

401(k) Index Investing



A Closer Look at Passive Investment Options for 401(k) Plans

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Much has been written about the benefits of a passive investment strategy. One of the primary arguments in favor of passive investing is that, over time, the majority of active investment managers fail to beat their index benchmarks. It's a good argument: According to a report by Standard & Poor's Financial Services, LLC, 57.6 percent of all domestic equity funds underperformed their benchmarks for the five year period ending December 31, 2010 (Luo & Soe, 2011).

It gets worse as you look closer. Over the same five-year period, a stunning 16 of 17 domestic equity fund classes reported a majority of their funds as underperforming (Luo & Soe, 2011). Among actively-managed international equity funds, three of the four subcategories indicated that a majority of their offerings underperformed their benchmarks, including a shocking 81.7 percent of international funds. And it's hardly better on the fixed-income side. Among non-municipal bond funds, more than half of offerings in nine out of ten asset categories underperformed their benchmarks, including a mind-numbing 97.1 percent of actively-managed investment-grade short term bond.

It's no surprise then that so many retirement plans tilt heavily toward passive investment products. Historically, retirement plan advisors have had only one product option: passively-managed index mutual funds. Recently, however, many retirement plan providers have also made exchange-traded funds (ETFs) available for inclusion in their 401(k) plan's investment lineup. Like index mutual funds, ETFs a) effectively track their benchmark, b) have a good degree of tax efficiency and c) have low expense ratios. In fact, the two investment vehicles have so much in common it's often hard to tell them apart.

But there are differences, particularly in the retirement account setting, that can affect your pool of dollars. Remembering that the task of choosing the most efficient

investment options is a critical one, it's worth the effort for an advisor to evaluate these two investment vehicles and determine which may be the more attractive passive investment option for their retirement plan clients.

Index Mutual Funds Versus ETFs: A Good Number Of Differences

1. How They Trade

- *Index Mutual Funds:* Index mutual funds are purchased from an investment company. They do not trade on an open market throughout the day and can only be bought or sold at the close of the trading day.
- *ETFs:* Shares are purchased through a broker-dealer and can be traded on the market throughout the trading day.

2. How They Are Priced

- *Index Mutual Funds:* Pricing is based on the fund's underlying holdings, or its Net Asset Value (NAV) rather than the perceived value of that fund. The NAV is calculated at the close of every business day by determining the difference of assets and liabilities and dividing that difference by the number of outstanding shares.
- *ETFs:* Market forces and investor sentiment influence the share price throughout the trading day. The NAV system is used by investors to help evaluate whether the ETF is trading close to the value of its underlying stocks.

3. Functionality

- *Index Mutual Funds:* Shares are bought or sold at the NAV price at the end of the trading day, so an investor can't be assured of a price during trading hours. Also, many of these funds have high minimums that can limit purchasing power.
- *ETFs:* Shares trade just like regular stocks, trading throughout the day, including limit orders, short



selling, and buying on margin. The market price can be higher or lower than the values of the fund's underlying securities..

4. Tax Efficiency

- *Index Mutual Funds:* The potential for capital gain taxes exists every tax year, whether or not shares were sold.
- *ETFs:* Typically, capital gain taxes are due only on profitable sales.

Use of ETFs and Index Mutual Funds in a Retirement Account

Several of the benefits of ETFs can be diminished when the fund is purchased in a 401(k) or other type of defined contribution plan. When an ETF is utilized in a retirement plan, the ETF's tax efficient structure loses its advantage on a tax-deferred platform, pricing is usually done only once per day (rather than intra-day), and short selling / limit orders are not permitted.

The primary benefit, then, of choosing an ETF over an index mutual fund in a retirement plan is its lower expense ratio. But while one might assume that, all things being equal, the option with the lower expense ratio

would be the superior investment choice, all things in this situation are not equal. We can't forget that an ETF in a retirement plan is likely to charge a commission for both the purchase and the sale of the fund. This differs in that a majority of index mutual funds are "no load" and do not charge a purchase commission. That is not to say the ETF may not be the preferred choice, it very well could be depending on the amount of time the participant expects to be invested in the investment option. That determination, however, might take a little effort to reveal. This hypothetical example is designed to help to that end.

We will assume that Mark Advisor wants to include a passively managed S&P 500 investment option for the ABC Company 401(k) Plan. He will have the option to choose between an index mutual fund and an ETF, both of which are designed to track the S&P 500.

Since this analysis examines a type of fund rather than any specific investment funds, we'll create a hypothetical index mutual fund and a hypothetical ETF based on average characteristics of existing investment products.

For the index mutual fund, we will use attributes of the top four index mutual funds as measured by assets. This example excludes any funds that would not be available to small retirement plans due to their high

Average Annual Total Return (%) as of 3/31/2011 (Morningstar, Inc., 2011)

| | Expense Ratio | 1 Year | 3 Year | 5 Year | 10 Year |
|----------------------------------|---------------|--------------|-------------|-------------|-------------|
| S&P 500 Index Mutual Fund 1 | 0.10% | 15.56 | 2.33 | 2.58 | 3.21 |
| S&P 500 Index Mutual Fund 2 | 0.18% | 15.49 | 2.30 | 2.54 | 3.19 |
| S&P 500 Index Mutual Fund 3 | 0.33% | 15.32 | 2.18 | 2.39 | 3.03 |
| S&P 500 Index Mutual Fund 4 | 0.10% | 15.47 | 2.42 | 2.63 | 3.23 |
| Index Mutual Fund Average | 0.18% | 15.46 | 2.27 | 2.50 | 3.14 |

| | Expense Ratio | 1 Year | 3 Year | 5 Year | 10 Year |
|--------------------|---------------|--------------|-------------|-------------|-------------|
| S&P 500 ETF 1 | 0.09% | 15.54 | 2.31 | 2.59 | 3.23 |
| S&P 500 ETF 2 | 0.10% | 15.49 | 2.34 | 2.58 | 3.22 |
| ETF Average | 0.095% | 15.52 | 2.33 | 2.59 | 3.23 |

| | Expense Ratio | 1 Year | 3 Year | 5 Year | 10 Year |
|--|---------------|----------------|----------------|----------------|----------------|
| Difference: Index Mutual Funds vs. ETFs | 0.083% | (0.058) | (0.055) | (0.082) | (0.082) |

The return information used in this hypothetical is for illustrative purposes only. Actual results may be materially higher or lower.

investment minimums. For the ETF component, we will average the only two pure S&P 500 index ETFs that have been in existence for at least 10 years. (There are additional S&P 500 ETFs, but many of these are either a “growth” or “value” component of the index and are not designed to track the index exactly.)

Using the five- and 10-year periods as a baseline, we can assume that the performance of each investment product will vary by the differences in the expense ratios. Both choices are inexpensive investment options. With our hypothetical funds, the average index mutual fund expense ratio is 0.178 percent while the average ETF expenses are 0.095 percent (Morningstar Inc., 2011). Not surprisingly, the returns for both products are nearly identical. Also, in any given time period, the ETF produced an average return greater than the index mutual fund consistent with its lower expense ratio. In fact, for both the five- and 10-year returns, the ETF’s performance was 0.082 percent superior to the index mutual fund, which corresponds directly to its 0.083 percent lower expense ratio.

Looking at expense ratios alone, it would appear the ETF is the better investment option. However, when an ETF is purchased or sold in a retirement plan, it’s likely that a commission will be charged. The key questions in our analysis are: How long will it take for the superior performance of the ETF (due to the lower expense ratio) to compensate for the commissions paid? How long do 401(k) participants investing in a S&P 500 option have to remain in that fund in order for the ETF to potentially surpass the index mutual fund option?

To conduct this analysis, we will take a look at the account performance of Joe Participant. Joe’s salary is \$50,000 annually, he is contributing 8 percent of his paycheck per month, is paid monthly, and has chosen to allocate 50 percent of his contributions to the S&P 500 option. This results in a \$166.67 monthly contribution to the S&P 500 option.

This illustration assumes each ETF contribution is charged \$0.07 a share commission on a \$129.27 share price (the average share price on March 31, 2011 for the two actual ETFs evaluated). To create an apples-to-apples comparison, we will evaluate the ending balance of the ETF every month thereafter, after factoring in the same \$0.07 commission charged on the sale. The ETF’s ending balance, then, would be the value of the ETF minus the sale commission charged.

Assuming a gross investment return of 11.13 percent [the average annual total return of the S&P 500 from January 1, 1950 to March 31, 2011 (Thomson Reuters, 2011)], the net returns of both the ETF and the index mutual fund would be 11.13 percent minus the average expense ratio for each product. The ETF’s net return is

10.97 percent, which is comprised of a 1.755 percent dividend yield and annual appreciation of 9.215 percent. The breakout of the annualized return in the form of either appreciation or dividends is only applicable in the ETF example because the dividends are used to purchase additional shares. While this is also true of the index mutual fund, the number of shares is irrelevant to this illustration because there is not a sales commission charged.

Account Balances of ETF Versus Index Mutual Fund

This example begins with an initial investment of \$166.67 and assumes an ETF share price of \$129.27 and ETF commission of \$0.07 per share.

Since there is no front-end charge to purchase the index mutual fund, the entire \$166.67 is fully invested. On the other hand, the same contribution amount to the ETF would incur a \$0.09 commission on the purchase of 1.29 shares, resulting in a net contribution of \$166.58 to the ETF. In addition, if Joe were to immediately take a distribution or transfer the entire balance, he would incur another \$0.09 commission on the sell side, which would leave a balance of \$166.49. Thus, the index mutual fund begins with a \$0.18 advantage over the ETF.

This advantage of the index mutual fund will decrease slightly every month due to the fact that the ETF produces a higher rate-of-return as a result of its lower expense ratio. This means that at some point, the ETF will produce a higher account balance.

In this example, the index mutual fund produces a larger balance for the S&P 500 option until 16 months after the initial investment. After that, the lower expense ratio of the ETF compensates for both the purchase and sale commissions.

This formula holds true for every contribution. If Joe transferred his money from the S&P 500 ETF option to another investment option in month eighteen, only the initial two contributions would result in a higher account balance. As the remaining contributions had not been invested for 16 months, the index mutual fund would have resulted in a higher account balance for those contributions.

Account Balances of ETF Versus Index Mutual Fund

| Month | ETF Balance | Index Mutual Fund Balance |
|-------|-------------|---------------------------|
| 0 | \$ 166.49 | \$ 166.67 |
| 1 | \$ 168.01 | \$ 168.18 |
| 2 | \$ 169.55 | \$ 169.70 |
| 3 | \$ 171.10 | \$ 171.24 |
| 4 | \$ 172.66 | \$ 172.80 |
| 5 | \$ 174.24 | \$ 174.37 |
| 6 | \$ 175.83 | \$ 175.95 |
| 7 | \$ 177.44 | \$ 177.54 |
| 8 | \$ 179.06 | \$ 179.16 |
| 9 | \$ 180.70 | \$ 180.78 |
| 10 | \$ 182.35 | \$ 182.42 |
| 11 | \$ 184.02 | \$ 184.08 |
| 12 | \$ 185.71 | \$ 185.75 |
| 13 | \$ 187.40 | \$ 187.43 |
| 14 | \$ 189.12 | \$ 189.13 |
| 15 | \$ 190.85 | \$ 190.85 |
| 16 | \$ 192.59 | \$ 192.58 |
| 17 | \$ 194.35 | \$ 194.33 |
| 18 | \$ 196.13 | \$ 196.09 |
| 19 | \$ 197.93 | \$ 197.87 |
| 20 | \$ 199.74 | \$ 199.66 |
| 21 | \$ 201.56 | \$ 201.48 |
| 22 | \$ 203.41 | \$ 203.30 |
| 23 | \$ 205.27 | \$ 205.15 |
| 24 | \$ 207.14 | \$ 207.01 |

Account Balances of ETF with a Lower Commission Versus Index Mutual Fund

| Month | ETF Balance | Index Mutual Fund Balance |
|-------|-------------|---------------------------|
| 0 | \$ 166.59 | \$ 166.67 |
| 1 | \$ 168.11 | \$ 168.18 |
| 2 | \$ 169.65 | \$ 169.70 |
| 3 | \$ 171.20 | \$ 171.24 |
| 4 | \$ 172.77 | \$ 172.80 |
| 5 | \$ 174.35 | \$ 174.37 |
| 6 | \$ 175.94 | \$ 175.95 |
| 7 | \$ 177.55 | \$ 177.54 |
| 8 | \$ 179.17 | \$ 179.16 |
| 9 | \$ 180.81 | \$ 180.78 |
| 10 | \$ 182.46 | \$ 182.42 |
| 11 | \$ 184.13 | \$ 184.08 |
| 12 | \$ 185.82 | \$ 185.75 |
| 13 | \$ 187.51 | \$ 187.43 |
| 14 | \$ 189.23 | \$ 189.13 |
| 15 | \$ 190.96 | \$ 190.85 |
| 16 | \$ 192.70 | \$ 192.58 |
| 17 | \$ 194.47 | \$ 194.33 |
| 18 | \$ 196.25 | \$ 196.09 |
| 19 | \$ 198.04 | \$ 197.87 |
| 20 | \$ 199.85 | \$ 199.66 |
| 21 | \$ 201.68 | \$ 201.48 |
| 22 | \$ 203.52 | \$ 203.30 |
| 23 | \$ 205.38 | \$ 205.15 |
| 24 | \$ 207.26 | \$ 207.01 |

Impact of a Lower ETF Commission

If the ETF's per share commission price was reduced from \$0.07 a share to \$0.03, the index mutual fund sample would yield a higher account balance until month seven. The lower commission charged in this example allowed the ETF balance to overtake that of the mutual fund sample eight months earlier

Effect of a Lower ETF Share Price

In our example, we assumed that the ETF was initially purchased at a share price of \$129.27. With a payroll contribution amount of \$166.67 allocated to the S&P

500 ETF, a \$0.07 per share commission would result in 1.2886 shares being purchased; the commission amount for this purchase would be \$0.0902.

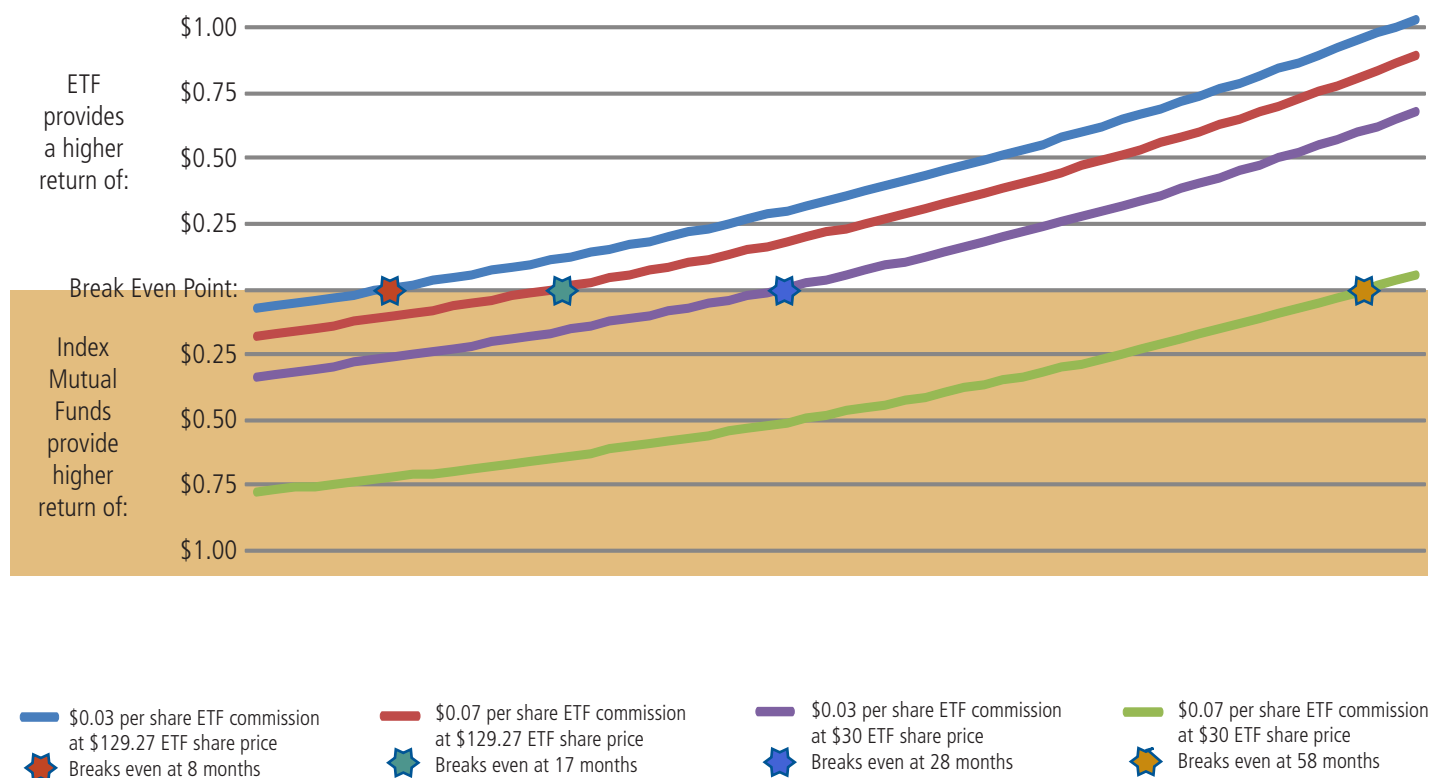
But what if the share price of the ETF was only \$30.00? Joe would then be able to purchase 5.5426 shares of the ETF in the initial contribution. This would result in a purchase commission of \$0.3888, over four times the commission amount charged when compared to the share price of \$129.27. Interestingly, the impact of the lower share price greatly increases the amount of time it takes for the ETF to become a more profitable option than the index mutual fund. In this example, the amount of time for the ETF to yield a higher account balance would increase to 36 months.

The graph below shows the difference in ending account balances of an ETF that incurs both a purchase and sale commission, compared to an index mutual fund. This graph assumes that Joe contributes \$166.67 to the S&P 500 option at monthly intervals. The lower the ETF commission and the higher the share price, the quicker the breakeven point with the index mutual fund. At a \$0.03 per share commission rate with a share price of \$129.27, the ETF produces a return greater than the index mutual fund in seven months, whereas the ETF with a \$0.07 per share commission and a \$30.00 share price takes 58 months to exceed the return of the index mutual fund.

The Key Question:

How long will it take for superior performance of an ETF to compensate for the commissions charged?

Difference in Participant Account Balance if Invested in an ETF versus Index Mutual Fund



Impact of a Higher Mutual Fund Expense Ratio

In addition to the share price and commissions of the ETF, the index fund's expense ratio is another factor that needs to be considered. Our example assumed an expense ratio of 0.178 percent, but what if Joe's plan offered an index fund with an expense ratio twice that amount? As you might expect, the time required for an ETF to exceed the account balance of the index mutual fund is achieved much sooner. In fact, using our original example of a \$129.27 share price and a \$0.07 per share commission rate, the ETF yields a higher account bal-

ance in six months, 10 months sooner than the scenario with the original expense ratio of 0.178 percent.

The Bottom Line

While both approaches to passive index investing—index mutual funds and ETFs—achieve similar results, our hypothetical examples show there are subtle, but important differences for an advisor to consider in selecting a product to include in a 401(k) plan lineup.

Specifically, our analysis suggests that the value of the ETF will surpass that of the index mutual fund over time, the variations of which will depend on the following factors:

- The lower the commission charged for ETF transactions
- The higher the share price of the ETF
- The higher the expense ratio of the index mutual fund than that of the ETF

The advantages of passive investing are well known at this point, and it is hard to argue that any retirement plan is not well served by granting access to this type of investment approach. And it can easily be said that index mutual funds and ETFs both capture the benefits of a passive investment strategy. There are, however, occasions where one may prove to be more beneficial than the other when an advisor is considering which option to include in a plan's lineup.

To that end, some analysis is required to determine which product would best serve the plan's participants. That analysis should, at the very least, include consideration of:

- Expense ratios of both products, (including what share classes may be available depending on the size of the plan)

- ETF share price, and
- ETF commissions charged by the plan provider.

The differences, however slight, will impact participants' retirement balances. It is worth the effort for an advisor to evaluate these two investment vehicles and determine which may be a more advantageous option to incorporate in a retirement plan. As an advisor there are additional considerations to factor into the analysis, of course, including but not limited to the retirement plan's objectives and design features.

References

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