Index-based strategies have gained popularity in recent years. Institutional and retail investors have embraced them as better building blocks. The simplicity and elegance of indexing may lead investors to miss some of the built-in benefits of indexing—diversification, cost-effective exposure to virtually any segment of the market, tax-efficiency, and the removal of emotions that often hinder success. This article also discusses the evolution of indexing from “cheap beta” to “smart beta,” and addresses how to incorporate these strategies in client portfolios.

Many investors lack the time or the expertise to determine which specific stocks—or bonds or other investments—they should hold in their portfolios. In addition, they may not have enough money on hand to sufficiently spread out their risk by holding a large number of different securities across sectors, industries, and companies.

This spreading out of risk, or diversification, is a basic tenet of modern portfolio theory, which holds that you can reduce the risk (volatility) of the overall portfolio by owning a number of securities that tend to move independently of each other. Figure 1 shows how diversifying, or introducing more securities, helps reduce the overall risk of a portfolio. The fewer securities you hold, the likelier it is that a decline in one of them could adversely affect the whole portfolio. A larger pool of securities tends to spread that risk.

One way to reap the benefits of diversification is through index investing—the practice of investing in a fund or exchange-traded fund (ETF) that mirrors a particular index. Indexing has its roots in the modern mutual fund, which was born almost a century ago. The premise of the mutual fund remains fairly simple: A fund, or pool, of dollars from numerous investors that enables a manager to buy dozens, if not hundreds, of stocks, bonds, or other investments, providing a level of diversification that few investors could achieve on their own. Today more than 8,000 mutual funds in the United States invest, in aggregate, more than $16 trillion.1

From the 1920s through the 1960s, all mutual funds were actively managed, with a portfolio manager or a team of portfolio managers sifting through potential investments to identify and invest in those they believe to be best suited to achieve the fund’s objective.

**Indexing 1.0**

In 1971, the pension fund of Samsonite, the luggage manufacturer, invested $6 million in a new type of mutual fund called an “index fund.” These funds sometimes are referred to as “passive” to differentiate them from actively managed funds. Index funds aim to mirror the performance of a particular index, such as the S&P 500®, Russell 1000®, MSCI EAFE, FTSE 100, or the Bloomberg Barclays U.S. Aggregate Bond Index.

Index investing was designed to provide investors with broad exposure to various segments of the market. It has evolved markedly over the years, making a quantum leap forward in the 1990s with the advent of ETFs. ETFs have helped democratize investing by allowing individuals to invest in scores of markets and investment opportunities—from traditional domestic stock and bond investments to emerging market

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1. The term “index fund” is the most common name for funds that are designed to mirror the performance of an index.
bonds, currencies, commodities, and sophisticated investment strategies.

In recent years, ETFs have grown largely at the expense of actively managed mutual funds. Since 2008, equity mutual funds have experienced net outflows and ETFs have experienced positive inflows. Unfortunately, as figure 2 shows, the cumulative equity flows since 2008 have been negative. In other words, many investors have missed out on the bull-market run that has taken place since the financial crisis.

Indexing also has evolved from plain vanilla exposure to market segments to include innovative ways of improving the market experience, and the wave of innovation within index investing is continuing.

The Appeal of Index Funds

One of the most appealing characteristics of index funds is how they let investors participate in the growth of the economy in a straightforward way. The U.S. market has grown over time, and the indexes that follow it have risen in tandem. For example, $100,000 invested in the Schwab 1000 Index 25 years ago and left untouched would be worth more than $1 million today (see figure 3).

Indexes also let us consider the cumulative growth of inflation. In this example, the real return over 25 years has been the difference between the annualized index (9.63 percent) and the annualized inflation rate (2.30 percent). Inflation has been fairly benign recently, but it can erode an investor’s purchasing power over time. Investments such as cash and cash equivalents have provided negative real returns in recent years. Investors who have been sitting in money market funds over the past several years may have lost money after accounting for inflation.

So, given that an index is a broad basket of securities designed to represent a market segment, index investing is a straightforward way to track the market. Index investing also tends to be a more tax-efficient approach than actively managed mutual funds. Active funds tend to have higher turnover than index funds, because their managers continuously buy and sell securities in an attempt to beat the market rather than investing according to a set schedule of reconstitution and rebalancing. Without frequent buying and selling, index funds have fewer occasions to realize capital gains. ETFs are touted for their potential tax efficiency, which stems from their generally lower turnover rates and structural advantages compared to mutual funds.

Index investing allows investors to obtain broad exposure to the market even if they do not have large sums to invest. And finally, index investing is relatively cheap. The typical index fund has lower operating expenses and management fees than an actively managed fund. The average cost of an actively managed all-equity mutual fund is roughly 0.84 percent of assets per year. Index mutual funds and ETFs range in cost but typically charge 0.03–0.30 percent of assets. This gap in fees adds up over the life of an investment. For instance, a $100,000 portfolio growing at 6 percent annually over 25 years would accumulate more than $62,000 extra if the fees were 0.15 percent instead of 0.84 percent (see figure 4).
Bottom line, index funds have done well on both an absolute and on a relative basis: on an absolute basis over the long term because equity markets have grown over time, and on a relative basis because of their lower cost structures.

Continuing with our example, figure 5 shows the gains that could have been made by contributing $10,000 annually over the past 25 years as part of a systematic investment plan. Such an investor would have contributed $250,000, plus the initial $100,000, for a total of $350,000—and would have seen this investment grow to more than $1.89 million.

How Indexing Works
Indexing investing is often referred to as “passive” because index funds are designed to track the movements of particular indexes, as opposed to actively managed funds, which have managers choosing investments. Although accurate, the word “passive” also contradicts the dynamic nature of index funds. The fact is that index funds follow a rigorous methodology that periodically alters their compositions, enabling investors to participate in important market shifts.

To illustrate this point, consider again our example. The Schwab 1000® Index screens and ranks all U.S. stocks based on market capitalization, i.e., the total stock market value of shares. It builds a portfolio containing the top 1,000 stocks in proportion to their overall value. Then each year that portfolio is adjusted to account for stock splits, performance, and other corporate actions, and the top 1,000 are re-ranked, ensuring that investors have exposure to the biggest publicly traded contributors to the U.S. economy. Because the rankings and weightings shift according to each company’s market performance, index fund owners essentially are making the market their manager.

This explanation makes indexing sound pretty simple and straightforward, but it is more dynamic than investors may think. Indexes change as new companies come to the market and others go out of business or merge with larger companies. Consider that some of today’s well-known companies—Google (Alphabet), Facebook, and Alibaba—didn’t exist 25 years ago.

In the early 1990s, companies such as Microsoft, Sears Roebuck, and Eastman Kodak were among the top holdings in the Schwab 1000® Index. Today, the market is dominated by Apple, Facebook, Amazon, and Google. Apple is the largest holding in the Schwab 1000® Index, due in large part to its dominant position with the iPhone. In 1991, Apple was in the personal computer business and it ranked 138th.

Behavioral Biases
There’s no shortage of literature discussing the difficulty of outperforming the market on a consistent basis. In A Random Walk

![Figure 4: Fees Can Eat Away at Returns](image)

$100,000 invested in an active equity fund loses more than $62,000 to fees over 25 years compared to an index fund.

![Figure 5: The Power of Compounding](image)

Hypothetical growth of $100,000 invested in the Schwab 1000 Index with an additional $10,000 invested at the beginning of each year.

Source: Schwab Center for Financial Research. This hypothetical example is for illustrative purposes only; assumes an annualized return rate of 6 percent, active equity fund expense of 0.84 percent, and index fund expense of 0.15 percent; and is not representative of any specific investment or product.
down Wall Street, Princeton economist Burton Malkiel argued that a “blindfolded monkey” has just as good a chance of outperforming the market as a market professional. Some individual stock pickers beat the market each year, but data from the Schwab Center for Financial Research illustrates how difficult it is for actively managed funds to deliver outstanding results year after year.

Our evaluation shows that between 2007 and 2016, not one equity mutual fund was able to rank in the top performance quartile for more than seven years (see figure 6).

Perhaps more troubling is the fact that many investors spend too much time and energy chasing returns. The old investment adage says, “It’s not timing the market, but time in the market.” Investors often try to time the market—betting on when to enter and exit, or chasing a hot manager or asset class. Investors often chase returns and allow their emotions to get in the way of their investment plans.

According to our proprietary research, over the 10-year period ending December 2015, the difference in the returns of the average mutual fund and the average investor in that fund was greater than 1 percent per annum. This is due to investors chasing returns rather than staying on course with a long-term plan. In today’s market environment, the difference could determine whether investors make or lose money.

Figure 7 shows the “timing penalty” that results as equity mutual fund and ETF flows follow the performance of the markets. Investors who chase returns achieve different results than the index. Investors often invest after the markets have risen—and redeem shares after they have fallen. The difference in returns is the timing penalty.

Investors who chased returns during the late 1990s and early 2000s got burned in the 2000 Internet bubble and the 2008 financial crisis. As shown above, many of those investors have missed out on the bull-market run up since 2009.

Because it is difficult to time the market, it’s important to be invested. Missing out on just a few days can lead to dramatically different results. Investors who owned the S&P 500® during 1997–2016 achieved a roughly 7.7-percent annualized return. But if they missed the 10 best days, their returns would have been a mere 4 percent—and if they missed the 20 best days their returns would have been 1.6 percent. If they missed the 30 best days, they would have lost money (see figure 8).
Investors would be better served by developing a long-term asset allocation strategy and implementing some form of disciplined saving plan over time. Indexing removes the emotion that often prevents investors from making good decisions. Rather than debating whether to own Apple or Amazon, buy an index that may own both. Rather than determining when to get in and out of the market, buy into an indexed approach, which can help you stay invested through market cycles. Indexing provides broad diversification and removes the emotion that often hinders investors from making the right decisions at the right time.

Indexing 2.0
Early indexing was designed to provide exposure to virtually every market in a cost-effective manner. Index funds and ETFs were great tools for institutional and individual investors. With increased demand, indexing has evolved beyond traditional market capitalization to include a number of new and innovative approaches.

Recent innovations in indexing aim to combine the benefits of traditional indexing and active fund management. Consider fundamentally weighted indexes, which screen and weight stocks based on a variety of economic factors such as a company’s adjusted sales, cash flow, and dividends plus buybacks.

These fundamentally weighted index strategies sometimes are referred to as "strategic beta" or "smart beta" because they provide broad-based market exposure (beta), and they weight securities based on fundamental factors rather than simply assigning the greatest weights to the largest capitalized companies.

Fundamental index strategies rely on a rules-based discipline to select and weight securities, removing potential biases of an active manager who, for example, may favor a particular stock because of emotional attachment to the company’s management or product.

Table 1 shows a comparison of a fundamentally weighted index and a traditional index. The Russell 1000 Index and the Russell RAFI U.S. Large Company Index own most of the same companies, but with different weights. The Russell 1000 is based on market capitalization and the Russell RAFI U.S. Large Company Index weights securities based on fundamental factors.

Both indexes hold the same companies, but the difference in weighting can lead to dramatically different results over time. To highlight the difference, we focus on the FANG stocks—Facebook, Amazon, Netflix, and Google. These stocks often are referred to as tech bellwethers, and they became very popular in 2015, a year dominated by momentum stocks.

Because FANG stocks are popular, their weights in market-cap indexes have risen...
dramatically over the past several years. However, because fundamental indexes screen and weight securities based on factors such as sales, cash flow, and dividends plus buybacks, FANG stocks make up substantially lower portions of fundamental indexes. One measure used to determine the valuation of a company is its price-to-earnings (P/E) ratio. A high P/E suggests that a company is expensive and a low P/E suggests a company may be cheap. Based on this measure, FANG stocks are expensive (see table 2).

Table 3 compares fundamental indexes to their comparable market-cap equivalents. The differences in returns can be quite dramatic as the data show in 2016. Not in each and every market environment—but over longer periods—we see that fundamental indexes have delivered excess returns relative to the market-cap indexes.

Smart Beta Strategies
Smart beta strategies—also known as strategic beta strategies—have grown in popularity and complexity in recent years. Smart beta strategies move beyond the idea that size is the only factor that matters. Based on Morningstar research, there are now more than 1,000 different strategies, with more than $500 billion in assets under management. They include strategies such as equal weight, momentum, low volatility, quality, and fundamental indexing among others.

These strategies are often grouped together but in fact use very different approaches to screen and weight securities. Consequently, they provide different returns and risks to investors. Figure 9 shows the year-over-year performance of a few of the more popular strategies. Note the natural rotation of the best- and worst-performing strategy from one period to the next. In 2015, momentum was the best-performing strategy—and in 2016 the worst. Low volatility performed well during 2014–2015—but lagged in 2012 and 2013. Fundamental lagged in 2014 and 2015—and was the best-performing smart beta strategy in 2016. These strategies generally outperform the market-cap index in aggregate but also have periods where they lag the benchmark.

### Table 2: Index Weighting Comparison

<table>
<thead>
<tr>
<th>As of December 31, 2016</th>
<th>Rank in Russell 1000</th>
<th>Rank in Russell RAFI U.S. Large Cap</th>
<th>Forward P/E Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>10</td>
<td>279</td>
<td>22.4</td>
</tr>
<tr>
<td>Amazon</td>
<td>7</td>
<td>150</td>
<td>69.9</td>
</tr>
<tr>
<td>Netflix</td>
<td>89</td>
<td>—</td>
<td>153.8</td>
</tr>
<tr>
<td>Google (Alphabet)</td>
<td>12</td>
<td>76</td>
<td>19.5</td>
</tr>
<tr>
<td>Russell 1000 Index</td>
<td></td>
<td></td>
<td>20.44</td>
</tr>
<tr>
<td>Russell RAFI U.S. Large Cap</td>
<td></td>
<td></td>
<td>18.79</td>
</tr>
</tbody>
</table>

Source: Schwab Center for Financial Research. For illustrative purposes only. Not a recommendation or guarantee that any company is or has been profitable.

### Table 3: Performance Comparison: Fundamental versus Market-cap Indexes

<table>
<thead>
<tr>
<th>Data from January 1, 2011–December 31, 2016</th>
<th>1-year Return</th>
<th>3-year Return</th>
<th>5-year Return</th>
<th>Annualized Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russell RAFI U.S. Large Company Index</td>
<td>16.67%</td>
<td>8.60%</td>
<td>15.06%</td>
<td>12.94%</td>
</tr>
<tr>
<td>Russell 1000 Index</td>
<td>12.05%</td>
<td>8.59%</td>
<td>14.69%</td>
<td>12.38%</td>
</tr>
<tr>
<td>Russell RAFI U.S. Small Company Index</td>
<td>23.81%</td>
<td>8.43%</td>
<td>16.14%</td>
<td>12.59%</td>
</tr>
<tr>
<td>Russell 2000 Index</td>
<td>21.31%</td>
<td>6.74%</td>
<td>14.46%</td>
<td>11.12%</td>
</tr>
<tr>
<td>Russell RAFI Dev ex-U.S. Large Company Index</td>
<td>8.55%</td>
<td>-0.21%</td>
<td>7.80%</td>
<td>4.07%</td>
</tr>
<tr>
<td>Russell Developed ex-U.S. Large Cap Index</td>
<td>3.01%</td>
<td>-0.85%</td>
<td>6.99%</td>
<td>3.60%</td>
</tr>
<tr>
<td>Russell RAFI Dev ex-U.S. Small Company Index</td>
<td>9.80%</td>
<td>4.12%</td>
<td>11.10%</td>
<td>7.00%</td>
</tr>
<tr>
<td>Russell Developed ex-U.S. Small Cap Index</td>
<td>6.35%</td>
<td>2.34%</td>
<td>9.23%</td>
<td>4.80%</td>
</tr>
<tr>
<td>Russell RAFI EM Large Company Index</td>
<td>33.65%</td>
<td>-0.55%</td>
<td>2.86%</td>
<td>-0.41%</td>
</tr>
<tr>
<td>Russell Emerging Markets Large Cap Index</td>
<td>11.93%</td>
<td>-1.55%</td>
<td>2.29%</td>
<td>-1.42%</td>
</tr>
</tbody>
</table>

Source: Schwab Center for Financial Research with data provided by Morningstar Direct. Indexes are unmanaged, do not incur fees and expenses, and cannot be invested in directly. Past performance is no guarantee of future results.

### Figure 9: Smart Beta Year-over-Year Results

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal Weight 17.7%</td>
<td>Equal Weight 36.1%</td>
<td>Low Volatility 17.5%</td>
<td>Momentum 8.7%</td>
<td>Fundamental 16.7%</td>
</tr>
<tr>
<td>Fundamental 16.7%</td>
<td>Fundamental 35.0%</td>
<td>Equal Weight 14.5%</td>
<td>Low Volatility 4.3%</td>
<td>Equal Weight 14.8%</td>
</tr>
<tr>
<td>Quality 16.1%</td>
<td>Momentum 30.4%</td>
<td>Momentum 14.2%</td>
<td>Quality 2.1%</td>
<td>Market Cap 12.0%</td>
</tr>
<tr>
<td>Market Cap 16.0%</td>
<td>Market Cap 32.4%</td>
<td>Market Cap 13.7%</td>
<td>Market Cap 1.4%</td>
<td>Quality 10.7%</td>
</tr>
<tr>
<td>Momentum 14.3%</td>
<td>Quality 31.7%</td>
<td>Quality 13.3%</td>
<td>Equal Weight -22%</td>
<td>Low Volatility 10.4%</td>
</tr>
<tr>
<td>Low Volatility 10.3%</td>
<td>Low Volatility 23.6%</td>
<td>Fundamental 12.7%</td>
<td>Fundamental -2.6%</td>
<td>Momentum 4.6%</td>
</tr>
</tbody>
</table>

Source: Schwab Center for Financial Research with data provided by Morningstar Direct. Data used from January 1, 2012 through December 31, 2016. Strategy performance represented by annual total returns for the following indexes: Market Capitalization (Market Cap)—S&P 500; Fundamental—Russell RAFI U.S. Large Cap; Equal Weight—S&P 500 Equal Weighted; Momentum—MSCI USA Momentum; Low Volatility—S&P 500 Low Volatility; Quality—Russell 1000 Quality Factor. Indexes are unmanaged, do not incur fees or expenses, and cannot be invested in directly. Please see disclosures for more information about the market indexes. Past performance is no guarantee of future results.
Summary
Innovations in indexing allow investors to own a segment of the market in a market-cap fashion or choose from among a range of smart beta strategies (i.e., momentum, low volatility, quality, equal weight, or fundamental, among others). Fundamental index strategies screen and weight securities based on factors such as sales, cash flow, and dividends plus buybacks. The difference in weighting methodology can provide very different returns over time.

We are advocates of allocating to both market-cap and fundamental index strategies. Each has a role within a portfolio. Market-cap strategies tend to be the lowest-cost solution. They provide little or no tracking error and provide market beta by definition.

Our research has shown that fundamental indexing has delivered excess returns over time. These investments typically exhibit high tracking error and are cost effective relative to active mutual funds. The combination provides diversification, cost-effective exposure, and the potential for alpha (excess returns).

We see index-based strategies forming the core of investors’ portfolios. Index investing offers a simple yet effective way to participate in the growth of the global economy, allowing individual investors to diversify, gain market exposure, and be positioned to capture greater growth potential as part of an overall investment strategy.

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Endnotes

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Diversification strategies do not ensure a profit and do not protect against losses in declining markets.

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