on the “swirling” color pattern alone illustrates that risk factors, like asset classes, rotate in and out of favor, and that more diversified risk factor exposures may build in the potential for more consistent performance.

As we have discussed, we believe asset allocation model portfolios will increase in importance, especially in the wake of this terrible coronavirus pandemic. First, we believe that many advisors will want to rethink their approaches to both investing and running their practices, and model portfolios can help with both. Second, we also believe, despite our continued optimism that this terrible time will pass, that the 10-year “perpetual beta rally” in the global markets may have come to an end, and we now are entering a new and much more volatile (some might say “normal”) market regime.

This is why WisdomTree Model Portfolios are diversified at both the asset class and risk factor levels. It is also an important reason why all our models are “open architecture” and include non-WisdomTree products. We believe this allows us to build diversified risk factor exposures that optimize the potential for delivering on our investment mandates in a robust, more consistent fashion.

Risk factor diversification is not yet a “household phrase” in the investment management

industry, at least not to the same extent as *asset class diversification*. But, given the rapid evolution of factor-based solutions, including WisdomTree Model Portfolios and ETFs, combined with what we believe will be a new, much more volatile market regime going forward, we anticipate a dramatic increase in awareness and adoption.

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DEFINITIONS

Diversification : A risk management strategy that mixes a wide variety of investments within a portfolio.

Risk : Also standard deviation, which measures the spread of actual returns around an average return during a specific period. Higher risk indicates greater potential for returns to be farther away from this average.

Large-Capitalization (Large-Cap) : A term used by the investment community to refer to companies with a market capitalization value of more than $10 billion. Large cap is an abbreviation of the term “large market capitalization”. Market capitalization is calculated by multiplying the number of a company’s shares outstanding by its stock price per share.

Emerging market : Characterized by greater market access and less potential for operational risks when compared to frontier markets, which leads to a larger base of potentially eligible investors.

Correlation : Statistical measure of how two sets of returns move in relation to each other. Correlation coefficients range from -1 to 1. A correlation of 1 means the two subjects of analysis move in lockstep with each other. A correlation of -1 means the two subjects of analysis have moved in exactly the opposite direction.

Factor : Attributes that based on its fundamentals or share price behavior, are associated with higher return.

Beta : A measure of the volatility of a security or a portfolio in comparison to a benchmark. In general, a beta less than 1 indicates that the investment is less volatile than the benchmark, while a beta more than 1 indicates that the investment is more volatile than the benchmark.

Volatility : A measure of the dispersion of actual returns around a particular average level. .