

WEEKLY MARKET MONITOR JANUARY 8, 2007

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INVESTING BY THE NUMBERS

TIAA-CREF's professional investment managers generally employ either a fundamental approach or a quantitative approach to their portfolios. As you know, the fundamental approach relies on systematic research on individual companies, including their financial statements and other tangible and intangible characteristics. In contrast, the active quantitative approach focuses on statistical risk models of hundreds or thousands of stocks to assign small underweights or overweights to each. Both of these approaches are active forms of investing, involving the attempt to beat an assigned equity benchmark such as the S&P 500, the Russell 1000, or MSCI EAFE Index in order to add value.

Of course, within the quantitative area, there is another approach to investing called *passive*, or *index*, investing where the goal of a portfolio is not to beat an assigned equity benchmark but to exactly match it.

Our themes for this week are these:

- Reviewing the basic goals and features of index investing
- Understanding the differences in managing pure index versus active quantitative portfolios
- Meeting the significant challenges of index investing

Of course, for the shareholder or participant, one goal of index investing is to gain exposure to the broad market or a certain part of it. Another goal could be to act on a conviction that markets are fairly efficient so that active investing rarely beats the market for more than a short time. A third goal might be to keep investment costs low.



By their very nature index funds allow an investor to address all three goals at once. An index fund aims to track as closely as possible to an assigned benchmark, whether it is the broad Russell 3000 or MSCI World indices or the narrower Russell Mid-Cap Value or Growth indices. And because index funds are benchmark-centric, they don't overweight or underweight individual stocks or sectors in order to try to beat the benchmark. And finally, most index funds cost investors considerably less than most funds based on fundamental active stock selection. This is because an index fund does not require the same level of research or active trading that a fundamental active portfolio requires. Hence they can avoid some of the costs associated with research and trading. Closely related to this, index funds are highly scalable so that a small number of investment professionals can manage tens or even hundreds of billions dollars in indexed assets.

As we mentioned, although the index approach is part of quantitative investing, it differs from active quantitative investing. Active quantitative management usually involves lower costs than fundamental active management and it often involves lower active risk levels than fundamental management. However, it shares with fundamental management the goal of beating the benchmark, in this case by identifying one or more factors that could explain why a large set of stocks will outperform and another large set will underperform the benchmark they're in. Index investing does not attempt to identify such factors.

But don't assume that because of the differences in goals and approach that index management is easy. Index managers face significant challenges, including, to name a few, trading costs associated with regular changes in the underlying index or benchmark, managing cash flows into or out of the fund, and the effect on expenses of the investment professionals needed to do these things.

For example, consider an index fund that has, say, \$100 million in it and no contributions or withdrawals. It might seem that the fund would have no costs since all it has to do is hold stocks in the same proportion as the index it tracks. However, the fund will still incur costs such as a charge from the firm that provides the fund's index (Russell, Morgan Stanley, etc.), keeping track of the stocks

the fund holds (custody fees), calculating a fund and share value each day, and accounting for dividends paid by the companies in the index. In fact this last activity of accounting for dividends, reminds us that even if there are no contributions or withdrawals, the fund still has money that it has to take care of, either by distributing dividends to shareholders or reinvesting the dividends.

In addition, the fund has to manage changes to the underlying benchmark. The Frank Russell Company, for example, reconstitutes its indices or benchmarks every June to take into account changes in the size or style of companies in the index. Other index providers may reconstitute their benchmarks once a quarter or on no set schedule. The reason for reconstituting is that the market value of a company can rise or fall to the point that it jumps to a larger-cap or smaller-cap index. Alternatively, a growth stock can change its behavior so that it could become a value stock and vice versa. Companies can also merge or be acquired. The result is that dozens of stocks change indices each year, requiring funds based on those indices to trade significant numbers of shares in order to bring the fund back in line with the index. Trading, of course, involves costs, both direct commissions to brokers and the indirect costs of raising or lowering the price of individual stocks through changing demand and supply as a large number of index funds rebalance their portfolios.

Cash flows into or out of the fund have a somewhat similar effect. Index funds generally don't prohibit contributions and withdrawals so such funds will have either a net inflow or a net outflow each day. As soon as the fund receives a net inflow the managers will have to decide when and how to put the cash to work. They can try to buy stocks right away, something that may or may not always be wise to do on short notice. Or they can put it into very short-term investments and get a small return. Or they can purchase an index future that matches the benchmark and wait for an opportunity to invest in the individual stocks in a more orderly manner. A net cash outflow is also a challenge. The managers will need to sell stocks in order to meet the demand by shareholders for cash. In either case, there will be costs associated with commissions, missed opportunities, and effects on share prices of buying or selling. Even more, the expert staff, information technology,

and accounting systems needed to manage all of these activities have costs associated with them.

Why such an extensive discussion of costs vis-à-vis index funds? Expenses or costs are a critical component of any investment fund, but they are particularly critical for an index fund. The higher the costs, the harder it is for the fund to track its benchmark. In fact, if the fund did nothing else but hold stocks in the exact proportion to the index, trade in response to changes in the underlying index, and deal with net inflows and outflows, the fund would always lag the performance of the index by at least the amount of the expense charges, and probably more. Some things that professional managers do to mitigate the expense challenge is to seek ways to minimize trading as well as direct and indirect trading costs, stay as fully invested as possible, and try to take advantage of economies of scale.

One last thing we haven't mentioned in this regard is to engage in securities lending. A common practice is for an investment manager with a large inventory of stocks or bonds to lend those securities out to other investors who want temporary use of them for other transactions. The investment manager receives fees for "renting out" their securities and these fees can help to offset some of the direct and indirect costs of managing index funds.

In any event, it is clear the index fund management challenge is considerably more complicated than simply purchasing securities in a benchmark. The other activities required to keep close to the index, allow for changes and transactions, and control costs, are significant ones that can really add value or prevent the loss of it for shareholders and participants.

You should consider the investment objectives, risks, charges and expenses carefully before investing. Please call 877 518-9161 or go to www.tiaa-cref.org to view or download a prospectus that contains this and other information. Please read the prospectus carefully before investing.

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