

# Factor-Based Investing Redefines Active Management

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Born from a steady evolution of academic theory, factor-based investing has matured into full-blown investability with the advent of indexation and advances in technology and big data. This nascent approach has opened the door to a reevaluation of definitions many investors take for granted. With a basis in traditional active investing theory, but implementation similar to traditional passive investing approaches, where does factor-based investing land on the passive-to-active spectrum?

## WHAT'S THE DIFFERENCE?

### Passive theory sets the stage

As with our approach to all investment decisions at Envestnet | PMC, we view active and passive definitions through a research-focused lens. Passive investing finds its roots in foundational economic theories from Markowitz, Sharpe, and Fama. Their work defined and applied the concept of the global market capitalization-weighted portfolio—the valuation-weighted combination of all assets in the world<sup>1</sup>. The Capital Asset Pricing Model (CAPM) developed out of this work, which gave the investing public the first taste of the now ubiquitous term “beta” in reference to exposure to the market capitalization-weighted portfolio as the primary driver of performance.

Because observed valuations define the market-clearing equilibrium prices for all assets, the academic research<sup>\*</sup> at the time suggested that this market capitalization-weighted portfolio should have the highest expected return-to-risk ratio out of any combination of assets. Thus, the most efficient portfolio for investors to hold was one that closely tracked the global market portfolio by holding securities in the same proportion as their weight within that portfolio. Taken together, these works form the crux of the *passive investing philosophy*—don't try to beat the market, try to track it. Though plenty of challenges to this framework have been raised, the core argument that, on average, market prices should closely reflect accurate valuations serves as the cornerstone for building even non-passive portfolios today.

Market capitalization-weighted indices, such as the S&P 500 and the Bloomberg US Aggregate Bond, are now common market capitalization-weighted barometers against which portfolio returns are measured. Thousands of exchange traded and separately managed vehicles are available to track these indices. Most of these are designed as indexed strategies that quantitatively invest assets to replicate the indices and gain exposure to the market portfolio, or at least the investable portions of it. These are passive portfolios—they make no meaningful deviations from the valuation weightings set by the market.

### But active investors are unimpressed

The work on the market capitalization-weighted portfolio suggested that because market participants have all available information, the prices they set are the most accurate reflection of value. This meant the market portfolio can be “beaten” only by assuming more risk through active decisions to weight securities differently than the market, which on average should not add value. Nevertheless, some practitioners found reason to disagree with market-determined pricing, and continued with individual security selection unabated. These selections were generally based on thorough fundamental scrutiny of securities grounded in a long history of securities analysis research dating back to Graham and Dodd in the 1930s.

In the early days, this active security selection was often successful. Active managers were able to add value relative to market capitalization benchmarks, and they touted their skill as the source of their success. This group dispelled the notion that the market portfolio was the most efficient and put up their track records as proof. Their theory that excess return, considered to be alpha, could be due to superior skill forms the crux of the *traditional active investing philosophy*—superior analysis and insight could lead to outperformance of market capitalization-weighted indices with less risk.

Like their passive counterparts, there are thousands of vehicles available today to access actively managed philosophies. Rather than tracking indices like their passive counterparts, active strategies are more subjective in nature. They pick and weight securities in accordance with their convictions based on fundamental analysis.

Table 1 gives a hypothetical comparison of the two approaches. In this scenario, the sample stock index is composed of stocks that are weighted according to their total market capitalization. The passive investor would hold this universe of stocks in the same proportion as the index, as seen in the next to last column. However, an active investor may have differing opinions on the prospects for these stocks and choose to over- or underweight them according to their individual conviction and may choose to hold stocks outside the index altogether. For either investor, the market capitalization weighted index serves as a benchmark against which performance will be compared.

<sup>\*</sup>Markowitz, Harry. 1952. “Portfolio Selection.” *Journal of Finance* 7 (1): 77–91.

**Table 1: Allocation differences attest to the theoretical divergence of passive and active**

Market Capitalization Weighted Sample Index			Passive Portfolio	Active Portfolio
Stock	Total Market Capitalization	% of Total Index	% Allocation	% Allocation
1	100	18%	18%	12%
2	90	16%	16%	0%
3	80	15%	15%	15%
4	70	13%	13%	14%
5	60	11%	11%	11%
6	50	9%	9%	16%
7	40	7%	7%	9%
8	30	5%	5%	18%
9	20	4%	4%	0%
10	10	2%	2%	5%
<b>Total Value</b>	<b>550</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

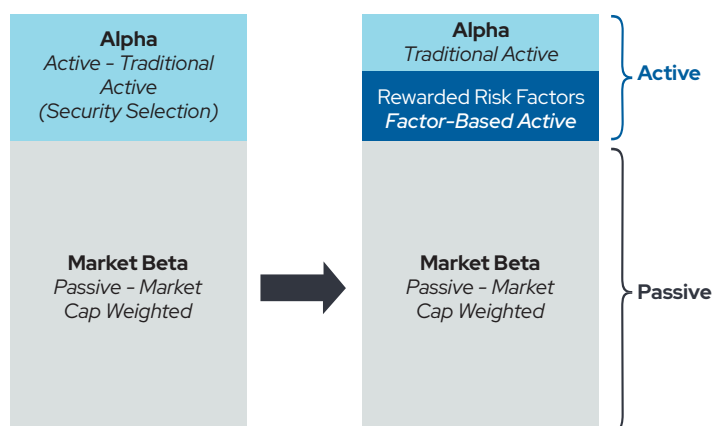
### Factor-based investing emerges

The apparent paradox between active and passive investing gained some additional clarity in the later part of the last century, as more academic research was published seeking to reconcile these two views. Researchers like Rosenberg, Fama, and French sought to fill in the many gaps they saw with the model that suggested only relative exposure to one factor, the market, drove excess return. Perhaps the most well-known study on the factors that affect return came from work done in the 1990s by Eugene Fama and Kenneth French in developing a three-factor model. They identified that not only was there systematic risk in exposure to the market as identified with CAPM, but that other systematic risks, or betas, existed that persistently explained performance as well. Though debate continues on some factors researchers have identified value, quality, low volatility, small size, and momentum as the most robust systematic risk factors outside of market beta.

As these things go, further research, data availability, computational resources, and the advent of indexation mean that the additional risk factors identified in the literature can now be isolated for investment through quantitative strategies that share similarities with passive investing in their systematic and lower-cost nature and active investing in their intentional tilts away from market capitalization-weighting. Hundreds of investment vehicles exist that seek to capture these historically rewarded factor premia in a quantitative fashion, a category that Envestnet terms “Factor-Based Investing.”

Many of the factors sought in these quantitative strategies had long been exploited by traditional active investing strategies, though perhaps not in such a formalized way. This group had taken advantage of these systematic risk factors by way of their bottom-up security selections. After all, the 1930s publication from Graham and Dodd was essentially a treatise on the case for capturing the value factor.

**Figure 1: Active management comes from traditional and quantitative approaches**

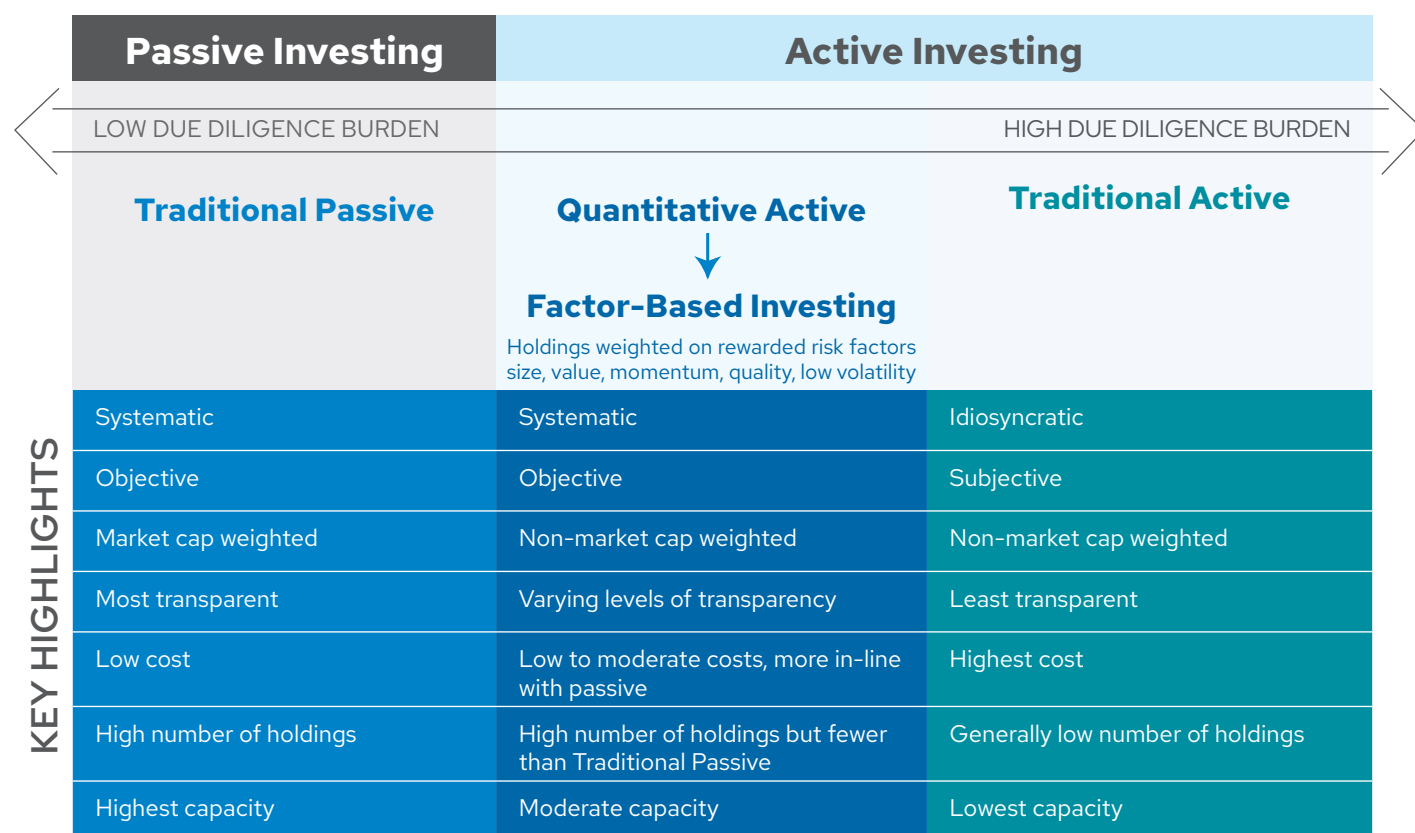


However, prior to the identification of the systemic nature of these risk factors, the reigning theory was that any return earned above the market was due to alpha from manager skill, as seen in the leftmost part of Figure 1. Because the academic research on these additional risk factors neatly codified them, performance analysis could now show that active strategies were not generating their excess returns purely through skill, but largely due to overexposure to these additional systemic sources of return, as seen in the rightmost part of Figure 1. It became clearer that active investing away from market capitalization weights had two components—traditional active (skill-based alpha) and quantitative active (factor-based alpha).

### A SPECTRUM OF CHOICE

“Quantitative Active” strategies, as Envestnet calls them, have evolved to cover the gray area between traditional passive and traditional active approaches, as seen in Figure 2. A quantitative active strategy is a systematically managed strategy where constituent holdings are non-market capitalization weighted, or meaningfully tilted away from market

**Figure 2: Investment philosophies follow a spectrum, rather than discrete stepping stones**



capitalization weights, using predefined metrics to create a portfolio of securities that differs materially from passive, core market capitalization-weighted indices. These strategies are intended to perform better and/or with less risk than market capitalization-weighted benchmarks. Envestnet deems these products to be active because of their intent to meaningfully differ from market cap indices, although the degree of “activeness” follows a spectrum.

Factor-based investing is a more narrowly defined subset of the Quantitative Active universe. The key distinction for factor-based investing within the quantitative active universe lies in the chosen weighting scheme. While quantitative active refers to any systematically managed strategy that is not market capitalization-weighted, factor-based investing refers to a systematically managed strategy that weights holdings in large part based on the academically vetted, rewarded risk factors discovered by the academic research as referenced above. Factor-based products tend to provide consistent, intentional, and significant exposure to these rewarded risk factors.

Like traditional active security selection, quantitative active investing (including factor-based) is active in theory because of its intent to be meaningfully different from the market capitalization representation of the investable market. However, it lands between traditional passive and active definitions because while the underlying theory is active in nature, its quantitative implementation contains important elements of traditional passive management.

## AN ASIDE ON THEORY VS. IMPLEMENTATION

What’s been laid out so far are the research-based theoretical definitions of active and passive investing. Legacy definitions and engrained practice make the discussion of active and passive even more blurry when it comes to operational implementation via indexed or non-indexed vehicles.

Traditional passive investing is implemented through a quantitative operation to buy and sell securities in order to replicate the characteristics of an underlying market capitalization-weighted index, giving rise to the term “indexing.” Borne of this history as well, is the term “index fund”. Index funds have for decades been interpreted as products that follow a theoretically passive approach, given the historical prevalence of these funds tracking market capitalization-weighted indices. Conversely, anything that did not follow an index has been seen as following an operationally and/or theoretically active approach because of its non-market capitalization-weighting process.

Yet indexation need not be limited to following a market capitalization-weighted index, and proponents of factor-based investing and other quantitative active approaches have found use for it as well. Operationally, many factor-based and other quantitative active products follow the same indexation approach to replicate an index. However, rather than track an underlying market capitalization-weighted index, quantitative active approaches create and publish custom indices that tilt toward their desired characteristics, such as value or quality in the case of factor-centric

approaches. Some may also create and track their own internal indices or models with those tilts and track them without publishing an index at all. In doing so, these products are active in theory, but more like traditional passive in implementation.

As the landscape has evolved, equating indexed funds with passive investing, and active products with non-indexation, has become misleading. Active theories can be implemented in both indexed and non-indexed formats—not all indexed products are passive. The implementation choices made in the movement away from market beta should be irrelevant to the determination of whether an investment strategy is active or passive in theory.

**Figure 3: Terminology should evolve with the changing landscape**

Active  $\neq$  Non-indexed

Indexed  $\neq$  Passive

## THE NEW ACTIVE

Research on factor-based investing has served to broaden our understanding of the components of total return. It has turned what was once considered purely alpha due to manager skill into systematic beta that can be captured in a quantitative fashion. Because factor-based investing serves as a key component of excess return beyond market beta, it should be thought of as active, not passive investing.

## Notes

1. Though the initial research focused on the theoretical global market portfolio of all assets both tradable and non-tradable, in practical application, market capitalization refers to valuations of all investable securities, and even more specifically, exchange-traded securities in general portfolio management applications. The market cap-weighted indices and products we know today generally reflect specific corners of the investable market, for example large cap growth or international small cap, or broader market proxies such as world stock or global bonds. These products can be used for more than replicating the global investable market, for example for tactical asset class timing decisions, but the point remains that they evolved from the theory of the global market capitalization-weighted portfolio.

#### Definitions:

**Alpha:** excess return earned on an investment relative to a suitable benchmark after adjusting for risk.

**Beta:** a measure of exposure to an independent variable; in the context of asset pricing theory, beta is a measure of the systematic risk of a security or portfolio of securities.

**CAPM:** "Capital Asset Pricing Model"; a mathematical model that forecasts expected return of an investment based on its risk relative to the broad market.

**S&P 500 Index:** a market capitalization-weighted stock index that tracks the performance of shares of the 500 largest companies listed in the United States.

**Bloomberg US Aggregate Bond Index:** a broad based, market capitalization-weighted bond market index that represents intermediate term investment grade corporate debt and US government debt.

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