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The Pros and Cons of Passive Management

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Ever since the introduction of passive index funds in the mid-1970s, there has been an ongoing debate over the merits of active versus passive management of pension fund assets. Each year articles chronicle the relative rise and fall in popularity of each approach to portfolio management. The advantages and disadvantages of each approach vary with the size of the portfolio as well as with the characteristics of the asset classes. In fact, there may be a place for both forms of asset management in a single investment portfolio.

Active managers attempt to add value over the market-related returns through security selection and/or market timing by relying on security analysis and investment research. Passive management can take on many forms, from immunized fixed income portfolios to enhanced index funds. The basic features common to each passive approach are an alignment of the portfolio to reduce risk relative to a segment of the market, and a reduction in the research inputs needed to construct the portfolio. Pure passive portfolios are managed without placing valuation judgments on the individual assets, economic sectors of the market, or the market as a whole. Studies of manager performance and academic research on the efficient market hypothesis, as well as increased cost consciousness, have led to the acceptance of passive management as a viable alternative to active management.

Historical Median Manager Performance

Historical evaluation of active managers' performance relative to the market indicates that within some market segments, it has been difficult for active managers to beat the index consistently. Exhibits 1 through 4 show cumulative returns for median active managers relative to a market index that is representative of the returns from passive management. These graphs illustrate the trends of the median active manager's performance over time. A positively sloped line indicates that the median active manager is outperforming the index. Similarly, a downward trend in the line represents a period of relative underperformance.

The cumulative relative returns for the median core equity manager versus the S&P 500 Index (Exhibit 1) are predominantly negative, as are the returns for core bond managers, when compared to the Lehman Government/Corporate Index as shown in Exhibit 2 (the reduction in cumulative returns due to investment management fees has not been included in these results). To be able to identify the superior managers, who consistently beat the passive benchmarks within their asset classes, in-depth quantitative and qualitative techniques should be used.

In other cases, such as active duration bond (Exhibit 2), the median active managers outperform the index over long periods of time. In some market

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Exhibit 1. CUMULATIVE RELATIVE RETURN VS. S&P 500 FOR LAST 23 1/2 YEARS ENDED SEPTEMBER 30, 1995

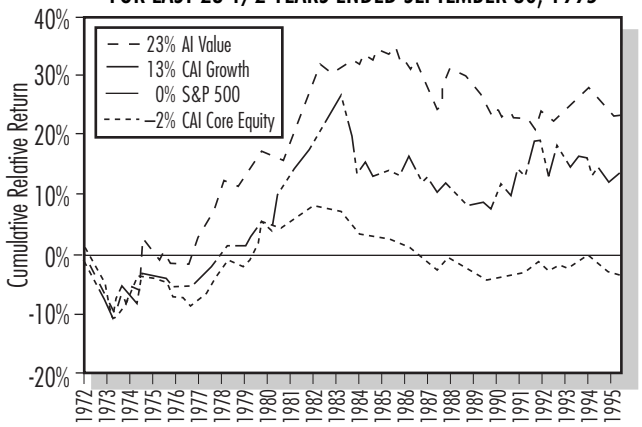
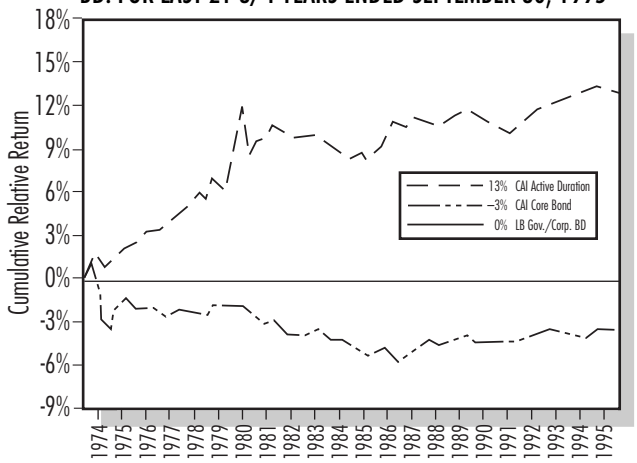


Exhibit 2. CUMULATIVE RELATIVE RETURN VS. LB GOV/CORP. BD. FOR LAST 21 3/4 YEARS ENDED SEPTEMBER 30, 1995



segments, such as small cap equity (Exhibit 3), the median manager's performance tends to dominate the index performance over time, thereby weakening the appeal of passive management.

The popularity of index funds ebbs and flows with the performance of the underlying index. For example, during the late 1980s, when the performance of active international equity managers was trending downward (Exhibit 4), many passive international equity portfolios were established. However, once the international active managers began to beat the index in early 1990, the tide shifted back toward active international equity management.

Approaches to Passive Management

Index funds are the most popular approach to passive management. Designed to mirror the performance of a benchmark portfolio, index funds provide low cost, diversified, broad market exposure.

An index fund can be constructed to reflect virtually any commercially available index. The more commonly chosen underlying indexes include the S&P 500 for large cap equity, MSCI-EAFE for international equity, and the Lehman Aggregate or Lehman Government/Corporate for domestic fixed income. The investment mandate given to the index fund manager is to replicate the performance of the index without an expectation of adding additional value relative to the benchmark. Tracking error measure the degree that the index fund's returns differ from that of the benchmark portfolio returns.

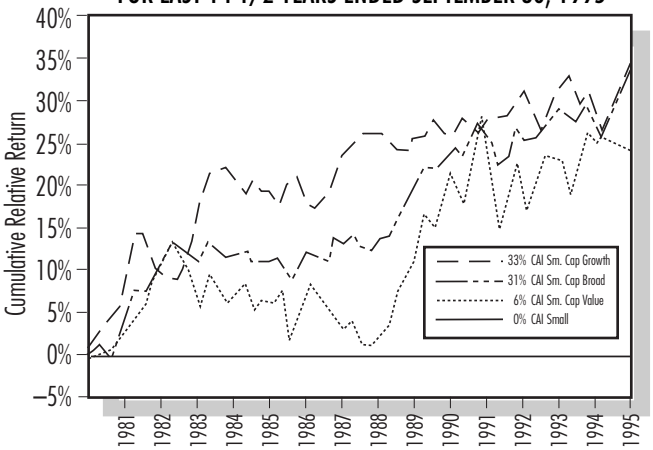
Typically, an index fund is used to gain a core exposure to an asset class. The core exposure may be supplemented by specialty active managers hired to pursue individual styles. This approach is commonly used by plans whose exposure to an asset class is very large. The number of active managers hired, as well as the investment style specialties of the managers, should be based on the amount of assets to be managed and the trade-off between program complexity and additional expected return.

Passive completion funds are specialized index funds. A customized passive benchmark is constructed that excludes the market segments in which the active manages operate. Passive management is used to fill in the areas not covered by either active or passive management.

Active and passive management represent the two endpoints on the continuum of investment management strategies. In between these two extremes are hybrid management styles that blend elements of both active and passive management. A hybrid or semi-passive approach typically involves some active decisions, with other decisions based on index attributes. An important guide to where an investment product falls on this spectrum is the degree to which the product is allowed to deviate from the benchmark. Hybrid portfolios may be restricted in terms of the number of holdings, the capitalization range, the tolerance for sector and industry weighting deviations from the benchmark, or in the weightings assigned to individual securities.

For example, a passive hybrid equity strategy might concentrate on identifying attractive stocks within each industry without having a view on the relative attractiveness between industries. That is, a subset of stocks in each industry sector is held, but the portfolio weight assigned to each industry is identical to the industry weightings in the index benchmark.

Exhibit 3. CUMULATIVE RELATIVE RETURN VS. CAI SMALL
FOR LAST 14 1/2 YEARS ENDED SEPTEMBER 30, 1995



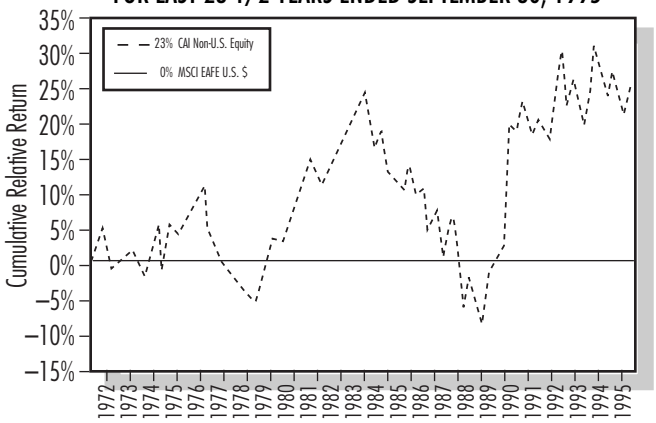
Active/passive international equity is an interesting hybrid strategy. The country weightings are actively managed, but stocks are selected passively through the use of country specific index funds.

The Prevalence of Passive Management

Although passive management has gained acceptance, the majority of pension assets are still actively managed. Exhibit 5 contains a review of the 1994 asset allocations of over 500 defined benefit pension plans with assets of at least $500 million. This exhibit is based on data compiled from the *Money Market Directory of Pension Funds and Their Investment Managers* and *Nelson's Directory of Plan Sponsors*. Approximately 40% of these defined benefit plans invest in indexed equity portfolios. Among the defined benefit plans investing in indexed equity, the average allocation is 33%. In addition, 17% of these plans invest in indexed bond portfolios with an average passive fixed income allocation of 42%. Passive investing is most common among the larger plans.

While plan sponsors are increasingly using passive management as a complement to active management, it is relatively uncommon for a plan sponsor to gain the entire asset class exposure through a passive investment vehicle. The following graph (Exhibit 6), shows the distribution of indexed equity allocations as a percentage of the total equity allocation for defined benefit pension plans with assets of at least $500 million. The majority of the funds (60%) did not have an allocation to indexed equity. Approximately 1% (5 out of 506) of the plans derive their entire equity asset class exposure through passive management. The results for fixed income, although not shown, are similar to those for equity.

Exhibit 4. CUMULATIVE RELATIVE RETURN VS. MSCI EAFE US$
FOR LAST 23 1/2 YEARS ENDED SEPTEMBER 30, 1995



Issues with Establishing Passive Portfolios

How Should the Passive Portfolio be Constructed?

There are several different approaches for constructing the passive portfolio. The method selected can impact the resulting performance.

Under a *full replication approach*, each security in the index is purchased in proportion to its weight in the index. Over time, the portfolio holdings are adjusted for additions to or deletions from the index. This approach ensures an index-like return with low tracking error since the portfolio is a mini-version of the index.

There are at least three circumstances where full replication may not be practical:

1. When there are a large number of securities in an index;
2. When some of the securities in the index are relatively illiquid; and
3. When the dollar amount invested in each security is so small that it is not cost effective to hold every security.

The following section on the potential risks of passive management contains additional discussion of these circumstances.

Sampling approaches are an alternative to full replication. For example, when the passive benchmark is a very broad market index such as the Wilshire 5000, full replication would require holding and tracking over 6000 securities. In addition, some of the smaller capitalization securities in the index are relatively illiquid and therefore more costly to purchase and sell.

Stratified sampling and random sampling are the two most commonly used sampling approaches. With stratified sampling, the universe of securities is divided into cells containing securities with similar characteristics. If a fixed income

Exhibit 5. 1994 ASSET ALLOCATIONS

	Average Defined Benefit Assets ($ Billions)	*% of Funds Investing in Passive Equity*	*% of Funds Investing in Passive Fixed Income*	*Average Passive Equity Allocation*	*Arerage Passive Fixed Income Allocation*
		Average Allocations for Funds With Assets in Excess of $500 Million			
All Funds	3.5	40%	17%	33%	42%
Corporate	2.4	43%	15%	29%	40%
Government	6.5	46%	27%	17%	11%
Union	1.4	16%	7%	48%	44%
		Average Allocations for Funds With Assets in Between $500 Million and $1 Billion			
All Funds	.7	34%	12%	32%	45%
Corporate	.7	44%	13%	31%	47%
Government	.7	31%	19%	29%	42%
Union	.7	8%	2%	61%	36%
		Average Allocations for Funds With Assets in Excess of $1 Billion			
All Funds	5.6	42%	20%	34%	41%
Corporate	3.9	38%	14%	27%	35%
Government	8.8	51%	29%	40%	43%
Union	2.6	25%	13%	41%	46%

index is being replicated, these cells might reflect sector, quality, maturity range, duration, coupon range, and call provisions. The investment portfolio is constructed by selecting a limited number of securities from each cell. The finer the subdivision of the cells, the more closely the underlying index is replicated and the lower the tracking error. In general, the number of cells used depends on the nature, number and liquidity of the securities in the index.

A benchmark might also be constructed by *random sampling*, that is, securities are selected randomly from the universe of securities that comprise the underlying index.

A third approach to index construction uses a *quadratic optimization model* to create a portfolio with minimal residual risk relative to the benchmark. The advantage of this approach is that the benchmark can be tracked quite closely using fewer securities than in the full replication approach. The disadvantage of this approach is that the relatively complicated model uses historical data which may not be representative of the future.

Should Derivatives Be Allowed?

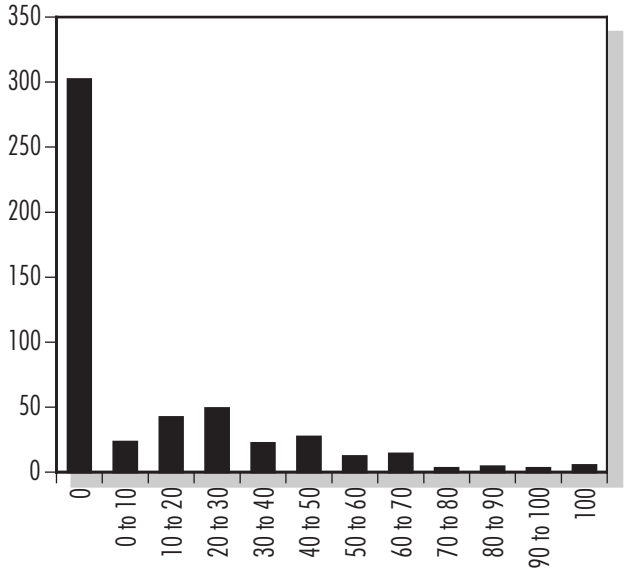
There are several ways in which derivative securities can be incorporated into a passive portfolio. Derivatives can be used to replicate the performance of the underlying index. The primary reason for including derivatives in a passive portfolio is to better manage cash inflows and outflow. The tracking error of the portfolio can be reduced if cash inflows received are invested using index futures.

Derivative-based *enhanced index funds*, which use index futures and options in addition to equity securities, attempt to provide positive incremental returns with limited incremental risk. The cost of establishing such a fund is low due to the low commission rate of future trades and futures' high level of liquidity. Index futures can also be used for "arbitrage," that is to take advantage of security mispricings.

Should Securities Lending Be Permitted?

Securities lending involves transferring a security to a borrower according to negotiated terms. The lender, who is paid a fee by the borrower, retains the benefits of ownership such as income and capital gains, and receives collateral. Some of the risks faced in securities lending are counterparty risk (a loss resulting from broker default), collateral reinvestment risk (an investment loss in the cash securities in which the collateral is invested), and operational risk (the loss of principal and income arising from the settlement and

Exhibit 6. HISTOGRAM OF INDEXED EQUITY AS A PERCENTAGE OF TOTAL EQUITY ALLOCATION



record keeping processes of the lending agent).

When deciding whether to allow derivatives or securities lending in a passive portfolio, it is important to realize that a passive fund that bans both of these investment choices is likely to have larger fees and/or tracking error than a passive fund which allows these investments.

Benefits of Employing Passive Management

The benefits of passive management are primarily related to the ability to achieve diversified asset class exposure at a low cost and without substantial market impact. This is particularly true when the asset class commitment is very large. Below we summarize some of the motivating factors for establishing a passive core position.

Low Cost Asset Class Exposure

The primary reason for employing a passive management strategy is to provide low cost market exposure to an asset class. The reasons for this low cost exposure follow:

1. Indexation is basically a buy and hold strategy with the securities being held as long as they remain represented in the index. Because of the low portfolio turnover, transaction costs are low.

2. If securities are included in the index, they are candidates for inclusion in the passive portfolio, thereby eliminating the costly market research associated with active management.

3. The trading techniques used by index managers, such as crossing securities with another index fund and package trades, result in significant cost savings.

4. When securities lending is permitted, custody fees may be reduced or the portfolio returns may be enhanced.

5. If futures and options are allowed, the cost of managing the portfolios may be reduced or the returns may be enhanced.

Management fees are typically stated as a percentage of assets to be managed. Small investors have higher percentage costs for active management than larger investors. These percentage rates usually decline as the amount of assets increase and reach their lowest rates for accounts of $100 million and over. The reduced costs of passive management may provide an additional incentive for smaller investors to have some funds passively managed.

SAMPLE AVERAGE PASSIVE MANAGEMENT FEES

	$50 Million Account Size	$100 Million Account Size
Passive Large Cap Equity	9 bp	7 bp
Passive Fixed Income	12 bp	9 bp
Passive International Equity	20 bp	17 bp

Diversified Portfolio

The passive portfolio tracks the performance of an index containing a large number of securities.

Reduced Risk of Underperformance Relative to the Benchmark

Active managers risk severe underperformance (as well as fantastic outperformance) relative to their asset class benchmarks. Because the objective of an index fund is to produce index-like performance, such a fund offers little or no residual risk relative to the benchmark. Therefore, neither severe underperformance nor fantastic outperformance relative to the benchmark should result from passive management. However, the potential remains for underperformance relative to the median active manager.

Longer Term Outlook

Passive management is basically a buy and hold strategy. The securities included in the benchmark are held while they remain in the benchmark. There is much lower portfolio turnover than with active management, where the focus is

often on quarterly performance.

Useful for Structuring Very Large Portfolios

When a very large portfolio is actively managed, the portfolio returns may tend to resemble market returns even though active management fees are paid. This problem stems from the following two sources.

First, the amount given to any manager may be so large that the implementation of the investment strategy has a substantial market impact. When investment management firms grow larger in terms of assets under management, they may experience greater difficulty buying large positions in a small number of securities without market impact. This may cause the manager to construct portfolios with larger number of securities. As the number of different securities held increases, the portfolio begins to resemble the market and thus to perform more like the index. The result is that the fund achieves index-like returns but the plan sponsor pays active management fees.

Second, a fund structure can have too many actively managed portfolios. While increasing the number of managers increases diversification, a fund structure with too many managers can tend to push the fund toward index-like performance. When the number of active managers assigned to the same market segment rises, the number of different securities held will increase, and the aggregate portfolio will tend to behave like the index.

In these circumstances, passive vehicles serve as a useful diversified core position in the portfolio. Typically, active managers are hired to supplement the core position.

Competitive Performance of Passive Management in an Efficient Market

Returns for passive management on a risk-adjusted, after-fee basis, have been very competitive with median active management in the large cap equity and fixed-income areas over much of the last decade. One explanation for this performance is the degree of efficiency in these markets.

The greater the market efficiency, the less room that remains for consistent superior active management results relative to the benchmark index. The degree of market efficiency varies with time and by market segment due to the availability of information, and the comparability of information among different securities. The large cap domestic equity market is one of the more efficient markets, while the emerging international market is the least efficient.

If the efficient market theory is true, it offers a compelling argument for implementing a passively managed portfolio. However, the entire growth/value and large cap/small cap debate is predicated on the notion that markets are not efficient.

Use in Transitions and Rebalancing

A passive component in the portfolio is also useful for managing transitions between asset class allocations and in portfolio rebalancing. The passive fund may be used as a "parking place" for contributions or for money being moved from a terminated manager to a manager not yet funded. If the funds were instead put into a cash account, the asset class exposure would be lost.

Potential Risks of Passive Management

At times the use of passive management can be expected to have a negative impact on the overall portfolio performance. The risks associated with passive management depend on whether the passive exposure is a core type exposure or is the only exposure to the asset class.

Index Related Problems

The most important potential downside to the use of passive management is the lack of a fully satisfactory passive index to track. Poor index availability stems from index construction problems and fundamental inefficiencies in the universe of securities that the index attempts to represent.

By definition, any capitalization weighted index (for example the S&P 500 or MSCI-EAFE) is dominated by large capitalization securities. As a result of the capitalization weighting, the performance of larger stocks will have a larger impact on the overall performance of the index than the performance of smaller stocks. During the 1980s when domestic large cap stocks performed well, the result was a positive impact on the S&P 500 index and on S&P 500 index funds. Typically, active managers equal-weight the securities in their portfolios thereby reducing the overall impact of large company performance.

A second index related problem is the rigidity of buy and sell decisions imposed by closely following changes in the index. This may explain

the consistent underperformance of the small cap indexes relative to active small cap managers. The active managers can ride the winners out of the small cap range of the index and realize the resulting price appreciation. However, a small cap index will lose these successful issues as they rise out of the index's capitalization range. Also, a small cap index includes all the issues which are falling from higher cap levels due to price declines in the stock.

Some indexes include non-investable components, such as illiquid securities that can be traded only at a prohibitively high cost. Similar problems occur when there is such a large number of securities in the index that holding all of the securities is impossible due to cost considerations.

Indices Are Not "The Market"

To the extent that capitalization weighted portfolios are not mean/variance efficient portfolios (in other words they are not on the efficient frontier), there are potential gains from reweighting the securities in the index. While a true passive portfolio would hold securities in proportion to their weightings in the index, a semi-passive approach could allow for the reweighting of the securities in an attempt to improve the portfolio performance.

Tracking Error

Higher degrees of tracking error typically occur when sampling methods are used, when transaction costs are high such as in full replication methods involving illiquid securities, or when the asset pool of the passive fund manager is small.

Passive Portfolio May Not be Sufficiently Diversified Across Market Cycles

While index funds typically have outperformed the average manager in bull market years, the question of whether they will be able to outperform the average manager in bear market years has yet to be answered. An index fund has no protection against downturns in the market. A passive manager's performance follows the index both up and down over the course of market cycles since he does not have a mandate to deviate from the index returns in an attempt to reduce the impact of down markets.

Duration-related Issues for Fixed Income Portfolios

Even though Exhibit 2 shows that the index (Lehman Government/Corporate Bonds) tends to outperform the core bond managers over time. One should nonetheless question an investment approach, such as a bond index fund, that causes one to systematically shorten durations when interest rates are absolutely high and lengthen durations when interest rates are low.

Problems if Majority of Investors Switch to Passive Investing

The competitive returns achieved by passive equity portfolios were achieved in an era in which the market was dominated by traditional active managers. If a significant portion of the market ignores traditional management approaches and bases investment decisions on other factors, the basic concepts that support market efficiency are destroyed. The result, therefore, would be an increased opportunity for active management. Portfolio insurance worked when nobody used the approach but once many started to use it, it ceased to work. Advocates of market efficiency note that critical assumptions are: 1) that investors are rational, 2) that information is readily available to all market participants and 3) that they act on it. If a significant part of the investment world ignores information and acts on some other basis, they are no longer acting rationally and presumably that will create extraordinary opportunities for the active managers. Obviously, the key question is, at what point is too much money managed passively?

Conclusion

The passively managed portfolio can play a useful role in the overall asset allocation strategy of a pension fund. When evaluating the appropriateness of a passive allocation, the pros and cons of a passive portfolio should be considered. Once the plan sponsor decides to include a passive portfolio allocation, the plan sponsor needs to consider whether or not to use derivatives, the impact of market efficiency, and strategies for implementing the passive portfolio so that the performance of the portfolio will meet the sponsor's expectations.