



The Impact of Passive Investing on Market Efficiency

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Academic studies are beginning to shed light on how passive ETFs are influencing markets. These studies suggest that:

- Valuations for individual stocks are influenced by inclusion in indexes.
- The volume of “informationless” ETF trading is raising trading costs for individual stocks and making the pricing of stocks less efficient.
- As ETF ownership of a stock increases, it begins to move more in line with its sector and with the overall market, and less in line with its own earnings.
- Rising correlations will degrade the benefits of diversification.

A focus on company fundamentals, especially free cash flow, combined with a long-term time horizon can mitigate distortions being introduced by passive trading.

IS THE RISE OF PASSIVE INVESTING MAKING STOCK MARKETS LESS EFFICIENT?

Let’s back up for a moment, and explain why we are asking this question. We first addressed the issue of active versus passive management in two white papers we wrote in 2015. Those papers discussed the flaws in the theoretical case for passive management, and laid out a case for what an active manager must do to outperform an index. One point we did not make in our earlier papers, but which we did highlight in our 2016 book *Winning at Active Management*, is that neither a world of 100% active management nor a world of 100% passive management would represent an equilibrium outcome.

In a world where everyone was an active manager, stock markets would tend to be very efficient, as prices would incorporate the varied insights of many different managers, each reacting to any deviation between a given stock’s price and its perceived value by buying or selling. Even though different investors would have different perceptions of that value, based on the different pieces of information that each had uncovered, their combined buying and selling would tend to ensure that the price reflected all of the relevant information. That would mean that opportunities to outperform would diminish. This would be a perfect environment in which to switch to passive investing. Since everyone else would be engaged in fundamental research, the benefit to the marginal investor of doing any additional research would be minimal; the market has probably already priced in any information you would find. You could essentially “free ride” on the research efforts of others by simply buying a passively managed index fund, confident that prices are fully incorporating any information that matters.

At the other extreme, in a world where everyone invested in passively managed funds, nobody would be doing any fundamental research. Stock prices would diverge from any semblance of fair value, simply because nobody would be making any effort to figure out what that fair value might be. All trading would be “informationless,” i.e., not driven by any opinion on what a stock was worth, but rather driven simply by cash flows in or out of the market for whatever reason

(e.g., someone needs to sell some stock in order to buy a house). In such a world, there would be a tremendous incentive to switch to active management, because even a small amount of fundamental research would likely reveal enough mispricing to enable a portfolio manager to more than earn back the cost of doing that research through outperformance. (Although this does raise an interesting logical dilemma: what if there was only one active manager? For prices to move toward their fair value, markets require more than just one investor who is trading based on an opinion of what that fair value is. The benefit of having skill depends upon the existence of other active investors who eventually come to agree with your point of view on what a stock is worth, and who then bid the price up — or down — to that level. We will return to this question later.)

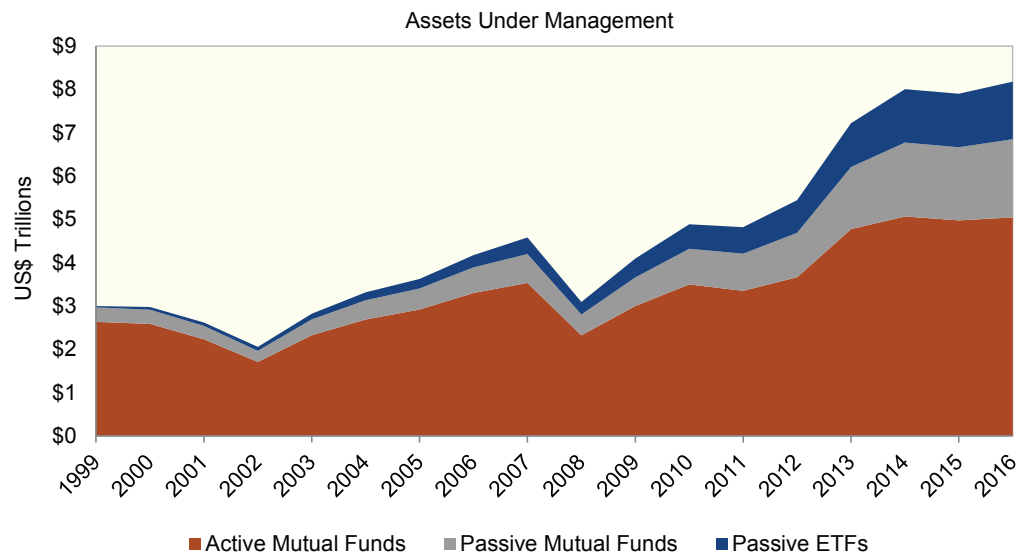
So neither a world of all active or a world of all passive would be likely to stay that way for long — it would seem that we are destined to see a world in which there is a mix of active and passive management. Of course, since we started with a world that was essentially all active (in the days before technology made indexing feasible), we have tended to move in one direction, with the level of passive investing rising steadily as we seek that equilibrium somewhere in the middle. But this leads to a question. Clearly, a market of 100% passive management would be inefficient, but it does not seem realistic to believe that the level of inefficiency would remain at zero (i.e., all stocks are priced to reflect all available information) until the last investor switched to passive. Rather, it seems more likely that as the number of active managers began to dwindle, prices would at some point begin to stop reflecting some relevant information, simply because there would begin to be some information that nobody had bothered to discover. At the same time, the increasing level of trading being done by investors who are in effect indifferent to price (i.e., passive investors) would presumably start to have an impact on the way that stocks trade.

So the real question is, at what level of passive management would inefficiency in pricing start to creep in? That is the topic we address in this paper. Recent academic research suggests that passive management is already affecting the pricing efficiency of the stock market, and in some perhaps unexpected ways.

THE RISE OF PASSIVE MANAGEMENT

Let's start by getting a sense of the actual levels of active and passive management in the U.S. market today, and at how those levels have been changing. Figure 1 shows the total U.S. equity assets under management in active mutual funds, passive mutual funds, and passive ETFs on an annual basis since 1999. (Active equity ETFs do exist, but the assets in them are so small that they would not even be visible in the chart.)

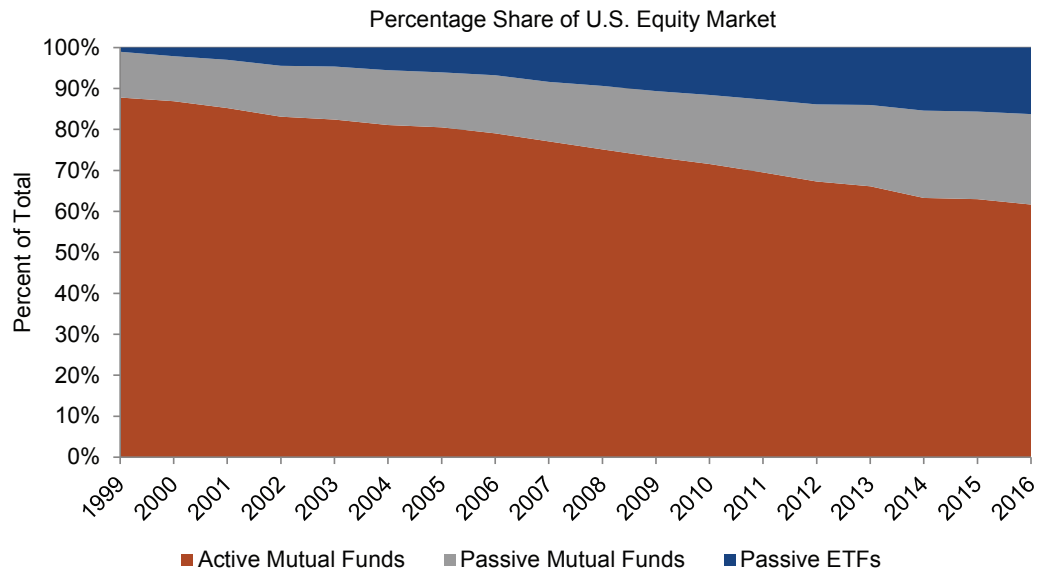
FIGURE 1: ACTIVE AND PASSIVE MANAGEMENT IN THE U.S. EQUITY MARKET



Source: Itzhak Ben-David, Francesco Franzoni, Rabih Moussawi, "Exchange Traded Funds (ETFs)." *Annual Review of Financial Economics*, Vol. 9, 2017

The absolute level of assets in actively managed mutual funds has risen over time, but that has mostly been a function of market appreciation rather than net inflows. Figure 2 takes the data in Figure 1 and puts it into market share terms, and makes it very clear that actively managed funds have been losing market share steadily.

FIGURE 2: THE DECLINING MARKET SHARE OF ACTIVE FUNDS



Source: Itzhak Ben-David, Francesco Franzoni, Rabih Moussawi, "Exchange Traded Funds (ETFs)." *Annual Review of Financial Economics*, Vol. 9, 2017

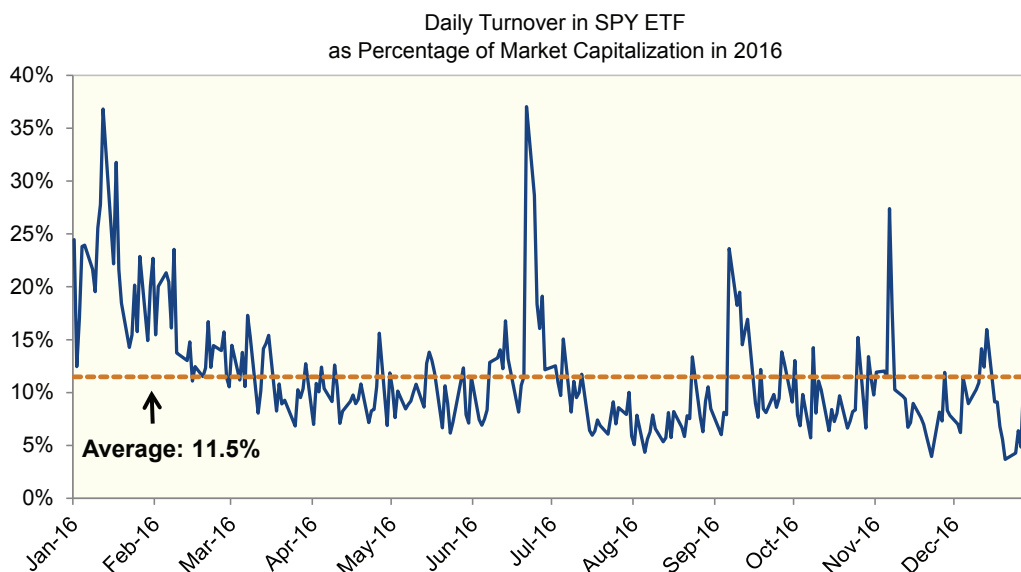
At the end of the 1990s, actively managed mutual funds accounted for almost 90% of U.S. equity assets, with passive mutual funds making up almost all of the rest (ETFs were in their infancy); by 2016 that percentage was down to 61%, with passive mutual funds at 22% and index ETFs at 16%.

HOW PASSIVE ARE PASSIVE INVESTORS?

When we think about ETFs, our first instinct might be to assume that ETF holders are long-term buy-and-hold investors, attracted to the ETF structure by the tax efficiency advantages it offers over a traditional passive mutual fund. Investors in traditional mutual funds can be liable for capital gains taxes each year depending on the fund's activity, and when they buy into a fund they also take their share of ownership of any unrealized capital gains, even though these were accrued before they were in the fund. Of course, the flip side is that when they exit the fund, they leave the unrealized capital gains in the fund behind them. Because of the way ETFs are structured (large inflows and outflows are handled via in-kind exchanges of stock that are used to create or redeem shares of the ETF), investors in a passively managed ETF will usually have no capital gains tax liability until they sell the shares.

Yet when we look at the amount of trading that takes place in many ETF shares, we quickly see that passive *investing* does not equate to passive *investors*. Consider Figure 3, which shows the daily trading volume in 2016 (expressed as a percentage of market capitalization) for the largest ETF in the marketplace, the SPDR S&P 500 ETF (ticker symbol SPY), which at year-end had \$225 billion in assets. On average, more than 11% of the outstanding shares in SPY changed hands every day, implying that the average holding period was less than nine days. Obviously, that figure, like any average, conceals a wide range of actual holding periods by different investors. Some people may well be holding SPY for long periods of time. But the fact that the average holding period is under nine days suggests that an awful lot of people are holding SPY for very short periods of time.

FIGURE 3: ETF INVESTORS HAVE SHORTER HOLDING PERIODS THAN MIGHT BE EXPECTED



Source: Itzhak Ben-David, Francesco Franzoni, Rabih Moussawi, “Exchange Traded Funds (ETFs).” *Annual Review of Financial Economics*, Vol. 9, 2017

In addition to SPY, the SPDR family of ETFs offers a set of ten sector ETFs for the S&P 500 as well. Table 1 shows a similar analysis of the average trading volume, and the implied average holding period, for each of those funds in 2016:

Taken together, these ten sector ETFs held almost \$110 billion in assets at the end of 2016, and on average, almost 7% of the shares in these funds turned over each day in 2016, for an average holding period of under 15 trading days — i.e., about three weeks. (The real estate ETF had the longest average holding period, at about six weeks, but this fund was only created in late 2015, in anticipation of the fact that the sector was about to be spun out of the financial sector. It has not had as much time to attract investors as the other ETFs in the series have; all of the others date back to 1998.) In light of this data, it is not surprising to learn that despite representing roughly 15% of the assets in the U.S. equity markets, ETFs account for about one-third of the daily trading volume in the U.S.

TABLE 1

	12/31/2016 Market Cap in Billions	Average 2016 Daily Turnover	Implied Average Holding Period (# of trading days)
Financial Select Sector SPDR	\$22.47	6.79%	15
Energy Select Sector SPDR	\$17.59	8.64%	12
Technology Select Sector SPDR	\$14.14	3.68%	27
Health Care Select Sector SPDR	\$13.51	6.01%	17
Consumer Discretionary Select Sector SPDR	\$10.82	4.88%	20
Industrial Select Sector SPDR	\$10.17	9.53%	10
Consumer Staples Select Sector SPDR	\$8.31	7.58%	13
Utilities Select Sector ETF	\$6.90	10.23%	10
Materials Select Sector ETF	\$3.65	10.80%	9
Real Estate Select Sector ETF	\$2.31	2.33%	43

Source: Bloomberg

Clearly, the main attraction of ETFs is not their tax efficiency, because if you only hold a traditional fund for a few weeks, then the vast majority of the time you will not receive any capital gains distributions, which for most funds take place just once a year. Rather, it appears to be their intra-day trading feature. Apparently, investors who want to express a short-term view on the market or

on a particular sector are using ETFs to do so, rather than buying groups of individual stocks. We are not here to quarrel with investors for using ETFs in this way. We are more interested in what impact this kind of frequent ETF trading is having on the price movements and trading costs for individual stocks, and in the implications of any such impact for active managers.

THREE STUDIES

The rise of ETFs has attracted attention from academic researchers in recent years, and several studies have concluded that ETF trading is in fact having a measurable impact on the way individual stocks are priced – specifically, the volume of ETF trading is raising trading costs for individual stocks and making the pricing of stocks less efficient. Let’s review some of those studies.

The first study dates from 2012. In “The Impact of Passive Investing on Corporate Valuations,”¹ Eric Belasco, Michael Finke, and David Nanigian examined whether the steady rise in the amount of money being indexed to the S&P 500 has had any impact on the valuation of stocks in the index relative to the valuation of stocks outside of the index. Based on data spanning a 14-year period from 1993 to 2007, they concluded that:

After controlling for aggregate US equity fund net cash flow, when evaluated at mean levels the S&P 500 index fund net cash flow is associated with a 0.21 (0.9%) decrease in the PE ratio of nonconstituents and a 0.19 (0.9%) increase in the PE ratio of constituents....[T]he PB ratio of constituents increased by 0.06 (1.5%) while the value of nonconstituents were quantitatively unchanged.

Put another way, flows into S&P 500 index funds over this time period created a spread of 1.8% between the price/earnings ratios of index constituents and non-constituents – PEs rose by 0.9% for the stocks in the index and fell by 0.9% for those outside the index. Based on price/book ratios, the spread was 1.5%.

A valuation differential like this should present an arbitrage opportunity: an investor could go long a basket of non-S&P 500 stocks and go short a basket of stocks that are included in the index. Over time, one might think that the valuation differential should unwind, since it is driven only by the impact of fund flows and not on any fundamental factors. But of course, to succeed in such a strategy you would need to see the wave of money flowing into index funds stop, or even go into reverse. As the authors note:

...[I]t appears that the preference shift towards index fund investing is reducing the informational efficiency of stock prices. Informed investors may recognize the oversupply of capital allocated to stocks in indices and then place arbitrage trades which counteract the effect. However, the speed of adjustment back to equilibrium valuations will be slow in the presence of inattentive investors...By their nature, index fund investors are inattentive to valuations and...arbitraders (and perhaps most importantly those who provide them with capital) are rather impatient...[U]ntil the preference shift abates, attempting to arbitrage the mispricing away may drown those informed traders swimming against the tide of passive investment.

This is essentially just another way of stating John Maynard Keynes’ famous remark that markets can remain irrational longer than you can remain solvent.

The second study of note was published in the same year as the first. In “How Index Trading Increases Market Vulnerability,”² Rodney Sullivan and James Xiong looked at how the rising level of money invested in index products, and the high volume of trading that takes place in those products, has affected correlations across stocks, both in terms of price movement and trading volume. Their study covered the period from January 1979 through December 2010, and included all U.S. stocks with market capitalizations greater than \$100 million.

¹ Eric Belasco, Michael Finke, and David Nanigian, “The Impact of Passive Investing on Corporate Valuation, *Managerial Finance*, Vol. 38, No. 11, November 2012 1067-1084.

² Rodney Sullivan, James Xiong, “How Index Trading Increases Market Vulnerability,” *Financial Analysts Journal*, Volume 68, Number 2, March/April 2012

“...the preference shift towards index fund investing is reducing the informational efficiency of stock prices.”

“If stocks start to move more in line with each other, rising and falling together more often, then the benefit of diversification is reduced.”

Having first observed and measured the rising level of price and volume correlation between stocks, the authors then hypothesize that the rising level of indexed assets has played a role in driving these correlations higher. This makes intuitive sense, for when money flows into or out of an index fund, that flow creates buy or sell orders for all of the stocks in the index at the same time, so we would expect prices and volumes of different stocks to start moving more in line with each other. And in fact, the data back up their hypothesis, which is really not very surprising.

What is more interesting is the implication of these results. One of the clichés of finance is that diversification is a “free lunch” — i.e., a benefit that you can obtain without giving up anything in return. When you diversify your portfolio across a variety of stocks, your return will simply be the weighted average (using your portfolio weights) of the returns of the individual stocks. But the volatility of the portfolio will not be equal to the weighted average of the individual stocks’ volatilities – it will be lower, because the returns of the different stocks will be less than perfectly correlated. That is, there will be times when some of your stocks are rising, while others will be falling, and as a result their movements will partially offset each other, resulting in lower volatility for your portfolio than the simple weighted average volatility. At the extreme, consider a two stock portfolio where each starts out at 50% of the portfolio. If one stock rises 5% and the other falls 5%, your portfolio will experience no change at all, even though both stocks moved 5%.

For diversification to work well, though, there have to be some occasions when we see that kind of divergence in stock movements, with some stocks rising and some falling. If stocks start to move more in line with each other, rising and falling together more often, then the benefit of diversification is reduced. This is the point that Sullivan and Xiong ultimately emphasize:

...This increased level of trading associated with passive investing...comes with important consequences. It means an increased trading commonality among index constituents...In short, the growth in trading of passively managed equity indices corresponds to a rise in systematic market risk.

...Put another way, investors’ equity portfolios are increasingly moving in lockstep with swings in the overall market. All equity investing, indexed or otherwise, is thus plainly a more risky prospect for investors...

...[A]n increase in cross-sectional trading commonality associated with the rise in passive trading meaningfully corresponds to a decrease in the ability of investors to diversify risk in recent decades. As evidence, we found that both pairwise correlations and cross-correlations between return volatility and volume volatility have significantly increased since 1997. Furthermore, we showed that the diversification benefits of equity investing have decreased for all styles of stock portfolios (small-cap, large-cap, growth, and value)...Taken together, our results suggest that the fragility of the U.S. equity market has risen over recent decades.

Finally, we turn to a more recent study, “Is there a Dark Side to Exchange Traded Funds (ETFs)? An Information Perspective,”³ written by Doron Israeli, Charles M.C. Lee, and Suhas A. Sridharan. As the title of the paper alludes to, the authors were interested in how inclusion in an ETF affects a stock’s “informational efficiency” (another term for pricing efficiency). Their hypothesis was that when a stock is included in an ETF, this reduces the number of shares that are available to be traded by “uninformed” traders (also referred to sometimes as “noise” traders, i.e., people who are trading without reference to any fundamental information about a company). Because the noise traders provide liquidity to investors who are trading on fundamental information, reducing the number of noise traders should tend to raise transactions costs, and this in turn would reduce the incentive for investors to seek out that fundamental information in the first place.

In their analysis, the authors looked at how changes in the level of ETF ownership of a stock were related to changes in that stock’s trading costs and to changes in several measures of informational efficiency. Measuring trading costs is relatively straightforward – you can look at bid/ask spreads,

³ Doron Israeli, Charles M.C. Lee, and Suhas A. Sridharan, “Is there a Dark Side to Exchange Traded Funds (ETFs)? An Information Perspective,” working paper, January 13, 2017, *Review of Accounting Studies*, Forthcoming

for example. But how do you measure pricing efficiency? The authors relied on two measures: 1) “stock return synchronicity,” meaning, in the authors’ words, “the extent to which variation in firm-level stock returns is attributable to movements in market and related-industry returns,” and 2) “future earnings response coefficient,” meaning, again in the authors’ words, “the association between current firm-specific returns and future firm earnings.” To put it perhaps more simply, the first measure captures how much a stock’s price is driven by movements in the broader market or in the stock’s sector, and the second captures how much of a stock’s price movement is driven by the company’s own earnings.

The study covered the years from 2000 to 2014, and looked at a very broad universe of thousands of U.S. stocks. After crunching through the data, the authors concluded:

[A]n increase in ETF ownership is associated with an increase in firms’ trading costs. This is consistent with the idea of uninformed traders exiting the market of the underlying security in favor of the ETF. Next, we find that increases in ETF ownership are associated with increases in stock return synchronicity, decreases in future earnings response coefficients, and decline in the number of analysts covering the firm. These findings are consistent with the idea that as uninformed traders exit the market for component securities and trading costs for these securities rise, their pricing efficiency declines.

In other words, as the level of ETF ownership of a stock rose, it was true that, as the authors had originally hypothesized, trading costs rose, and the stock began to move more in line with its sector and with the overall market, and less in line with its own earnings. (This is consistent with the earlier findings of Sullivan and Xiong about rising correlations across stocks as more money moved into passive vehicles.) In addition, fewer analysts covered the stock as ETF ownership rose.

IMPLICATIONS

These three studies should be viewed as just initial efforts to understand how ETFs are affecting the stock market; more research is needed before we can draw firm conclusions. Taken together, though, they paint a fascinating picture of how the rise of passive investing may be making the equity market less efficient, even as the percentage of assets invested passively has not even reached 50%. If these studies are correct, there would be far reaching implications. At the broadest level, it would lead to questions about the ability of the stock market to serve as an effective allocator of capital in the economy. While the stock market itself does not provide the initial start-up capital to new companies, the valuation of publicly traded stocks is often used as a benchmark by the venture capital and private equity investors who do provide that capital. If stock prices became less efficient at reflecting fundamental company information, those early stage investors would have an inaccurate view of which companies deserve capital, and at what cost.

At the level of the stock market itself, the research findings suggest that we might be losing some of the heterogeneity within the market. What do we mean by this, and why is it important? Well-functioning markets are ones where participants bring a wide variety of outlooks, and of decision making processes, to bear. Indeed, one of the hoariest clichés is to note, when two people disagree about the worth of something or other, “Well, that’s what makes markets.” This was the point that James Surowiecki illustrated in his 2004 book, *The Wisdom of Crowds*. Surowiecki begins his book with the oft-told tale (“oft-told” because it was repeated in an article in *Nature* magazine) of the contest held at a country fair in England in 1906, in which entrants had to guess the weight of an ox. Almost 800 people entered the contest. Some were butchers and farmers, who had some experience with the weight of such animals. Many others were not, though — just local residents enjoying a day at the fair and trying their luck in hopes of winning a prize. As it turned out, the average guess among all the entrants was 1,197 pounds, just one pound off from the actual weight of 1,198 pounds.

This was a classic example of the wisdom of crowds, but for crowds to be wise, certain conditions have to be present. Of particular importance in the context of stock markets, people need to have a variety of opinions about what individual companies are worth, and their opinions need to be independent of each other (i.e., not determined by the opinions of other people). It is the very fact

“...as uninformed traders exit the market for component securities and trading costs for these securities rise, their pricing efficiency declines.”

that people disagree about what things are worth that causes them to trade with each other. But what happens when people stop disagreeing, either because they all have the same opinion, or perhaps because they are not even bothering to come up with an opinion about what something is worth? There is a risk that market prices will deviate from any reasonable measure of fair value, potentially by a wide margin. This brings us to another famous book about crowds, but one which takes a decidedly more pessimistic view: *Extraordinary Popular Delusions and the Madness of Crowds*, by Charles Mackay, first published in England in 1841.

Mackay's book documents, among other things, several well-known economic "bubbles" in history, most famously the Dutch tulip mania of the 1630s. What is common to all of these episodes, as well as to the more recent examples of bubbles in our own time (such as the tech/telecom bubble of 1998-2000 or the housing bubble of 2006-2007), is that too many people began to think the same way. They came to believe that somehow, in those famous words, "This time is different," and they threw out their old ways of thinking in their eagerness to join what they saw as a crowd that had found a foolproof way to make money.

Michael Mauboussin of Credit Suisse summed up this important distinction well in a research note earlier this year when he said:

Markets tend to be informationally efficient when investors use heterogeneous decision rules. This is the wisdom of crowds. The loss of diversity as the result of converging decision rules creates fragility in the market and the possibility of prices departing substantially from value. This is the madness of crowds.⁴

WHAT'S AN ACTIVE MANAGER TO DO?

As the level of assets in passive investment vehicles rises, as passive investors trade those vehicles actively, and as that trading potentially makes markets costlier and less informationally efficient, how should active managers respond?

On the one hand, this would seem to create more opportunities for active managers. If prices are diverging more often from the fundamentals that ultimately serve as a guide to what a company is worth, shouldn't active managers be able to find more chances to add value by buying mispriced securities? Well, yes and no. Yes, there will likely be more instances in which stock prices diverge from a reasonable, fundamentally-based estimate of fair value. But will an active manager be able to capture that mispricing and turn it into outperformance? That is not necessarily clear, and the reason harks back to the issue of what Michael Mauboussin calls the "loss of diversity as the result of converging decision rules."

We noted earlier that disagreement is ultimately what creates stock markets. Company X is trading at \$50 per share. I bought it at \$30 and think it's now fully valued, and I offer to sell my shares. You think it's worth \$70, and you buy them. For a trade to take place, there needs to be more than one opinion about what the company is worth. Historically, that has not been a problem, with large numbers of active managers pursuing a wide variety of investment processes, arriving at many different conclusions about what each company is worth. In the case of Company X, if more investors begin to think it is worth \$70 and fewer think it is only worth \$50, there will be more buyers than sellers, and the imbalance will push the price up closer and closer to \$70 until more sellers come forward. (The Efficient Market Hypothesis is in essence nothing more than an argument that the stock market represents the wisdom of crowds, and that prices are always fair as a result.)

But if the number of different opinions begins to drop, it's not clear that an active manager will always find someone who disagrees enough about what a particular company is worth to initiate a trade. We mentioned early on in this paper the logical dilemma that arises when you take this scenario to its extreme — i.e., what if we got to a point where there was literally only one active manager left in the world? Who would that manager trade with? Yes, there would be trades from passively-managed funds as those funds saw money come in or out, but the managers of those funds would have no opinion about what each stock was worth. Their trades would usually just be "market orders" — i.e., they will accept whatever price the market is currently trading at. If

⁴ Mauboussin, Michael, "Looking for Easy Games, How Passive Investing Shapes Active Management," Credit Suisse Report, January 4, 2017

"The loss of diversity as the result of converging decision rules creates fragility in the market and the possibility of prices departing substantially from value."

Company X was trading at \$50, and the lone active manager thought it was worth \$70, what would that opinion matter? He or she could buy the stock, but what would push the price up to \$70? Nobody else has an opinion on what the company is worth, so there will be no imbalance between buyers and sellers to drive the price up or down.

But just as we did not need to see the level of passive management rise beyond 35% before we started seeing pricing inefficiency creeping in to the market, we most likely do not need to wait until there is only one active manager left before we start to find that the remaining active managers cannot always necessarily profit from what they perceive to be mispricings caused by the effects of passive management. As the Belasco, Finke, and Nanigian paper suggested, it is already difficult for an active manager to try to arbitrage the overvaluation of S&P 500 stocks, simply because the ongoing wave of money into passive vehicles tied to that index will continue to dwarf any money that tries to bet against that tide.

So what should an active manager do? We believe that there are two important and interrelated lessons in all this for active managers: 1) stick to an investment strategy that is based on fundamental financial principles, and 2) invest with a long time horizon. The studies we reviewed above indicate that in the short term, the large volume of trading associated with passively managed index products can distort markets to some extent – raising trading costs, affecting the relative valuation of index stocks versus non-index stocks, and reducing the importance of stock-specific fundamental information. It is easy to see that these distortions can cause stock prices to deviate, at least a little, from reasonable estimates of fair value. But over the long term, fundamentals will still win out. Why? While it may be true, as we just discussed, that it can be difficult to capture mispricings through arbitrage within the stock market (i.e., by buying some stocks and selling others), there is always the possibility of a “real world arbitrage” outside of the market. That is, if pricing distortions drive a stock’s price low enough relative to what the business can generate in terms of free cash flow to an owner, such that the potential return to a buyer becomes attractive enough, someone can simply buy the whole company. The stock market may be filled with more and more passive investors, with no opinions about the worth of any company, but the world outside the stock market is still chock full of firms looking for opportunities to buy good companies at attractive prices. (Corporate managements don’t have the option of managing their businesses passively.) And even if such an extreme outcome doesn’t happen, the fact that it is always a possibility tends to put a limit on how far stock prices deviate from their fundamentals.

“...active managers need to focus more than ever on the free cash flow fundamentals that drive long-term value creation, and to invest over a long enough time horizon...”

In that context, it is important to understand what kind of fundamentals matter to such investors. They don’t think about acquiring a company because the stock price has shown positive momentum, or because they think the industry is “in favor,” or even because the company has an attractive price/earnings ratio. Someone who buys a company outright cares about the free cash flow that it will generate. As we often say, it is the ability to generate free cash flow (not accounting earnings) that makes a business worth anything to an owner, and it is how management allocates that free cash flow that determines whether the value of the business rises or falls. So if it is the potential for acquisition that serves as the ultimate check keeping stock prices “honest” (i.e., within range of fair value on the downside), and if acquirers base their decisions (as we believe they do) on free cash flow generation, then ultimately it is free cash flow metrics that investors should focus on. (For evidence that free cash flow metrics are in fact useful, see our white paper “Free Cash Flow Works.”)

But to make sure that you benefit from owning stocks with sound free cash flow fundamentals, you need to invest with a long time horizon. Given the way that trading in passive funds can distort prices in the short term, investors who do not hold a stock for a relatively long time might see those short term distortions drive the majority of their returns, for better or worse. It makes little sense to buy a stock at \$30 simply hoping to see it rise to \$32 over the short term. If short term variation driven by passive trading can affect the price by \$2 over a short time horizon (to pick an admittedly arbitrary number), then the price movement over the near term is mostly noise rather than a response to changing fundamentals. But if you buy at \$30 because you think the business will generate enough free cash flow over the next few years to move the price to \$50, then assuming you are correct, the vast majority of the price change over that horizon will be fundamentally based, even if there continue to be short term distortions around that long term upward movement.

SUMMARY

Our goal here has not been to criticize ETFs, or to criticize investors who use them. ETFs can certainly play a useful role in investors' portfolios, and they do offer some tax efficiencies compared to traditional mutual funds. But like every innovation, ETFs have had their share of unintended consequences. Originally conceived as a better way for long term buy-and-hold investors to own the market, they have instead become intensively traded investment vehicles. Our goal here has simply been to understand the influence that passive investment funds may be having on markets, and how active managers should handle that influence. The studies we discussed showed that even though passively managed funds account for a little over one-third of U.S. equity assets, the high level of trading in those funds has had a negative impact on the informational efficiency of the stock market: trading costs have risen, stocks are more correlated with each other than they used to be (reducing the ability of investors to control risk through diversification), and valuation is now partly affected by whether a stock is in a widely traded index or not. In response, we believe active managers need to focus more than ever on the free cash flow fundamentals that drive long-term value creation, and to invest over a long enough time horizon such that the distortions being introduced by passive trading play only a marginal role in the total holding period return.

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