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Exchange Traded Funds (ETFs)

LOOKING AT THE ENTIRE PICTURE

KEY TAKEAWAYS

- Investors can sometimes forget to account for all costs of holding ETFs.
- Investors should take both explicit and implicit costs into consideration prior to choosing an ETF.
- Implicit costs, like price impact and bid-ask spreads, are less obvious than explicit costs, like expense ratios and commissions.
- Investment goals and the expected holding period will determine which of these costs are more important, and whether an ETF is the best option.

These days, we are facing many questions from advisors who are concerned about the true cost of holding ETFs. While this is entirely understandable, more often than not we realize that some are missing an important part of the picture. Many investors are knowledgeable about the explicit costs of holdings ETFs, but seem completely oblivious to the hidden costs that such investments may carry. In this brief piece, we would like to explain our approach when it comes to comparing costs across different investment alternatives.

First, we can divide costs into two groups: explicit and implicit. Listing them is easy. What is a little more complicated is determining which of these costs are more relevant for each particular investor, and should therefore carry more weight in his or her decision. The total cost of ownership is what matters in the end. But this cost is affected by investment goals, as we argue in the following paragraphs.

1. Exchange Traded Funds

ETFs were originally crafted with the idea of replicating an index or a given instrument, allowing investors to follow a given country, a series of countries, a particular industry, and more. Unlike other investment vehicles, ETFs are always traded on stock exchanges, just like stocks. Therefore, their price is determined by supply and demand (that is, buying and selling).[1]

Although they are ubiquitous now, ETFs sprang up only in the 1990s. The first ETF in the United States was launched in January of 1993. The S&P SPDR, now aged 25, has more than $290 billion in assets, showcasing the growth this particular kind of investment vehicle has exhibited. In total, ETFs currently hold more than $1 trillion in assets under management, with thousands of options to choose from. The bulk of this growth has happened in the last decade, with a dramatic gain in traction for this type of vehicle. From 2008 to 2017, the number of ETFs available worldwide has more than tripled. They have amassed more than $3.4 trillion dollars, as of the end of 2017.

It is undeniable that increasing the number of investment options is good for investors. Increasing the investment universe can never leave investors worse off.

Despite the substantive growth of ETFs, both in terms of assets and products, they may not the best way to help investors achieve their investment goals. An ETF should be evaluated against competing alternatives (such as mutual funds and separately managed accounts), by looking at the total cost of ownership given the investor's specific circumstances.

[1] Some could be tempted to argue that the price of an ETF is determined only by the price of its underlying securities. But this is not the case. ETFs can trade at a premium or a discount relative to those securities, depending on how expensive it is to create or redeem an ETF unit. The premium can be significant. We expect to address this in a future piece, but it is important to note that this does not qualitatively affect the results presented here.

2. Total cost of ownership

Explicit costs

These are the easy ones, as they are explicitly mentioned in the relevant documentation of the fund in question. The two most commons explicit costs are (*i*) the expense ratio – the percentage of the fund's assets that will go towards paying administrative and operational costs – and (*ii*) commissions, such as ticket charges.

Implicit costs

Here things become trickier. Amongst the most important implicit costs we can find (*iii*) the bid-ask spread – the difference between the highest price a buyer has offered to pay and the lowest price at which a seller is willing to sell – and (*iv*) price impact – how much the price will move as a consequence of a given transaction. We consider just these two to keep things simple. To illustrate the role of hidden costs, we use an example comparing two hypothetical ETFs with different cost structures.

An example

Assume there are two ETFs:[2] ABC, with an expense ratio of 1.0% (i.e., 100 basis points), and XYZ, with an expense ratio of 0.2% (i.e., 20 basis points). As usual, these expense ratios are expressed in annual terms. They are offered by different providers. Assume further that both intend to offer exposure to the same area of the market, and do so in the same way.[3] Thus, they could be considered – wrongly, as we will show – as perfect substitutes for each other. To make the comparison simpler, we will assume that the last price for the shares of both ETFs is $10, and a potential investor wants to invest $100,000.

A. Expense ratios

All of the costs so far are explicit, and only include expense ratios (1.0% for ABC, 0.2% for XYZ). Given this information, it is straightforward to see that the investor should pick XYZ over ABC, regardless of any other consideration (e.g., time horizon).

Cost of ETF = Expense ratio

B. Commissions

Let us now add a second layer of costs, still explicit. Assume there are ticket charges associated with the purchase of shares (which is very common). However, your broker has an arrangement that allows you to buy ABC commission-free, while XYZ shares come with a $5 ticket charge. Given the $100k investment, buying XYZ would carry an

[2] These two ETFs are completely fictional, and used here only for the purpose of illustration. They are not inspired by any particular ETF available on the market. Any similarities in terms of names, tickers, or others are pure coincidence.

[3] In real life, even ETFs that claim to cover the same areas will do so in substantially different ways. Then, their results may differ.

extra one-half basis point in terms of cost (i.e., $5/$100,000). Unlike the 20-basis-point expense ratio, this extra cost is paid upfront, and not throughout the year (it is paid when buying and when selling). So even though it may seem negligible (just 0.5 basis points), the introduction of this cost will make the final decision depend on the holding period. If you were to only hold the investment for 4 days (or less), it would make more sense to buy ABC, even though the expense ratio is 5 times larger.[4] What we want to illustrate is that, even when this minor new cost is taken into account, the time horizon becomes a determining factor when it comes to choose between ABC and XYZ.

Cost of ETF = Expense ratio + Ticket charge

For example, if both ETFs return 8% per year, at the end of day 4 we would have the following value for our $100k investment:

	ABC (expense ratio 1.0%)	XYZ (expense ratio 0.2%)
Value at end of day 4	$100,077	$100,075

We use simple compounding for returns and costs.

Hence, for a holding period between 1 and 4 days, the best option is ABC. For holding period of 5 days or more, we should pick XYZ.

C. Bid-ask spread

Things get more complicated once we add implicit costs to the equation. Let us start with the bid-ask spread. This spread is simply the difference between the highest bid price and the lowest ask price. A larger spread will result in a bigger deviation between the prices at which the investor will buy and sell his or her shares (the so-called round-trip cost).

Cost of ETF = Expense ratio + Ticket charge + Spread

For the purpose of our example, let us assume ABC – the ETF with the high expense ratio – is trading with a spread of 2 cents, with the prices for one share being $10.01 (ask) and $9.99 (bid). On the other hand, XYZ is trading with a spread of 10 cents, such that the prices for one share are $9.95 (bid) and $10.05 (ask).

	ABC (expense ratio 1.0%)	XYZ (expense ratio 0.2%)
Value at end of year 1	$106,572	$105,641
Value at end of year 3	$120,516	$120,929

Once we add this cost to the expense ratio and the ticket charges, ABC becomes even more attractive. Now it is not only a better investment for very short periods. Even if the investment horizon is a year, ABC, with its 5-times-larger expense ratio, is the best choice for the investor. However, for a three-year horizon, XYZ is the best choice. The lower expense ratio tilts the balance in favor of XYZ only after a substantive holding period (approximately, 2.4 years).

[4] We are assuming both ETFs have the same returns. The statement holds even if this return is zero.

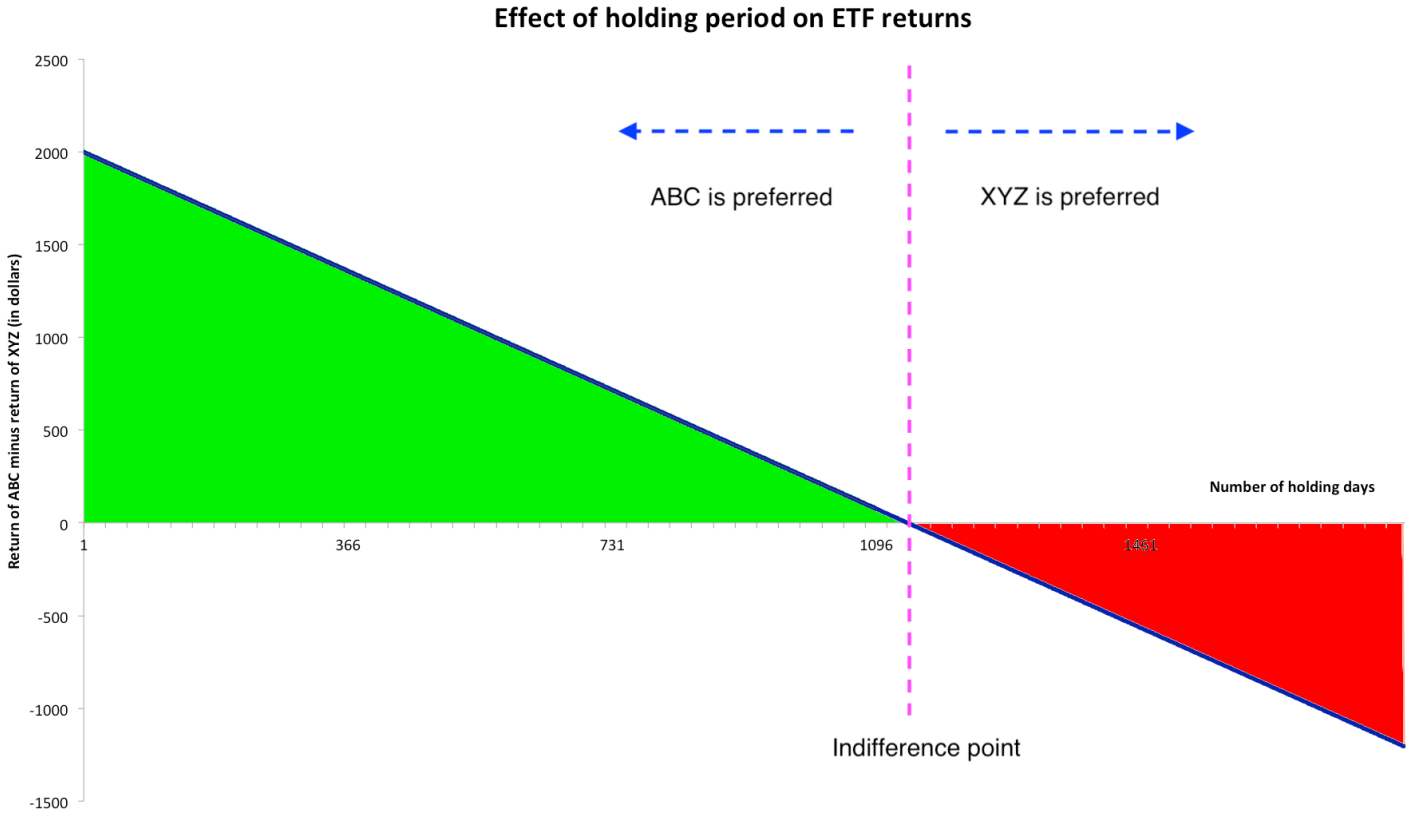
D. Price impact

The bid-ask spread can be misleading, for it only considers the National Best Bid and Offer (NBBO) prices (the "extremes" of the book). It does not give any information about the depth of the book or the trades on the tape. In our example, the investor wants to buy 10,000 shares. The bid-ask spread may be 10 cents for XYZ, but this may only account for the first 100 shares (one lot). If the investor bought 10,000 shares, he or she would be purchasing 100 lots (of 100 shares each). Even though the first would carry a 10-cent spread, if XYZ were illiquid, that could grow very fast as more lots are purchased. On the other hand, ABC could be a very liquid ETF that guarantees the spread will remain unchanged for the whole transaction. Liquidity will become more important for short-term investors, who will need to exit the market sooner and would like to avoid paying a high penalty for doing this. This penalty is called price impact (or liquidity premium).

Cost of ETF = Expense ratio + Ticket charge + Spread + Price impact

Let us assume buying and selling XYZ – the low-expense-ratio ETF – carries a price impact of 0.2%, on average, on top of the spread. As you can expect after reading section C, this means ABC will be the best choice for even longer holding periods. The lower expense ratio of XYZ only outweighs the other costs, relative to ABC, after holding for more than 3 years (3.12 years to be exact, with our assumptions, including 8% annual return and no rebalancing). Consequently, an investor with a one-year time horizon would do much better by purchasing the high-expense-ratio ETF.

The following graph shows the outperformance, in dollars, of ABC (expense ratio of 1.0%) over XYZ (expense ratio of 0.2%). The number becomes negative only after holding for more than 3 years, illustrating the importance of accounting for all costs before making the decision of which ETF to buy.



Thus, the investor should prefer ABC, with a highest expense ratio, over XYZ if the investment horizon is one year – actually 3.12 years or less. Only after this does XYZ become the best option. More than 3 years need to go by for the low-expense-ratio ETF to outperform the high-expense-ratio one. Implicit costs matter, and the holding period becomes the key deciding variable.

Conclusion: debunking the myth

To sum up, variables like the expected holding period and the expected amount of the investment will substantially affect the total cost an investor will face from holding a particular ETF. For example, a short holding period (e.g., three months) will make price impact and spreads matter relatively more than expense ratios, which are usually expressed in annual terms. A low management fee, in and of itself, would be a very misleading measure of cost. On the other hand, an investor that were planning to invest and hold for a long time, with few transactions, would be able to rely more on expense ratios as a proxy for the total cost of ownership. Furthermore, ETFs are just one vehicle available to investors. Certain investors can benefit from using alternative vehicles, like mutual funds or separately managed accounts (SMAs), amongst others.

A scenario like the one presented in this paper could materialize in different areas of the market: U.S. equities, fixed income, international equities, commodities, and alternatives. But the discrepancies between ETFs grow as we move into more illiquid areas of the market (small caps, commodities, fixed income, emerging markets).

It is very common for some investors not to have the complete cost information in front of them every time they trade. Computing all costs, explicit and implicit, requires access to real-time data and powerful data-processing capabilities, both of which asset managers usually have available. The importance of hidden costs cannot be understated. Making an informed decision from the start is, thus, very important. Laying out the investment horizon and accounting for implicit costs is a good start.

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