A Primer on

Index Investing

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Chapter 1:

Introduction

Introduction

It was the best of times, it was the worst of times, it was the age of quantitative easing, it was the age of high commissions. In short (to paraphrase Charles Dickens), the current period's investors, like in periods past, face a conflicting financial world. Markets move in unexpected directions, the global economy is stagnant, political issuwa restrain Washington and interest rates may go up – unless, of course, they go down. Investors must navigate a kind of financial dystopia fit for literature. That's why many are taking on the challenge to find a new investment strategy for these times, and for the future. Learning the sensible principles of index fund investing can help today's investors discover just what they're looking for.

Index funds can increase the probability of achieving your financial goals. They are low-cost mutual funds designed to replicate an entire market and match its returns as if you owned each individual security. Investors can attempt to beat the market, but that is akin to trying to predict the future – with high odds of failure on top of high costs. This e-book explains how index funds work and how they are helping a new generation of investors plan to reach their goals, all which is based on, well, real academic literature.

Chapter 2:

A Brief History of Index Funds

A Brief History of Index Funds

Index funds have been around for nearly 40 years. Yet, just in the past decade have they gained wide popularity. According to the Investment Company Institute (ICI) 2014 Fact Book, 30% of households that owned mutual funds owned at least one index fund in 2013. This is likely due to frustration over higher fees charged by other mutual funds and an increase in risk-aversion after the 2009 financial crisis.

What is an index fund?

Index funds are based on the concept that, over the long term, no one can accurately predict the future in order to achieve greater returns than the market. Therefore, each index fund attempts to mimic, as closely as possible, the structure of a particular market benchmark, such as the S&P 500, to earn a return equal to that benchmark, less a small management fee.

John Bogle starts an index fund in 1976

The first publicly available index fund was launched by the Vanguard Group in 1976. Aptly named the First Index Investment Trust, the fund received a tepid response. In its early days, the fund was a "load fund" sold exclusively through

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brokers. Since its commission was lower than the standard commission rates at the time, few brokers were interested.

The brainchild behind the index fund was John Bogle, founder of Vanguard. For his idea, he was initially ridiculed by the fund industry – maybe out of ignorance or self-preservation – with some critics sardonically calling it "Bogle's Folly." One competitor went so far as to create a well-circulated propaganda poster featuring the likeness of Uncle Sam with the slogan: "Help Stamp Out Index Funds – Index Funds Are Un-American!"

In 1977, Vanguard ditched the brokerage-firm distribution model and began selling the fund directly to the public without commissions. Designed to track the S&P 500, the fund was also renamed to the Vanguard 500 Index Fund. However, gathering assets in the fund remained difficult because the concept was still new to the marketplace and advertising space was expensive.

It took nearly 14 years for Vanguard to gather their first $1 billion in indexed assets. Today, Vanguard is the largest provider of low-cost index funds and ETFs, with more than $1 trillion in index assets. Apparently, index funds are very American.

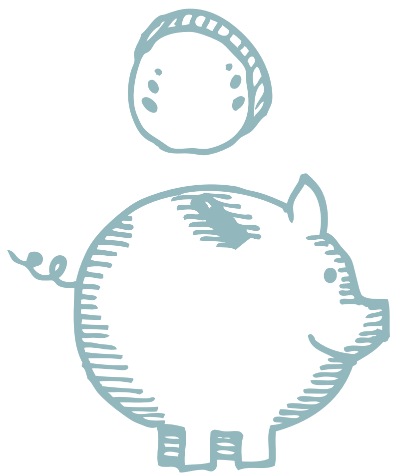
ETFs join the party

Exchanged-traded funds are another type of low-cost investment vehicle that index investors use to get broad exposure to various asset classes in their portfolios. They exploded on the investment scene in 1993 and have been growing in popularity ever since. ETFs were created to meet investor demand to buy and trade index funds with greater efficiency and even lower cost.

The mechanics behind an ETF are relatively simple. ETFs, like mutual funds, represent a basket of securities that investors buy and sell. While mutual funds are priced at the close of the trading day based on the net asset value (NAV) of their underlying securities, ETFs are priced throughout the trading day. This unique characteristic gives ETF investors more flexibility to rapidly buy and sell shares.

ETFs can have drawbacks. The ease with which they are traded may tempt some investors to trade too frequently, driving up commission costs. Also, ETF investors need to understand the difference between bid and ask prices so they do not mistakenly buy high and sell low.

Nevertheless, the benefits of ETFs in a portfolio far outweigh their inconveniences: they are flexible, inexpensive and, often, more cost- and tax-efficient than mutual funds.



Chapter 3:

Why Use Index Funds?

Why Use Index Funds?

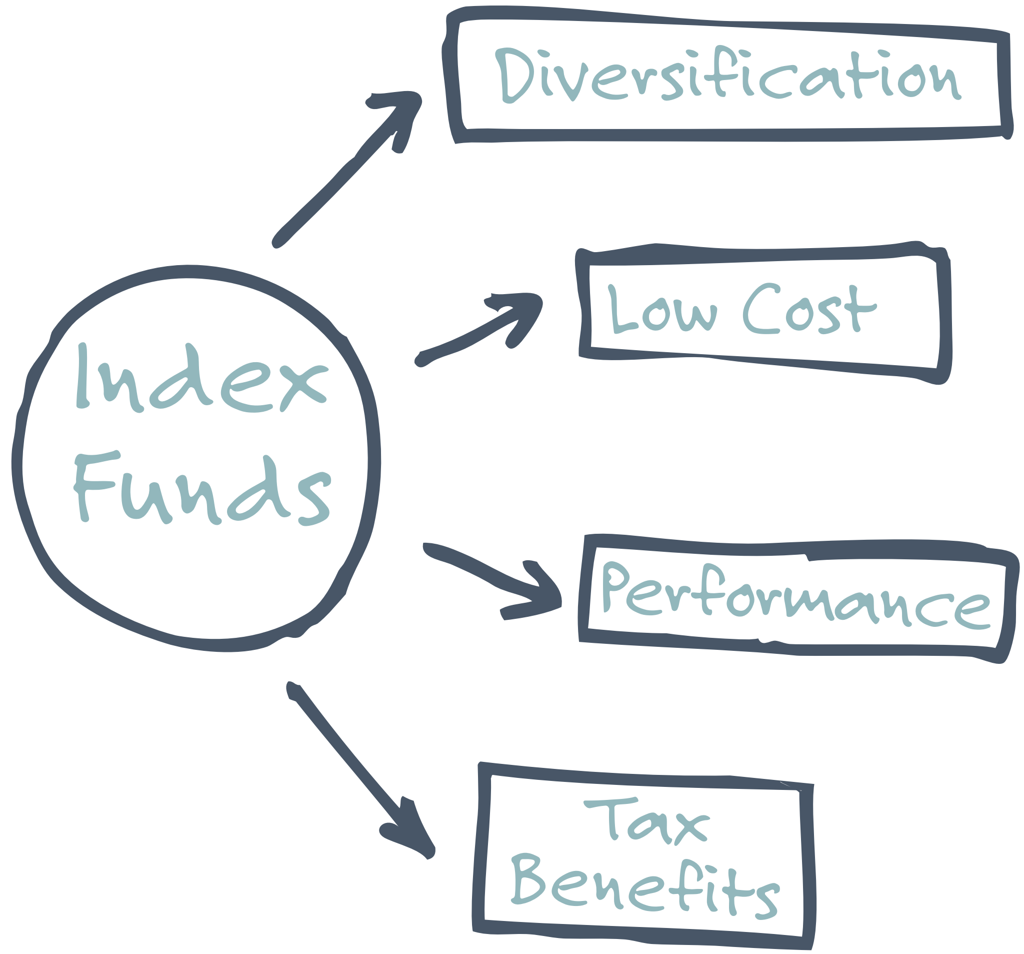
1 Diversification

A common principle of investing is that diversification – holding multiple asset classes – can reduce portfolio risk. Nobel Prize-winning economists, such as William F. Sharpe and Merton Miller, have long argued that a portfolio that holds all of the securities in a market will have the least amount of risk and most efficient performance. Index funds by design tend to be highly diversified as they try to closely imitate an entire market's makeup. Therefore, if a held company goes bankrupt, a well-diversified index fund will be less negatively affected than an active fund that holds fewer securities.

2 Low cost

Cost is a major factor in fund performance. After all, what good is beating the market when expenses turn those positive returns negative? Index funds have significantly lower costs than active funds. In a Vanguard study, "The Case for Index-Fund Investing," cost is a primary reason why index funds, on average, outperform active funds over time. In 2013, according to the ICI, the average expense ratio for actively managed equity funds was approaching 1.00% points compared to 0.12% for index equity funds. The large disparity in expense ratios between actively managed funds and index funds persisted in bond funds, 0.65% to 0.12%, respectively.

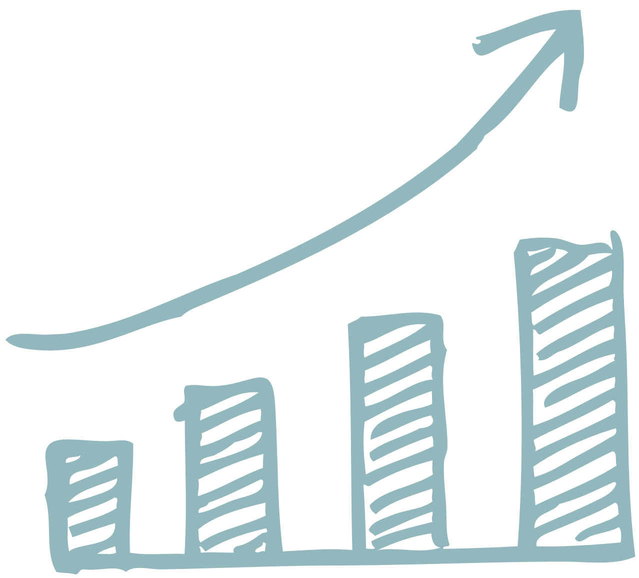
This means active fund managers have the unenviable task of covering their additional fees on top of outperforming the market. Good luck. Although some managers are successful for a while, eventually their performance regresses and the high costs bring their returns back down to their average, which historically is less than index funds.



3

Performance

Investors benefit from owning one index fund, but not as much as owning multiple index funds with exposure to several asset classes. There are over 1,000 index funds and ETFs available that track several distinct stock and bond indexes. And, a portfolio of all index funds held for the long term can increase the probability of an investor meeting his or her investment goals.



4 Tax benefits

Taxes are a frustrating expense on investment gains that is shared by all. But, index funds typically have low turnover – meaning few trades – and, therefore, low capital gains distributions. This can make them highly tax-efficient investments.

Chapter 4:

Why Indexing Works

Why Indexing Works

The two-part philosophy of active funds: market timing and security selection

Active investing is essentially the execution of two time-worn investment tactics: market timing and security selection.

Advisers who create active portfolios for clients disguise the stigma of market timing with flashy titles such as tactical asset allocation, dynamic asset allocation, opportunistic, global macro, risk management and so on. Regardless of name, most market timers like to claim their system really works and protects their portfolio from the risks of the marketplace.

Buying low and selling high – the goal of market timing – can be very rewarding, which is why the tactic is attractive to investors. The only catch is that to be successful at it investors have to predict the right moment to trade every time – a near impossible long-term achievement. Investors that are wrong can face substantial losses.

Selection of securities is another active investing tactic with poor odds for long-term success. Investors tend to buy a stock because of recent performance and usually find themselves late to the party, resulting in lower returns. In a study of market data from 2000 to 2012, YiLi Chien, senior economist at the Federal Reserve Bank of St. Louis, found a positive correlation between U.S. stock mutual fund cash flows and previous quarter returns. Chien then determined that this return-chasing behavior would produce a 3.6% average annual return, 2% lower than the 5.6% average annual return realized by a buy-and-hold strategy during the same period. It is a good idea to invest by the words of wisdom required by the SEC: “Past performance is not an indication of future returns.”

A better strategy is building a portfolio with a well-diversified asset allocation, and evidence supports it. Researchers Rober Ibbotson and Paul Kaplan in their study, “Does Asset Allocation Policy Explain 40, 90, or 100 Percent of Performance,” show that 90% of the variability of returns over time is attributed to asset allocation.

> ...Luck rather than skill accounted for 97% of the funds that outperformed the market.

Tale of the data: index fund vs. active fund performance

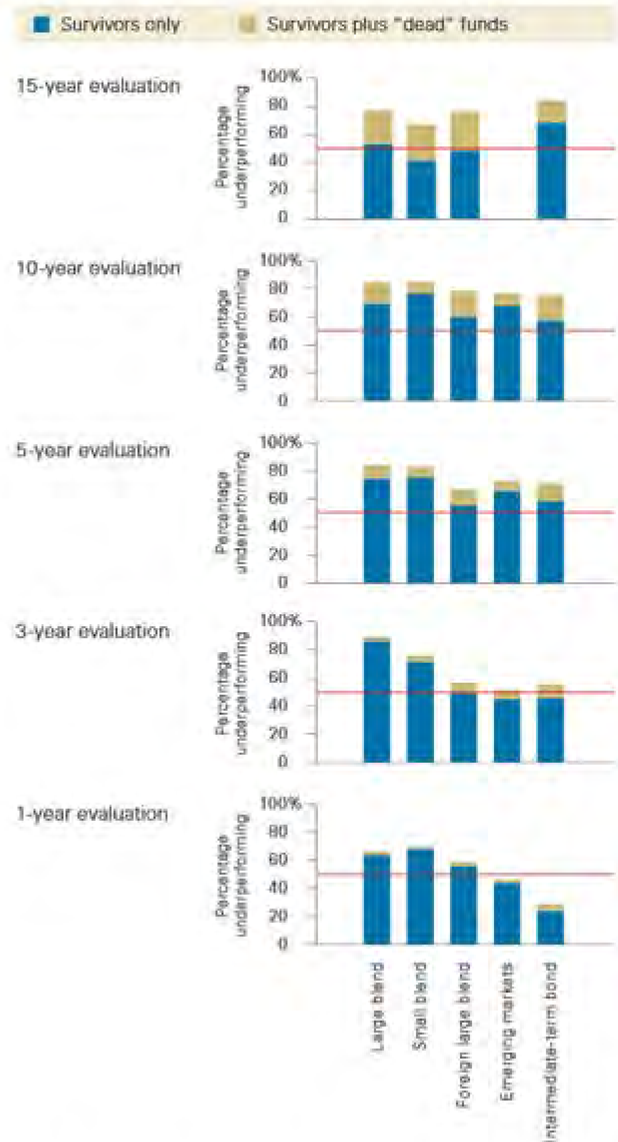
Since researchers began studying the factors behind a fund’s performance in the 1960s, a variety of published studies show returns in an active fund are not the result of a manager’s skill, and that over time, index funds outperform active funds.

For example, Nobel Laureate Eugene Fama and Kenneth French studied the past performance of actively managed funds invested primarily in U.S. stocks and found that luck rather than skill accounted for the success of 97% of the funds that outperformed the market. Their paper, "Luck versus Skill in the Cross Section of Mutual Fund Returns," concludes that most fund managers lack the ability to produce the risk-adjusted expected returns needed to cover their costs.

The blemishes of active fund performance are even more pronounced when compared to index funds. In the same Vanguard study cited above, more than half of large-cap active funds underperformed low-cost index funds in each 1-, 3-, 5-, 10- and 15-year period.

In addition to being beaten in an analysis of funds in one asset class, active funds also fare

Percentage of active funds underperforming the average return of low-cost index funds



Notes: The actively managed funds are those listed in the respective Morningstar categories. Index funds are represented by funds with expense ratios of 20 basis points or less as of December 31, 2012. All returns used were for the investor share class. Data reflect periods ended December 31, 2012.

Sources: Vanguard and Morningstar, Inc.

poorly when compared to index funds in a portfolio holding multiple funds in different asset classes. This is most significant because, in investing, the return of an entire portfolio is more important than that of just a single fund. Based on the low probability of choosing one winning active fund, the odds are possibly even lower of creating a portfolio with enough winning active funds to make up for the losing funds.

Winning streaks don't last

During any given quarter some active funds do outperform the market, and on Wall Street, such winning streaks do not go unnoticed. Every better-performing fund gets its 15-minutes of fame, drawing big money-flows from investors and adulation from the media with star ratings. But, winning streaks never last. On top of the low probability of consistently beating the market, a fund's success can also end up damaging its performance. Investors may flock to a winning fund with loads of new money. That increases the fund's asset base, which hinders its ability to match its pervious performance as it can no longer be managed the same way as before. Additionally, transaction costs and management fees rise due to the pressure to keep the streak alive.

When performance suffers, investors (some with lighter wallets than before) inevitably jump off the bandwagon as the streak comes to an end and look for the next fund flavor of the week. Interestingly, their losses provide opportunity for index investors in the form of excess returns. Since index funds are long-term investments, most index investors stay the course by rebalancing their portfolios. Rebalancing returns a portfolio back to its original asset allocation by selling high assets and buying low ones. It is a way to always buy low and sell high as well as benefit from investors unwisely transferring large amounts of wealth to the market's current high-priced, streaking funds.

Lower fees

Index funds and ETFs generally have low costs and fees, which is a primary reason Vanguard's research has shown low-cost index funds have displayed a greater probability of outperforming higher-cost actively managed funds. The more investors pay for their returns, the lower those returns will be. The management structure of active funds is vastly different than index funds and ETFs, resulting in higher charges to investors. This structure difference is further explained below. Ultimately, fees should be an important factor when investing, even among index funds and ETFs, because of the large role they play in determining performance. Less money going toward fees means more money invested. A penny saved is a penny earned, and a dollar saved in fees could be dollar earned in returns.

Chapter 5:

Understanding Why Costs Matter

Understanding Why Costs Matter

Why active funds cost more

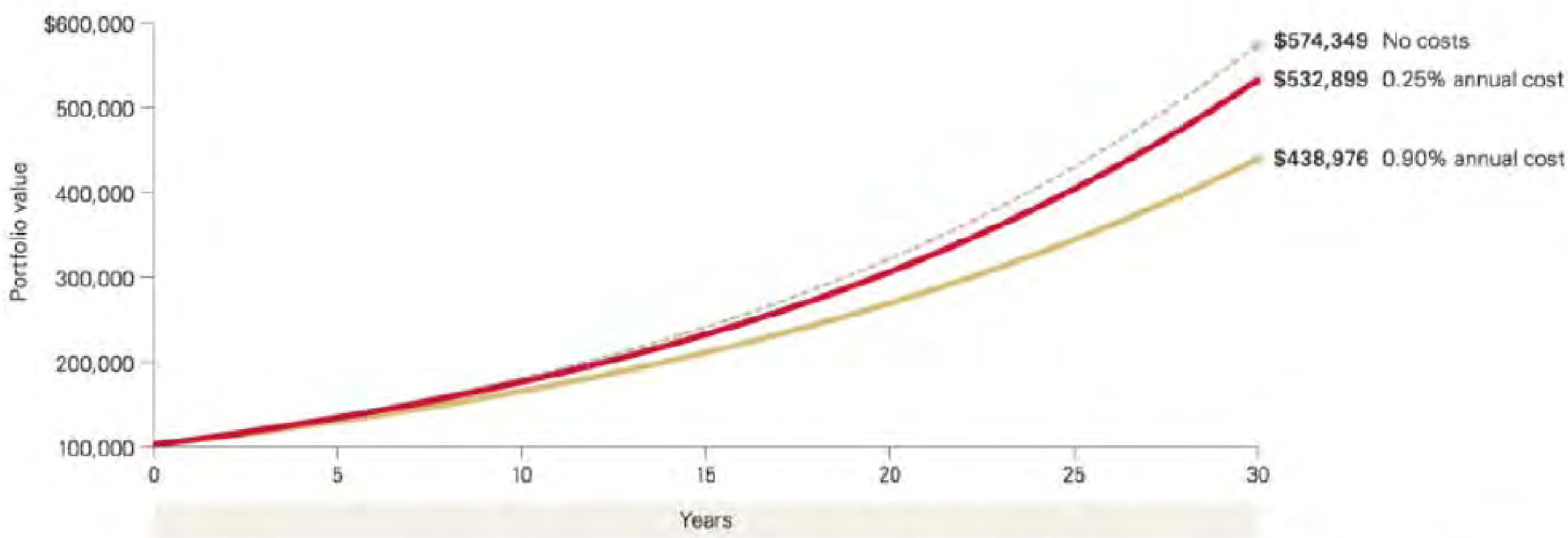
There are many reasons why active funds cost more than index funds. For one, in their attempt to outperform the market, managers make excessive trades that accumulate turnover costs. The high turnover subsequently produces tax liabilities from capital gains distributions – an additional cost to investors. Additionally, active funds use the services of stock analysts, economists and other finance professionals, who add to management fees. Finally, gaining access to information or initial public offerings cost investors in commissions to brokerage firms.

How management and fund expenses affect returns

Picture a large ship carrying goods across the ocean. As a shipping company, it makes sense to stack as many goods on deck as possible to collect more shipping fees, but eventually the weight is great enough to sink the ship. Management and fund expenses work the same way on returns. See below how costs affect a hypothetical $100,000 investment over 30 years. The increasing expenses sink returns lower and lower.

Effect on returns from management and fund expenses

$100,000 initial investment: 6% gross return for 30 years, which is reinvested



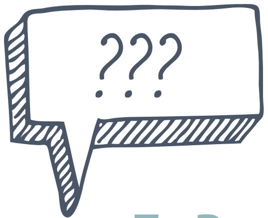
Note: The portfolio balances shown are hypothetical and do not reflect any particular investment. The final account balances do not reflect any taxes or penalties that might be due upon distribution. Source: Vanguard.

Source: Vanguard, "Principles for Investing Success," data ending December 31, 2013

Chapter 6:

To Be Advised Or Not Be Advised?

That Is the Question.



To Be Advised or Not to Be Advised? That Is the Question.

The volume of different investments available motivates many investors to use the services of an investment adviser. While index investing is without many of the complex facets of active investing, building a long-term investment strategy based on personal financial goals can be a challenge. The decision to take the do-it-yourself approach should rest on an investor's knowledge of investing and his or her willingness to dedicate time to manage a portfolio. Meanwhile, investors considering an adviser should thoroughly research fees and disciplinary records.

Benefits of using an adviser

1. **Discipline/reassurance.** During market swings, investors typically let emotions get the best of them. This may lead them to panic and abandon their investment plans by making decisions that adversely affect their investments. Advisers can provide a sense of discipline by monitoring an investor's portfolio and acting as a voice of reason to prevent decisions that are too aggressive or even too conservative in relation to their financial goals. And, when an investment adviser invests in index funds instead of active funds that have high turnover, an investor can be reassured that they know what they're getting and what market the fund is actually tracking.

2 **Strategic expertise.** Which assets and what allocations are appropriate for a portfolio to meet personal financial goals and risk tolerance? Figuring out the answer is easier under the guidance of an adviser. The knowledge of investment advisers, such as asset risk and return characteristics, is beneficial in understanding how to build a portfolio and maintain it throughout changes in the marketplace. Also, advisers can offer various strategies to help investors in ways such as tax reduction or sustainable long-term withdrawal rates.

3 **Periodic rebalancing.** An essential part of following an investment strategy is rebalancing. Unfortunately, maintaining a steady rebalancing schedule is a challenge to most individual investors. Advisers can execute periodic portfolio rebalancing to restore an investor's original asset allocation as well as reduce risk accumulated from rising assets.

4 **Free time.** Not to be overlooked, investing can be highly time-consuming. With an adviser, investors have help choosing a proper asset allocation and keeping it through thick and thin. This eliminates the time and opportunity cost required to constantly monitor the market and the portfolio's performance while making adjustments accordingly. Simply, with an adviser investors have the time to do and enjoy other things.

Because of low costs, broad diversification and minimal turnover, long-term investors can benefit from holding index funds and ETFs in their portfolios. After choosing to start index investing, an investor should begin learning indexing principles like asset allocation, risk tolerance, rebalancing, and more. Most importantly, an investor has to understand how they all relate to his or her personal financial goals. Staying educated is an ongoing process, and we will continue to provide additional resources to help investors write their investment story.

For more information about Portfolio Solutions®

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