The Financial Index Industry
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The Index Industry Association (IIA) is the first-ever trade association for the index industry. A not-for-profit organization serving the fast-growing global community of index providers, IIA membership is open to index businesses worldwide. The Association’s mandate is to educate investors on the attributes and role of indexes within the investment process, to advocate the interests of index users and providers worldwide, and to push for industry standards of best practices, transparency, competition, and independence.

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The Economic Impact of the Indexing Industry

Part I: Introduction

Contemporary understanding of financial markets is almost entirely driven by an explicit or implicit use of financial market indices. When talking about “the market,” one is nearly always referring to one of the indices that the news media uses as a proxy for the performance of a national equity stock market, such as the Dow Jones® (in the United States), FTSE®, or “Footsie” (in the United Kingdom), or the Nikkei (in Japan). The reality of course is that financial markets are comprised of thousands of different instruments, covering company stocks, bonds, commodities, and currencies. Financial indices provide us with a way to reduce that complexity.

As well as increasing the financial awareness and literacy of the population, products designed around financial indices have been central to allowing individuals to obtain access to a diversified portfolio of investments at low cost and effort. While the economic benefits through risk reduction of holding a portfolio of assets have been known for some time, the ability to replicate that easily and cost-efficiently has been transformed by the development of financial products using indices.

While important for individuals, the development of index funds has been transformational for the money management industry. The ability to easily diversify across different markets or sectors with differing risk profiles and returns, or to seek out new investment options in previously hard-to-access opportunities, has led to a revolution in the way money is managed. While investors may be willing to pay for high performance, they are less inclined to reward investment returns resulting from underlying market movements. Indices allow for this parsing out of returns. Moreover, the use of indices brings an accountability and precision to the performance management of the active fund management industry; the breadth of indices available now means that an independent index can be identified (or constructed) for a wide range of investment strategies or objectives. Investors and advisors are able to judge through an appropriate benchmark whether active performance managers are earning the fees they charge.

Significant social changes are the backdrop to the development of the industry. One is demographic: An aging population and the changing composition of the workforce have put the Social Security system under stress in most developed market economies. The notion that the public purse alone will be in a position to provide a comfortable life for an aging population has all but disappeared. Likewise, the changing nature of work has meant that lifetime employment with one employer who also provides a retirement plan based on salary is now rare. Only 17 percent of those currently in the U.S. workforce are “very confident” about having enough money to live comfortably through retirement. In order to fund old age, individuals are having to take more responsibility for managing their financial futures. Figure 1 suggests that while U.S. households have
realized that Social Security is unlikely to fund their old age – and are supplementing it with IRAs or employer-sponsored retirement plans (e.g., 401ks) – around 39 percent do not have access to any such vehicles.

Indices have also been major catalysts for product innovation in the financial services space. Analytical power now allows for the creation of indices that cover new markets, empower new strategies, and serve as the basis of financial instruments that would have been previously unavailable to even sophisticated institutional investors, let alone typical non-professional individuals. Analytical power now allows for the creation of indices covering new sectors, strategies, and asset classes. In their role as an asset allocation device, indices challenge the idea that investing is a black box where only those with the necessary knowledge can go. The advance of indices and their methodological approach to investing increasingly brings closer together what have been called “active” and “passive” investing styles, as this report will explain.

This report will also explain the importance of financial indices and their role in the modern financial system. It will describe how they are constructed, their evolution, and how best to utilize them. The report will provide statistical evidence on the growth and current state of the industry, explain how investible products that use indices have developed, and highlight the key players in the index industry value chain. It will also show the role financial indices have in making more asset types investible and the important role they play in evaluating the performance of the fund management industry. We will also provide estimates of the savings that equity investors have enjoyed as a result of the development of investible products designed around indices. The report will also deal with issues for policymakers as they seek sound regulation, helping them to protect investors’ rights and promote innovation in this competitive space.

The audience for this paper is the non-technical reader looking to understand more about developments in the financial index industry. This may include current or future consumers of products based on indices, or investors in funds whose performance is measured against an index.

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**Figure 1: U.S. Households Retirement Assets**

<table>
<thead>
<tr>
<th>Has IRA only</th>
<th>Has IRA and employer-sponsored retirement plan</th>
<th>Has employer-sponsored retirement plan only</th>
<th>Do not have IRA or employer-sponsored retirement plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>29%</td>
<td>39%</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Source: US EBRI
Part II: What Is a Financial Index?

1. A Primer on Financial Indexes

A financial index measures the performance of a list of instruments (bonds, stocks, etc.) that are selected and weighted according to an employed methodology that describes a set of rules governing the construction of the index. The Index Industry Association defines an index “as a number calculated by reference to a theoretical collection of assets, market indicators, securities or derivatives whose absolute level or periodic difference relate to the performance of the theoretical collection over that period.” This definition raises a number of important issues. First, who is constructing the index? The first index is famously attributed to Charles Dow, co-founder of the Dow Jones Company, who in 1896 created the Dow Jones Industrial Average® and included 12 companies then representative of American business. While none of the initial 12 firms remain in the index today, there are 30 constituents of the current index. As interest in indices arose, the financial press (such as the Financial Times) or financial exchange market owners themselves (such as the Deutsche Borse in Germany) created their own equity indices, while on the bond side it was the investment banks who led the development of indices. Today the index provider market is characterized by a range of players, some being almost household names such as S&P Dow Jones® Indices, whereas other smaller firms may be virtually unknown outside of the financial services industry.

If that is the “who,” the second issue relates to “how.” Specifically, what is the set of rules for entry into the index? Index providers must stipulate the criteria used to determine entry into the index. These are most often based on some size criterion (e.g., stock market capitalization, debt raised), such as is the case with S&P 500®, but can also be on the basis of geography, sector, etc. These rules may have some other binding constraints (e.g., a minimum market capitalization, a threshold level of free float [that is, what percentage of an entity’s shares are held by investors], or a minimum level of trading liquidity).

A third issue when constructing an index is the choice of weighting given to individual items in the index. As noted, the most common way to weight equity or bond indices is by market capitalization or par value, respectively. Thus, larger companies are attributed a higher weighting in the index. For example, Apple Inc. in the middle of 2018 passed a market capitalization of one trillion dollars and was at the time the largest company listed on the U.S. stock market. Apple then had a weighting of around 4 percent of the S&P 500 market index. Auto supplies manufacturer, Goodyear Tire & Rubber, on the other hand, one of the smaller companies within the S&P 500 with a market cap of around $5 billion, has a weight of around 0.02 percent. So market cap indices give the most weight to highest capitalization stocks; movements in the stocks of larger companies will “move the needle” of the index as a whole. In that sense it is a more accurate representation of the underlying market it is meant to be tracking.

The same is basically true for fixed-income or debt products: Bonds with the largest issue size are generally the most liquid and have a larger weight in those fixed-income indices. Bonds are issued by many institutions such as the U.S. Treasury, state and local governments, corporations, and other government entities. The bond market is significantly larger than the stock market; the most commonly referred to U.S. bond benchmark, the Bloomberg Barclay’s Aggregate Bond Index (AGG), has around 10,000 securities in it and represents almost $40 trillion in assets. And in terms of weighting, because the U.S. government...
The Financial Index Industry

is the largest issuer of debt, around two-thirds of any broad U.S. investment-grade index is comprised of debt issued by the U.S. government and government-sponsored entities. The chance of default of the U.S. Treasury may of course be low, but these bonds may be exposed to other risks, such as interest rate movements. Another significant difference between bond and stock indices is that bonds mature, meaning that bond indices have to rebalance on a more frequent basis than the frequency with which, e.g., an equity index typically adjusts its constituents. The bond equivalent to the S&P 500 is colloquially known as “the AGG.” Started in 1973 by boutique investment bank Kuhn, Loeb & Co., it is today known as the Bloomberg Barclays® U.S. Aggregate Bond Index, representing around 8,200 “investment-grade” fixed-income securities with a total value of around $15 trillion. It is a market-capitalization-weighted index, meaning individual securities are weighted by the market value of the outstanding debt issue. Investment-grade bonds have to be rated at least BBB/Baa3 by the two major rating agencies (Moody’s and S&P Global® Ratings), meaning that it is highly likely that the bond issuers will meet their repayment obligations. (Bonds that are not rated investment grade are called “high yield” or “junk.”) Around 80 percent of the bonds represented in the index have the highest bond rating (triple A).

There are some other important differences between the fixed-income (or bond) market indices and funds compared to equity-based counterparts. First, there are thousands of bonds in the broad U.S. bond benchmark, and fund managers are not going to be in a position to own them all. Second, some of these bonds may be “thinly traded,” or may not trade at all on any given day. Here most indices would use evaluated pricing – using data from multiple sources – as a way of determining the bond’s price. Also, bonds mature (or new ones are issued) and turn over on a regular basis, which means the index needs to reflect this fact. Fund managers address these issues in a couple of innovative ways. “Stratified sampling” involves grouping bonds into strata that have similar risk attributes (e.g., industry, credit ratings, maturity dates) and then selecting certain bonds from among them. It is a similar process to that employed by pollsters looking to predict political elections – to try to estimate the outcome of an election, you do not have to ask the entire electorate. Once the strata have been established, a fund may only hold the more liquid bonds in that segment. Likewise, funds may participate in bond origination (the purchase of new bond issues) to stay as close as possible to a given index.

Although weighting by market capitalization (in the case of equities) or aggregate issue size (in the case of bonds) is the dominant method for weighting index constituents, it is not necessarily the only one. One could imagine an index weighted by any number of other “factors” or other fundamentals of a company, such as dividend ratios, sales, asset-to-book value, etc. Proponents of considering such weighting based on actual company “factors” suggest these weightings are superior drivers of performance than pure market capitalization. Also, because market capitalization can be influenced by fads and fashion in the investor community, stock market “bubbles” – e.g., the housing bubble of the 2000s – can result in certain sectors (in that case, homebuilders and mortgage lenders) having a higher weighting in any index than their fundamentals would suggest. Together, these developments have further eroded what active fund managers would claim as their competitive advantage over index-based investing products. The financial services industry refers to this advantage active managers can earn as their “alpha” effect; on the other hand, returns that accrue to investors by simply being in any given market (or market segment) are termed “beta” effect. Innovation in factor-based indices has effectively turned some alpha effects into beta effects. For instance, if you believe that you can obtain superior returns (alpha) by weighting a
basket of stocks based on their dividend payouts, then indices can be constructed for companies based or weighted on these very same dividend payouts. This is termed “smart beta,” and index fund methodologies are relatively easily constructed based on this or any number of factors. Indices can be constructed across the investing universe. Currency indices that track either a single or basket of currencies allow for the development of investible products that permit investors to get exposure to foreign currency over and above investing in international stocks and bonds. For example, the U.S. Dollar Index is maintained and published by the Intercontinental Exchange (ICE) and is weighted relative to six other major currencies. Indices also make investing in commodities accessible by tracking daily movements and futures contracts on all investible commodities and allowing investors further diversification away from stocks and bonds.

Derivatives are another area that makes extensive use of indices. An index option is a financial derivative that gives the holder the right to buy (“calls”) or sell (“puts”) the value of an underlying index. Investors know how a market is likely to open with reference to these futures, for example, trading in S&P 500 futures usually gives strong guidance as to how the S&P 500 index will perform at the opening of the market that day. Such products are attractive to investors or speculators looking to profit on the movement of an index. They can also form effective risk-hedging devices in any portfolio. The growth of “structured products” has been facilitated by the development of financial indices, noting that the Securities and Exchange Commission (SEC) defines them as “securities whose cash-flow characteristics depend on one or more indices.” Banks will often design and customize such investment vehicles for larger clients and their specific investment needs.

2. Accessing Index Investing

Financial indices themselves are not investible products: for institutions and individuals to track the return of an index, one must invest in an investment vehicle such as a mutual fund or Exchange Traded Fund (ETF) that mirrors that index. The most popular form of “pooled investing” is the mutual fund. Mutual funds pool the money of a group of investors and then a fund manager (or “advisor”) chooses the stocks or bonds for the fund to hold. Mutual funds are “open-ended investment companies,” in effect meaning the funds will issue you shares when you invest. Such shares are issued on an ongoing basis, and demand for shares is met through an end-of-day issuance process. Individuals buy or sell their shares in the fund at the end-of-day “net asset value” or NAV. As more investors buy into the fund, its assets increase and its number of shares increases. Fund managers usually charge a fee for their management of mutual funds – typically between 0.75 percent and 1.5 percent of assets under management per year. These fees are taken directly from your investment, i.e., if your fund appreciates 5 percent over a year, and charges 1 percent for management, your “effective” return is 4 percent. The first index mutual fund was opened in 1976 by Jack Bogle at fund manager Vanguard. Bogle was a big proponent of the idea that buying and holding a broad portfolio of stocks (effectively “the market”) would do better than trying to pick and time the buying and selling of individual stocks in a more active manner. His fund, the First Index Investment trust, did not achieve instant success. To the fund management industry, who dubbed it “Bogle’s Folly,” the idea of shooting for mere market returns was considered somewhat “un-American.” The fund still exists today and is one of the largest (VFINX – Vanguard 500 Index Fund) on the market.
With a closed end fund, on the other hand, the supply of shares is fixed. Another key difference is that investors in closed end funds buy and sell shares on an exchange. Thus, the value of the fund is determined by the secondary market and may differ from the value of the assets into which the fund has actually invested, known as a discount or premium.

Exchange-traded funds (ETFs) combine characteristics of both open and closed mutual funds. Like mutual funds, they pool investors’ money together to buy a portfolio of stocks or bonds. Unlike mutual funds, which are purchased from the fund manager, shares of ETFs are bought or sold on exchanges. Individuals would acquire shares in an ETF through a broker just the same as any other stock or bond. Similarly, you may pay a commission to a broker each time you buy or sell an ETF.

The main difference between mutual funds and ETFs is in how they are priced and traded. As noted above, the NAV for a mutual fund is calculated at the end of the day after all of the buy and sell requests have been processed. The equivalent NAV for an ETF is determined during the day as a result of the demand for and supply of the ETF’s shares. Rules are in place, however, to allow the ETF’s “authorized participants” to either issue new shares or redeem existing ones. This mechanism basically reduces the premium or discount of the shares relative to the value of the assets by allowing authorized participants to trade when they see prices out of line.

In sum, then, index funds are typically mutual funds or ETFs that are designed to mimic the performance of a chosen financial market index.

3. What Explains the Rise in the Popularity of Index Investing?

A. Low Costs
When investing in a fund that tracks an index, you don’t have to spend time or effort in selecting stocks or bonds, or individual bonds or stocks within the index. All that happens is that you are effectively buying a portfolio of stocks or bonds that has already been chosen by a fund manager that is based on an index. The index creators provide the expertise in index construction and maintenance. Many indices are created without regard to performance. After selecting which index to track, the fund manager’s job is to mimic the “recipe.” This means that much of the cost associated with picking stocks (doing research, analysis, report writing, etc.) is avoided because they are “passively” tracking the index that has been chosen for that fund rather than “actively” selecting which stocks or bonds to invest in.

Costs are also lowered due to the frequency with which index funds buy and sell their holdings, which results in transactions costs. While active fund managers may buy or sell existing stocks or add new stocks to their portfolios in an attempt to time certain market movements, index funds only transact when the fund receives new money, investors wish to sell, dividend payments are re-invested, or the index changes its underlying composition.

These cost savings can be passed on to customers and can be significant. Figures 2 and 3 above show the expense ratios of actively and passively managed bond and equity funds. This also has implications for taxes; with little trading inside the portfolio (only when a change in the underlying index determines it) index funds also tend to be relatively tax efficient.
Figure 2: Expense Ratios (Bond Funds)

Source: Investment Company Fact Book 2018

Figure 3: Expense Ratios of Equity Mutual Funds (Global)

Source: Investment Company Fact Book 2018
In August 2018, the ability to reduce costs reached something of a natural conclusion. Fund manager Fidelity offered two funds with a zero expense ratio, effectively making these products free to investors. Funds do have ways to make money in this environment (e.g., by lending securities to more active fund managers). There is also the ability to capture value by selling complementary products to a large customer base (that have some positive fees attached). But the overriding conclusion is that index funds have disrupted the manner in which investors access the financial markets.

B. The Inability to Consistently Beat “The Market” and Performance Measurement

The fund management industry is huge; over $16 trillion was held in U.S. mutual funds at the end of 2018. Millions of individuals entrust their savings to fund managers, and investors’ ability to live comfortable lives into retirement therefore depends, in part, on the performance of these fund managers. Financial indices provide a way of monitoring the performance of fund managers – they act as benchmarks against which actions (principally the selection of and the timing of transactions of stocks or bonds by the manager) can be compared.

However, if the sum of all funds (in a particular segment or in aggregate) defines the competitive market, and the performance of the market is the average performance of the funds therein, it is arithmetically impossible for every fund manager to perform better than average. While some funds may over-perform their index or market, others will under-perform. Indeed, on average in any given year, we might expect half to under-perform – the definition of “average.” When fees are then taken into account, most funds will under-perform the market as measured by an index. Moreover, even for those funds that outperform the average, research suggests that there exists no ability to do this consistently over a long time. If the ability to consistently beat the market is missing, why, in effect, try? Index funds are thus the efficient way of earning the average market returns, and because of their lower cost structure they end up performing better than most of the actively managed funds in the sector.

As market indices became more widespread for performance measurement, it became commonplace to try to separate out the effect of the market on the performance by fund managers, defined as the returns that cannot be explained by the market’s movement (or that of any given sub-sector of it). (And to avoid excessive risk taking in order to beat the market, it is a performance measure that combines returns with volatility – a risk-adjusted measure.) Many in the fund management industry have embraced this reality and have constructed fee schedules that attempt just to reward for alpha by stripping out the beta effect. While paying for alpha makes some sense, as we will see below, innovations in the indexing industry are making it easier to isolate this alpha effect in fund performance.

While obviously of interest to investors, indices have also been important inside the fund management industry for performance measurement of funds and teams. The ability to track the market or any sub-segment of the market with a reliable index has focused attention on the role of the active manager. By using indices to track the underlying performance of a sector, investment firms are now able to quantify the value an active management teams bring to the organization.
C. Transparency and Independence

Funds based on an index provide a level of transparency and accountability that is absent in many products. If the construction of the index is separate or independent from the management of the fund, there is a lessened conflict of interest on the part of the fund managers. An index is driven by a methodology document, which establishes the overall objective of giving investors insight into the process by which things happen in the fund based on the index. As we noted above, selection and weighting of the index constituents are key; this should also extend to so-called rebalancing issues when stocks or bonds enter, leave, or are re-weighted within the index.

It should also be clear where the data needed to construct the index are sourced from. Preferably these are from regulated exchanges so that investors can have confidence in the quality of the underlying data and are able to follow the performance of the index in a low-cost manner (such as through the pages of the financial press). This is true for equity, futures, and exchange-traded options indices. With fixed-income indices these input data don’t come from exchanges; one instance where the question of data integrity arose in the recent past was in the construction of the LIBOR benchmark interest rate – the rate at which banks were willing to lend money to each other over a specified time frame. This benchmark was constructed using data derived from a survey of market participants, rather than actual marketplace transactions. Much has been written on the LIBOR scandal, but the issue focused attention on the need for accurate data to instill investor confidence in financial products dependent on them.

Issues can arise when the index provider and product provider are not independent. Self-indexing certainly exists – this is where the fund provider has constructed the index on which the fund is managed. There is not necessarily anything systematically wrong about that if the appropriate transparency exists. But critics of self-indexing claim that even the potential for conflicts of interest can reduce investor confidence in the product. Such conflicts of interest could include the manipulation of the weightings or even the membership of an index because of other business considerations. Establishing walls of separation between index provisioning personnel and fund management personnel within these organizations is intended to help mitigate these potential or perceived conflicts. Independence between index provider and product manager ensures such conflicts do not arise.

D. Access

As a result of lower costs, better performance measurement, and increased transparency, access to economically investible products has increased. This is true for the professional money manager as well as the average investor. This simplification and transparency extends to not requiring any professional-money-manager involvement should one not require it; most of the funds can be opened and accessed online and the ability to build one’s own broadly diversified portfolio based entirely on index funds has never been more straightforward.

While still relatively small compared to the mutual fund industry, the rapid growth in ETFs has been significant and demonstrates how their underlying construction appeals to investors. The first ETF was listed in Canada in 1990, one of the earliest ETFs was launched in 1993 (the SPDR®, designed to track the S&P 500), and the vast majority are based upon financial market indices (covering around 97 percent of the total assets under management in ETFs, the remainder covering commodities). Since 2003, the size of the ETF sector has increased from around $200 billion to around $4 trillion at the end of 2018.
Part III: The Importance of Benchmarking

Besides being central to the rise of rules-based investment products, indices have another key role in the functioning of global financial markets. The global fund management industry is responsible for managing the savings of millions of individual investors. In 2018 around $40 trillion was held in mutual funds worldwide (almost half of that in U.S. mutual funds), and the global industry has grown by over 800 percent over the last 25 years. Indices provide the industry with a low-cost way of assessing the performance of the active fund management industry; firms and advisors make extensive use of financial market indices as a way of assessing how any fund has performed against a benchmark.

The challenge is how to select a benchmark that is appropriate for any given fund situation. For example, for a fund focused on European small capitalization companies, a widely used benchmark (such as the S&P 500) is unlikely to be particularly helpful or revealing of manager performance. The key to understanding fund performance is by selecting a benchmark that is similar to the portfolio against which it is being measured. Fortunately, the number of indices means that virtually every investment strategy can be compared against a relevant one. To that end, valid benchmarks exist for every form of asset allocation (stocks, fixed income, commodities), sector (technology, industrials, etc.), geography (U.S.; emerging markets), or currency.

And in an era where funds are specifying their targeted performance differential to the nearest benchmark, managers use the index itself as a means to take positions that they hope will help them reach that targeted performance. This may mean going “overweight” on some assets compared to the weighting in the benchmark, or seeking out assets that are not currently represented in the index.

Many benchmark providers will also create customized benchmarks according to clients’ needs. For any widely diversified portfolio, comprised of, say, stocks, bonds, real estate and commodities, comparison with even an extremely broad equity index (such as the Russell 3000®) or fixed income index (such as the AGG) may be misleading, because the performance characteristics of the various asset classes may have been deliberately chosen so that they have little, or even negative correlation with each other. Here index providers can produce a custom-weighted index – often using existing indices from two or more asset classes – to assess the performance of any portfolio based on customer needs. The benefit of having a benchmark provider do this – rather than the fund managers themselves – is the removal of the potential conflict of interest that can occur in the latter case.

1. The Growth of Investing in Index Products

Figure 4 shows that in 2017 there were over 9,000 mutual (open-ended) funds in the United States, and that number has grown by around 40 percent over the last 20 years (though, of interest, the number has actually been falling since a peak in 2015). The majority of these funds do not follow an index-based investment strategy. The same is not true for ETFs, where the number of funds has grown tenfold over the last 13 years, and the vast majority follow a rules-based methodology.

Figure 5 looks at assets under management (AUM) – effectively a size measure for the two types of investment products – and further breaks them down into “actively” (i.e., funds that try to outperform an index) and “passively” (funds that try to match an index) managed funds. The
**Figure 4: Number of U.S. Mutual Funds**

![Graph showing the number of U.S. Mutual Funds from 2003 to 2017](image)

Source: ICI Fact Book 2018

**Figure 5: Assets of U.S. Mutual Funds and ETFs**

![Bar chart showing assets of U.S. Mutual Funds and ETFs](image)

Source: Morningstar Direct
actively managed mutual funds are still dominant in the industry, accounting for around $11.6 trillion AUM in 2018 (up from $9.5 trillion in 2013). Put another way, the traditional actively managed mutual funds still account for around 75 percent of the open-ended fund sector.

These aggregate stock numbers can disguise some large-scale flows between actively and passively managed funds, as shown in Figure 6. Since 2015, actively managed funds have experienced a net cash outflow of around $650 billion. It would seem reasonable to assume that a lot of this cash has made its way into the passively managed sector, which has seen net inflows of around $1 trillion into mutual funds and around $1.6 trillion into ETFs as their popularity has soared.

The international picture tells a similar story, albeit on a smaller scale. There are around 4,900 ETFs listed globally with around $5 trillion AUM, around half of which are in the United States, totaling around $4 trillion AUM. In December 2018, the U.S. ETFs were provided by 137 fund providers (managers) making use of indices from 160 index providers. Some of these ETFs are, of course, self-indexed (by the fund provider). Similar to the fund providers, who can measure themselves by AUM, we can construct market share statistics for index providers on the basis of funds using their indices. Of the 10 largest ETFs, three make use of the S&P 500 (the fund providers being State Street, BlackRock, and Vanguard). Vanguard also uses the Center for Research in Security Prices (CRSP) Total Index for its Total Index Market Fund and Emerging Markets fund (benchmarking the Emerging Markets AllCap China A inclusion index). MSCI® provides the benchmarks for two iShares EAFE (Europe Australasia and Far East) funds, NASDAQ OMX® provides the index for the Invesco QQQ fund, and the top 10 ETFs by AUM are rounded out with the iShares Core Bond Fund (benchmarked on the Bloomberg Aggregate Bond Index, AGG). All of these index providers are members of the Index Industry Association (see page 30).
In figures 2 and 3, we have demonstrated the evolution of costs to investors (i.e., the expense ratios) in the fund industry since 2000. While bond funds have a lower expense ratio than their equity counterparts, the trend is significantly down for both sectors. As we would have expected, costs in the passively managed space are significantly lower: In 2017, the average expense ratio for actively managed equity funds was around 80 basis points (0.8 percent), and around 9 basis points (0.09 percent) for their passive counterparts. The rise of passive investing has had a direct effect on costs in the industry (as funds flow from active to passive investing products), and also on restraining cost increases in the actively managed sector itself. One of the economic cases for index fund products is the gap between active and rules-based fund management costs; a large difference or gap between the two investment styles will only make the net outflows from one to the other more pronounced.

The difference between average expense ratios in the active and passive sectors has fallen from around 85 basis points (in 2002) to around 65 (in 2017). What is less well known is exactly how much an active fund spends on trading costs, because the SEC does not require this information be disclosed. Such expenditures come out of the fund’s returns in much the same way that management funds do, but are less well publicized. They may take the form of brokers’ fees or bid/ask spreads (namely, the difference between the purchasing and the selling price of a security). Estimates range from below 1 percent for the most liquid funds to over 3 percent for the less liquid.

With these data we can estimate the aggregate benefits to investors from the development of index-based investment products. If we assume over the last five years around $800 billion has flowed from active to passively managed funds, this amounts to a direct expense saving of around $60 billion or around $12 billion per year. This is likely to be a lower-bound estimate; once we include the trading costs that are saved by moving into index funds and their effect on returns, the savings are estimated to double (or amount to around $24 billion per year). These are the direct effects of the shift into index funds. The indirect effect of the growth of index investing has been to put pressure on the fees charged by actively managed fund managers. These have fallen by around 30 basis points since the mid 2000s. Multiplying this by the assets under management gives us the indirect effect of competition from index funds on the actively managed space. By these estimates, the benefits amount to around $40-50 billion.

In the last 20 years, there have been only 3 years when the total number of mutual funds offered on the market has dropped. In 2003 and 2009, however, the drop can at least partly be explained by crashes in the stock market and the subsequent collapse in investor confidence and withdrawal of money. During the period 2016-17, the market was in a consistent bull mode. Figure 7 shows the details of new mutual funds opened, liquidated, and merged since 2008. The biggest contributor to these closure figures is investors shifting from high-cost active funds to lower-cost, often rules-based (or index-based) alternatives. Figure 8 shows that flows into index-based mutual funds have increased fivefold since 2012 alone. Combined with the rise of ETFs – which because of their rule-based nature are cheaper to run and launch – the industry has seen a major reorganization.

Actively managed funds that fail to get traction in the marketplace and reach a minimum efficient scale in a short time are unlikely to survive. Three quarters of the funds that were liquidated or
merged in 2018 had less than $50 million AUM. Merger activity in the fund-provider space – driven by a desire to rationalize costs – combined with investor demand for lower-cost, rules-based methodology products, is likely to ensure this trend continues.

**Figure 7: Number of Mutual Funds Entering and Exiting the Industry**

Source: ICI

**Figure 8: Net Cash Flow in Index Mutual Funds (billion $)**

Source: ICI; Deutsche Bank
2. The Index Industry Value Chain

Figure 5 shows the investing landscape is still heavily concentrated in actively managed funds. The price-setting role that these institutions play is important for index funds. Informed individuals with differing views on appropriate market prices are needed to determine the market-clearing spot prices for financial instruments. Indeed, index funds can also increase the liquidity of this important speculative role of markets by lending equity to other market participants. So market makers are an important input into the index fund value chain. There has been some concern that the price-taking nature of index-related funds is bad for market functioning and clearing. These fears would seem somewhat overblown when, as Figure 9 suggests, passively managed funds comprise around 25–30 percent of the retail-investing universe.

Index administrators require significant amounts of high-quality, reliable data. To this end, the most transparent sources are regulated securities or commodity exchanges. While there are 15 approved stock exchange licenses in the United States currently, the market landscape is in reality four separate companies – because NASDAQ®’s holding companies own four licenses, Intercontinental Exchange (ICE) has five (including the NYSE®), CBOE® has another five, and IEX has one. A key success factor in this sector is to maintain the integrity and reliability of the data. For much of the fixed-income index construction, the index administrators will generally rely on “evaluations” provided by pricing services that in turn obtain data from market participants in order to form the basis for their evaluations.

The index creators and administrators have a central role in the value chain. In return for providing transparency over construction, methodologies and weightings of individual stocks and bonds, re-balancing information, and calculation of index returns and statistics, they receive fee income. In theory, all that is required is the ability to produce a methodology and a means to measure and disseminate it. But the costs to acquire all of the necessary input data and supporting technology can be significant. As a result, the reality is that the market for index administration is competitive but concentrated in firms with brand recognition. In the United States, FTSE Russell®, MSCI, S&P Dow Jones Indices, and Bloomberg® indices are used by many in the investment community, because their data gathering and analytics functions are significant. Their reputations are derived from their unique capabilities in independent index construction and management. Indices from smaller index providers are also available and used at varying levels depending on the market being served.

Figure 9: The Index Sector Value Chain
Besides their role in creating indices for passive index tracking financial products, the use of indices by active fund managers for performance measurement is another important source of business for the index providers. Active institutional investors will use indices to evaluate the performance of their funds and managers. These fund management companies can license existing indices, or use the index companies to create customized benchmarks that allow them to do fine-grained performance evaluation. Because the index providers are separate from the fund managers, the risk of a significant conflict of interest is lower, and performance evaluators can have greater confidence in the benchmark data. Other revenue streams come from the index creators’ wealth of historical data and analytics, which are valuable for use in risk and market analysis.

For example, in 2017, MSCI generated revenue of around $1.3 billion (though not all of this revenue was index related). Providers charge for use of their intellectual property. However, the sector is far from populated with sleepy incumbents, as competition is driven by innovation in indices and branding. MSCI, for example, spent 7 percent of revenue on research and development in 2017, and currently manages more than 160,000 different indices covering multiple asset classes. The sheer number of indices offered by current providers may be thought to effectively “crowd out” new entrants, but they can still occur. For example, Kensho, a startup based in Boston, entered the market with 13 indices covering “21st century sectors” such as the space industry and drones. The company was subsequently acquired by S&P Global. What large players in the space afford are reputational benefits; trust and confidence in their indices and the analytic power of their management is reflected in the ability to charge fees. Smaller players may not be able to deliver the quality required due to the extent of these fees. According to the latest data from the IIA, there are now around 3.7 million indices covering all manner of markets and asset classes. While equity market indices make up the majority of these indices (around 3 million), growth has been significant in the fixed-income sector (accounting for around 16 percent of the indexing universe). The list on page 30 shows the current member companies of the IIA (http://www.indexindustry.org).

3. Fund Managers and Index Products

The market for index funds in the U.S. is quite concentrated, and three large players hold a significant market share. As Figure 10 shows, taken together, BlackRock, Vanguard, and State Street account for around 71 percent of the U.S. ETF market. In 1976, Vanguard became the first provider of an index mutual fund; it was created by John C. Bogle, seen by many as the father of the index fund industry. Today, Vanguard offers over 60 mutual funds and 50 ETFs based on U.S. and international bond and equity indices. BlackRock, the world’s largest asset manager, entered the index market in a very deliberate way through a number of acquisitions, perhaps the most significant being the purchase of the iShares franchise from the British bank Barclays in 2009. State Street launched the SPDR 1993 – now the SPDR S&P 500 – the first ETF available through brokers, and still the largest and most widely traded ETF in the world.

Scale seems to be key for these fund managers. In a world where expense ratios have tumbled, the ability to generate volume leads to higher returns, especially when the marginal cost of the next investor is very low. The ability to offer a full range of products tailored to clients’ needs – while operating at scale – is likely to be a key success factor in this part of the value chain. Without meaningful differentiation, smaller fund providers may struggle in the index fund sector.
4. Brokers and Advisors

At first pass, the rise of index funds would seem a challenge to the advising industry. In a world where simplicity and transparency of financial products are key and the ability to strip costs out of fund selection and screening has led to a dramatic fall in expense ratios, there would seem to be less value to be extracted by the advising industry. Indeed, the industry was originally based on commissions paid by the fund management company to the brokers who recommended its products to their clients. With their low-cost fees, index funds do not offer the ability to share in this value capture in the traditional manner.

As the ETF sector grows beyond its current size, a large number of financial advisors offer only ETFs and provide advice around asset allocation and retirement services focused on ETFs. This trend may continue, as products based on index and methodology-based investing become increasingly complex and specialized.

There is an important distinction between the firms that are allowed to offer investment advice to individuals (and pension funds or other corporate or non-profit clients), principally whether they are investment advisors or broker dealers. While both offer the same range of advice over all important financial matters, investment advisors are bound to a fiduciary standard established in the Investment Advisors Act of 1940 and regulated by the SEC. This standard requires that an advisor’s interests are completely subordinate to those of the client, meaning that advice is made using the most complete and accurate information possible. Broker dealers are considered to be intermediaries between products and investors, offering advice that may be based upon being able to offer a particular firm’s range of products or offerings. Broker dealers have a lower bar to pass, namely, the suitability rule, which suggests making recommendations that are consistent with (but not subordinate to) clients’ interests.
To avoid potential conflicts of interest based upon commission- or fee-based advising, it is argued that perhaps the best way to insure advisor independence is for such fees to be paid by the client. The legal stipulations and requirements of the fiduciary standard over the suitability rule are also likely to lead to a reduction in costs of investment products over the longer term.

5. Entities in the Index

Entities in any given bond or stock index that serves as the basis of a fund are going to receive investors’ capital according to the methodology of the fund using that index. For most that means weighting by the market value of the securities in the index. The companies then receive capital in a manner that could be considered ideal from an issuer’s perspective – from investors who rarely make a public fuss and simply adjust their holdings in accordance with changes in the index. The view of the passive holder of equity appears to be changing. In his open letter to CEOs in 2018, BlackRock Chief Executive Larry Fink acknowledged that unlike the more actively managed funds in his company’s product range, index funds cannot sell equity to signal disapproval (at least not until a company leaves an index). Rather, he suggests, “As a result, our responsibility to engage and vote is more important than ever. In this sense, index investors are the ultimate long-term investors – providing patient capital for companies to grow and prosper. Just as the responsibilities your company faces have grown, so too have the responsibilities of asset managers. We must be active, engaged agents on behalf of the clients invested with BlackRock, who are the true owners of your company. This responsibility goes beyond casting proxy votes at annual meetings – it means investing the time and resources necessary to foster long-term value.” He goes on to advance a new relationship between owners and the companies they invest in, much of it in keeping with the spirit of codes of conduct promoting improvements in corporate governance.

Far from more active stockholders being the drivers of good corporate governance, this argument suggests that it is activism itself that has made boardrooms more likely to adopt a compliance or box-ticking approach to governance. Top management and their boards are less likely to engage in a meaningful dialogue with activist owners who may start costly proxy fights (to win seats on the company’s board) or start shorting the company’s stock. As neither of these options are open to index funds, there is no option but to engage in meaningful dialogue about strategy, the goals of the company, responses to societal trends, etc. State Street Global Advisers® claimed it “exercised our proxy voting power by voting against directors at 400 firms that have failed to demonstrate progress in adding women to their corporate boards. We did so because we believe that gender diversity on boards provides a competitive advantage.” And behind the scenes, these large owners push for other reforms in the fields of executive compensation, corporate societal responsibility, and so on.
Part IV: Current Issues for the Industry, Consumers, and Policymakers

1. Understanding the Differences Among and Impact of Index Methodologies: Selection, Weighting, and Rebalancing

Investors do not actually invest in indices; they invest in funds that track indices. And this tracking cannot be 100 percent accurate. The deviation between the fund return and index return is called “tracking error.”

1. Even with advances in information technology, there exists a residual time lag between changes in the index and the fund.

2. Mutual funds may retain some cash on hand to fulfill investors wanting to sell (redemptions). Holding any positive amount of cash in the fund means there will be a gap between the index’s performance and that of the fund.

3. Some funds adopt a stratified sampling approach to determine their holdings in any given index’s constituents. This again can lead to acquiring most but not necessarily all of the index constituents in exactly the same weight. This can be a particular issue in bond funds, but the large number of holdings combined with the stratified sampling approach described above can mitigate the effects of redemptions and new issues.

4. The biggest sources of tracking error are trading and management fees charged. As we have seen, the growth of index fund investing has led to a fall in the expense ratios. Until that falls to zero, however, there will always be this source of tracking error. In August 2018, fund manager Fidelity launched two “zero cost” tracker funds that will reduce this source of tracking error. Other managers may experience competitive pressure to follow suit.

All indices undergo periodic changes; the S&P 500 turns over around 3 percent of its constituents in any given year (15-20 companies). This occurs due to mergers or acquisition strategies of companies, or when smaller companies – measured by market value – leave the index to be replaced with ones with growing market values. Thus, this turnover is necessary to reflect the underlying methodology of the index in question. In the case of S&P 500, the 500 stocks in the index are weighted by float-adjusted market capitalization. The frequency with which these changes occur is significant, because such changes lead to higher costs as a fund moves out of any given company stock to replace it with another. (Indeed, the ability to anticipate changes in index composition can lead to strategic behavior as more active fund managers try to buy “low” the stock of companies they anticipate will enter certain indexes.)

This so-called re-balancing can be particularly important for indices that are based on factors that can change more frequently than market capitalization. An index that is created based on stock “momentum” may change more frequently. Momentum, in simplest terms, simply reflects the speed with which a security’s price changes. The S&P 1500 Positive Momentum Tilt Index takes all the stocks in the S&P 500, S&P Mid-cap 400, and S&P Small-cap 600 indices, and overweights stocks with high momentum and underweights those with low price-change velocity. While the index rules say it rebalances quarterly, stock momentum can lead to significant changes in the weighting of the stocks in the index. These transactions costs will be reflected in the expense ratio for any funds tracking the index.

The index administration industry is competitive. A fund’s managers do have the ability to switch
their fund’s underlying benchmark. While this does not happen without full disclosure, it suggests that investors need to stay informed about the methodology of their fund’s chosen index.

2. Diversity in Index Construction Methodology

The rise of investible products that rely on financial indices has dramatically increased the range of products that investors can access. These products combine cost efficiency and availability, but they also require investors to be aware of important differences, meaning they cannot take an entirely passive approach to their investments. Methodologies of indices are completely transparent. Most index providers provide complete transparency in their methodologies and compositions in the form of public fact sheets and other summary materials. Investors can utilize these materials from the investment product provider to understand these nuances.

A couple of examples may prove instructive and will show how different exposures – as a result of tracking different indices – can result in a quite different investing experience. Principally, these differences may be with respect to either market volatility or “beta” to the market as a whole.

Example 1: Emerging Market Indices

For investors looking to diversify their portfolios away from the developed market economies such as the United States or Europe, investing in emerging markets is often an attractive strategy. ETFs based on rules-based indices provide a cost-effective and easy way to access such markets: Different index providers will employ their own methodology for constructing and weighting an emerging market index. So in order to understand what your fund is investing in, it is important to understand the way any index that the fund tracks is constructed. For example, as of September 2018, MSCI Emerging Markets Investable Market Index’s five largest country weightings were China (26%), South Korea (15%), Taiwan (13%), India (8%), and Brazil (7%). In contrast, the FTSE Emerging Market Index’s five largest country weighting were China (32%), Taiwan (14%), India (10%), Brazil (8%), and South Africa (6%). The first thing to note is the exclusion of South Korea from the FTSE Emerging Index; according to their rules, South Korea is a developed market economy and therefore ineligible for inclusion in the FTSE Emerging Index. Investors looking for exposure to large South Korean companies (e.g., Samsung) will not find it in funds using this index.

But further inspection of the underlying index methodologies reveals other differences. While China is the largest weighting in both indices, the rules of the FTSE index construction reveal that many of the most well-known Chinese companies are excluded. Perhaps most significantly, the large Chinese company Alibaba does not pass the determination of nationality test, in that it is not incorporated, headquartered, and listed in the same country (for Alibaba, that being China, the Cayman Islands and the United States, respectively). This is not to suggest that one index (or fund) is “better” than the other, but does suggest that investors need to understand the methodologies of the indices the funds track in order to fully understand what they are investing in.

Example 2: Low-Volatility Investing

Another example can be drawn in the field of “low-volatility” stocks. These can be attractive to investors worried about risk and fears of a downturn in the macro economy. Low-volatility stocks – in theory – represent less risky assets, and demand for these should rise in the face of such concerns.
S&P produces a volatility-weighted index of the 100 least-volatile stocks in the S&P 500. It is basically a largecap equity fund that offers a straightforward low-volatility take on the S&P 500 and calculates the 100 with the lowest 12-month volatility (as measured by the standard deviation of returns against the market). At any given time, it may also include a high-volatility stock.

Meanwhile, the MSCI USA Minimum Volatility Index determines its low-volatility holdings from U.S. large- and mid-cap equity shares, and takes into account “both individual stock volatility and correlations across stocks estimated from their common characteristics.” Again, the construction of the indices can lead to quite different investing experiences: S&P’s Low-Volatility Index selects stocks from the utilities (23%), real estate (17%), financials (17%) and technology (10%) sectors, which constitute around two thirds of the entire index. For MSCI’s index, in September 2018, the top four sector holdings were technology (21%); healthcare (15%); consumer, non-cyclical (11%); and industrials (10%). The composition of the largest holdings in the funds is thus quite different based on differences in the way the indices are constructed. And again, this is not to say that one is better than the other; it is pointing out that the two products will offer quite different investing experiences based on the index followed.

Investors need to consider methodological differences when selecting any fund, including those that track indices.

3. Moving on from the Active Versus Passive Investing Debate: The Rise of “Smart Beta”

There are other methods of weighting an index besides conventional market capitalization. Recall that active funds managers are increasingly moving towards assessing fees on the basis of their ability to outperform the market (or the “alpha” effect of choosing the securities that will outperform the “beta” effect of the market). However, the extent to which this alpha effect is driven by being in the right sector, rather than being in the right stocks within any given sector, has led to the development of indices that effectively turn an alpha-looking effect into a beta one – or so-called “smart beta.” This is driven by effectively weighting indices on factors that can be measured (on company fundamentals such as dividend payout ratios or cash flow). This can really blur the line between traditional definitions of active and passive management: Rebalancing in a smart beta fund may have to take place on a more frequent basis than in a simple market cap weighted one (and thus raise costs). But the overarching principle about being methodology driven related to an underlying index does not change, nor does the accompanying transparency or documented process; the ability to develop new indices as investors’ needs change is a critical capability of the industry.

Similar changes are occurring in the fixed-income market. Traditional indices are liability weighted – meaning that the most indebted entities (governments or corporates) have the largest weighting in the index. Policies resulting from the financial crisis, principally the purchase of billions of dollars of bonds by the U.S. Federal Reserve, dramatically increased the amount of U.S. Treasury debt and thus the weighting of U.S. Treasuries within the principal fixed income index, the Aggregate Bond Index. Proponents of a smart beta approach in fixed income suggest that focusing on fundamentals can produce better results; at one level this may involve weighting by GDP, as it is more correlated with a country’s “fundamentals” than debt issued. This approach would favor lower-debt countries (such as emerging markets), and those countries that are better placed to invest in future prospects as they are burdened with less debt. These measures could be augmented with measures such as
overall public deficit levels or taxation rates as indicators of creditworthiness. Other fundamental measures used to construct indices include population, land area, and energy consumption. In corporate bond indices, alternative weightings include sales, dividends, or book value of assets. While the development of smart beta in fixed income has been slower than that in equities – not least because of the multi-faceted nature of the asset class and other complexities (e.g., liquidity issues) – this has become one of the most innovative areas for index development.

4. Product and Index Innovation

Index providers have increased their coverage of investment opportunities such as in emerging markets, not merely in publicly traded stocks but also in fixed-income securities; this is particularly the case as China continues its development towards a more liberalized economic system. The development of these indices has enabled not just direct indexed funds to emerge but also the more actively managed products for which these indices can serve as benchmarks.

Index providers have developed new indices covering previously under-covered asset classes (e.g., commodities), new geographic areas (e.g., emerging markets) and combinations of the two (e.g., fixed income in emerging markets). One current issue is around so-called ESG (environment, social, and governance) issues, and index providers are responding to the need driven by consumers. For example, MSCI has developed a number of indices that take into account issues such as leaders in carbon reduction, and firms that do not engage in weapons production or that have strategies that conform to Catholic or Islamic values. These innovations are taking place in both the equity and fixed-income sectors. In short, the industry has continued to innovate to meet what it sees as market demand.

5. New Developments in Fixed Income

The development of the ETF market has recently seen a big increase in funds investing in fixed-income securities and bonds: At the end of 2018, there were 384 ETFs on U.S. markets covering a range of duration, credit quality, asset class, and geographies. New indices have allowed for product development in this area similar to equity counterparts, particularly in ESG issues. For example, Bloomberg Barclays MSCI Global Green Bond Select Index includes in its composition only bonds issued to funds’ projects in alternative energy, efficiency, pollution prevention, sustainable water, green building, and climate adaptation. Furthermore, bond issuers must maintain processes for evaluating and selecting green projects, managing proceeds, and reporting environmental impact. This index has been used as the basis of an ETF that allows investors access to this particular growing sector of the fixed income market.

A significant macro development for fixed-income products is occurring as the Chinese government opens up its debt to foreign investors. It has adopted measures that make the market more investor-friendly for foreign investors, and is scheduled for entry into many of the major emerging market indices. For investors looking for access to this estimated $11 trillion market, ETFs including the Chinese market in their portfolios will be the easiest low-cost method.
6. Liquidity Issues

Not all bonds trade daily, so the problem emerges where the index ETF may be more liquid than the underlying assets in which it invests. The same may be true for equity investments in, say, some emerging markets. So although it may be possible to redeem your investment in an ETF, the assets held by the ETF itself may be frozen as the lack of liquidity effectively stops the market in the asset from clearing. In addition, extraordinary events can lead to liquidity problems (e.g., “flash crashes”) where trades have to be cancelled when they can’t be fulfilled.

The ETF sector has also started to expand into increasingly illiquid categories; while such “synthetic ETFs” still track an underlying index, they may not actually own the assets in the index. Instead they rely on financial instruments – such as options or swaps – to replicate the performance of any given index. This means that the fund will normally purchase such derivative products from an investment bank, which is effectively guaranteeing to mirror the performance of any given index. While such arrangements may provide a lot of flexibility (e.g., the ability to invest in difficult-to-obtain asset classes), they are not without counterparty risk, as they rely on the ability of the investment bank to pay for the performance of the index. To mitigate the risk, the bank issuing the derivatives has to provide some collateral; however, investors should be aware when they investing in a product that is a synthetic rather than a physical ETF.
Part V: The Regulatory Environment

1. Understanding the Current Nature of Regulation

Confidence in benchmark indices is critical; the scandal surrounding the LIBOR rate manipulations has led to regulatory bodies becoming very interested in conflicts of interest at points along the industry’s value chain. While the LIBOR scandal arose more from a lack of oversight of those submitting data, conflicts can occur whenever an index is controlled by a party that stands to gain from the performance of that index. Self-indexing clearly falls under this domain. Banks or fund managers can build their own proprietary index based on a set of rules-based methodologies. The issuer may or may not avoid fees associated with employing an index from a specialist provider, while being able to retain the intellectual property used in the construction of the index.

Two areas would seem to loom large and be of interest to those concerned with regulating markets. The first involves the source of price data in a proprietary index. The second involves the discretion that an index provider may have around the rebalancing and composition of the items in the index.

The significance of indices to investor confidence and to the wider economy has led to a movement to define and enhance best practices in the field of index construction and management. In 2013, the International Organization of Securities Commissions (IOSCO) published a report that sought to set out the nature of best practices. These recommendations were not overly prescriptive – in the sense that they did not advance a “one size fits all” approach – but they did lay out the key standards and a framework to follow. This influential report covered four main areas:

A. Benchmark Governance
Administrators are required to identify an entity that has overall responsibility for the integrity of the benchmark. This entity also has well defined arrangements signifying responsibilities of any third parties that may be used in index determination (e.g., third-party data providers), and “enforcement policies and procedures for the identification, disclosure, management and avoidance of material conflicts of interest.” The report also suggests a separate committee or other arrangement for carrying out the oversight function as it relates to the administrators’ management of the benchmark.

B. Benchmark Quality
Best practices in quality seek to ensure that any index is a “reliable representation” of the market that the index is designed to represent. It also calls for the index to use data that are the result of actual competitive market transactions in its calculations where available. The benchmark administrator is to undertake periodic reviews to ensure that changes haven’t occurred in the underlying economic landscape that may require changes to the design of the index. Any such revisions should be published to the investor community.

C. Quality of Benchmark Methodology
Benchmark administrators should set out the methodology used to determine the makeup of an index. This should be detailed enough to allow stakeholders to understand how the benchmark is derived and to assess its representativeness. The report suggests that this should include all criteria and procedures used to develop the benchmark, including “input selection, the mix of inputs used to derive the benchmark, any guidelines that control the exercise of expert judgment by the administrator, priority given to certain data types and minimum data needed to determine a benchmark.”
D. Accountability

Benchmark administrators are required to establish complaints procedures, documentation standards, and audit reviews that are intended to ensure the quality standards set out by adherence to the above. Specifically, the report suggests appointing an independent internal or external auditor to periodically review and report on the administrators’ adherence to the stated criteria.

As noted above, the adoption of the IOSCO principles by certain index providers can be viewed as a response by the industry to the perception of conflicts of interest that could emerge in the sector and the actual events surrounding the LIBOR price-fixing scandal. As a code of conduct, it allowed index administrators to signal to the market a commitment to best practices in operations and governance. However, governments also took an interest in maintaining confidence in the financial markets and, as expected, this has led to formal regulation of the financial market indices. Perhaps the most significant of these to date is the European Union’s Benchmark Regulation (EU-BMR). Established in 2016 with immediate effect, but with transition measures that require full implementation by 2022, the EU-BMR draws heavily on many of the principles set out in the IOSCO work. However, it makes them a legal requirement rather than an adherence to principles. The European Securities and Markets Authority (ESMA) coordinates the application of the law with the relevant financial authority in EU member nations. As the ESMA notes, the Benchmarks Regulation has the following objectives:

- Improving governance and controls over the benchmark process, in particular to ensure that administrators avoid conflicts of interest, or at least manage them adequately;
- Improving the quality of input data and methodologies used by benchmark administrators;
- Ensuring that contributors to benchmarks and the data they provide are subject to adequate controls, in particular to avoid conflicts of interest;
- Protecting consumers and investors through greater transparency and adequate rights of redress.

As ESMA suggests, the scope of the EU-BMR and the definition of “benchmark” itself are intentionally broad in order to capture a wide array of financial activities. Higher requirements were imposed according to the “significance” of the benchmark. The highest significance level, “critical,” applies where the benchmark is responsible as a reference for a financial instrument of performance measurement of an investment fund with a total value of at least 500 billion euros; “significant” has a threshold level of at least 50 billion euros. Put another way, regulators are asking whether the benchmark affects Main Street, or just Wall Street. Many of the best-practices features were enshrined in legislation, including benchmark administrators’ need to (i) establish a permanent oversight function (a separate committee) to annually review the benchmark’s definition and oversee the control framework and any third-party involvement; (ii) use sufficient input data to represent reliably and accurately the market or economic reality that the benchmark is intended to measure; (iii) publish a “benchmark statement” for each benchmark (or family of benchmarks if sufficiently similar) containing details relating to the exercise of any discretion; and (iv) ensure that a benchmark is not affected by any existing or potential conflict of interest.
Most of the players in the indexing industry are global in nature, so in order to have their indices used in products in the EU they will need to comply with the legislation even if organized in a country outside the EU. An “equivalence” decision, namely, where the EU would say that the United States, for example, as a third-party country already has laws equivalent to the EU-BMR, is not thought to be likely. So index providers will be looking to establish “recognition” or “endorsement” with financial services authorities in the EU by pointing to adherence to the IOSCO principles.

2. Avoiding Unintended Consequences of Regulation

The broad thrust of the IOSCO principles is clear and should be welcomed by investors, benchmark administrators, and fund managers alike, because it promotes confidence in the sector. Legislative regulation may be more prescriptive, less flexible, and more costly, and could conflict with other regulatory regimes around the world. Thus, its effect should be reviewed on a case by case basis. As with all regulation, though, the full effects are often not anticipated at the time of its creation. For funds and banks doing self-indexing, while it is not banned, the new regulations do impose significant extra costs and create organizational complexity. In essence, such financial institutions need to create monitoring and audit functions that are completely separate from other functions in the bank or fund. This may well require different sorts of human resources (i.e., with more audit experience) and certainly involve compensating them in ways that are not determined by the performance of the funds they are monitoring. A typical response to this may be to outsource certain functions – such as data collection and index calculation – to third parties who are legally separate from the fund provider. Under the EU-BMR, however, even where this happens, the benchmark administrator retains all the final responsibility. Banks can go one step further: By appointing an independent administrator of the proprietary benchmark, they can retain the benefits of their brand, intellectual property, etc., but the regulatory responsibility for the benchmark resides with the third-party provider.

It seems some banks are thinking that these responsibilities are not their core competencies, and are actually closing or selling their proprietary index businesses. While terminating a benchmark leads to a reduction in choice, the outcome of selling index businesses to new or existing players is still largely unknown. New firms have entered or significantly grown in the sector thanks to these purchases (e.g., Bloomberg buying some of Barclays Bank’s index business). However, if the costs of regulatory compliance are high, and if new firms are unable to rapidly develop and promote new indices to the financial services industry, some of the benefits associated with innovation in competitive markets might be lost.
Part VI: Summary and Conclusion

The development of the index industry has transformed financial services. Indexing has led to increased accountability and transparency and the ability of investors to access a huge variety of investible product markets at hugely reduced costs. This has been timely; as the world has adjusted to new low-interest-rate environments, the rates of return on traditional saving products have also declined, posing particular problems for those in or preparing for retirement. There is an obvious need to have access to financial asset classes with higher return prospects for at least part of any retirement planning. In the past, accessing such markets may have proved an expensive exercise that could have significantly eroded any returns. The growth of financial products based on index investing rules has led to access to new markets for equity, bonds, and other assets combined with substantial reductions in costs, all of direct benefit to investors. We estimate that the direct effects of this switching are on the order of $15 billion per year; when transaction costs are included in the costs of actively managed funds, those benefits double. There is also an indirect benefit of the competitive pressure index funds put on the fee structures of their actively managed counterparts, which we estimate to be on the order of $40–50 billion.

Rules-based investment products operate on slim margins, at least 50 basis points per annum below those of more actively managed funds. The widespread acceptance of these products, particularly the growth of ETFs, has led to a reduction in fees across the whole industry, which has benefited all investors. The movement into index-related products has led to the closure of underperforming products that were not meeting investors’ needs at a suitable cost. With around 3.7 million indices existing across the globe and across asset classes, the industry continues to innovate and make previously unreachable markets and asset classes quite accessible. We have documented recent innovation in the sector, particularly in the areas of fixed-income indexing and ESG.

This breadth of index coverage also allows for the assessment of performance of the more actively managed financial investor community. Managers are evaluated against such benchmarks representing a rules-based approach, and the performance of active funds can be compared directly to a more formulaic approach. Given that the actively managed mutual fund industry is still the predominant vehicle to which millions of citizens entrust their savings, this performance management role is crucial in keeping the actively managed sector efficient and only rewarding performance that is genuinely attributable to fund manager skill. We show that the recent fall in the number of actively managed mutual funds is a trend that we may expect to continue as the active industry consolidates and rationalizes.

Given the importance of the index industry and the ability of recent rate-fixing scandals to undermine confidence, we note the steps the industry has taken to promote confidence in index-based products. The index industry advanced the IOSCO principles as a way of acknowledging awareness of the issues and establishing best practices moving forward. We also note that legislation seeking to promote investor confidence could pose unintended consequences for innovation and choice in the sector.
Current Index Industry Association Membership

Bloomberg® Indices
https://www.bloombergindices.com/

CBOE® Holdings
http://www.cboe.com/

Center for Research in Security Prices
http://www.crsp.com/

China Central Depository & Clearing Co.
http://www.chinabond.cn/

FTSE Russell®
http://www.ftserussell.com/

IHS Markit
https://ihsmarkit.com/index.html

Intercontinental Exchange ICE
https://www.theice.com/

Morningstar
http://indexes.morningstar.com/

MSCI®
http://www.msci.com/

Nasdaq® OMX
https://indexes.nasdaqomx.com/

S&P Dow Jones® Indices
http://us.spindices.com/

STOXX
https://www.stoxx.com/

Tokyo Stock Exchange
https://www.stoxx.com/

Hang Seng Indices
Endnotes

1 The Dow Jones Industrial Average is not actually a market cap weighted index. This index is actually stock price weighted, meaning those higher priced stocks will have a larger impact on the index’s movements. Of course, market capitalization is an entity’s stock price multiplied by equity outstanding. This is a feature of its history.

2 The Financial Times has archived articles relating to the LIBOR scandal at https://www.ft.com/libor-scandal