CFA Montréal

INVESTMENT PRINCIPLES

INFORMATION SHEET FOR CFA PROFESSIONALS

THE BENEFITS OF DIVERSIFICATION

THE ACTIVE-PASSIVE DEBATE

3E

IMPORTANT NOTICE

The term "financial advisor" is used here in a general and generic way to refer to any duly authorized person who works in the field of financial services, including the following:

- Investment brokers
- Mutual fund brokers
- Scholarship plan dealers
- Exempt market dealers
- Portfolio managers
- Investment fund managers
- Life insurance agents
- Financial planners (F.Pl.)

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THE ACTIVE-PASSIVE DEBATE

The debate over active versus passive asset management has been raging for many years and will continue to do so. The debate is focused on the following question: Is it possible to outperform the market reliably with some form of active management? This document presents several arguments for and against active management. But it may be useful to first explain what is meant by the following terms: indexed, passive, quantitative, and active asset management.

CAP-WEIGHTED INDEXES

Capitalization-weighted indexes are the most common type of market index. Cap-weighted indexes are a representation of the total market value of a segment of the securities market (such as large-cap equities or investment-grade fixed income). In cap-weighted indexes, the weighting of each security within the index is determined by its size, as measured by market capitalization. For example, Apple Inc. had a total market capitalization of $677 billion on January 29, 2015, whereas all the securities in the S&P 500 Index had a combined value of $17,417 billion. Thus the Apple weight in the S&P 500 cap-weighted index was about 3.89%. Apple was the largest firm in the index on that date. The smallest firm had a weighting of about 0.01% and was worth a few billion dollars. The S&P 500, the S&P/TSX, and the MSCI ACWI are examples of cap-weighted indexes. Cap-weighted indexes are the closest representation of the market itself.

Indexing means investing in a product that is designed to replicate an index as accurately as possible. About 40% of all equity products are indexed to cap-weighted indexes (or are nearly cap-weighted, a practice often called quasi indexing or benchmark hugging), which implies that 60% of all equity products are actively managed. Many products, such as mutual funds or exchange-traded funds (ETFs), are designed to replicate cap-weighted indexes. One of the arguments used

to justify investing in indexed products is their lower trading and management costs. Another argument is that, after fees, few active managers outperform the market in the long-term. The evidence shows that mutual funds collectively perform about the same as the market before fees and underperform after fees.[1] In fact, fewer than 30% of non-indexed products and managers outperform cap-weighted indexes over long horizons, such as five to 10 years. Why? There are two main reasons.

First, a fundamental reason is that investing is really a zero-sum game before fees are considered. For example, all securities issued in the market must be owned by investors (individuals, pension funds, mutual funds, etc.). If a security such as Alphabet represents 2% of the value of all securities available in the equity market, it follows that if one investor owns more than 2% of Alphabet in his portfolio, then another investor (or several investors combined) must own less than 2% in his/their portfolio(s). It cannot be otherwise because the total ownership of Alphabet must sum to 2% of the total equity owned by investors. Therefore, if Alphabet performs better than the index and if you own more of Alphabet than its market share of 2%, your portfolio will perform better than the index (all else being equal). But if you own more of Alphabet than the index, it follows that some other investors own less, and these investors will necessarily perform worse than the index (all else being equal). Therefore, if we ignore fees, the zero-sum game argument implies that for each investor who outperforms the market by exactly one dollar, there has to be one or more investors who underperform the market by exactly one dollar. The likelihood of outperforming in a zero-sum game is about 50%. Thus, to win at the asset-management game, a manager must not only be really good at it but also better than most of other managers.

Second, asset management is not a free endeavour. Active asset management is usually more expensive than indexed management. When all fees are considered, a dollar of gain before fees equals to less than a dollar of gain after fees, and a dollar of loss before fees equals to more than a dollar of loss after fees. Once fees are considered, asset management is no longer a zero-sum game but a negative-sum game. Thus, to win at the asset management game, a manager must not only be better than others but also good enough to cover his own fees.

Thus, because of the zero-sum argument and because of the higher level of fees usually required by active managers, theory as well as empirical evidence shows that about 30% of the funds managed actively will outperform a cheap index product in the long run. This is not a forecast but a structural reality. We already know that we have fewer than three chances out of 10 to identify a winning product or a winning manager over investment horizons such as five to 10 years; so the more relevant question is, Can we determine ahead of time which managers and products are more likely to outperform? But first, let's discuss other types of so-called indexed products.

OTHER INDEXES

By definition, products that are not based on capitalization principles can be considered actively managed. Even so, many products are tracking indexes that are not cap-weighted. In principle, an index is the result of three criteria: first, an eligibility criterion that determines which securities will be included in the index (such as the largest 1,000 securities by capitalization); second, an allocation criterion that determines how much weight is given to each security (such as the ratio of a security's capitalization to total capitalization in a cap-weighted index); and third, a rebalancing criterion to bring the allocation back to its target. For example, the allocation criterion of the S&P 500 Equal Weight Index is simply the ratio of 1 over N (the number of securities in the index) and the allocation is rebalanced to 1 over N on a quarterly basis. There are many other allocation rules, such as:

- accounting measures, such as sales, book value, cash flows, and dividends;
- dividend size, dividend yield, or dividend growth;
- proxies of risk factors, such as market beta, price to book, and momentum; and
- diversification methodologies, such as low volatility or maximum diversification.

For example, the S&P 500 Dividend Aristocrats Index measures the performance of S&P 500 companies that have increased their dividends every year for the past 25 years. The index treats each constituent as a distinct investment opportunity, without regard for its size, by equally weighting each company. In general, it seems a portfolio-assembly process gets to be called an index once it gains some acceptance. By being called an index, it also gains credibility among investors, whether such credibility is deserved or not.

[1] Fama, E.F., and K.R. French, 2010, Luck versus skill in the cross-section of mutual fund returns, The Journal of Finance 65, 1915-1947.

Indexes that are constructed according to well-defined eligibility and allocation criteria, but that are not built according to cap-weighted principles, usually seek to emphasize specific exposures to risk factors other than simply the market, such as value or momentum. These indexes are based on construction rules that are systematic, well understood and well defined, but their structures and performances will be far different from those of cap-weighted indexes. We will use the terms passive indexes and passive products to refer to indexes that are not based on market-capitalization principles and to the products that track them simply because their construction rules are systematic. But, from a performance point of view, we can conclude that non-cap-weighted indexes, as well as products that track non-cap-weighted indexes, are far from passive. They represent an active bet against the market.

It can also be difficult to distinguish a passive product (as defined) from a quantitative product. Perhaps we should not even try. For example, let's consider the family of low-volatility equity products. Some products are built with a sampling methodology that will simply eliminate riskier securities (such as the 30% of securities having the highest volatility), others will scale security weights by the inverse of their volatility (attributing larger relative weights to less risky securities and vice-versa), and still others are built with optimization processes that seek to statistically achieve the lowest volatility. Are the first two methodologies passive and the third quantitative? Are they all passive and/or all quantitative? Does it truly matter?

ACTIVE MANAGEMENT

Fundamental managers, often referred to as active managers, rely on analytical research, absolute or relative expected-return forecasts, and their own judgment and experience in making investment decisions about which securities to buy or sell and which weighting to attribute to each security. Even so, fundamental managers will normally have a specific investment philosophy and follow well-defined investment and analytical processes. But, in contrast to passive products, whereby the composition of the portfolio structure can usually be accurately replicated by simple application of a specific set of rules, fundamental managers use their personal skills and knowledge to influence the composition and allocation of their portfolios.

PASSIVE PRODUCTS VERSUS ACTIVE MANAGEMENT

If you simply do not believe that active products can outperform a cap-weighted index after fees, then the rational decision may simply be to acquire the most affordable indexed products available provided by reliable firms. But you may still want to invest in affordable active or passive products even if you do not believe that asset managers can outperform the market after fees, if you are looking for specific product characteristics that are suited to your needs, such as a product that generates a higher current income. There may also be tax implications that will favour specific products.

Passive (not cap-weighted) products could certainly be considered a form of active management, even though the portfolio construction rules are systematic. What are the conceptual arguments that could explain why a passive product could be expected to outperform a cap-weighted index in the long run? First, we must recognize that the allocation rules within these products do not assume that we have the ability to explicitly forecast expected returns, such as stock or sector "A" will outperform stock or sector "B" by 5% over the next 12 months. For example, allocating to securities on the basis of an equal-weight principle, dividends paid, or book values does not require making explicit return forecasts. Thus passive products are all about diversification and implicitly or explicitly achieving specific exposures to risk factors. In fact, passive products are about making implicit expected return forecasts; for example, value stocks are likely to outperform growth stocks on average over the long run or stocks with greater price momentum are likely to outperform stocks with lesser price momentum on average over the long run. It's implicit.

There is no consensus on how these passive products are classified, but we will use the classification based on three types of diversification processes proposed by Langlois and Lussier (2016):[2]

- Products that explicitly emphasize specific risk premiums – These could be products that specifically tilt their exposure to risk premiums, such as Value, Size, Momentum, and Betting against Beta;
- Products that attempt to avoid a specific weakness of cap-weighted indexes – cap-weighted indexes use the price of the security of each company to determine

[2] Lussier, Jacques, and Langlois, Hugues (2016), *Rational Investing*, Columbia University Press, Chapter 5. Coming fall 2016.

its weighting in the index. We know that all securities are mispriced in relation to their true but unknown fundamental value. Markets are volatile because we constantly incorporate new information in search of the true but unknown fundamental value. Uncertainty causes volatility. But even if we do not know whether a security is overpriced or underpriced, we can reasonably assume that if a security is overpriced (underpriced) relative to others, it will be necessarily overweighted (underweighted) in a cap-weighted index. Relative overpricing (underpricing) is highly correlated with overweighting (underweighting) in a cap-weighted index. Thus products that do not use the price of a security as a variable to determine its weighting in the index may neutralize this issue. Examples are equal weight (1/N) products and products that use accounting measures to set the allocation such as book value or sales. For example, there is presumably no correlation between a 1/N weighting mechanism and the overvaluation or undervaluation of securities; and

- Products that seek to emphasize low volatility or other principles of efficient diversification – Such products will improve long-term compounded returns through more efficient management of volatility. Examples of such products are minimum volatility and maximum diversification.

Whatever the category of products, assuming we use the classification stated above, all these products create exposure to a number of risk factors. The first category of products is meant to create specific and explicit risk-factor exposure (such as a product designed to offer a value bias), whereas the two others create implicit factor tilts. For example, a value fund (first category) is exposed to the value risk premium because the construction process of such a fund specifically emphasizes value firms, such as firms having low price to book ratios. It's explicit.

But what about a low-volatility product built with an optimizer that only uses information about historical returns? We could show that such a product is also usually exposed to the value risk premium even though the portfolio construction process does not explicitly use information that can be used to categorize securities as being value or growth. In other words, the optimization process implicitly emphasizes value firms, simply because they tend to have lower volatility on average. Similarly, an equal-weight product will implicitly emphasize smaller firms. It's implicit.

It is important to recognize that, even if we agree with the efficiency of the underlying principles stated above and their ability to outperform cap-weighted indexes in the long run, the short-term deviations of performance (the tracking error) of passive products against the index can be significant. Thus these concepts could substantially underperform cap-weighted indexes over several years even though they might outperform in the long run.

Fundamental managers are also implementing these diversification approaches within their portfolios. For example, a fundamental manager adopting a value investment style would be exposed to the value factor just as a passive value product would be. As indicated, these managers also have the ability to add their own experience into the mix and incorporate their return expectations. But this does not change the zero-sum argument. A manager who incorporates his own return expectations into the mix must still be better than other managers to be successful in the long run. The debate is still raging as to whether a passive "value" approach should be expected to perform better or worse than a fundamental "value" manager in the long run. Both are exposed to similar risk factors.

FACTORS CAN EXPLAIN EXCESS PERFORMANCE

We have seen in document 3c that we can measure the performance of a risk factor. It means we may be able to use these factor performance measures to explain how and why a product performed in the past. The following table explains the performance of a well-known financial product using only the market factor[3] or using all five factors discussed in document 3c. Depending on which approach is used, we can conclude the following:

- If we use only the market factor, the market beta is almost one (like the market portfolio) but the manager generated an alpha of 2.14%; and
- If we use the five-factors approach, the market beta remains similar but the product also has exposure to other risk factors, but mostly to the "value" factor. But once we adjust for the different factor exposures, we have explained all the alpha.

	ALPHA	MARKET	SIZE	VALUE	MOMENTUM	BETTING AGAINST BETA
One factor	2.14%	0.99	-	-	-	-
Five factors	-0.23%	1.01	-0.08	0.32	0.03	0.07

The purpose of factor analysis is to better understand the sources of return and risk for a given product or manager. In this way, investors are better able to evaluate whether the risk exposure is appropriate and suited to their investment beliefs and risk profiles.

The same type of analysis can be used for any product or manager. But some managers do not like to use a factor approach to explain their performance because it could demystify the sources of their performance and portray them as less than unique.

Cap-weighted index products are usually the most affordable investment products, and most take the form of ETFs or inexpensive index funds. If you do not believe in the ability to outperform the market, they are the best investment approach. On the other hand, passive and fundamentally managed products are both a form of active management and can have a significant level of tracking error. In the case of passive products, the expectation of excess performance is linked to how they diversify and explicitly or implicitly create exposures to risk factors. Successful fundamental managers also play a similar diversification game but also have the ability to incorporate their own experience into the mix as well as their explicit return expectations. The main question is whether these other aspects contribute to a better long-term performance. The debate is still going on.

[3] The market factor is represented by the performance in excess of the risk-free rate of all securities in a given universe.