

## Diversification: the only free lunch in investing

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Diversification is said to be the only „free lunch“ in finance - an investor of a well-diversified portfolio receives a benefit (reduced risk) without loss of return in the long run. Global multi-factor quantitative strategies seek to exploit this advantage through four main sources of diversification: stocks, sectors, factors and regions. Combining different equity style factors in several regions makes it possible to obtain more consistent and attractive risk-adjusted returns over the long term.



**Juliana Auger**  
Investment Specialist

*“More is better – multiple diversified sources of performance help reduce unrewarded risk”*



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The failure to diversify can have negative consequences in investing but also in life. Take for example monocropping, the practice of growing a single crop year after year on the same land. While it allows for the specialization of equipment and better yields, the dominance of a few genetic lineages of crops has made the agricultural system more susceptible to pests or diseases. With only a single resistance strategy, an entire crop can be quickly wiped out. An example is the potato blight in Europe in the mid 19th century; another is the deadly fungus that is currently devastating banana plantations.

Food scarcity is the danger of monocropping whereas unrewarded risk is the danger of portfolio concentration. Diversification is said to be the only “free lunch” in finance, an idea in fact coined by Nobel Prize winner Harry Markowitz in 1952, one of the grandfathers of modern portfolio theory. The MPT says that by diversifying, an investor gets a benefit (reduced risk) at no loss in returns over the long term.

To avoid disaster scenarios and also profit from the diversification free lunch, investors may consider global multi-factor quantitative strategies which source diversification from:

- 1) Stocks
- 2) Sectors
- 3) Factors
- 4) and Regions.

### 1,000 versus 50 Stocks

The Fundamental Law of Active Management says that as a portfolio manager makes more independent stock bets, the performance of the strategy improves on a risk-adjusted basis (information ratio). For a manager who forecasts half of his stock bets correctly, he can raise his information ratio nearly two-fold by increasing the number of bets from 20 to 60 stocks. Said differently, a mediocre manager can achieve the same information ratio as a manager that gets 100% of her 20 stock picks correct by increasing the number of portfolio stocks from 20 to 80.

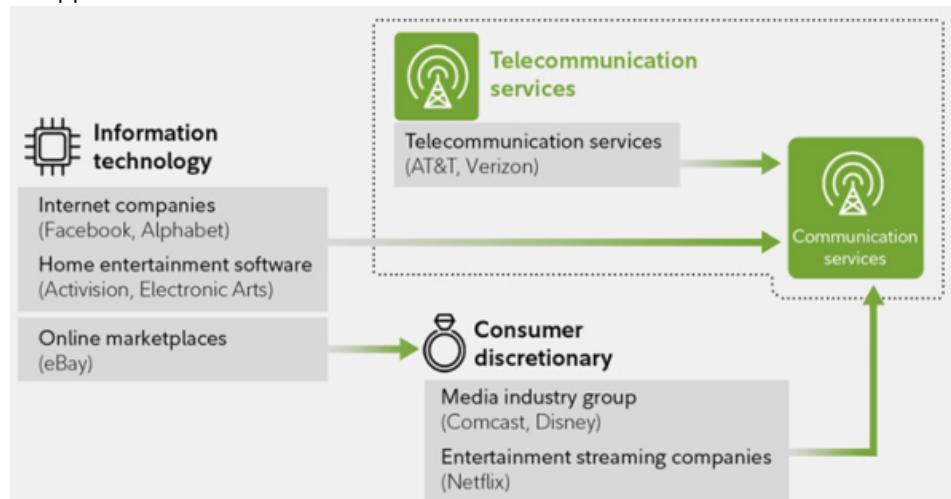
Holding a concentrated portfolio is ignoring the benefits of diversification, though some active manager may argue that resource constraints (research analysts, time, etc.) limit the number of holdings. This is however not a restriction for factor-based quantitative strategies. The number of positions can easily be increased as the investment process is highly scalable. Investors benefit from computing power in the reduction of required resources. Thus, rather than the 50-200 stocks that typically comprise active global equity funds, global multi-factor quantitative funds have between 500 and 1,000 positions.

## Don't Take Unrewarded Risk

Incorporating sector diversification may seem anodyne, but sector concentration is a problem that many investors of actively managed funds face. Because of the manager's particular investing style, many funds are significantly under or overweight certain sectors, or may ignore some sectors all together.

Unless one has the ability to accurately forecast sector performance, sector concentration is a non-rewarded risk in the long-run. Performance rotations can be brutal and sectors can even disappear due to structural changes. For quantitative factor-based strategies, because stock selection is applied to every sector and relative weights are carefully controlled, sector concentration risk is limited.

### Disappearance of the Telecommunications Services GICS Sector in 2018



Fonte

MSCI, Inc. September 2018.

## Multiple Style Factors = Multiple Sources of Performance

Equity style factors are broad, persistent drivers of return that are derived from market frictions, behavioral investor bias and rewarded risk. The key equity style factors as adopted by the professional investment community include quality (financially healthy firms), momentum (strong stock performance trends), value (inexpensive stocks relative to their fundamentals), size (smaller companies) and low volatility (stable, lower-risk stocks).

As the style factors are driven by different economic rationales, their performance can be cyclical and vary over time. They may also exhibit skewness risk and negative returns over certain time periods. In any given year, a particular style factor can be either the leader or the laggard. Diversifying between factors is sensible then, particularly as they are often uncorrelated or even negatively correlated among them. A good example is the usually negative correlation between value and momentum factors.

### Correlations of Relative Returns of US Factors – August 2014 to August 2019

	Value	Low Vol	Momentum	Quality	Size
Value	1.00	-	-	-	-
Low Vol	-0.16	1.00	-	-	-
Momentum	-0.06	0.55	1.00	-	-
Quality	-0.02	0.49	0.08	1.00	-
Size	0.49	0.09	0.04	0.12	1.00

Fonte

Bloomberg, monthly data from August 2014 to August 2019. JPM US Long-Only Factor Indices compared to the S&P 500 NR Index in USD. Past performance does not guarantee or predict future performance.

The cyclicity of factor returns is tempting for investors to try and time exposures. However, similar to market timing, factor timing can be very challenging. Long-term investors should look instead towards multi-factor strategies which provide better risk-adjusted performance than constituent factors on a stand-alone basis. In these strategies, investors are the beneficiaries of multiple engines of performance in the form of better returns, lower volatility and higher Sharpe ratios.

### Cumulative Performance of Portfolios of 1, 2, 3, 4 and 5 Factors – August 2009 to August 2019



#### Fonte

Bloomberg, monthly data from August 2009 to August 2019. JPM US Long-Only Factor Indices in USD. Model portfolios are equal-weighted and are gross of fees. Past performance does not guarantee or predict future performance.

### ANNUALIZED

	VOL	RETURN	SHARPE RATIO
VALUE	16.6%	9.1%	0.4
VALUE + SIZE	15.7%	10.3%	0.5
VALUE + SIZE + LOW VOL	13.5%	11.0%	0.7
VALUE + SIZE + LOW VOL + QUALITY	13.1%	11.5%	0.7
VALUE + SIZE + LOW VOL + QUALITY + MOMENTUM	13.1%	12.1%	0.8

#### Fonte

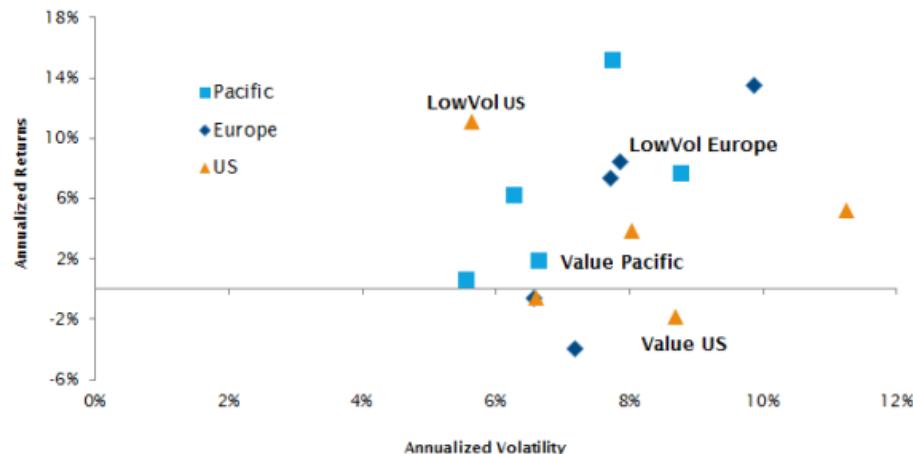
Bloomberg, monthly data from August 2009 to August 2019. JPM US Long-Only Factor Indices in USD. Model portfolios are equal-weighted and are gross of fees. Past performance does not guarantee or predict future performance.

## Intra and Inter-regional Differences

Investing in different regions allows for the diversification of economic and market cycles as well as foreign currency. Given that factor performance is derived from the macroeconomic environment, there is a diversification benefit from being invested in multiple factors in multiple regions. In much the same way that stocks and factor diversification improve portfolios, regional diversification generates better risk-adjusted returns.

The chart below shows that the risk return profiles of factors not only differ within a region, but between regions. For example, the performance profile of the low volatility factor in the US is not the same as the low volatility factor in Europe. With this in mind, strategies that integrate these multiple sources of outperformance are able to smooth out their performance paths.

### Volatility vs Return of Regional Factor Indices - August 2009 to August 2019



#### Fonte

AQR Capital Management regional factor indices in USD, monthly data from August 2009 to August 2019. Past performance does not guarantee or predict future performance.

## “Properly” Diversified

When markets are sentiment-driven, asset classes tend to correlate and move in mass. If an investment portfolio comprised of multiple asset classes and investment strategies do not show different performance profiles, it could be said that it is not properly diversified. Global multi-factor quantitative strategies provide dissimilar performance which cut across asset classes and pay off at different times. Their differentiated sources of performance make it possible to build more consistent and better risk-adjusted returns in the long run. Investors should not overlook the nutrition of finance's only free lunch: diversification.

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