SECURITIES & EXCHANGE

How I Stopped Worrying and Learned to Love Index Funds

Can passive investing be both meddlesome and neglectful?

BY RICHARD A. BOOTH

Since their creation in 1976, equity index funds have become very popular with investors by offering maximum diversification—and thus minimum risk—with management fees that are far lower than traditional stock-picking mutual funds. As a result, index funds have grown dramatically. As of year-end 2023, they held 48 percent (by value) of all assets held by investment firms as compared to 19 percent in 2010. More to the point, index funds now hold 18 percent of the US stock market as compared to 13 percent held by actively managed mutual funds.

But pundits and politicians have decried the size of index funds as a threat to corporate governance and competition. Most critics focus on the passivity of index funds, which they see as a failure of fund managers to do their duty as stockholders: to vote with care and otherwise engage with portfolio companies to induce optimal performance. Perhaps worse, the critics see index fund passivity as free riding on the efforts of other stockholders, offering higher returns at lower cost by shirking their responsibilities. In other words, the critics see creeping market failure in this story. They consider index funds to be free riders that exploit market efficiency—and the research done by others—to cut prices and siphon off the business of funds that do do their homework.

Some critics fret that the "Big Three" of index fund sponsors—Vanguard, State Street, and BlackRock—will reduce competition among portfolio companies. The assumption is they will use their market power to cajole portfolio companies to modify business strategies. But it cannot be that index funds will both meddle in the affairs of investee businesses and neglect to engage with management. This puzzling division of opinion suggests that index funds are not well understood even by many sophisticated observers.

The worries expressed by the critics are unfounded. They have largely ignored *why* so many investors are moved to invest in index funds. The critics seem to assume that the answer is obvious: Investors have been tempted away from actively managed funds by rock-bottom fees (and perhaps the idea that index funds are more tax-efficient). No doubt fees matter. On average, actively managed funds charge fees of about 0.65 percent annually while index funds charge about 0.05 percent annually. If we assume that stocks return 6 percent annually (about the average since 2000), $1,000 invested today in an index fund (at a net return of 5.95 percent) would grow to $1,782 over the next 10 years while the same amount invested in an actively managed fund (at a net return of 5.35 percent) would grow to $1,684 over the same period. And these figures do not reflect the even bigger difference made by the promotional fees often paid by actively managed funds and the higher taxes and commissions generated by more active trading, which could easily add up to a further 2 percent reduction in return.

Even more important than low fees, index funds offer maximum diversification—and thus minimum risk—without any reduction in expected return. The efficient market has nothing to do with it. Indeed, indexing would be even more compelling if the market were *less* efficient—that is, if market prices are often wrong. The prospect of the same return at less risk would

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alone be enough to attract many investors, even if index funds charged the same management fees as other funds. Lower fees are nothing but gravy. But wait, there's more.

An index fund investor can actually achieve a *higher* long-term rate of return than an investor who chooses a riskier fund even though both funds offer the same average annual rate of return. Although this may sound too good to be true, it is a straightforward implication of compounding (which Einstein once called the most powerful force in the universe). And just to add insult to injury, index investors ultimately drive stock prices higher: They are willing to pay more for a given stock because they assume less risk for higher returns. Indeed, increasing diversification has accounted for about 0.62 percent of the 7.23 percent price return on stocks since 1930. As a result, stock-picking investors are forced to pay more than is justified by the returns they can expect.

THE IRRESISTIBLE FORCE OF DIVERSIFICATION

The question remains how exactly diversification works this magic. How does it make risk disappear without a trace? The answer lies in the law of large numbers and can be explained with a simple example involving coin-flipping: With one flip of a coin, the chances are 50–50 that a person will win a bet on heads. In other words, one will expect zero return half of the time. With 500 flips of a coin and betting heads each time, the chances are less than 2.5 percent that one will win any fewer than 455 times. To be precise, the odds are about 95 percent that heads will come up somewhere between 455 and 545 times. Although coin-flipping might seem too simplistic, it is in fact quite analogous to investing: At any given time, the chances are 50–50 that a stock's price will increase or decrease.

The implication for investment purposes is clear: Investors can eliminate most of the risk that goes with investing in a single stock by holding many stocks. But this is not to say that (as with flipping a coin) one can expect *only* to break even. To the contrary, stocks make money on average. In contrast to a casino where the odds always favor the house, the odds in the stock market favor investors. Thus, if we can imagine a coin flip where we ante up 95¢ to win $1, such a bet is quite similar to an investment in common stock.

Consider an investment in a single stock: Acme Blasting Cap Company (ABC). There is a 50 percent chance that ABC will generate a 5 percent return and a 50 percent chance that it will generate a 15 percent return. Thus, our expected return on ABC will be 10 percent even though the actual result will be 5 percent higher or lower. If we invest *all* our money in ABC, there is a 50 percent chance we will realize a 5 percent return, all else equal. But if we spread our money equally over 500 different companies offering the same range of returns, there is only a 2.5 percent chance we will end up with less than a

9.55 percent return. And there is also a 2.5 percent chance we will end up with a return of 10.45 percent or more.

Either way, what we truly expect is the same 10 percent return. This is not to deny that sometimes an investor who holds a single stock will enjoy a 15 percent return while a diversified investor will never do so. But even though one may dodge the down-side bullet for a year or two—or even 10—it is purely a matter of luck to do so unless one has access to inside information (which is mostly illegal to use). In short, there is no good reason to take the risk of divergent returns because the upside is always offset by the downside. One can truly expect only an average return.

It is tempting to think of risk in the stock market as risk of mispricing. We might say that if ABC returns 5 percent in the end, then it was overpriced when we bought it. Similarly, if XYZ returns 15 percent in the end, we might say that it was underpriced when we bought it. But divergent results do not imply mispricing. ABC is correctly priced at 10 percent even though we know the chances are 50–50 that it will generate a 5 percent return. To suffer a loss does not imply that one paid too much. Individual results may vary. Indeed, it is almost certain that they will do so.

Still, there is no doubt that individual stocks are sometimes genuinely mispriced, whether because of fraud or manipulation or innocent mistake. But by holding a diversified portfolio of stocks, one can eliminate most of the risk of random fluctuations in return, as well as the risk that individual stocks may be overpriced or underpriced. And the larger the number of stocks one holds, the more assured one can be that results experienced will converge on the expected result. The law of large numbers dictates it.

Note that the argument for diversification works much better for stocks than it does for bonds. With stocks it is possible for actual return to exceed expected return. Indeed, the argument for diversification depends on the idea that an equal number of stocks will do better than expected as the number of stocks that do worse than expected. In contrast, a bond will never do better than expected. The issuer will never pay anything more than what is owed.

IF YOU BUILD A BETTER PORTFOLIO...

The foregoing argument for diversification remains incomplete. Although research aimed at predicting the performance of individual firms is a waste of money for ordinary investors, how does one select portfolio stocks without evaluating their individual prospects? It may be just as costly to construct the optimum portfolio as is it is to pick winners.

Clearly, one important factor is the number of stocks to be included. Studies find that one can eliminate most company-specific risk with a portfolio of 20 stocks. But a portfolio of 20 different tech stocks would be over-exposed to industry-specific risk and would thus entail some risk that can be avoided with more diversification. So, diversification depends on *both* the number of different stocks *and* their distribution over various industries. But the question remains: How do we know which stocks to include—and in what proportions—to be as diversified as possible?

The market provides the answer. The value of a company—its market capitalization—is proportional to the returns *expected* to be generated by the company. By holding (say) the 500 largest stocks in proportion to the market capitalization of each, an investor can be assured that invested funds are distributed according to an impartial assessment of business opportunities economy-wide. It is the wisdom of crowds at work. Thus, a capitalization-weighted index such as the most widely followed version of the S&P 500 (SPX) holds 10 times as much stock of a company worth $100 billion as it holds of a company worth $10 billion. Note also that the 503 SPX stocks comprise about 86 percent of the value of the entire US market. In other words, the other 3,500 (or so) US stocks account only for about 14 percent of the total value of all publicly held equity in US companies. By holding the 500 largest stocks in proportion to the market capitalization of each, an investor effectively allocates funds in proportion to expected returns generated by public companies in the US economy as a whole. Still, why invest in so many different stocks? For that matter, why not invest in 2,000 or 3,000 stocks or more? There are several answers.

Again, most of the benefits of diversification can be achieved by holding about 20 different stocks. That translates into investing no more than 5 percent in any one stock, which coincidentally is the rule adopted under the Investment Company Act of 1940 for funds that advertise themselves as diversified. But stocks increase and decrease in value as they trade. So, if one invests 5 percent in 20 different stocks, some stocks are bound to become worth more than 5 percent of the portfolio either because they rise in value or because other stocks fall in value (relative to each other). Thus, it would seem prudent to invest in 30 or so stocks—coincidentally, the same number as in the Dow Jones Industrial Average (DJIA)—as a hedge against a portfolio becoming lopsided.

The problem is that as of December 31, 2024, Apple accounted for 7.60 percent of the value of SPX (a record high percentage for any one company) while Nvidia accounted for 6.61 percent and Microsoft accounted for 6.29 percent. Even if one invests in the entire US market—the S&P Total Market Index with 3,999 companies—Apple still accounts for 6.26 percent of index value.

S&P attempted to address this problem in April 2024 by launching a new version of the S&P 500 wherein constituent stocks are capped at 3 percent of aggregate index value. But it turns out that the new 3 percent capped index underperforms SPX.

Another alternative is to invest in the equal-weight version of the S&P 500 (SPW), meaning that one invests the same

amount in Apple (worth about $3.8 trillion) as in the smallest SPX company (worth about $5.8 billion). While holding SPW avoids investing almost 8 percent in Apple, it also means that 50 percent of the portfolio is invested in the 250 smallest index companies. To be sure, smaller companies generate higher returns. But the logic of investing just a little bit in the very largest companies is unclear and doubly so because the individual stocks composing the S&P 500 are chosen according to size in the first place. What is the point of singling out the 500 largest stocks to invest equal amounts in each?

Moreover, investing in small-company stocks entails subtle costs that may outweigh the benefits of better diversification. Turnover for SPW—the trading required to keep the portfolio balanced—was a whopping 21 percent compared to 3 percent for SPX in 2024. And small stocks are more expensive to trade because they are less liquid and because trading is more likely to affect price. Other traders will know when rebalancing is likely and are free to engage in frontrunning. Thus, the cost of rebalancing a SPW index fund can be a significant drag on returns—and one not reflected in the calculation of index levels because S&P trades only *constructively* when it adjusts portfolio composition.

Again, the market tells the story. The one US exchange-traded fund that follows SPW is Invesco S&P 500 Equal Weight Exchange Traded Fund, a.k.a. RSP. It has attracted just $73 billion in assets as compared to the Big Three exchange-traded funds that follow SPX, which together have attracted over $1.8 trillion.

In the end, the data suggest that investors should stay the course and stick with SPX. The fact that three stocks therein each exceed 5 percent of index value is likely an anomaly. In 35 out of the 45 years since 1980, no one company exceeded 5 percent of the value of the entire index. During that same period, the largest company in the index accounted on average for 3.83 percent of index value.

The upshot is that one needs to invest in about 500 stocks *both* to hold a size-weighted portfolio *and* to invest no more than about 4 percent by value in the largest stocks therein. Thus, 500 appears to be the Goldilocks Portfolio: not too small, not too big. Getting the distribution just right maximizes return and minimizes risk.

CONCENTRATION AND COMPETITION

None of the above responds to worries about competition. At first blush, the critics may seem to have a point. If we assume portfolio company managers (PCMs) want to maximize stockholder return and they know their biggest stockholders are index funds that own an equal percentage interest of each competitor firm, they will each raise prices (and reduce output) just as would the constituent firms of an oligopoly because that is what their investors would want. That is, they would want individual competitor firms to back off from competing vigorously with each other so as to maximize return in the aggregate.

Antitrust scholars have developed a measure of how common ownership can exacerbate concentration: the Modified Herfindahl–Hirschman Index (MHHI). And they have found that MHHI is correlated with increased prices in some industries. But MHHI equates percentage stockownership with control and thus assumes that index funds will *use* their power and influence to induce portfolio companies to raise prices or at least that portfolio companies will want to please these very large investors. They fail to note that PCMs do not *need* to please index fund investors who cannot threaten to sell. To be sure, fund managers can threaten to *vote* contrary to the recommendations made by PCMs. But if a fund commits to mirror voting (as does the largest SPX fund), it cannot even threaten to vote against management.

On the other hand, some critics also argue that equity compensation evinces (and further encourages) collusion among portfolio companies because an increase in stock price may be largely attributable to an increase in returns for an *industry* rather than the performance of the grantor company relative to competitors. But it is also possible that the incentive of equity compensation induces more vigorous competition and leads to innovation and genuine growth. If so, one should not be surprised to see most stocks increasing in price. The economy is not a zero-sum game.

Still, it is conceivable that the true source of increased return is decreased output. Moreover, it could be that the gains enjoyed by stock option recipients derive from stock price increases generated by repurchases that reduce the number of outstanding shares even as gross return declines. How do we know which story to believe?

It is difficult to know for sure. But collusion is difficult to maintain. Cartel members will cheat if they can—if the mechanisms to monitor and punish rogue operators are weak. Thus, there is little reason to worry about the effects of passive index funds on competition. Indeed, index funds may be the solution to these problems (if they are problems). Because index funds buy (and sell) stocks according to market capitalization, they neutralize the effects of share price management. Similarly, where an increase in rate of return is more than offset by a reduction in total profit, an index fund will not be fooled. The only way to please an index fund is to maximize market capitalization.

Moreover, PCMs are heavily invested in the companies they manage and cannot effectively diversify—all the more so if much of their compensation comes from options. And given the influence of hedge funds and other stock-picking outside investors—as magnified by the passivity of index funds—it seems likely that competition will be enhanced.

SLACKER STOCKHOLDERS?

What about market efficiency and corporate governance? Is it

not worrisome that index fund managers not only neglect to do their homework but also fail to engage with portfolio companies, especially given that index funds own so much of the market? Should we not worry about market efficiency if so much of the market eschews research? There are several answers.

Regarding research, index fund managers have no discretion in choosing or trading portfolio stocks. Market research is a literal (and legal) waste because the fruits thereof can have no use. It follows that to expend fund resources thereon or to charge the fund a management fee bloated by such costs would be a *per se* breach of fiduciary duty. Thus, the low fees charged by index funds cannot be tarred as free riding on the efforts of stock-pickers. Quite to the contrary, overinvestment in research is just as worrisome as underinvestment. Index funds make the market *more* efficient by affording investors a choice whether to pay for research. In other words, index funds give rise to a market for investment advice, which is more than a little ironic given the argument that index funds *might* reduce competition among portfolio companies. Moreover, index funds contribute significantly to the disciplinary forces of the market. The minimal trading they do for purposes of maintaining portfolio balance has the effect of rewarding companies that perform better and punishing companies that perform worse. And PCMs understand that indexing leaves no room for them to talk their way out of the consequences (as might be the case with the managers of a stock-picking fund).

The same logic applies to voting and other forms of engagement with portfolio companies. Presumably, the purpose of engagement is to enhance performance. But engagement is expensive. It requires delving into operational details of individual businesses. For index fund managers, whose portfolios are hedged by virtue of being fully diversified, it makes no sense to devote fund resources to such ends. As for voting fund shares, index funds that follow the sensible practice of mirror voting—voting fund shares in proportion to the votes of other shares—have the effect of enhancing the voting power of actively managed funds (including hedge funds). That increases the voice of stockholders who have strong opinions. In other words, index funds actually address the separation of ownership from control.

At least one scholar has faulted index funds for taking a low-cost, one-size-fits-all approach to governance issues, thus suggesting that they speak up only when some general improvement in corporate governance might make many firms better off. Others have noted (for example) that index funds never take the lead in securities fraud class actions. But it could be that index funds understand that securities litigation is wasteful. When it succeeds, most of the compensation—which is ultimately paid by the defendant firm—goes to active stock-picking traders, reducing returns for indexers who do little trading.

Besides, index funds have their own ideas about good corporate governance. They are happy to leave it to PCMs to maximize returns that will be shared pro rata with all stockholders. But they are correct to worry about efforts of other stockholders (such as hedge funds) to extract disproportionate benefits. While the logic of diversification militates for a strong business judgment rule—as much to limit opportunism by other stockholders as to protect PCMs—it does not extend (for example) to a takeover where the bidder seeks to minimize the price paid for control (despite arguments by some that investors should favor a sale at any premium).

Again, diversification works because winners offset losers (and then some). Thus, the business judgment rule protects good faith efforts to generate positive risk-adjusted return. It does not protect business decisions that are sure losers—or even merely break-even at best—because they cannot add to overall return. But the same logic requires capture of sure winners. It is wrong not to seek a share of the gain a bidder *must* perceive in seeking control. Just as a rational ordinary investor should diversify—because it is costless to avoid company-specific risk—so an index fund manager is correct to engage in the process of selling a target company by voting or tendering with care. The logic of passivity does not apply.

THE BOTTOM LINE

Ordinary investors who choose to invest in equities should do so by investing in an index fund. To be sure, individual investors are free to invest their own money however they want, but it is not too strong to say that it is irrational for an ordinary investor not to invest in an index fund. To do otherwise is to leave money on the table.

It also follows that investment advisers who cater to ordinary investors are required by fiduciary duty to recommend index funds for their clients. Because a fiduciary is duty-bound to act as would reasonably prudent persons in the conduct of their own affairs, the logic of indexing compels investment advisers to recommend to their ordinary investor clients that they invest in an index fund. Still, this is a radical proposition. It implies that much investment advice borders on fraud. It also helps explain why the securities industry has so vigorously opposed regulations that would classify broker-dealers as fiduciaries, not to mention why some investment advisers dismiss index funds as cookie-cutter portfolios. And it certainly explains why so much money is now invested in index funds as compared to traditional stock-picking mutual funds.

There is nothing really new about the wisdom of diversification. The law has long required trustees to diversify. Indeed, one can find similar pronouncements in the Talmud, the Bible, and even Shakespeare. But index funds make it easy and cheap to do the right thing. Moreover, index funds have made the financial world a much better place than it was in the past. Efforts to control their further growth and evolution should be undertaken only with an abundance of caution. R

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