Factor investing

Strengthening the benefits of diversification in equity portfolios

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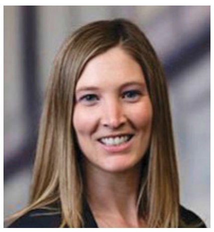
AUTHORS



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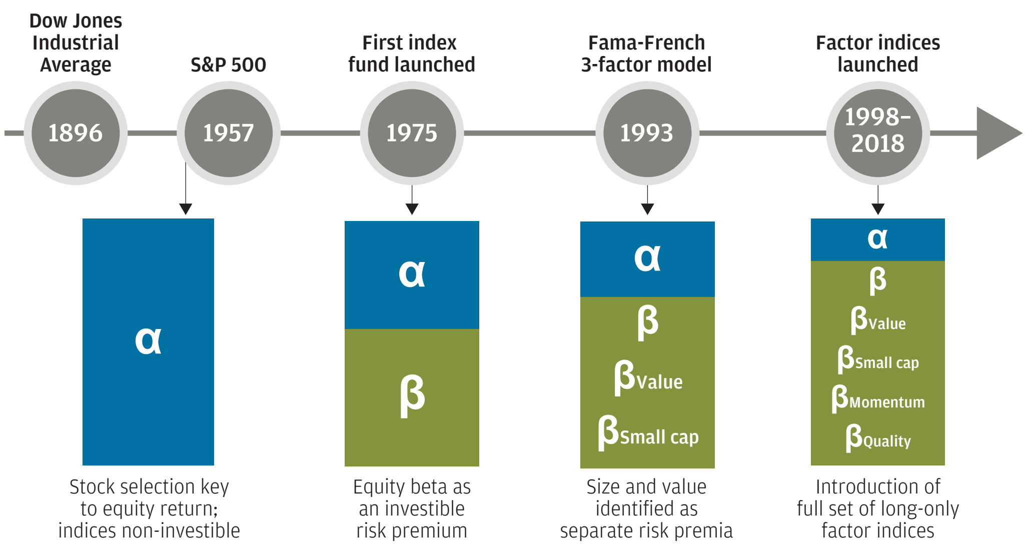
IN AN EARLIER ERA OF INVESTING, 100% OF A PORTFOLIO'S RETURN WAS ATTRIBUTED TO MANAGER SKILL ("ALPHA," AS IT WOULD COME TO BE KNOWN). "Beta"—the idea that investors could earn a positive return simply for holding a large number of risky securities—was still an alien concept when John Bogle launched the Vanguard 500 Index Fund in 1975 (**EXHIBIT 1**). Over time, it became clear that there is an equity market premium—an economic compensation attached to investing in equity markets.

Factors are playing a growing role in explaining asset class returns

EXHIBIT 1: THE HISTORY OF BETA



Source: J.P. Morgan Asset Management. For illustrative purposes only.

As our understanding of the drivers of equity returns has further evolved, the portion of returns we attribute to alpha has diminished. Investors have come to understand the benefit of "factors" in portfolio construction. A factor is a characteristic that explains the drivers of market return and risk. In recent years, value, quality and momentum have become widely used, compensated factors.

A core tenet of J.P. Morgan's Quantitative Beta Strategies investment engine: We believe that investors should be diversified across a broad range of compensated factors within their equity allocations.

Among our definitions of factors:

Value: Underpriced stocks, or "value" stocks, tend to outperform; measured by price-to-book, earnings yield, dividend yield and cash flow yield.

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Quality: Stocks of companies with better fundamentals tend to outperform; measured by profitability, financial risk and earnings quality.

Momentum: Stocks that outperform tend to continue to outperform; measured by 12-month risk-adjusted return.

Investors need to be attentive to correlations between and among factors. To better diversify portfolio risks, effective factor-based strategies often include factors with low correlations to one another.

A single investment can be exposed to multiple factors. For example, a U.S. bank stock may share broad market risk with all U.S. stocks, sector risk with financial stocks and value factor risk with relatively inexpensive stocks. When they think about stocks in this way, investors may be better able to understand the sources of risk and return in their portfolios.

HOW TO USE FACTORS TO IMPROVE PORTFOLIO OUTCOMES

Factor-based investments can be used in portfolios in various ways. They can be:

- a core strategic allocation
- a complement to existing index-based strategies or high conviction active managers
- a tool to address unintended exposures
- a tactical allocation to express a particular investment view

Whatever the approach, when appropriately constructed and implemented, factor-based strategies can enhance a portfolio's diversification and create better risk-return characteristics. The ultimate goal: to help improve portfolio outcomes and keep clients invested.

Case study: Portfolio analysis through a factor lens

The traditional Morningstar style box outlines the percentage of assets within each style and market capitalization. This tool can be used to confirm there are no unintended style tilts within market capitalization and value-to-growth style.

But as we will explore in a case study, the tool has its limits.

EXHIBIT 2 below depicts a diversified U.S. equity portfolio comprising both active mutual funds and traditional market cap-weighted ETFs, viewed traditionally through the equity style box. From this perspective, the U.S. equity portfolio focuses on large cap equities with a tilt toward the growth style. Although this depiction is instructive, we believe that a deeper analysis, using a factor lens, may provide fresh insights that could result in significant benefits.

The traditional Morningstar style box can identify unintended style tilts within market capitalization and value-to-growth style

EXHIBIT 2: MORNINGSTAR STYLE BOX™

	VALUE 29.6	CORE 28.0	GROWTH 42.3
Large	18.9	17.5	31.3
Mid	6.6	6.1	7.0
Small	4.1	4.5	4.1

Source: J.P. Morgan Asset Management. For illustrative purposes only.

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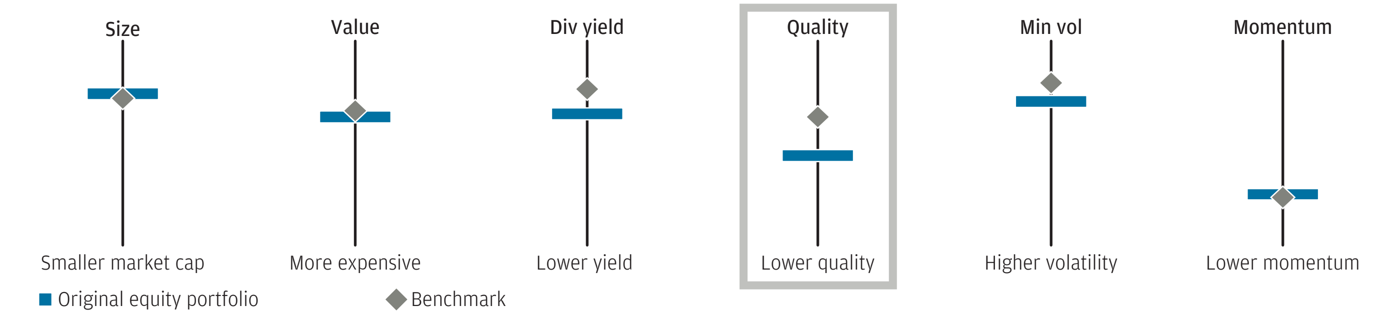
That same U.S. equity portfolio analyzed through a factor lens (**EXHIBIT 3**) shows a significant bias toward lower quality companies. Viewing the portfolio through a traditional style box perspective would fail to reveal this unintended tilt.

Using a factor lens can identify unintended tilts that a traditional style box would not reveal

EXHIBIT 3: PORTFOLIO FACTOR STYLE



Source: J.P. Morgan Asset Management. For illustrative purposes only. Past performance is no guarantee of future results.

Using a factor lens, we can understand that:

- The portfolio is less diversified across investment styles/ factors.
- The factors driving portfolio risk and return may not be allocated as intended (for example, low quality tilt).
- The factor imbalance could lead to less than optimal risk/ return portfolio characteristics.

If these implications are troublesome, an investor would want to understand potential solutions to address a portfolio's unwanted tilts, which in turn could improve a portfolio's risk/ return characteristics. How might an investor incorporate factor-based strategies to address these portfolio imbalances?

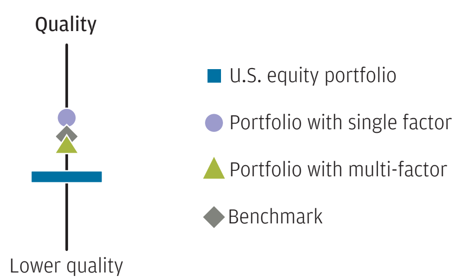
We consider two potential solutions:

1. Incorporate a single factor strategy to help balance out the factor exposure and/or express a tactical view. In this scenario, we use a U.S. quality factor strategy to solve for the "low quality" portfolio bias.
   - Source of allocation: Evenly pull 5% from the three U.S. large cap strategies and allocate 15% to a U.S. quality factor strategy.
2. Utilize multi-factor strategies to help balance out the factor exposures, diversify the portfolio and potentially improve the risk/return characteristics.
   - Source of allocation: Replace the three traditional U.S. blend market cap-weighted passive ETFs with multi-factor ETF equivalents.

Using either solution, the outcome, based on historical data, would show meaningful improvement. The unintended bias to low quality is balanced out and, in fact, is replaced by a slightly higher quality tilt (**EXHIBIT 4**).

An unintended bias to low quality is replaced by a slightly higher quality tilt

EXHIBIT 4: QUALITY TILT IN A SINGLE FACTOR STRATEGY



Source: J.P. Morgan Asset Management. For illustrative purposes only. Past performance is no guarantee of future results.

Improved risk/return characteristics can be seen in three ways (**EXHIBIT 5**):

- improved risk-adjusted returns (Sharpe ratios)
- lower down capture ratios
- better results in historical periods of stock market declines

Either a single factor or multi-factor strategy would deliver meaningful improvement

EXHIBIT 5: RISK AND RETURN ACROSS PORTFOLIO STRATEGIES

	15-year Sharpe ratio	15-year up capture	15-year down capture	Outperformance in periods of stock market declines
U.S. equity portfolio	0.51	103%	101%	2 out of 6
Portfolio with single factor	0.53	102%	99%	3 out of 6
Portfolio with multi-factor	0.60	101%	93%	5 out of 6
Benchmark	0.48			

Source: J.P. Morgan Asset Management. For illustrative purposes only. Past performance is no guarantee of future results.

Although historical performance is no guarantee of future results, diversification is improved by balancing out exposure. In this example, owning higher quality companies is likely to have a positive impact on risk-adjusted returns.

The first solution, adding a U.S. quality factor strategy, solved for the unintended low quality portfolio tilt. And there are a few additional benefits:

- A higher quality factor strategy can provide balance in the portfolio by providing exposure to more profitable, less risky and higher quality companies.
- Quality has historically delivered strong performance by not only helping to enhance returns but also mitigating volatility over the long term.
- A U.S. quality factor strategy can be used as a tool, dialed up or down depending on the intended exposure. This strategy can also complement other U.S. single factor strategies, such as value or momentum, to balance out portfolio exposures or express tactical views.

In the second solution, multi-factor strategies are used to balance out multiple factor exposures. Among the benefits of this solution:

- Incorporating a multi-factor approach can help balance out value, quality and momentum tilts, providing a more diversified exposure to factors that drive risk and return in the portfolio.

- Multi-factor strategies can also provide stability in a portfolio by enhancing returns and mitigating volatility over the long term.
- Because factors can be cyclical, a multi-factor approach can be a better long-term diversified core allocation to enhance traditional market cap-weighted strategies and/or complement concentrated active managers.

CONCLUSION

Factors carry a well-established pedigree in the investment world. In recent years, as data have become more available and technology more potent, factor-based strategies have become more accessible. Using a factor lens can provide fresh insight into a portfolio's unintended biases, tilts and concentrations. Knowledge is power: Incorporating factor-based strategies into their portfolios, investors can better diversify their risk and return drivers. That can in turn give them a better chance of staying invested and meeting their financial goals.

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- Understand what's driving a portfolio's risk and return
- Stress test a portfolio to ensure it is properly positioned for increased volatility
- Access trends and themes from top financial advisors

NEXT STEPS

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