

A Global Guide to Strategic-Beta Exchange-Traded Products

Morningstar Manager Research

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Executive Summary

- ▶ In September 2014, we introduced our naming convention and taxonomy for the fast-growing universe of strategic-beta exchange-traded products, or ETPs. In this year's guide, we provide an update on the state of the global strategic-beta ETP landscape, framed using our updated strategic-beta and index attributes, which we launched in Morningstar's global database in the fourth quarter of 2018.¹
- ▶ Over the past decade-plus, the strategic-beta space has grown more rapidly than the broader ETP market.
- ▶ Strategic-beta ETPs' growth has been driven by new cash flows, new launches, and the entrance of new players.
- ▶ However, more recently, the pace of these products' market share gains has decelerated as exchange-traded funds tracking more-traditional benchmarks have been garnering their fair share of net new flows.
- ▶ As of Dec. 31, 2018, there were 1,493 strategic-beta ETPs worldwide, with collective assets under management of approximately \$797 billion.
- ▶ Assets in these products grew 0.5% relative to their Dec. 31, 2017, level. Top-line growth was muted by global markets' late-2018 drawdown.
- ▶ Organic growth in the space measured nearly 11% in 2018, as these products amassed \$87 billion in net new cash flows.
- ▶ ETPs belonging to Morningstar's dividend strategic-beta group continue to rank at or near the top of the list of the most popular grouping of strategic-beta ETPs. This should come as little surprise when considered in the context of the prevailing low-interest-rate environment.
- ▶ Low-volatility ETPs gained market share in the United States, Europe, and Canada in 2018. Across these three geographies, funds belonging to Morningstar's risk-oriented strategic-beta group brought in nearly \$12 billion in net new cash flows as investors looked for less risky ways to maintain equity exposure.

¹ See the Appendix for a full list of attributes and definitions.

- ▶ A commonality among the markets we examined is the increasing complexity of the benchmarks underlying new ETPs. As more traditional, broad-based market-cap-weighted exposures and single-factor ETFs have proliferated, ETP providers have launched more multifactor ETPs and factor-timing products.
- ▶ There have also been increased instances of methodology changes to the indexes underpinning these funds—further blurring their status on the active-to-passive continuum.
- ▶ As these strategies become increasingly nuanced, looking to infuse elements of an active manager's thinking into an index, investors' collective due-diligence burden will continue to increase commensurately. To assist investors in this process, Morningstar has assigned Morningstar Analyst Ratings to 129 strategic-beta ETPs worldwide since November 2016. These funds collectively held approximately \$570 billion in investors' money as of Dec. 31, 2018—representing 72% of the total amount invested in strategic-beta ETPs.
- ▶ A slowdown in the pace of new product launches and intensifying fee competition are signs that the space is maturing.
- ▶ In 2018, the number of new product launches declined precipitously from the record level set in 2017. There were 132 new strategic-beta ETPs brought to market in 2018, down from 257 in 2017. The decline speaks to the fact that the menu has been saturated.
- ▶ An increasingly crowded and competitive landscape will inevitably continue to put pressure on fees. We question how long providers will be able to justify premium pricing for these funds.
- ▶ We have already seen instances of aggressive fee reductions for strategic-beta ETPs. We anticipate that cost competition in this space will become more prominent in the years to come.

Introduction

In September 2014, we introduced our naming convention and taxonomy for the fast-growing universe of strategic-beta exchange-traded products, or ETPs. The goal of our initial guide was to help investors to better define, measure, and analyze this diverse group of passively managed investment products that make active bets against their broad, market-capitalization-weighted predecessors. In this year's guide, we provide an update on the state of the global strategic-beta ETP landscape, framed using our updated strategic-beta and index attributes, which we launched in Morningstar's global database in the fourth quarter of 2018.

While headline growth in the space was muted in 2018—assets expanded just 0.5%—organic growth was strong. Net new inflows into strategic-beta ETPs globally amounted to \$87 billion, translating to an organic growth rate of nearly 11%. Over the past decade-plus, strategic-beta ETPs' market share has expanded considerably. Growth has been driven by new cash flows, new launches, and the entrance of new players—some of which are traditional, dyed-in-the-wool active managers. However, more recently, the pace of these products' market share gains has decelerated as exchange-traded funds tracking more-traditional benchmarks have been garnering their fair share of net new flows.

Aside from slowing market share gains, this space is showing other signs that it is maturing, most notably a slowing pace of new product launches and increasing price competition. In 2018, the number of new product launches declined precipitously from the record level set in 2017. There were 132 new strategic-beta ETPs brought to market in 2018, down from 257 in 2017. The decline speaks to the fact that the menu has been saturated. This process of growth and maturation ultimately will lead to a culling of the herd, which has already begun in some geographies, albeit to a limited extent.

An increasingly crowded and competitive landscape will also continue to put pressure on fees. We have already seen instances of aggressive fee reductions for strategic-beta ETPs. We anticipate that cost competition in this space will become more prominent in the coming years.

Note that all monetary figures in this report are shown in U.S. dollars, unless stated otherwise. All data is for surviving products only and is as of Dec. 31, 2018.

The Global Strategic-Beta ETP Landscape

Global Summary

As of Dec. 31, 2018, there were 1,493 strategic-beta ETPs, with collective assets under management of approximately \$797 billion worldwide. Strategic-beta ETPs have made inroads against their peers that are benchmarked to more-traditional indexes.

While regional markets are at varying stages of development, some common themes cut across geographies. First, ETPs belonging to Morningstar's dividend strategic-beta group continue to be among the most popular grouping of strategic-beta ETPs in most regions. This should come as little surprise when considered in the context of the prevailing interest-rate environment. Investors around the globe have piled into dividend-paying equities, shunning the low (or negative) real yields offered by issues from developed-markets sovereigns. Low-volatility ETPs gained market share in the United States, Europe, and Canada in 2018. Across these three geographies, funds belonging to Morningstar's risk-oriented strategic-beta group brought in nearly \$12 billion in net new cash flows as investors looked for less risky ways to maintain equity exposure.

There is a clear positive relationship between the adoption of strategic-beta ETPs and the age of each region's ETP market, and its asset-management and financial-services industries more generally. The U.S. is home to a very large and mature asset-management industry and has the second-oldest (next to Canada's) ETP market in the world. Thus, the fact that U.S. strategic-beta ETPs account for 88% of total assets in this grouping is only natural.

As for fees, strategic-beta ETPs tend to charge expense ratios that are more competitive than their comparable actively managed peers (though in some cases only marginally so). That said, in many cases they take a toll many multiples of that levied by their more ordinary passive peers. We expect that fees charged by strategic-beta ETPs will come under further pressure as providers seek to stand out in an increasingly crowded landscape where investors are having a difficult time differentiating between seemingly similar strategies.

Another commonality among the markets we examined is the increasing complexity of the benchmarks that are underlying new ETPs. This is part of the natural evolution of the market and one that has already played out in the slicing and dicing of traditional market-capitalization-weighted exposures along the lines of region, country, sector, subsector, and so on. As these strategies become increasingly nuanced, looking to infuse elements of an active manager's thinking into an index, investors' collective due-diligence burden will continue to increase commensurately. This has been further complicated by a growing number of instances of changes to the methodology of the indexes underpinning these funds.

To assist investors in their due-diligence process, Morningstar has assigned Analyst Ratings to 129 strategic-beta ETPs worldwide since November 2016. These funds collectively held more than \$570 billion in investors' money as of Dec. 31, 2018—representing 72% of the total amount invested in global strategic-beta ETPs.

Exhibit 1 The Global Strategic-Beta ETP Landscape in 2018

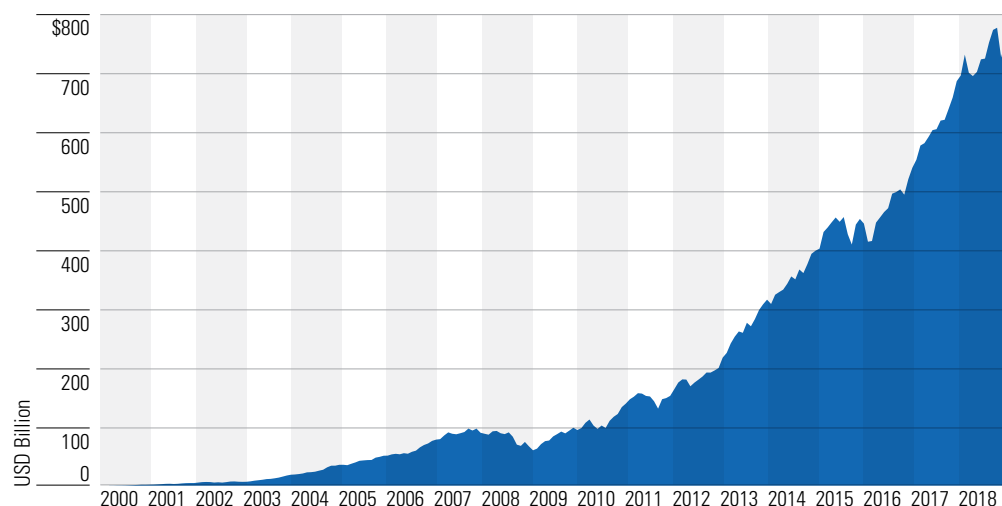
| | Assets 2018 (USD Bil) | Global Market Share (%) | Assets 2017 (USD Bil) | One-Year % Change | 2018 Flows (USD Bil) | As a % of Beginning AUM | # of ETPs 12/2018 | # of ETPs 12/2017 | One-Year % Change |
|---------------|--------------------------|----------------------------|--------------------------|----------------------|-------------------------|----------------------------|----------------------|----------------------|----------------------|
| U.S. | 705.1 | 88.5 | 700.6 | 0.6 | 74.4 | 10.6 | 693 | 634 | 9.3 |
| Canada | 10.1 | 1.3 | 10.61 | -4.5 | 1.3 | 11.9 | 182 | 162 | 12.3 |
| Europe | 57.4 | 7.2 | 60.3 | -4.8 | 5.0 | 8.2 | 409 | 389 | 5.1 |
| Asia-Pacific | 23.7 | 3.0 | 21.1 | 12.1 | 6.3 | 29.8 | 190 | 157 | 21.0 |
| Emerging Mkts | 0.8 | 0.1 | 0.9 | -9.1 | 0.1 | 10.5 | 19 | 19 | 0.0 |
| Total | 797.1 | 100 | 793.5 | 0.5 | 87.0 | 10.9 | 1,493 | 1,361 | 9.7 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

United States

The U.S. is home to what is far and away the largest and most diverse stable of strategic-beta ETPs. It is host to 46% of the total number of strategic-beta ETPs, which together account for 88% of global ETP assets. This should come as little surprise given the overall size and maturity of the domestic asset-management and financial-services industries. The first generation of strategic-beta ETPs came to the U.S. market in May 2000. iShares Russell 1000 Growth IWF and iShares Russell 1000 Value IWD were not only the first but also are presently the two largest strategic-beta ETPs. These funds represented "first-generation" strategic beta—introducing systematic style tilts to a market that was already well versed in a style-based approach to equity investing. Fast forward more than 18 years to Dec. 31, 2018, and U.S. strategic-beta ETPs numbered 693 and had collective assets of \$705.1 billion.

Exhibit 2 U.S. Strategic-Beta ETP Asset Growth

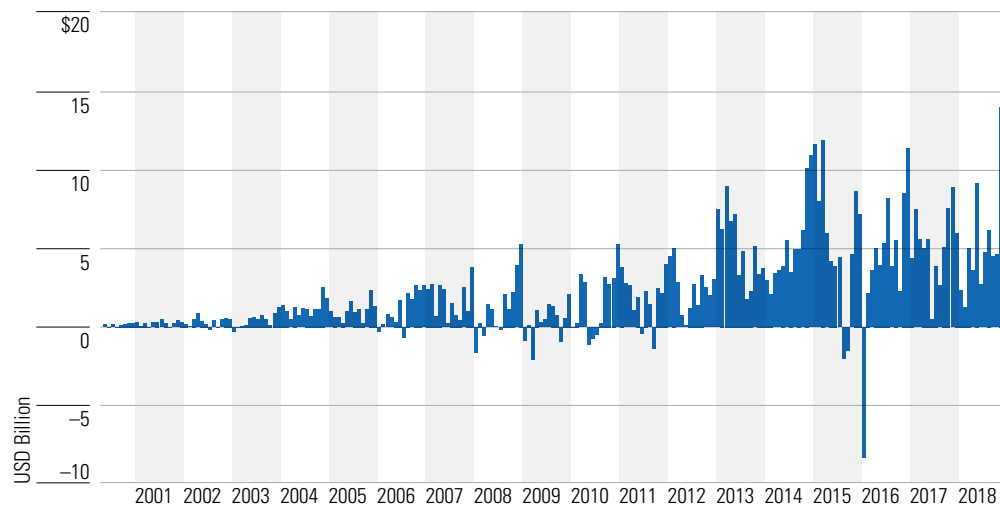


Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Grow With the Flow

Growth in strategic-beta ETPs has been driven primarily by new adopters across the investor spectrum, ranging from individuals to state pension funds. Approximately 78% of the aggregate growth in strategic-beta ETP assets dating back to May 2000 has come from net new inflows, while the remaining 22% reflects asset appreciation. In many ways, the U.S. market was well "primed" for strategic beta. The Morningstar Style Box had popularized the concept of style investing among U.S. investors by the time the first strategic-beta ETPs were launched in 2000. At that time, ETFs had been around for about seven years, though they were still novel to many investors and being used predominantly as trading vehicles. Also, within the advisor space, pockets of familiarity with the concept of factors owed in part to a rapidly growing and loyal army of Dimensional Fund Advisors² converts who were well versed in size and value.

Exhibit 3 U.S. Strategic-Beta ETP Monthly Asset Flows

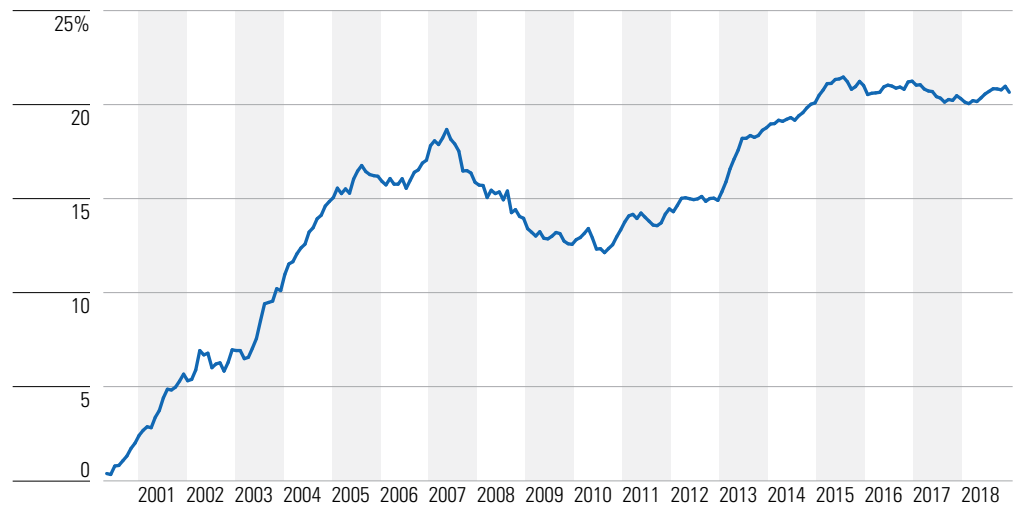


Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

² As Dimensional Fund Advisors' funds do not track indexes by mandate, we exclude them from our definition of strategic beta. That said, the factors the firm sets out to exploit, the systematic manner in which it sets out to exploit them, and the fact that most of its funds levy low fees relative to peers make them—and other similar strategies from their competition—close cousins.

Up until recently, AUM growth in strategic-beta ETPs had outpaced that experienced by the broader ETP industry. As such, strategic-beta ETPs' share of the overall ETP marketplace climbed to approximately 20.7% as of the end of 2018 from nil in 2000. Their market share has stagnated, having peaked around 21.5% in mid-2015. This owes largely to the fact that non-strategic-beta ETPs have been earning their fair share of net new flows in recent years.

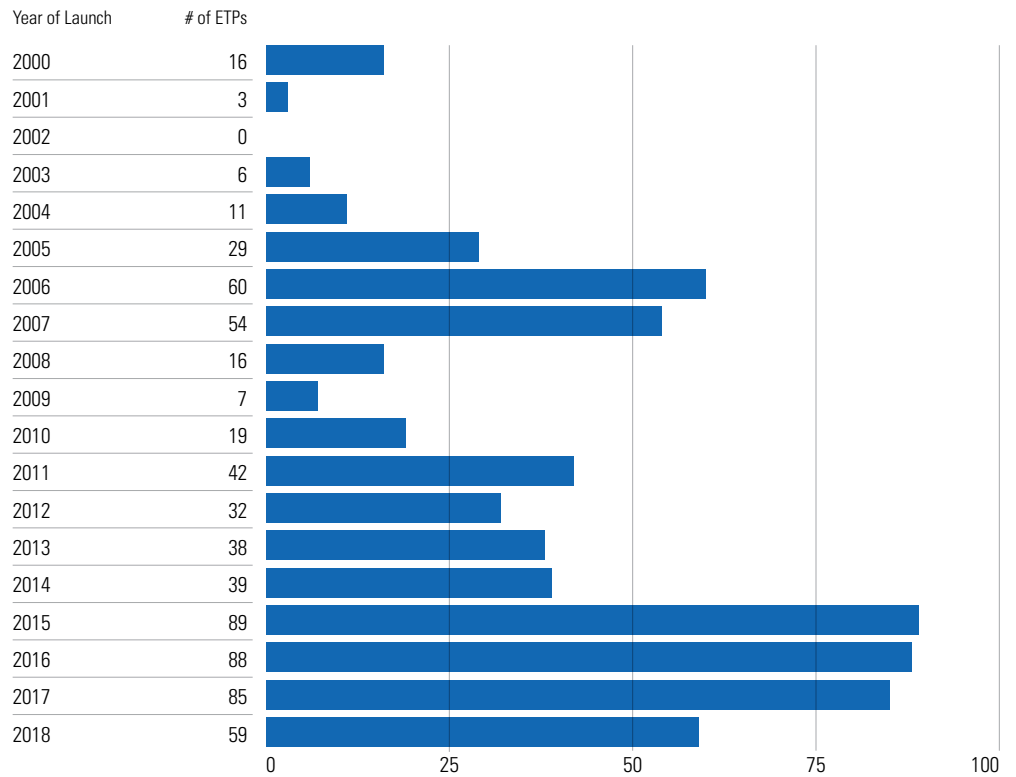
Exhibit 4 Strategic-Beta ETPs' Share of the Overall U.S. ETP Market (%)



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Roll Out the Betas

As mentioned previously, the first generation of strategic-beta ETPs delivered straightforward style tilts. Subsequently, there was a flurry of launch activity from 2005 to 2007 as strategic-beta-focused ETF providers rolled out full families of more-complex strategies. These included Invesco's (then known as PowerShares) roster of Dynamic and RAFI funds, WisdomTree's suite of dividend-screened/weighted funds, and First Trust's AlphaDex lineup. New launch activity hit a lull from 2008 to 2010 thanks to the global financial crisis but picked up once again in 2011 as providers moved to cover new bases (low-volatility strategies, for example). New launches accelerated in 2015, and from 2015 through 2017, a total of 262 new strategic-beta ETPs were launched—representing 38% of the 693 products that were on the menu in the U.S. as of the end of 2018. New product launches slowed considerably in 2018. There were 59 new strategic-beta ETPs rolled out in the U.S. last year, representing a 31% year-on-year decline in new launches. We view this as a sign that the menu has expanded to the point where investors have become paralyzed by the breadth of the offering. The fact that more-standard fare has been accumulating a greater share of flows more recently would seem to corroborate this.

Exhibit 5 Number of Surviving U.S. Strategic-Beta ETPs by Vintage

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Simple Tastes

While complexity has been on the rise, investors' preferences remain fairly plain-vanilla. Classifying the current roster of U.S. strategic-beta ETPs according to their strategic-beta groups shows that ETPs offering exposure to straightforward strategies (value, growth, dividend) account for about 73% of strategic-beta ETP assets. Dividend strategies have proved particularly popular in the context of a yield-starved investment environment and investors who are placing a greater emphasis on investment income as they move from the consolidation stage of their investment lifecycle to the decumulation stage. Funds belonging to Morningstar's value strategic-beta group claimed the top spot in the AUM league table as of Dec. 31, 2018.

Exhibit 6 Ranking of U.S. Strategic-Beta ETPs by Strategic-Beta Group

| Strategic-Beta Group | # of ETPs | Assets (USD Bil) | % of Assets | 2018 Flows (USD Bil) | % of 2018 Gross Flows |
|----------------------|-----------|------------------|-------------|----------------------|-----------------------|
| Value | 53 | 176.9 | 25.1 | 23.9 | 31.4 |
| Growth | 40 | 168.8 | 23.9 | 13.8 | 18.2 |
| Dividend | 141 | 166.6 | 23.6 | 6.4 | 8.4 |
| Risk-Oriented | 57 | 55.1 | 7.8 | 9.9 | 12.9 |
| Multifactor | 171 | 42.8 | 6.1 | 9.8 | 12.9 |
| Fundamentals | 32 | 29.1 | 4.1 | 4.6 | 6.1 |
| Other | 66 | 23.7 | 3.4 | 0.3 | 0.4 |
| Momentum | 41 | 15.4 | 2.2 | 2.9 | 3.9 |
| Quality | 17 | 11.5 | 1.6 | 4.4 | 5.8 |
| Fixed Income | 42 | 9.5 | 1.3 | -1.1 | — |
| Commodity | 33 | 5.8 | 0.8 | -0.6 | — |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

By Provider

iShares and Vanguard account for just 12% of the total number of strategic-beta ETPs but have amassed 65% of the assets in this universe. Their suites of strategic-beta ETPs align closely with the rankings of the most popular strategic-beta group. Specifically, their dividend, value, and growth funds are among the largest in this universe.

Occupying the third spot among the top five is an ETF provider that has made strategic beta its calling card: Invesco. The firm bolstered its roster of strategic-beta ETFs in 2018 when it completed its acquisition of Guggenheim's ETF range. The fourth spot has been claimed by Schwab's ascendant ETF lineup, which features fundamentally weighted funds that have a prominent place in the Schwab Intelligent Portfolios. WisdomTree, State Street Global Advisors, and First Trust follow close behind Schwab, though none of the three seems likely to keep up with Schwab's pace.

Exhibit 7 Largest U.S. Strategic-Beta ETP Providers

| Provider | AUM (USD Bil) | # of ETPs | Market Share (%) |
|-----------------------------------|---------------|-----------|------------------|
| iShares | 287.3 | 63 | 40.7 |
| Vanguard | 172.2 | 22 | 24.4 |
| Invesco | 65.1 | 130 | 9.2 |
| Schwab ETFs | 32.6 | 9 | 4.6 |
| WisdomTree | 32.2 | 55 | 4.6 |
| SPDR State Street Global Advisors | 31.6 | 25 | 4.5 |
| First Trust | 29.7 | 76 | 4.2 |
| Flexshares Trust | 8.1 | 19 | 1.1 |
| Goldman Sachs | 7.0 | 11 | 1.0 |
| ProShares | 5.4 | 9 | 0.8 |
| Others | 33.9 | 274 | 4.8 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

By Fund

The top 10 strategic-beta ETPs by assets account for about 39% of assets in this corner of the ETP market. Again, cut-and-dried value, growth, and dividend approaches dominate their ranks. There is, however, a notable exception: iShares Edge MSCI Minimum Volatility USA ETF USMV. The fact that USMV has quickly ascended to the top of the pile is indicative of the trendiness that can drive short-term flows in this corner of the market—making it, of course, no different from the market at large. USMV gathered \$15.3 billion in net new cash flows from its October 2011 inception through the end of 2018, as investors have bought in (in a big way) to a potentially more palatable manner of maintaining U.S. equity exposure.

Exhibit 8 Largest U.S. Strategic-Beta ETFs

| Name | Ticker | Inception Date | Strategic-Beta Group | Expense Ratio (%) | AUM (USD Bil) |
|------------------------------------|--------|----------------|----------------------|-------------------|---------------|
| Vanguard Value ETF | VTV | 1/26/04 | Value | 0.05 | 41.4 |
| iShares Russell 1000 Growth ETF | IWF | 5/22/00 | Growth | 0.20 | 38.6 |
| iShares Russell 1000 Value ETF | IWD | 5/22/00 | Value | 0.20 | 37.6 |
| Vanguard Growth ETF | VUG | 1/26/04 | Growth | 0.05 | 32.4 |
| Vanguard Dividend Appreciation ETF | VIG | 4/21/06 | Dividend | 0.08 | 29.2 |
| Vanguard High Dividend Yield ETF | VYM | 11/10/06 | Dividend | 0.08 | 21.5 |
| iShares S&P 500 Growth ETF | IVW | 5/22/00 | Growth | 0.18 | 20.1 |
| iShares Edge MSCI Min Vol USA ETF | USMV | 10/18/11 | Risk-Oriented | 0.15 | 18.9 |
| iShares Select Dividend ETF | DVY | 11/3/03 | Dividend | 0.39 | 16.7 |
| SPDR S&P Dividend ETF | SDY | 11/8/05 | Dividend | 0.35 | 16.3 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Keeping an Eye on Expenses

The fees levied by strategic-beta ETPs are, on average, competitive with those charged by the ETP field at large as well as the universe of ETPs ex-strategic beta. Of course, fees should be considered on a case-by-case basis. For example, Schwab U.S. Broad Market ETF *SCHB*, which tracks the market-cap-weighted Dow Jones U.S. Broad Stock Market Index, charges an annual fee of just 0.03%. Schwab Fundamental U.S. Broad Market Index ETF *FNDB*, which tracks the Russell Fundamental U.S. Index, levies a fee of 0.25%—a much higher hurdle relative to its more ordinary sibling. In aggregate, it's clear that across all three groupings—all else equal—investors prefer less pricey fare, as indicated by the fact that the asset-weighted average expense ratios tend to be lower than the simple averages. With that said, there are clearly some outlying ETPs of all ilk that charge fees comparable to those of active managers. Investors should take extra care to assess whether such tolls are justifiable for an index-tracking product.

As of the end of February 2019, there were 472 strategic-beta ETPs that had reported annual expense ratios for both fiscal 2018 and 2017. Of these 472 ETPs, 97 (or 20.5%) saw their fees decrease during their 2018 fiscal year. The median decline in fees among this group was 0.03%. Meanwhile, 42 strategic-beta ETPs saw their fees inch higher, by a median level of 0.01%. The toll taken by the remaining 333 products remained unchanged.

We expect that fees for strategic-beta ETPs will trend lower with time. We've already seen instances of proactive fee cuts. Notable among 2018 price-cutters were SSGA and Invesco, which each cut fees on several strategic-beta ETFs. Most prominent among them was Invesco S&P 500 Equal Weight ETF *RSP*, which saw its fee reduced to 0.20% from 0.33% soon after the fund had been acquired as part of Invesco's purchase of Guggenheim's ETF arm. The move was likely, in part, a response to the September 2017 launch of competing fund Goldman Sachs Equal Weight U.S. Large Cap Equity ETF *GSEW*, which levies a fee of 0.09%. These most recent volleys are unlikely the last to be launched in a fee fight that's been going on for years.

Exhibit 9 U.S. Fees Under the Microscope

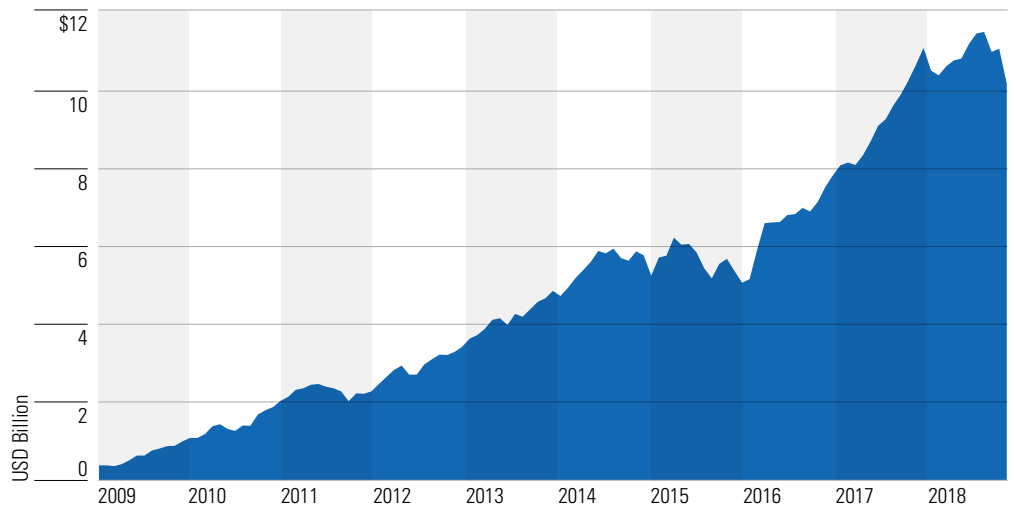
| | Average | Combined (%) | Equity (%) | Fixed Income (%) | Commodities (%) | Alternative (%) | Allocation (%) |
|-------------------------------|----------------|--------------|------------|------------------|-----------------|-----------------|----------------|
| All ETPs | Asset-Weighted | 0.21 | 0.19 | 0.18 | 0.44 | 0.99 | 0.65 |
| | Simple | 0.55 | 0.48 | 0.32 | 0.64 | 0.96 | 0.87 |
| ETPs ex-Strategic Beta | Asset-Weighted | 0.20 | 0.18 | 0.18 | 0.41 | 0.99 | 0.65 |
| | Simple | 0.59 | 0.50 | 0.32 | 0.60 | 0.96 | 0.88 |
| Strategic Beta | Asset-Weighted | 0.24 | 0.23 | 0.36 | 0.81 | 0.86 | 0.65 |
| | Simple | 0.46 | 0.44 | 0.26 | 0.75 | 1.10 | 0.83 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Canada

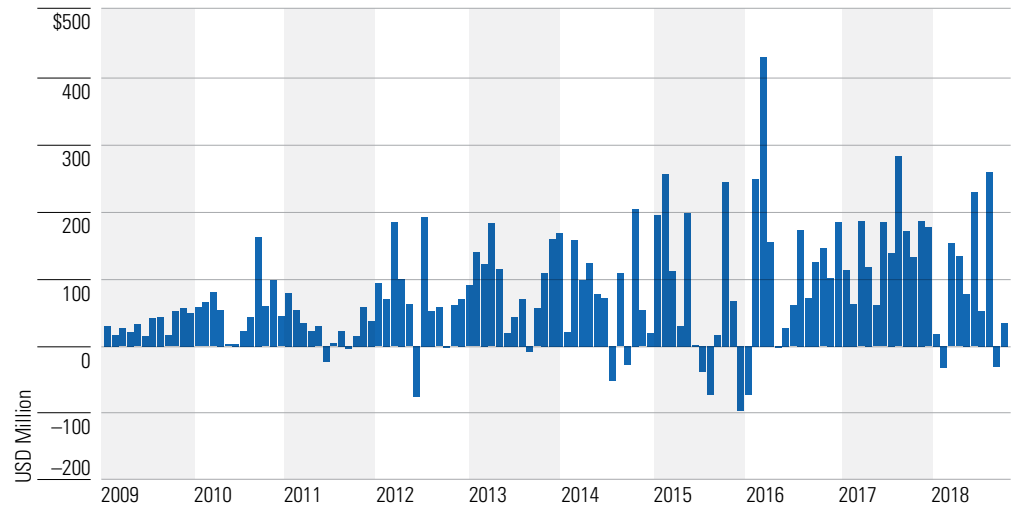
Interest in strategic-beta ETPs listed in Canada has grown considerably over the past decade. Assets invested in these funds grew from \$365 million to \$10.1 billion between December 2008 and December 2018. During that time, the number of surviving funds ballooned from nine to 182. So, it's not surprising that most of the growth in assets came from inflows, which totaled an estimated \$9.7 billion, representing about 9.8% of all flows into Canadian ETPs. That inflow-driven growth was consistent. Aggregate flows into these funds were positive in 106 of the 120 months over the trailing 10 years through December 2018.

Exhibit 10 Canadian Strategic-Beta ETP Asset Growth



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

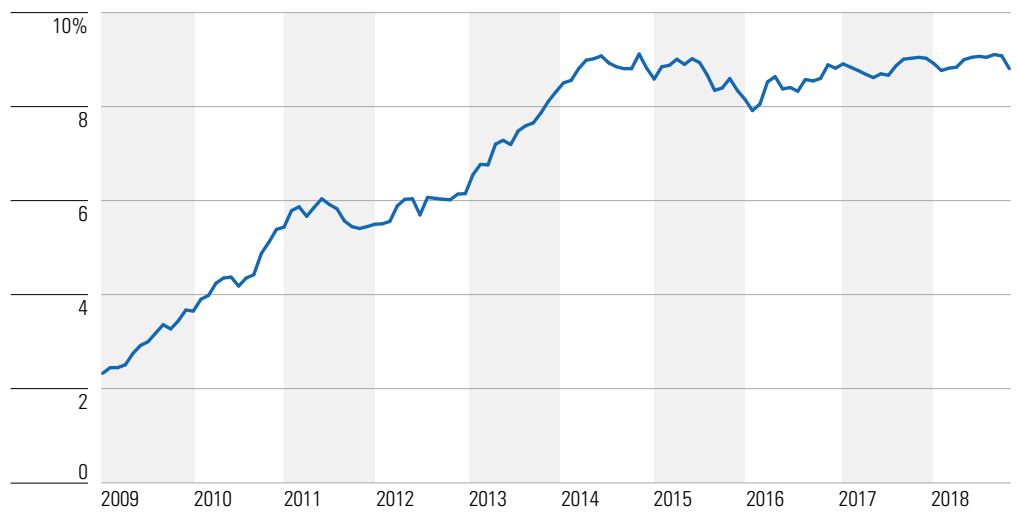
Exhibit 11 Canadian Strategic-Beta ETP Monthly Asset Flows



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Despite their growth, strategic-beta funds are still a small part of the Canadian ETP market. At the end of 2018, they represented about 8.8% of the total Canadian ETP market by assets, up from 2.4% a decade earlier. However, their market share has held steady at around 9% since May 2014. On average, strategic-beta funds are smaller than other ETPs. So, they represent a larger share of the market by count (22.8%) than by assets.

Exhibit 12 Strategic-Beta ETPs' Share of the Overall Canadian ETP Market (%)

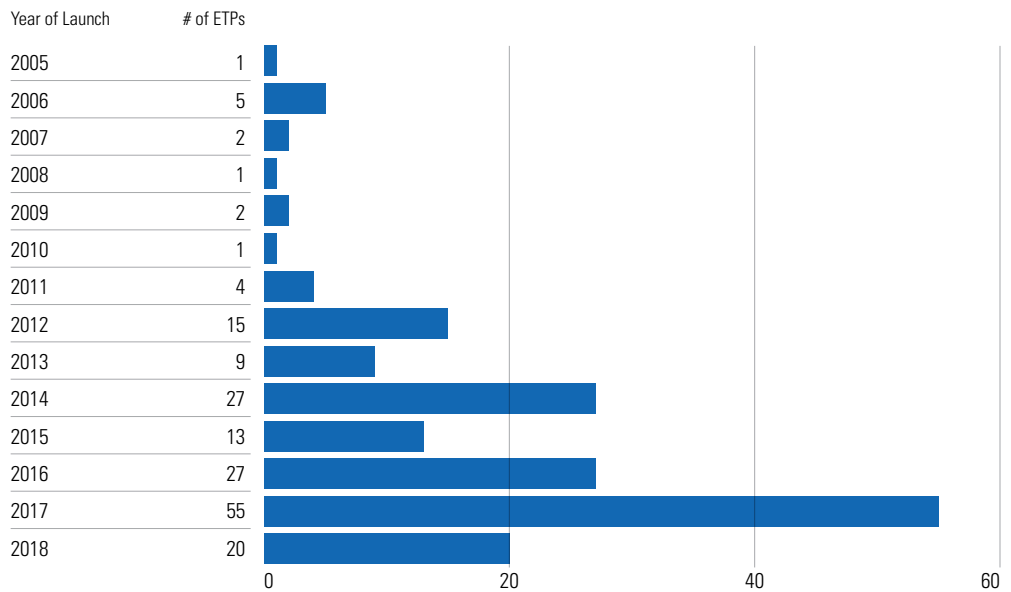


Source: Morningstar Direct. Data as of 12/31/18.

Part of the reason why many of these funds are smaller than the average ETP is they have not been around long. Of the 182 strategic-beta ETPs listed in Canada at the end of 2018, 142 were launched after 2013. Since these funds express active bets relative to the market, many investors wait until these funds have established a multiyear record of success before investing, as they tend to treat actively managed funds.

Product development tapered off to 20 strategic-beta ETP launches in 2018 from 55 the previous year, which was unusually high. Dividend strategies were the most common in this new crop of funds. Among these, Fidelity launched a suite of six dividend strategies, making its debut in the Canadian ETP market.

Exhibit 13 Number of Surviving Canadian Strategic-Beta ETPs by Vintage



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18. Data based on oldest share class inception date.

Strategic-Beta Group

Dividend strategies are far and away the most popular type of strategic-beta ETP by assets. These funds represented about 45% of assets invested in all Canadian-listed strategic-beta ETPs at the end of 2018. That's not surprising. Many investors, particularly retirees, love income and funds that can deliver it. Investors poured an estimated \$4.4 billion into these funds over the trailing 10 years through 2018, including \$499 million in 2018, which was the second highest of any strategic-beta group.

Risk-oriented funds represent the second-largest strategic-beta group in Canada, but they received more inflows than any other group in 2018. This group primarily consists of minimum-volatility and volatility-weighted funds, which favor less-volatile stocks. These funds attempt to provide a smoother ride and better downside protection than the market.

The other groups have much smaller shares of assets. That said, there were 24 multifactor funds launched in 2017, more than any other group that year. This group includes many complex strategies, like iShares Edge MSCI Multifactor USA ETF XFS, that resemble active quant funds.

Exhibit 14 Ranking of Canadian Strategic-Beta ETPs by Strategic-Beta Group

| Strategic-Beta Group | # of ETPs | Assets (USD Mil) | % of Assets | 2018 Flows (USD Mil) | % of 2018 Gross Flows |
|----------------------|-----------|------------------|-------------|----------------------|-----------------------|
| Dividend | 58 | 4,558 | 45.0 | 499.1 | 30.5 |
| Risk-Oriented | 30 | 2,342 | 23.1 | 540.3 | 33.0 |
| Multifactor | 43 | 1,035 | 10.2 | 299.2 | 18.3 |
| Fundamentals | 13 | 776 | 7.7 | -119.9 | — |
| Quality | 4 | 400 | 3.9 | -187.8 | — |
| Momentum | 10 | 326 | 3.2 | 118.6 | 7.2 |
| Fixed Income | 5 | 259 | 2.6 | 52.3 | 3.2 |
| Value | 8 | 247 | 2.4 | -52.7 | — |
| Other | 10 | 172 | 1.7 | 128.8 | 7.9 |
| Growth | 1 | 21 | 0.2 | -14.4 | — |

Source: Morningstar Direct. Data as of 12/31/18.

Asset Managers

While many asset managers offer strategic-beta ETPs in Canada, assets are concentrated among the largest providers. BlackRock is by far the largest player here, capturing about 41% of the market as of December 2018. Invesco, the second-largest strategic-beta ETP provider, only has 12.4% of the market. There are 16 asset managers that offer strategic-beta ETPs in Canada, but the smallest 12 combined only have a 26.7% market share.

Exhibit 15 Largest Canadian Strategic-Beta ETP Providers

| Provider | AUM (USD Mil) | # of ETPs | Market Share (%) |
|--------------------------------|---------------|-----------|------------------|
| BlackRock | 4,154 | 33 | 41.0 |
| Invesco | 1,261 | 26 | 12.4 |
| First Asset | 1,246 | 27 | 12.3 |
| Vanguard | 768 | 4 | 7.6 |
| Mackenzie | 650 | 6 | 6.4 |
| BMO | 481 | 10 | 4.7 |
| WisdomTree | 428 | 16 | 4.2 |
| Franklin Templeton | 231 | 4 | 2.3 |
| Manulife | 205 | 11 | 2.0 |
| DGAM | 204 | 7 | 2.0 |
| Horizons | 166 | 5 | 1.6 |
| Fidelity | 125 | 6 | 1.2 |
| First Trust | 104 | 19 | 1.0 |
| RBC | 102 | 5 | 1.0 |
| Sphere Investment Management | 5 | 2 | 0.1 |
| Galileo Global Equity Advisors | 4 | 1 | 0.0 |

Source: Morningstar Direct. Data as of 12/31/18.

It's worth noting that these figures exclude rules-based strategies that don't track an index, like BMO's low-volatility and dividend strategies or RBC's quantitative dividend ETFs. Morningstar considers these to be actively managed strategies.

Several of these asset managers compete in both the U.S. and Canadian markets, including BlackRock, Invesco, and Fidelity, and offer many of the same strategies in both markets. For example, versions of WisdomTree U.S. Quality Dividend Growth ETF DGR and iShares Edge MSCI Minimum Volatility Global ETF XMW are available in both the U.S. and Canada.

Biggest Funds

The largest 10 strategic-beta ETPs jointly represent 41.7% of all assets invested in such funds in Canada. But the largest fund still has under \$1 billion in assets. Dividend funds are well represented here. Invesco Canadian Dividend ETF PDC received the largest inflow of any strategic-beta ETP in 2018, totaling an estimated \$277 million.

Exhibit 16 Largest Canadian Strategic-Beta ETFs

| Name | Ticker | Inception Date | Strategic-Beta Group | Expense Ratio (%) | AUM (USD Mil) |
|--|--------|----------------|----------------------|-------------------|---------------|
| iShares Canadian Select Dividend ETF | XDV | 12/19/05 | Dividend | 0.55 | 944.9 |
| iShares S&P/TSX Cdn Div Aristcr ETF Comm | CDZ | 9/8/06 | Dividend | 0.66 | 611.1 |
| First Asset MSCI WldLRWgtETF Comm(UnHdg) | RWW.B | 2/19/14 | Risk-Oriented | 0.65 | 492.1 |
| Invesco Canadian Dividend ETF | PDC | 6/16/11 | Dividend | 0.55 | 408.0 |
| iShares US Dividend Grwrs ETF CADH Comm | CUD | 9/13/11 | Dividend | 0.66 | 370.5 |
| iShares S&P/TSX Composite High Div ETF | XEI | 4/12/11 | Dividend | 0.22 | 349.0 |
| Vanguard US Dividend Appreciation ETF | VGG | 8/2/13 | Dividend | 0.30 | 313.3 |
| Vanguard FTSE Canadian High Div Yld ETF | VDY | 11/2/12 | Dividend | 0.22 | 306.9 |
| Invesco S&P/TSX Composite Low Vol ETF | TLV | 4/24/12 | Risk-Oriented | 0.34 | 233.3 |
| Franklin LibertyQT US Equity ETF | FLUS | 5/31/17 | Multifactor | 0.28 | 201.7 |

Source: Morningstar Direct. Data as of 12/31/18.

Fees

Strategic-beta funds appear to charge similar fees to other types of ETPs, based on simple averages. However, comparing the asset-weighted average fees, strategic-beta funds appear more expensive than non-strategic-beta ETPs. That's because there are very cheap broad, market-cap-weighted funds that soak up a disproportionate share of the assets invested in non-strategic-beta funds. Cheaper funds tend to attract more assets across the board, which is why the asset-weighted average fees are lower than the simple averages for every group that included more than one fund.

The fee comparisons are most meaningful for the equity funds, since the other groups of strategic-beta funds are small. All but 10 of the 182 Canadian-listed strategic-beta ETPs are focused exclusively on equities.

Exhibit 17 Canadian Fees Under the Microscope

| | Average | Combined (%) | Equity (%) | Fixed Income (%) | Commodities (%) | Alternative (%) | Allocation (%) |
|-------------------------------|----------------|--------------|------------|------------------|-----------------|-----------------|----------------|
| All ETPs | Asset-Weighted | 0.35 | 0.32 | 0.35 | 0.64 | 1.17 | 0.54 |
| | Simple | 0.62 | 0.60 | 0.46 | 0.86 | 1.26 | 0.82 |
| ETPs ex-Strategic Beta | Asset-Weighted | 0.33 | 0.30 | 0.35 | 0.64 | 1.19 | 0.54 |
| | Simple | 0.62 | 0.60 | 0.46 | 0.86 | 1.28 | 0.83 |
| Strategic Beta | Asset-Weighted | 0.51 | 0.51 | 0.32 | NA | 0.72 | 0.78 |
| | Simple | 0.59 | 0.59 | 0.52 | NA | 0.72 | 0.78 |

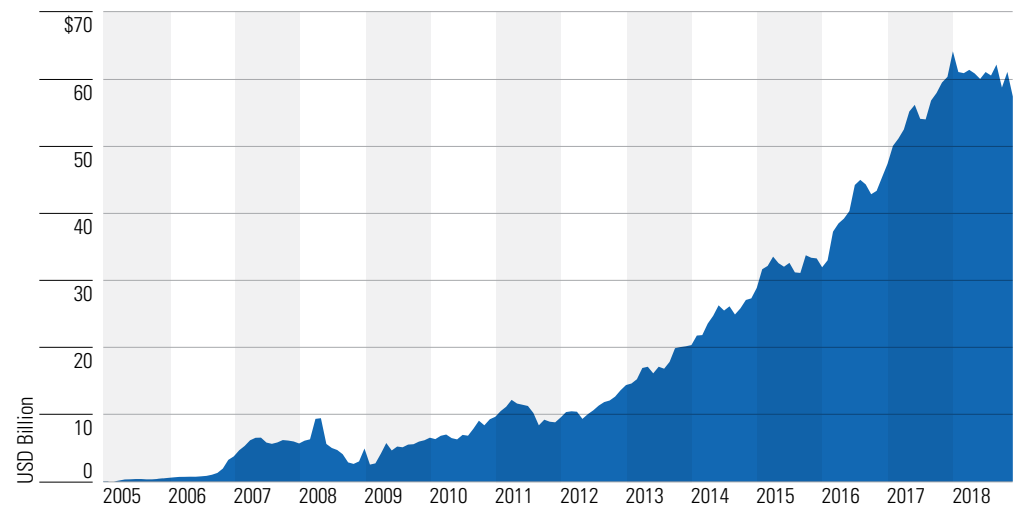
Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Europe

Following years of strong growth, the European strategic-beta ETP market shrank by 5% to \$57.4 billion over the course of 2018. However, in a turbulent year for financial markets, strategic-beta ETPs still collected \$5.0 billion in net new money, representing an organic growth rate of 8%.

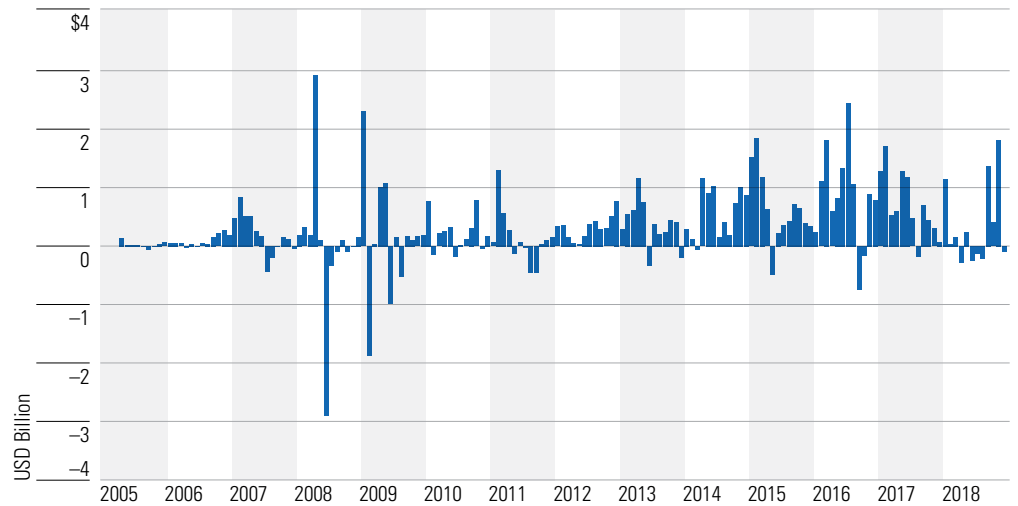
Strategic-beta ETPs' share of the total European ETP market held steady over the course of the year, finishing at 7.5%. While dividend strategies retain the lion's share of overall assets invested in strategic-beta ETPs, risk-oriented strategies have been the main beneficiary of a turbulent year for markets.

Exhibit 18 European Strategic-Beta ETP Asset Growth



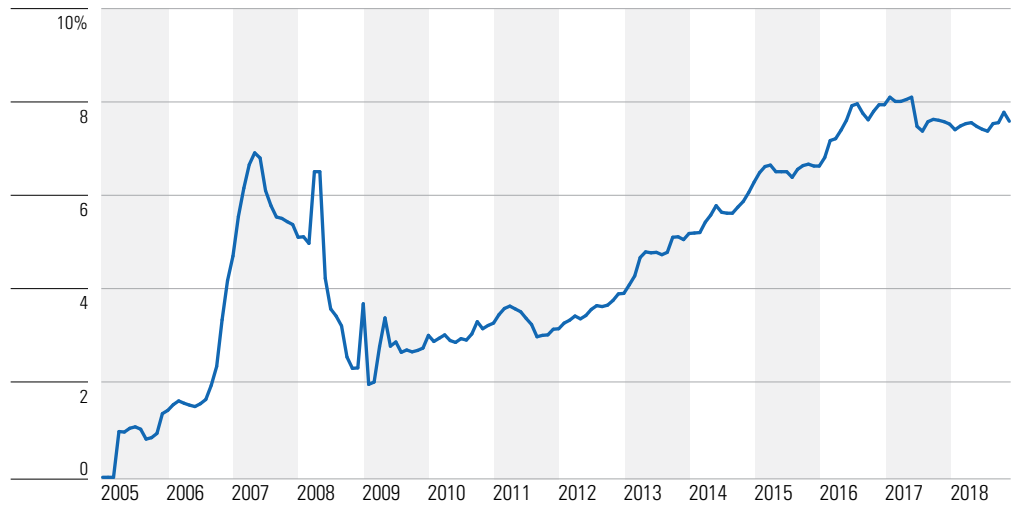
Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Exhibit 19 European Strategic-Beta ETP Monthly Asset Flows



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Exhibit 20 Strategic-Beta ETPs' Share of the Overall European ETP Market (%)



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Launches Dwindle; Risk-Oriented Funds Thrive as Markets Lurch

In 2018, a total of 20 new strategic-beta products hit the shelves, less than a fourth of the launches seen the previous year. The drop in launches is the natural consequence of the strategic-beta market reaching maturity.

Most new entrants now employ multifactor equity strategies. This trend is a direct result of crowding in the single-factor equity space. The odd new single-factor launch tends to color in missing geographical coverage using existing strategies rather than attempt to seriously innovate further in the space. iShares Edge MSCI EM Value Factor ETF and WisdomTree Japan SmallCap Dividend ETF are examples of this.

Multifactor strategies are routinely marketed as a way of improving the prospective risk/return profile of a market-cap index by diversifying across factors, each of which can suffer long periods of underperformance. All the multifactor ETFs launched in 2018 combine three or more widely recognized factors using a variety of weighting methodologies.

The increased number variables in these products allows providers more scope to differentiate themselves and often charge a premium for their intellectual property. It is fair to expect that more products of this type will come to market. After all, multifactor ETFs can be churned in many different combinations and cover a number of geographies.

Despite the rising popularity of multifactor strategies, single-factor ETFs still horde the most assets in the European strategic-beta marketplace. In particular, dividend strategies remain the most popular segment, accounting for 39% of total strategic-beta ETP assets in Europe. Their continued popularity should come as little surprise in the prevailing low-rate environment where dependable investment income is rather hard to come by.

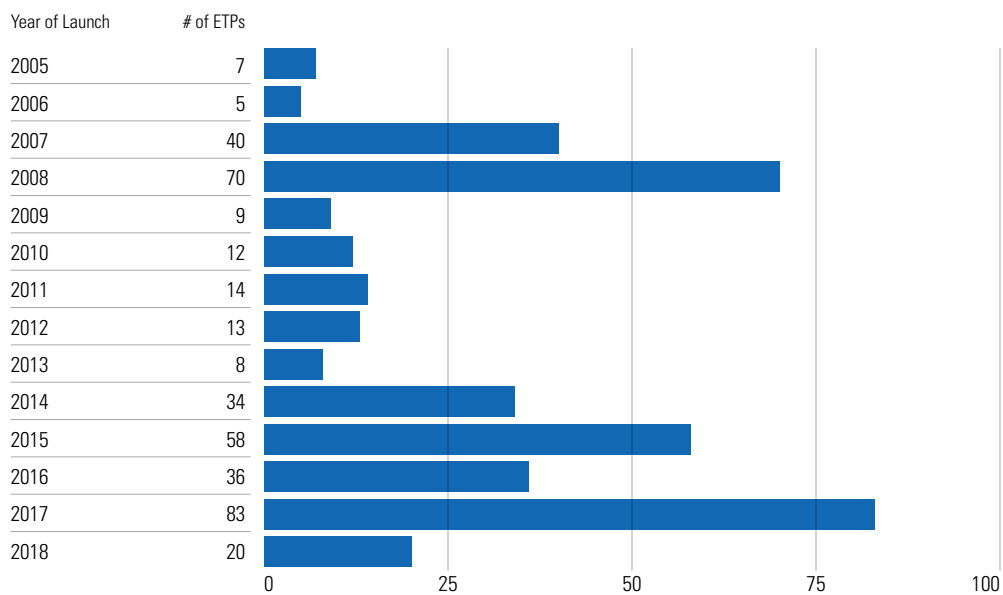
Newcomers to the dividend strategic-beta group include Xtrackers MSCI World High Dividend Yield ETF and Xtrackers Morningstar US Quality Dividend ETF*, which bind quality to dividend strategies, a popular combo. They seek to address some of the known drawbacks of investing in high-dividend-paying stocks alone.

Risk-oriented strategies form the second-largest grouping with 15% of assets. A strong historical track-record and a jittery global economy saw them become the major beneficiary of inflows in 2018. This is despite the expectation that rates will continue to rise, an environment in which lower-risk stocks tend to lag.

* Disclosure: Morningstar, Inc. licenses indexes to financial institutions as the tracking indexes for investable products, such as exchange-traded funds, sponsored by the financial institution. The license fee for such use is paid by the sponsoring financial institution based mainly on the total assets of the investable product. Please click [here](#) for a list of investable products that track or have tracked a Morningstar index. Neither Morningstar, Inc. nor its investment management division markets, sells, or makes any representations regarding the advisability of investing in any investable product that tracks a Morningstar index.

Some providers have taken tentative steps into the fixed-income space. However, the long-predicted flurry of innovation has failed to materialize, and asset levels remain subdued. Most new launches focus on quality, which is easy to link to yield potential. When it comes to other factors, the jury is still out. There is currently no consensus view on whether the factors recognized in equity investing can be applied to fixed income.

Exhibit 21 Number of European Surviving Strategic-Beta ETPs by Vintage



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Exhibit 22 Ranking of European Strategic-Beta ETPs by Strategic-Beta Group

| Secondary Attribute | # of ETPs | Assets (USD Bil) | % of Assets | 2018 Flows (USD Mil) | % of 2018 Gross Flows |
|---------------------|-----------|------------------|-------------|----------------------|-----------------------|
| Dividend | 74 | 22.4 | 39.1 | 107 | 1.4 |
| Risk-Oriented | 29 | 8.6 | 15.0 | 1,935 | 26.1 |
| Multifactor | 59 | 7.6 | 13.2 | 1,130 | 15.2 |
| Value | 22 | 4.9 | 8.5 | -1,231 | — |
| Quality | 22 | 3.8 | 6.6 | 675 | 9.1 |
| Commodity | 149 | 3.6 | 6.2 | 262 | 3.5 |
| Momentum | 8 | 2.1 | 3.7 | 828 | 11.2 |
| Fixed Income | 18 | 2.1 | 3.7 | 839 | 11.3 |
| Other | 17 | 1.6 | 2.8 | 353 | 4.8 |
| Fundamentals | 6 | 0.4 | 0.7 | 27 | 0.4 |
| Growth | 5 | 0.3 | 0.5 | 36 | 0.5 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

iShares Maintains Dominant Market Position

iShares retained the number-one spot in the European strategic-beta ETP space with a market share of 45% at the end of 2018, rising slightly from 44% in our last study.³

Its "Edge"-branded suite of ETFs that track factor indexes focused on core global, U.S., and European exposures has played a key role in cementing iShares' standing in recent years. The firm bolstered the range in 2018 with the addition of iShares Edge MSCI EM Value Factor ETF and iShares Edge MSCI Europe Multifactor ETF. The year also saw the firm's first foray into the fixed-income and commodities strategic-beta markets with iShares J.P. Morgan USD Emerging Markets Bond ETF and iShares Bloomberg Roll Select Commodity Swap ETF, respectively.

State Street Global Advisors' SPDR ETF franchise remained in second place. However, this position belies a dependency on the fortunes of two products from the same stable: SPDR S&P U.S. Dividend Aristocrats ETF and SPDR S&P Euro Dividend Aristocrats ETF. These two funds harbor three fourths of SPDR's assets in strategic-beta ETPs in Europe.

The third spot was taken by UBS, whose MSCI equity factor suite forms the backbone of its offering. In addition, the firm has a wide range of strategic-beta commodities products, including the popular broad-basket UBS CMCI Composite SF ETF.

As the European strategic-beta market has reached maturity, the opportunities available for new entrants have also fallen. Only J.P. Morgan and Nordic regional player Nordea entered the market in 2018.

Exhibit 23 Largest European Strategic-Beta ETP Providers

| Provider | AUM (USD Bil) | # of ETPs | Market Share (%) |
|--------------|---------------|-----------|------------------|
| iShares | 25.8 | 41 | 44.9 |
| State Street | 4.8 | 12 | 8.3 |
| UBS | 4.4 | 118 | 7.6 |
| Lyxor | 4.0 | 24 | 6.9 |
| Xtrackers | 3.2 | 26 | 5.7 |
| Amundi | 2.4 | 16 | 4.2 |
| Ossiam | 2.6 | 11 | 4.5 |
| Invesco | 2.6 | 26 | 4.5 |
| BNP Paribas | 0.8 | 44 | 1.3 |
| Deka | 1.0 | 6 | 1.7 |
| Others | 5.9 | 85 | 10.3 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Exhibit 24 Largest European Strategic-Beta ETFs

| Name | Ticker | Inception Date | Strategic-Beta Group | Expense Ratio (%) | AUM (USD Bil) |
|---|--------|----------------|----------------------|-------------------|---------------|
| iShares Dev Mkts Prpty Yld ETF Acc | DPYE | 3/5/18 | Dividend | 0.64 | 2.8 |
| iShares Edge MSCI Wld Min Vol ETF \$ Acc | MVOL | 11/30/12 | Risk-Oriented | 0.30 | 2.8 |
| SPDR S&P US Dividend Aristocrats ETF | UDVD | 10/14/11 | Dividend | 0.35 | 2.3 |
| iShares Edge MSCI Wld Val Fctr ETF \$Acc | IWVL | 10/3/14 | Value | 0.30 | 1.6 |
| Ossiam Shiller BclyCp US SectValTR 1C\$ | UCAP | 6/22/15 | Multi-Factor | 0.65 | 1.4 |
| iShares European Prpty Yld ETF EUR Acc | IPRP | 12/12/18 | Dividend | 0.40 | 1.4 |
| SPDR S&P Euro Dividend Aristocrats ETF | SPYW | 2/28/12 | Dividend | 0.30 | 1.3 |
| iShares Edge S&P 500 Min Vol ETF USD Acc | SPMV | 11/30/12 | Risk-Oriented | 0.20 | 1.3 |
| Lyxor SG Global Qual Inc NTR ETF D EUR | SGQI | 9/25/12 | Dividend | 0.45 | 1.2 |
| iShares Edge MSCI Wld Mom Fctr ETF \$ Acc | IWMO | 10/3/14 | Momentum | 0.30 | 1.2 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Fixed-Income Fees Plummet, but Equity Fees Hit a Floor

Since our previous report, equal-weighted average fees for equity strategic-beta products, which are by far the most popular grouping, plateaued after several years of falling. Asset-weighted fees for strategic-beta equity ETFs also remained static at 0.37%, significantly more than the equivalent asset-weighted fee for the cohort of market-cap-weighted equity peers.

While single-factor equity strategies have become highly commoditized, two of the largest funds, Ossiam Shiller Barclays Cape US Sector Value ETF and iShares Developed Markets Property Yield ETF, have managed to gather and maintain assets despite relatively high ongoing charges of 0.65% and 0.64%, respectively.

The fee drops in strategic-beta fixed-income products really caught our eye. The simple average and asset-weighted fees have both tumbled on these funds from 0.40% and 0.42%, respectively, to 0.31% since our last update. While this is still much higher than the average fee for non-strategic-beta fixed-income funds, it reflects the increased competition in the segment.

Exhibit 25 European Fees Under the Microscope

| | Average | Combined (%) | Equity (%) | Fixed Income (%) | Commodities (%) | Alternative (%) | Allocation (%) |
|-------------------------------|----------------|--------------|------------|------------------|-----------------|-----------------|----------------|
| All ETPs | Asset-Weighted | 0.26 | 0.25 | 0.22 | 0.32 | 0.42 | 0.54 |
| | Simple | 0.41 | 0.37 | 0.22 | 0.55 | 0.50 | 0.82 |
| ETPs ex-Strategic Beta | Asset-Weighted | 0.25 | 0.24 | 0.22 | 0.32 | 0.42 | 0.54 |
| | Simple | 0.41 | 0.37 | 0.22 | 0.55 | 0.50 | 0.83 |
| Strategic Beta | Asset-Weighted | 0.33 | 0.37 | 0.31 | 0.35 | N/A | 0.78 |
| | Simple | 0.38 | 0.38 | 0.31 | 0.38 | N/A | 0.78 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Asia-Pacific

Collective assets under management for strategic-beta ETPs in the Asia-Pacific region grew 12% in 2018 to \$23.7 billion from \$21.3 billion a year ago. The asset growth was primarily driven by inflows into the products and new product launches in the region, despite a disappointing year of market performance (the MSCI AC Asia Pacific Index returned negative 13.3% in 2018 in U.S.-dollar terms). While 12% growth in the region was a slower rate compared what we observed previously (94%, 48% and 57% in the 12-month periods ended June 2015, 2016, and 2017, respectively), there were specific markets where growth rates for strategic-beta products were particularly strong, namely, in Thailand, China, and Taiwan. Once again, Japan-domiciled strategic-beta ETPs grew the most in absolute terms, adding \$1.6 billion to the region's aggregate AUM, despite the overall Japanese market falling 12.6% in U.S.-dollar terms in 2018 (as proxied by the MSCI Japan Index).

The Asia-Pacific strategic-beta ETP league tables in terms of AUM remained fairly similar to what we observed previously. The Bank of Japan's ongoing ETF purchases, as part of the country's monetary stimulus, continued to help Japan secure its top position. Japan was followed by Australia's \$3.0 billion and South Korea's \$1.8 billion in assets.

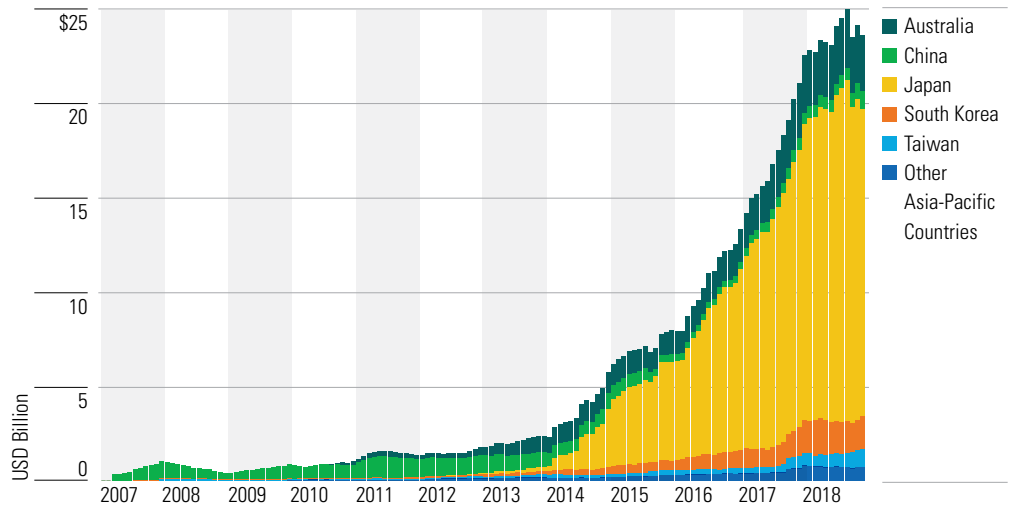
In terms of strategic-beta ETP penetration, Australia claimed the title in the Asia-Pacific region with 10.5% of local ETP market assets. Singapore was second in the region at 8.9%; two out of the three new products launched in the Singaporean market in the past 18 months were strategic-beta products with a dividend focus.

Exhibit 26 Asia-Pacific: Snapshot of Strategic-Beta ETP Markets

| | # of ETPs | Total AUM (USD Mil) | % of Total AUM of Strategic-Beta ETPs in Asia-Pacific | Largest ETP (USD Mil) | Average AUM (USD Mil) | 2017-18 Growth (%) | | |
|----------------------|------------|------------------------|---|--------------------------|--------------------------|-------------------------------------|------------------------|---------------------|
| | | | | | | % of Total Local ETP Market * | Strategic-Beta ETPs | Total ETP Market |
| Australia | 33 | 2,985 | 12.6 | 715 | 90 | 10.5 | 1.9 | 2.6 |
| China | 14 | 961 | 4.1 | 343 | 69 | 1.8 | 56.0 | 48.8 |
| Hong Kong | 17 | 435 | 1.8 | 106 | 26 | 1.2 | 28.9 | -14.2 |
| India | 7 | 8 | 0.0 | 3 | 1 | 0.1 | -14.5 | 31.8 |
| Japan | 24 | 16,285 | 68.8 | 5,779 | 679 | 5.3 | 10.7 | 11.9 |
| Malaysia | 2 | 30 | 0.1 | 17 | 15 | 6.6 | 16.0 | -4.1 |
| New Zealand | 4 | 91 | 0.4 | 39 | 23 | 5.6 | -35.7 | 10.2 |
| Singapore | 4 | 164 | 0.7 | 101 | 41 | 8.9 | 26.5 | -5.8 |
| South Korea | 76 | 1,783 | 7.5 | 366 | 23 | 4.9 | 16.8 | 10.6 |
| Taiwan | 8 | 917 | 3.9 | 595 | 115 | 3.8 | 35.8 | 106.3 |
| Thailand | 1 | 3 | 0.0 | 3 | 3 | 0.7 | 75.4 | 6.2 |
| Total/Average | 190 | 23,663 | 100.0 | 5,779 | 99 | 4.7 | 12.1 | 14.6 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18 *Note: Excludes cross-listed ETPs.

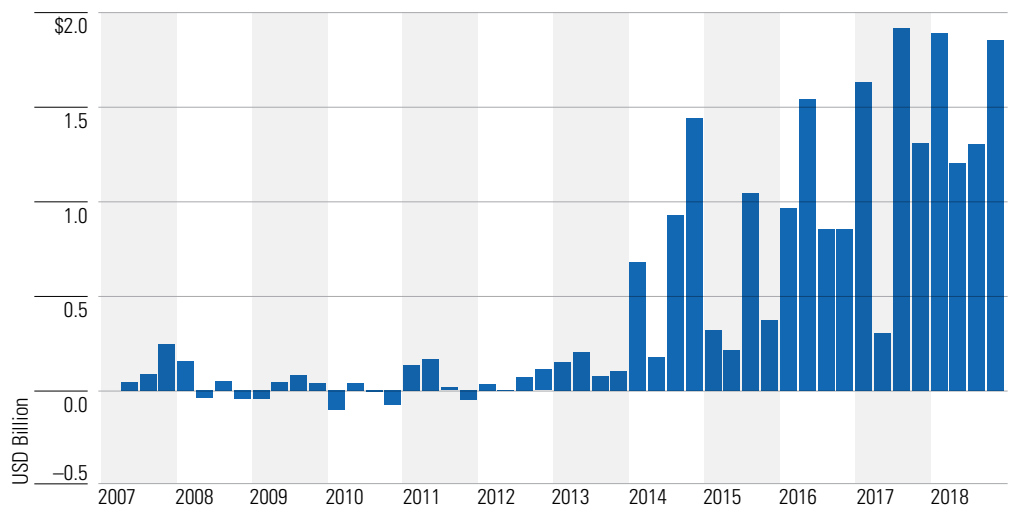
Exhibit 27 Asia-Pacific Strategic-Beta ETP Asset Growth



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.
 (Asset data for Chinese ETPs is available only on a quarterly basis, interquarter data was interpolated.)

Inflows into strategic-beta ETPs in the region remained strong, with an estimated \$6.3 billion going into these products in 2018. Japan-domiciled ETPs tracking the JPX-Nikkei Index 400 contributed a large part of these flows. Sixty-four percent of the \$6.3 billion of inflows went to "quality" strategies (mainly from ETFs tracking the JPX-Nikkei Index 400). The number of strategic-beta ETPs grew to 190 from 157 a year ago.

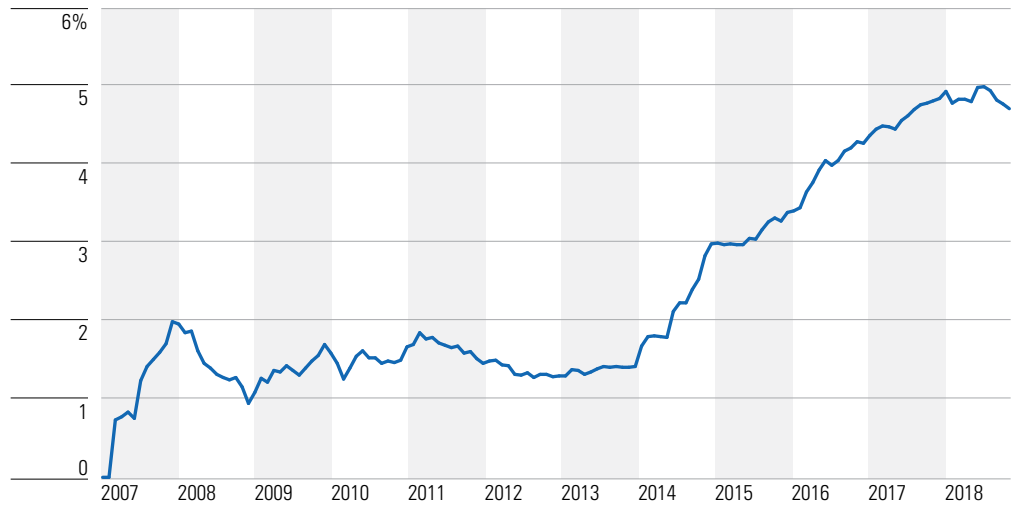
Exhibit 28 Asia-Pacific Strategic-Beta ETP Quarterly Asset Flows



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

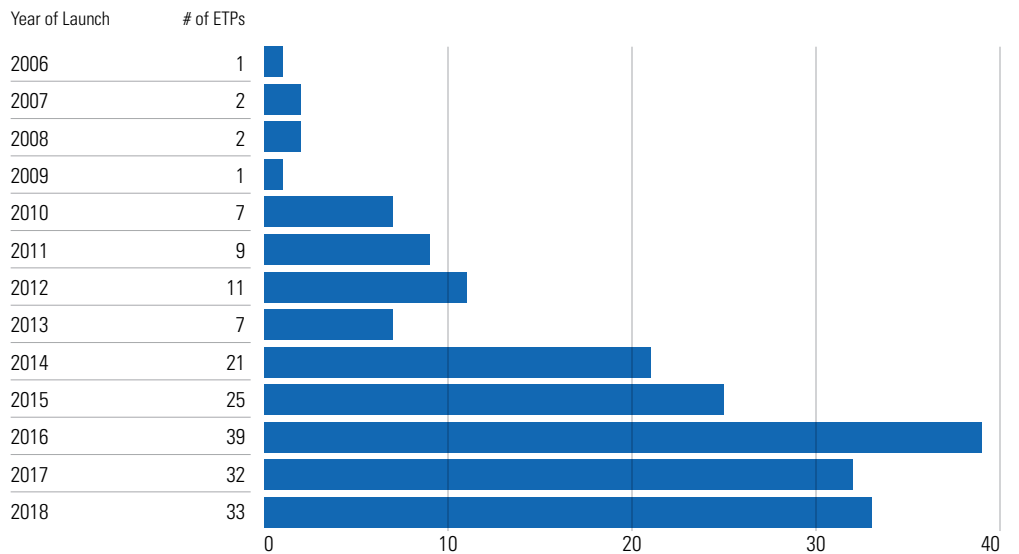
During 2018, the growth in assets under management of strategic-beta ETPs was largely similar to that of the overall ETP market in the region. Strategic-beta ETPs' share of the overall ETP marketplace hovered around 4.7% to 5.0% during the period and landed at 4.7% at the end of 2018.

Exhibit 29 Strategic-Beta ETPs' Share of the Overall Asia-Pacific ETP Market (%)



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Exhibit 30 Number of Surviving Asia-Pacific Strategic-Beta ETPs by Vintage



Source: Morningstar Direct, Morningstar Research, Data as of 12/31/18.

Quality Earns the Top Spot, Followed by Dividend

Quality-oriented strategies continued to hold the top position among strategic-beta groups in the Asia-Pacific region, with a market share of 61%. The 24 quality-oriented ETPs listed in the region had collective assets under management of \$14.4 billion, of which 95% came from the six ETPs domiciled in Japan tracking the JPX-Nikkei Index 400. These six ETPs were also the largest strategic-beta ETPs in the Asia-Pacific region, with asset sizes ranging from \$0.9 billion to \$5.8 billion, together accounting for 58% of the region's total AUM for strategic-beta ETPs. The dividend strategic-beta group was the second-largest, with a market share of 25%. The 65 dividend strategies had collective AUM of \$5.9 billion, making them the most popular strategic-beta strategies by number. In fact, Japan, Australia, and Taiwan each had a dividend strategy among the top-10 largest strategic-beta ETPs by assets.

Exhibit 31 Ranking of Asia-Pacific Strategic-Beta ETPs by Strategic-Beta Group

| Strategic-Beta Group | # of ETPs | AUM (USD Mil) | % of Attribute AUM | | | | | | | | | | | | % of Trailing 12-Month Flows |
|----------------------|------------|------------------|--------------------|------------|--------------|------------|-------------|------------|----------------|------------|----------------|------------|------------|-------------------|------------------------------------|
| | | | Australia | China | Hong Kong | India | Japan | Malaysia | New Zealand | Singapore | South Korea | Taiwan | Thailand | Total Asia-Pac | |
| Quality | 24 | 14,374 | 1.7 | 0.4 | 0.0 | 0.0 | 58.4 | — | — | — | 0.2 | — | — | 60.7 | 63.9 |
| Dividend | 65 | 5,940 | 6.3 | 2.3 | 0.9 | 0.0 | 7.6 | 0.1 | 0.1 | 0.7 | 3.2 | 3.8 | 0.0 | 25.1 | 24.4 |
| Other | 14 | 1,323 | 2.0 | 0.1 | — | — | 2.1 | — | — | — | 1.4 | — | — | 5.6 | 2.9 |
| Multifactor | 21 | 438 | 0.6 | — | 0.8 | — | — | — | — | — | 0.4 | — | — | 1.9 | 4.8 |
| Value | 20 | 391 | — | 0.6 | — | 0.0 | — | — | 0.2 | — | 0.9 | — | — | 1.7 | 1.7 |
| Risk-Oriented | 19 | 391 | 0.1 | 0.3 | — | 0.0 | 0.6 | — | — | — | 0.6 | 0.1 | — | 1.7 | -1.8 |
| Fundamentals | 7 | 316 | 0.7 | 0.4 | 0.1 | — | 0.1 | — | — | — | 0.1 | — | — | 1.3 | 0.2 |
| Fixed Income | 3 | 255 | 1.1 | — | — | — | — | — | — | — | 0.0 | — | — | 1.1 | 2.1 |
| Growth | 5 | 110 | — | 0.1 | — | — | — | — | 0.1 | — | 0.3 | — | — | 0.5 | 1.2 |
| Momentum | 8 | 64 | — | — | — | — | — | — | — | — | 0.3 | 0.0 | — | 0.3 | 0.5 |
| Commodity | 4 | 63 | 0.0 | — | 0.0 | — | — | — | — | — | 0.2 | — | — | 0.3 | 0.2 |
| Total | 190 | 23,663 | 12.6 | 4.1 | 1.8 | 0.0 | 68.8 | 0.1 | 0.4 | 0.7 | 7.5 | 3.9 | 0.0 | 100.0 | 100 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

The 10 largest strategic-beta ETP providers went largely in tandem with the 10 largest strategic-beta ETPs in the region. Nomura, manager of the largest strategic-beta ETP in the region, was once again the largest strategic-beta ETP provider in Asia-Pacific. Other Japanese ETP providers with an ETF tracking the JPX-Nikkei Index 400 continued to sit within the top 10. iShares, which managed an ETF tracking the JPX-Nikkei Index 400 and eight other strategic-beta ETPs available in Japan and Australia, was the third-largest provider. Yuanta Financial, a Taiwan-based ETP provider, was in ninth place with its two dividend strategies.

Exhibit 32 Largest Asia-Pacific Strategic-Beta ETFs

| Provider | Ticker | Exchange Country | Strategic-Beta Group | AUM (USD Mil) |
|--|--------|------------------|----------------------|---------------|
| NEXT FUNDS JPX-Nikkei Index 400 ETF | 1591 | Japan | Quality | 5,779 |
| MAXIS JPX-Nikkei Index 400 ETF | 1593 | Japan | Quality | 2,638 |
| Daiwa ETF JPX-Nikkei 400 | 1599 | Japan | Quality | 1,580 |
| Listed Index Fund JPX-Nikkei Index 400 | 1592 | Japan | Quality | 1,528 |
| iShares JPX-Nikkei 400 ETF | 1364 | Japan | Quality | 1,260 |
| One ETF JPX-Nikkei 400 | 1474 | Japan | Quality | 940 |
| NEXT FUNDS Nomura Japan Eq Hi Div 70 ETF | 1577 | Japan | Dividend | 740 |
| Vanguard Australian Shares High Yld ETF | VHY | Australia | Dividend | 715 |
| Yuanta/P-shares Taiwan Dividend Plus ETF | 0056 | Taiwan | Dividend | 595 |
| VanEck Vectors Australian Equal Wt ETF | MVV | Australia | Other | 430 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

The fragmented nature of the region's strategic-beta ETP market remained. Beyond the 10 largest ETP providers, there were a total of 131 ETPs managed by 48 different ETP providers occupying a collective market share of only 17%.

Exhibit 33 Asia-Pacific Largest Strategic-Beta ETP Providers

| Provider | AUM (USD Mil) | # of ETPs | Market Share (%) |
|------------------|---------------|-----------|------------------|
| Nomura | 6,831 | 5 | 28.9 |
| Mitsubishi UFJ | 2,827 | 7 | 11.9 |
| iShares | 2,131 | 9 | 9.0 |
| Nikko AM | 1,802 | 4 | 7.6 |
| Daiwa | 1,580 | 1 | 6.7 |
| AM One | 1,414 | 3 | 6.0 |
| VanEck | 1,014 | 8 | 4.3 |
| Vanguard | 752 | 2 | 3.2 |
| Yuanta Financial | 686 | 2 | 2.9 |
| Mirae Asset | 659 | 18 | 2.8 |
| Others | 3,968 | 131 | 16.8 |

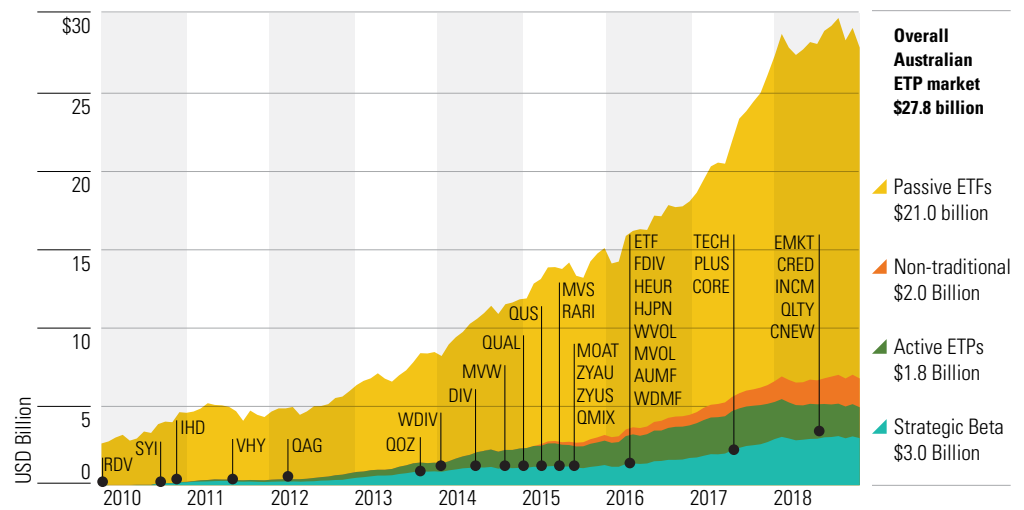
Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Australia

The ascendance of strategic-beta ETPs continues, as measured by the number of products and assets. Over the 18 months to Dec. 31, 2018, Australia's strategic-beta ETP market grew from \$2.9 billion to \$4.2 billion, in local-currency Australian-dollar terms. That's a remarkable increase of 46%, and even faster than overall ETP market growth of 38% over the same period. In U.S.-dollar terms the strategic-beta space grew from \$2.2 billion to \$3.0 billion, or 34%. The slower U.S.-dollar growth rate is because the Australian dollar substantially weakened against the U.S. dollar over the period.

Strategic beta now accounts for 10.5% of Australia's ETP market. The explosive growth of strategic beta has tapered somewhat. Although assets have continued to flow into strategic-beta ETPs, market share declined in 2015 and 2016 before increasing again in 2017 and 2018. The most rapid growth period was a handful of years up to 2014, such that the market share of strategic beta now is just below where it was at its peak in 2014.

Exhibit 34 Australian ETP Assets and Product Launches



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/2018.

What About Active and Other Nontraditional ETPs?

It is worth noting the many ETPs that provide "alternative" beta but do not meet Morningstar's definition of strategic beta. For example, even if they provide factor exposure, strategies do not meet our definition if they do not track an index or if they have elements of active decision-making. Exhibit 34 shows that while the overall ETP market has grown remarkably, areas outside traditional passive indexing have grown even faster. In total, about one fourth of Australia's ETP assets are in either strategic-beta, active, or other nontraditional ETPs. Active ETPs stormed into prominence in 2015 with the launch of Magellan Global Equities MGE. Active ETPs held \$1.8 billion in assets as of Dec. 31, 2018. MGE dominates the active ETP space, with \$798 million in just one vehicle. The closest ETP

rival is Platinum International PIXX with \$209 million. Aside from active ETPs, other nontraditional products launched in the past five years offer exposures such as derivative income, dividend stripping, inverse equity, inverse leveraged equity, geared equity, and geared U.S. equity. Assets in these vehicles total \$2.0 billion. It is clear that investor appetite for ETPs goes beyond passive and strategic beta, though this depends on the individual fund manager, investment strategy, and product structure.

How Did Strategic Beta Shake Out in the Shakedown?

The market's decline in the fourth quarter of 2018 provided an interesting test for strategic-beta ETPs. The overall ETP market saw assets dip 3.5% in Australian-dollar terms as markets entered a phase of risk aversion. Over the same period, strategic-beta assets declined only 1.7%, while active and nontraditional ETP assets actually increased. The reasons were twofold: First, there was a range of product launches and inflows into non-market-cap vehicles, including strategic beta; second, by design these often have less market exposure than traditional market-cap index approaches, which meant some of these held up better than the market. Such a short-lived downturn is not conclusive, but it was interesting that demand for strategic beta showed some resilience in the face of that turbulence.

More Products and More Competition

Six new strategic-beta ETPs launched over the 18-month period, and our report now features 33 strategic-beta ETPs in Australia. The new launches are listed in Exhibit 35. Our analysts also publish forward-looking Morningstar Analyst Ratings on 11 out of 33 strategic-beta ETPs, notably adding coverage in 2018 of BetaShares FTSE RAFI US 1000 ETF QUS, iShares Edge MSCI World Multifactor ETF WDMF, and SPDR MSCI World Quality Mix QMIX. We dropped coverage of ETFS S&P 500 High Yield Low Volatility ETF ZYUS and ETFS S&P/ASX 300 High Yield Plus ETF ZYAU primarily owing to insufficient assets in these strategies.

Noteworthy is that some of the new launches compete more directly with rivals on both price and investment strategy. We have consistently commented that strategic-beta fees in Australia generally measure up well, and not much has changed in that regard. As might be expected, they universally cost more than the cheapest passive index funds but are far cheaper than more pricey active funds. But competition appears to have intensified, departing from the past when ETP providers in Australia looked for uncontested hunting grounds. Now, BetaShares Global Quality Leaders ETF QLTQ appears to take on VanEck Vectors MSCI World ex Australia Quality ETF QUAL; both offer exposure to global equities with a quality factor, but BetaShares charges 0.29%, while Van Eck charges 0.40%. Likewise, BetaShares Global Income Leaders ETF INCM challenges SPDR S&P Global Dividend ETF WDIV, while ETFS Global Core Infrastructure ETF CORE takes on Vanguard Global Infrastructure Index ETF VBLD and VanEck Vectors FTSE Global Infrastructure (Hedged) ETF IFRA (the latter two aren't strategic beta, but all three strategies focus on infrastructure stocks). The most expensive new launch (and indeed one of the most expensive ETFs we've seen) was VanEck Vectors China New Economy ETF CNEW, which charges an annual fee of 0.95%. However, it invests in China, where

access costs are typically higher. iShares China Large-Cap ETF IZZ and VanEck Vectors ChinaAMC CSI 300 ETF CETF are passive investments into China and China A-shares, and they charge 0.74% and 0.72%, respectively—cheaper than CNEW, but not enormously so.

The assets streaming into ETPs, especially strategic beta, may have motivated fund managers to risk direct competition for a share of the potentially larger spoils. Meanwhile, the increasing build-out of products leaves fewer unoccupied niches, leaving managers with the choice of either backing down or going into direct competition. Many of the factors seen as credible by academic researchers now have ETPs that seek to exploit those factors. For example, there are ETPs that employ factors including quality, fundamentals, value, low volatility, and momentum. It's worth noting that some of these factors are employed as part of a multifactor strategy, and indeed multifactor vehicles made up a chunk of the launches in recent years.

Exhibit 35 Strategic-Beta ETPs in Australia

| Strategic-Beta ETPs | Ticker | Fee % | Strategic-Beta Group | AUM (USD Mil) | 12-Month Flows (USD Mil) | Inception Date |
|--|--------|-------|----------------------|---------------|--------------------------|----------------|
| VanEck Vectors China New Economy ETF | CNEW | 0.95 | Multifactor | 6.9 | 6.9 | 11/8/18 |
| BetaShares Global Quality Leaders ETF | QLTY | 0.29 | Quality | 3.0 | 3.2 | 11/4/18 |
| BetaShares Global Income Leaders ETF | INCM | 0.39 | Dividend | 0.8 | 0.8 | 10/19/18 |
| BetaShares Aus Inv Grd Corp Bd ETF | CRED | 0.22 | Fixed Income | 77.0 | 75.3 | 5/31/18 |
| VanEck Vectors MSCI Mltfac EmMkts Eq ETF | EMKT | 0.69 | Multifactor | 7.3 | 8.3 | 4/10/18 |
| ETFS Global Core Infrastructure ETF | CORE | 0.45 | Risk-Oriented | 4.2 | 2.5 | 9/19/17 |
| VanEck Vectors Australian Corp Bd+ ETF | PLUS | 0.32 | Fixed Income | 172.3 | 3.7 | 5/9/17 |
| ETFS Morningstar Global Technology ETF | TECH | 0.45 | Quality | 48.9 | 29.0 | 4/7/17 |
| iShares Edge MSCI Australia Mini Vol ETF | MVOL | 0.30 | Risk-Oriented | 2.2 | -2.7 | 10/11/16 |
| iShares Edge MSCI Australia Mltfctr ETF | AUMF | 0.30 | Multifactor | 8.9 | 4.8 | 10/11/16 |
| iShares Edge MSCI World Minimum Vol ETF | WVOL | 0.30 | Risk-Oriented | 21.6 | 13.1 | 10/11/16 |
| iShares Edge MSCI World Multifactor ETF | WDMF | 0.35 | Multifactor | 121.1 | 120.0 | 10/11/16 |
| BetaShares WisdomTree Europe ETF-Ccy Hdg | HEUR | 0.10 | Dividend | 27.6 | -6.3 | 5/10/16 |
| BetaShares WisdomTree Japan ETF-Ccy Hdg | HJPN | 0.10 | Dividend | 37.5 | -6.2 | 5/10/16 |
| VanEck Vectors S&P/ASX Franked Div ETF | FDIV | 0.35 | Dividend | 4.4 | 1.8 | 4/29/16 |
| SPDR MSCI World Quality Mix | QMIX | 0.40 | Multifactor | 7.0 | 1.9 | 9/11/15 |
| VanEck Vectors Morningstar Wide Moat ETF | MOAT | 0.49 | Quality | 48.6 | 10.1 | 6/24/15 |
| ETFS S&P 500 High Yield Low Volatil ETF | ZYUS | 0.35 | Dividend | 38.9 | -1.9 | 6/10/15 |
| ETFS S&P/ASX 300 High Yield Plus ETF | ZYAU | 0.35 | Other | 53.5 | 29.0 | 6/10/15 |
| VanEck Vectors Small Coms Masters ETF | MVS | 0.49 | Dividend | 38.6 | -8.1 | 5/26/15 |
| Russell Inv Australian Rspnb Inv ETF | RARI | 0.45 | Dividend | 66.9 | 26.7 | 4/1/15 |
| BetaShares FTSE RAFI US 1000 ETF | QUS | 0.30 | Fundamentals | 25.1 | -2.5 | 12/17/14 |
| VanEck Vectors MSCI Wld ex Aus Qlty ETF | QUAL | 0.40 | Quality | 306.2 | 80.9 | 10/29/14 |
| VanEck Vectors Australian Equal Wt ETF | MVW | 0.35 | Other | 429.9 | 167.6 | 3/4/14 |
| UBS IQ Morningstar Australia Div Yld ETF | DIV | 0.30 | Dividend | 5.7 | -13.3 | 1/14/14 |
| SPDR S&P Global Dividend ETF | WDIV | 0.50 | Dividend | 130.9 | 22.1 | 11/1/13 |
| BetaShares FTSE RAFI Australia 200 ETF | QOZ | 0.30 | Fundamentals | 150.6 | -65.0 | 7/10/13 |
| UBS IQ Morningstar Australia Quality ETF | ETF | 0.30 | Quality | 5.4 | -1.8 | 10/17/12 |
| BetaShares Agriculture ETF CcyHgd(Synth) | QAG | 0.69 | Commodity | 2.2 | 0.9 | 11/30/11 |
| Vanguard Australian Shares High Yld ETF | VHY | 0.25 | Dividend | 715.4 | 70.1 | 5/23/11 |
| iShares S&P/ASX Dividend Opps ETF | IHD | 0.30 | Dividend | 145.7 | -23.1 | 12/6/10 |
| SPDR MSCI Australia Sel Hi Div Yld ETF | SYI | 0.35 | Dividend | 96.8 | -27.4 | 9/28/10 |
| Russell Inv High Dividend Aus Shrs ETF | RDV | 0.34 | Dividend | 174.3 | -4.3 | 5/14/10 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/2018.

Types of Strategic-Beta ETPs in Australia

Dividend-skewed products retain their popularity but no longer dominate to the degree we've observed previously. Dividend vehicles account for \$1.5 billion, or 50% of strategic-beta assets. Recall that dividend ETPs accounted for 89% of strategic-beta assets in June 2015. While net flows to dividend products were positive over calendar-year 2018, some individual products experienced substantial outflows. This was off the back of weaker performance from high-dividend-paying stocks and a proliferation of alternative options. Meanwhile, the launches of and flows into other strategic-beta approaches saw the dominance of dividends continue to decline, in a relative sense.

The next largest grouping was the "other" category, which was dominated by a single VanEck strategy that employs an equal-weighting approach, while quality-skewed strategic-beta ETPs also featured prominently.

Looking at the asset class is as revealing as what factor is favored. International-equity strategic-beta approaches have grown in number and popularity. There are now 16 international-equity vehicles that account for \$836 million, or 28% of the strategic-beta ETP market—roughly double the 13% we reported as of June 2016.

The two products with the largest inflows in 2018 were VanEck Vectors Australian Equal Weight ETF MVW, which gathered \$168 million, and iShares Edge MSCI World Multifactor ETF, which took in \$120 million. Looking at the top vehicles by funds under management, greater variety has crept in, with the top five including two dividend strategies, one focused on quality, one equal-weighting approach, and a fixed-income vehicle. Meanwhile, other funds that employ similar factors languish at the bottom of the list. This suggests that while success may depend in the short run on whether particular factors are in vogue, in the long run the individual investment strategy is crucial, along with its cost and a fund manager's ability to explain the product benefits to investors.

China

The 14 China-domiciled strategic-beta ETPs' assets grew sharply by 56% in 2018 along with the country's overall ETP market (49% growth in AUM), putting total assets at \$961 million. Assets from the four new products launched (a total AUM of \$294 million as of year-end 2018) during the year contributed to most of the asset growth in strategic-beta ETPs in China and accounted for 31% of the total strategic-beta fund size at the end of 2018.

The increase in assets under management for strategic-beta ETPs in China was concentrated in dividend- and value-oriented products; two of the four new launches belonged to these categories. Dividend-oriented products maintained their top market share position at 56%, followed by value-oriented products with a 15% market share.

Exhibit 36 Market Share by Strategic-Beta Group in China

| Strategic-Beta Group | 12/2017 | | 12/2018 | |
|----------------------|---------------|-------------|---------------|-------------|
| | AUM (USD Mil) | % of Assets | AUM (USD Mil) | % of Assets |
| Dividend | 361 | 59 | 538 | 56 |
| Value | 45 | 7 | 141 | 15 |
| Fundamentals | 24 | 4 | 87 | 9 |
| Quality | 129 | 21 | 83 | 9 |
| Risk-Oriented | 0 | 0 | 81 | 8 |
| Other | 34 | 6 | 18 | 2 |
| Growth | 24 | 4 | 13 | 1 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Hong Kong

Hong Kong-domiciled strategic-beta ETPs grew 29% during 2018 in terms of assets under management to \$435 million. This compares with the 14% drop in the overall ETP market. The key contributor, albeit off a small base, was Ping An of China CSI HK Dividend ETF, whose AUM grew to \$106 million from \$16 million a year ago. In the past 18 months, three new strategic-beta ETPs were launched in Hong Kong; all were listed in the final quarter of 2018, putting the total number of strategic-beta ETPs at 17.

The ongoing charges levied by locally domiciled strategic-beta ETPs ranged from 0.35% to 3.57%, for an asset-weighted average of 0.93%. This compared with the 1.70% charged by actively managed funds within the Hong Kong equity category and the 0.16% charged by non-strategic-beta Hong Kong equity ETPs.

India

The Indian strategic-beta ETP market was slightly livelier at this review as two new strategic-beta ETPs were launched during the past 18 months, with one tracking a low-volatility index and the other tracking a quality-oriented index. Nonetheless, the Indian strategic-beta ETP market remained small at \$8 million, or 0.1% of the overall ETP market, and saw a decline in AUM of 15% during 2018. This is contrary to the overall ETP market trend where overall AUM grew 32%. This strong growth was contributed mainly to inflows into SBI-ETF Nifty 50 and CPSE ETF.

Reliance Nippon Life Asset Management, which managed two ETPs that accounted for 83% of strategic-beta ETP assets in our previous report, saw its market share shrink to 30%. SBI Funds Management's newly launched SBI-ETF Quality now occupies 30% of the strategic-beta ETP market.

Japan

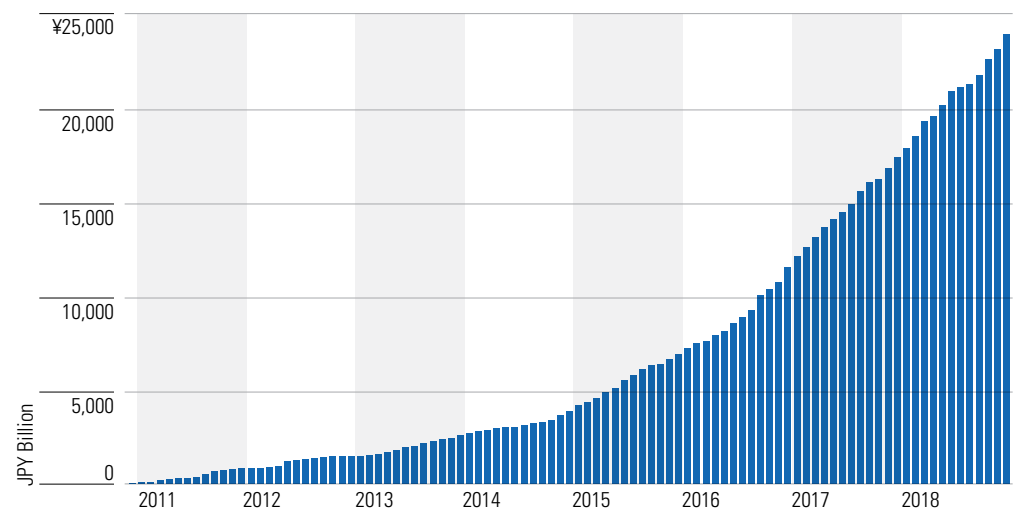
The Bank of Japan remained the biggest driving force behind the overall Japanese ETP market as well as the strategic-beta ETP subset, albeit at a more moderate growth rate, given a much larger base. The bank's steady purchase of ETFs at JPY 6 trillion a year (which has doubled since July 2016 as part of its monetary stimulus) has fueled the overall ETP market. In 2018, the Bank of Japan piled

in another JPY 6.5 trillion (or \$59 billion) into the ETF market. As of Dec. 31, 2018, it held JPY 23.5 trillion worth of ETF shares (stated at cost, according to the Bank of Japan; or \$215 billion). This amounted to about 70% of the total assets under management in the ETP market in Japan.

In August 2018, the Bank of Japan altered the distribution of its annual ETF purchase, where it shifted its purchasing power into buying ETFs tracking the Tokyo Stock Price Index (to JPY 4.2 trillion from JPY 2.7 trillion) from ETFs tracking any of the three indexes—TOPIX, Nikkei 225, and JPX-Nikkei Index 400 (to JPY 1.5 trillion from JPY 3 trillion). This change has also contributed to the slower growth in the Japanese strategic-beta ETP space as compared with prior years, and this will be more apparent in the coming years.

The Bank of Japan maintained the same JPY 300 million purchase target for ETFs designed specially to home in on firms that are proactively making investments in physical and human capital. The Bank of Japan has purchased JPY 809 billion (stated at cost; or \$7.4 billion) worth of these types of ETFs since April 2016. Some of these ETFs would fall under our strategic-beta definition and are generally classified under the "quality" or "other" strategic-beta groups.

Exhibit 37 Aggregate ETF Purchases by the Bank of Japan



Source: Bank of Japan, Morningstar Research. Data as of 6/30/17.

In 2018, the overall Japanese ETP market grew 12% in total assets, to \$305.9 billion. Meanwhile, the strategic-beta ETPs grew 11% to \$16.3 billion, roughly in line with the growth of the overall market. By our count, there were 24 strategic-beta ETPs domiciled in Japan at the end of 2018, the same as 12 months ago. ETPs tracking the JPX-Nikkei Index 400 accounted for the majority of the assets under management within the quality strategic-beta group. Quality-oriented strategies represented 85% (\$13.8 billion) of the aggregate assets under management in strategic-beta ETPs in

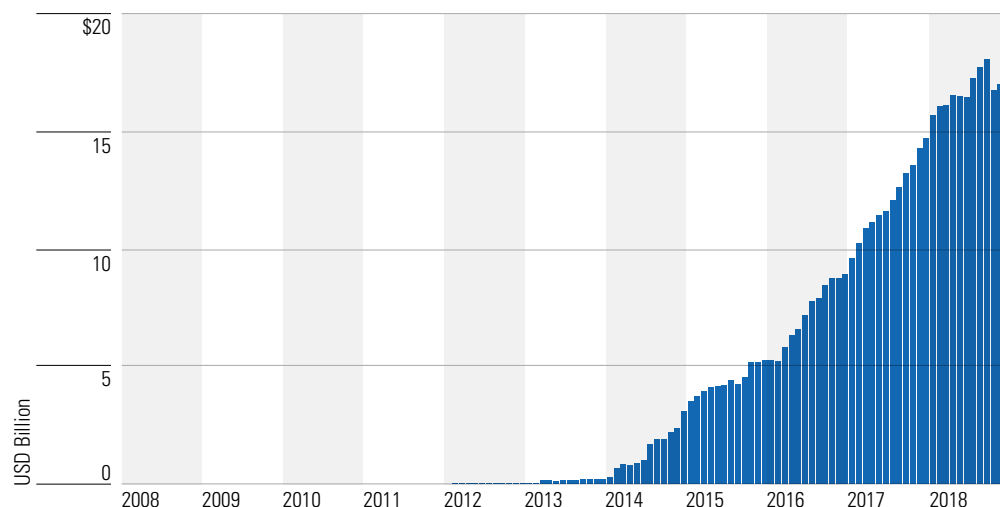
Japan. The largest strategic-beta ETP in Japan, the \$5.8 billion NEXT FUNDS JPX-Nikkei Index 400 ETF, also hails from the quality strategic-beta group, and it increased by 12% in calendar-year 2018.

Exhibit 38 Market Share by Strategic-Beta Group in Japan

| Strategic-Beta Group | 12/2017 | | 12/2018 | |
|----------------------|---------------|-------------|---------------|-------------|
| | AUM (USD Mil) | % of Assets | AUM (USD Mil) | % of Assets |
| Quality | 12,302 | 84 | 13,830 | 85 |
| Dividend | 1,508 | 10 | 1,801 | 11 |
| Other | 755 | 5 | 500 | 3 |
| Risk-Oriented | 123 | 1 | 131 | 1 |
| Fundamentals | 28 | 0 | 23 | 0 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Exhibit 39 Japanese Strategic-Beta ETP Assets



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Malaysia

Malaysia remained home to two dividend ETPs. Total assets under management in these two ETPs grew 16% to \$30 million as of year-end 2018, mainly driven by net inflows into the strategy with Southeast Asia equity exposure while net outflows were noted from the strategy with a narrower Malaysia-only equity exposure. The overall ETP market, on the other hand, shrunk slightly by 4%, with net outflows mainly from the only bond ETF in the market. This puts strategic-beta ETPs at 6.6% of the overall Malaysia ETP market.

New Zealand

New Zealand's ETP market has seen spectacular growth, roughly tripling in size since 2015, though it corrected modestly in the fourth quarter of 2018. Strategic-beta ETPs shared in this growth through 2015, 2016, and 2017, but fund sizes for strategic-beta ETPs in New Zealand declined over the course of 2018. There is only one ETP provider in New Zealand—Smartshares—and the shop offers four strategic-beta ETPs. That's a relatively small number, so it's difficult to draw clear trends. Three of the four vehicles—Smartshares Australian Dividend ASD, Smartshares NZ Dividend DIV, and Smartshares US Large Growth USG—saw significant declines in their fund sizes. Smartshares US Large Value USV saw its growth continue. It's worth noting that product expansion has come to a halt across both strategic-beta ETPs and the entire ETP market. Morningstar's database shows no new ETPs have launched in New Zealand since 2015. That leaves 23 ETPs in the market, four of which we classify as strategic-beta. The four products make up 5.6% of the total ETP market, which has \$1.6 billion in assets. That has shrunk from last year's 12% share. One strategic-beta ETP, an equal-weighted strategy, has been terminated since our last report.

Singapore

As of year-end 2018, there were four Singapore-domiciled strategic-beta ETPs, with a total AUM of \$164 million, translating to a 27% growth from a year ago, attributable to assets from new launches. They were all dividend strategies and accounted for 8.9% of the overall ETF market in Singapore. In the past 18 months, two out of the three new products launched in the Singaporean ETP market were strategic-beta products.

In addition, two cross-listed/cross-market strategic-beta ETPs were available in Singapore at the end of 2018, both were dividend strategies.

South Korea

South Korea continued to lead the way in terms of the number of strategic-beta ETPs in the Asia-Pacific region. The 76 locally listed strategic-beta ETPs (up from 61 a year ago) were spread across all 11 strategic-beta groups with a total asset size of \$1.8 billion.

Assets under management in strategic-beta ETPs grew 17%, slightly faster than the 11% growth in the overall ETP market, mainly owing to the 15 newly launched strategic-beta ETPs in the past 12 months with a recorded fund size of \$256 million in total. The fragmented nature of the South Korea strategic-beta ETP market remained as a key market feature. The average size of strategic-beta ETPs stood at \$23.5 million, and 39 out of 76 ETPs had less than \$10 million of assets under management.

Within the various strategic-beta groups, dividend strategies were the most popular type of strategic-beta ETPs in South Korea, contributing 43% of the total assets as of year-end 2018, followed by strategies belonging to our catchall "other" strategic-beta group which had a market share of 18%. The 15 newly launched strategic-beta ETPs were generally factor-based, exploiting one or more factors.

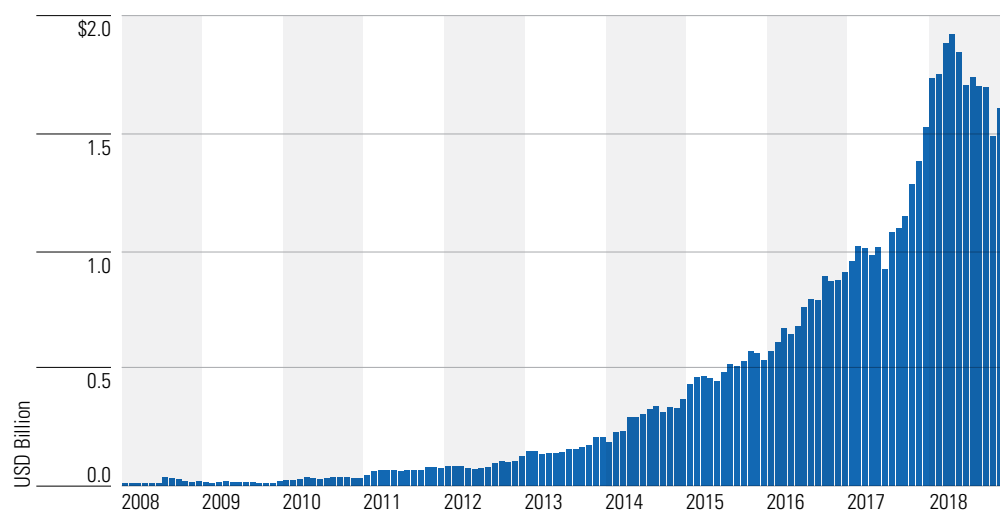
Fees levied by strategic-beta ETPs in South Korea are fairly competitive. For example, strategic-beta ETPs within the large-cap equity category charge an asset-weighted average expense ratio of 0.33%. That is nearly twice the fee taken by other large-cap equity ETPs in South Korea (0.14%), but it is a fraction of the 1.39% (weighted average of the oldest share classes) charge for actively managed funds in the same category.

Exhibit 40 Market Share of Top-5 Strategic-Beta Groups in South Korea

| Strategic-Beta Group | 12/2017 | | 12/2018 | |
|----------------------|---------------|-------------|---------------|-------------|
| | AUM (USD Mil) | % of Assets | AUM (USD Mil) | % of Assets |
| Dividend | 781 | 51 | 765 | 43 |
| Other | 186 | 12 | 322 | 18 |
| Value | 117 | 8 | 207 | 12 |
| Risk-Oriented | 230 | 15 | 132 | 7 |
| Multifactor | 51 | 3 | 105 | 6 |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Exhibit 41 South Korea: Strategic-Beta ETP Assets



Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Taiwan

The Taiwan-domiciled ETP market was one of the fastest-growing markets in the Asia-Pacific region. In particular, the overall ETP market recorded a very strong 106% growth in AUM in 2018 with 44 new ETFs launched, of which 28 offered fixed-income exposures. Meanwhile, Taiwan's strategic-beta ETP market grew more modestly during the same period, with a 36% growth rate. The eight strategic-beta ETPs had a collective AUM of \$917 million, most of them (six) offered Taiwan large-cap equity exposures.

Of these eight strategic-beta ETPs, seven were launched in the past 18 months. Five of the new ETPs were dividend-focused, while one was a low-volatility strategy and the other was a momentum strategy. However, most of the assets in the strategic-beta ETP space resided in Taiwan's first strategic-beta ETP, Yuanta/P-shares Taiwan Dividend Plus ETF, which had assets of \$595 million, or 65% market share, as of year-end 2018.

Thailand

ThaiDex SET High Dividend ETF remained the only strategic-beta ETP in the Thailand ETP market. The fund had assets under management of \$3.3 million as of December 2018, a 75% increase from a year ago, mainly owing to market value movements. This remained a very small portion of the overall ETP market at 0.7%.

Emerging (Strategic-Beta) Markets

There are fledgling markets for strategic-beta ETPs in places like Mexico and South Africa. Given the nature of these markets, information about these products is often lacking, local investors are generally unfamiliar with ETPs, and they are more unfamiliar yet with the concept of strategic beta. As these markets continue to develop, both from a fundamental and asset-management/investment perspective, we expect them to ultimately look to mimic the developments witnessed among more-mature markets. Specifically, we would expect to see a gradual adoption of the ETP vehicle and more-complex strategic-beta-type exposures.

Exhibit 42 ETFs From Emerging (Strategic-Beta) Markets

| Name | Domicile | Ticker | Inception Date | AUM (USD Mil) | Strategic-Beta Group |
|--|--------------|----------|----------------|---------------|----------------------|
| MEXTRAC | Mexico | MEXTRAC | 8/27/09 | 319.3 | Dividend |
| STANLIB SWIX 40 ETF | South Africa | STANSX | 10/5/10 | 128.7 | Other |
| Satrix Divi Plus ETF | South Africa | STXDIV | 8/30/07 | 111.4 | Dividend |
| Satrix RAFI 40 ETF | South Africa | STXRAF | 10/16/08 | 66.8 | Fundamentals |
| Satrix Swix Top 40 ETF | South Africa | STXSWX | 4/10/06 | 28.5 | Other |
| CoreShares S&P SA Dividend Arst ETF | South Africa | DIVTRX | 4/14/14 | 20.0 | Dividend |
| CoreShares S&P Global Divitrax ETF | South Africa | GLODIV | 2/22/18 | 19.5 | Dividend |
| It Now IDIV Index Fund ETF | Brazil | DIV011 | 1/3/12 | 18.5 | Dividend |
| Sygnia Itrix SWIX 40 ETF | South Africa | SYGSW4 | 10/30/17 | 13.4 | Other |
| iShares COLRISK | Colombia | ICOLRISK | 10/27/16 | 13.0 | Risk-Oriented |
| Satrix Quality South Africa ETF | South Africa | STXQUA | 9/26/17 | 10.9 | Quality |
| NewFunds S&P GIVI SA Top 50 ETF | South Africa | GIVISA | 6/23/08 | 5.5 | Multifactor |
| iShares MSCI Mexico Risk TRAC | Mexico | MEXRISK | 9/24/14 | 5.1 | Risk-Oriented |
| NewFunds S&P GIVI SA Financial 15 ETF | South Africa | GIVFIN | 6/15/09 | 3.1 | Multifactor |
| Smartshares SMARTRC 14 ETF | Mexico | SMARTRC | 4/1/14 | 2.8 | Fundamentals |
| NewFunds S&P GIVI SA Industrial 25 ETF | South Africa | GIVIND | 6/15/09 | 2.4 | Multifactor |
| NewFunds S&P GIVI SA Resource 15 ETF | South Africa | GIVRES | 6/15/09 | 2.2 | Multifactor |
| iShares MSCI Mexico Momentum TRAC | Mexico | MEXMTUM | 9/24/14 | 1.4 | Momentum |
| NewFunds SWIX 40 ETF | South Africa | NFSWIX | 1/26/12 | 1.1 | Other |

Source: Morningstar Direct, Morningstar Research. Data as of 12/31/18.

Appendix

The Morningstar Analyst Rating

As the indexes underpinning strategic-beta ETPs become increasingly nuanced, looking to infuse elements of an active manager's thinking into an index, investors' collective due-diligence burden will continue to increase commensurately. To assist investors in this process, Morningstar has assigned Analyst Ratings to 129 strategic-beta ETPs worldwide since November 2016. These funds collectively held more than \$570 billion in investors' money as of Dec. 31, 2018—representing 72% of the total amount invested in global strategic-beta ETPs.

The Morningstar Analyst Rating—which follows a Gold, Silver, Bronze, Neutral, and Negative scale—is forward-looking. It expresses our analysts' conviction in a fund's ability to beat its peers after accounting for fees and risk over a market cycle.

We've been assigning Analyst Ratings to mutual funds for more than five years, but in November 2016 we extended the ratings to ETFs as well. (Note: We have conducted qualitative, forward-looking analysis of ETFs for over eight years, but we had not assigned ratings to ETFs until more recently.) Using the Analyst Rating, we believe investors can make more-sound decisions about which ETFs to choose or avoid.

Because the Analyst Ratings we assign to ETFs follow the same methodology we use to assign ratings to traditional mutual funds, it should also be easier for investors to compare ETFs against relevant mutual funds. That practice has grown more commonplace in recent years as ETFs have become more widely available and the popularity of low-cost, passive investing has taken hold.

The purpose of Morningstar's qualitative, analyst-driven research on funds is to identify those funds that we believe should be able to outperform a relevant peer group, within the context of the level of risk taken, over a market cycle.

The pillars of our analysis are the same whether we are rating a passive ETF or an actively managed fund—People, Process, Performance, Parent, and Price. However, their relative impact on our overall assessment of a fund differs somewhat when it comes to analyzing and rating ETFs.

Obviously, keeping costs—both explicit (the ETF's expense ratio) and implicit (that is, the cost of portfolio turnover)—at a minimum is paramount in the context of running an index-tracking fund. As such, it should come as no surprise that the top-rated ETFs we analyze are not only among the lowest-cost options in their Morningstar Categories when compared against their actively managed peers, but also against other passive funds.

Although costs are critical, they are just one component of our holistic assessment of ETFs. We also closely scrutinize an ETF's performance relative to peers in its category. And, as part of our Process Pillar assessment, we carefully analyze an ETF's underlying benchmark to understand how the portfolio is built and maintained, as well as the techniques that the ETF's managers employ to track the index with precision.

Stewardship also plays a vital role in our analysis. We tend to favor parent firms that put investors' interests ahead of commercial goals and that align fund managers' incentives accordingly. Of course, the skills and experience of the people managing the ETF are an important factor in our analysis. In the management of ETFs, every 0.01% of performance counts, so it is vital to have a seasoned team in place. Thus, we evaluate these matters as part of our People Pillar assessment.

In sum, we reserve our Morningstar Medalist ratings for those low-cost ETFs that we believe will tightly track a sensibly constructed index during a long time frame. We favor ETFs backed by experienced managers and sponsored by firms that are good stewards of investors' capital. And we do so because we believe these attributes are likeliest to translate to outperformance when compared with a relevant peer group over a market cycle.

Exhibit 43 contains our ratings for the 129 strategic-beta ETPs currently covered by our global manager research team. This represents just a fraction of the nearly 500 ETPs that our analysts have rated to date.

Exhibit 43 Strategic-Beta ETPs With Morningstar Analyst Ratings

| Name | Domicile | Ticker | Strategic-Beta Group | AUM (USD Mil) | Morningstar Analyst Rating | Pillars (+ Positive ● Neutral - Negative) | | | | |
|--|-----------|--------|----------------------|------------------|-------------------------------|---|--------|-------------|-------|---------|
| | | | | | | Parent | People | Performance | Price | Process |
| BetaShares FTSE RAFI Australia 200 ETF | Australia | QOZ | Fundamentals | 150.62 | Bronze | ● | ● | ● | + | + |
| BetaShares FTSE RAFI US 1000 ETF | Australia | QUS | Fundamentals | 25.08 | Bronze | ● | ● | ● | + | + |
| iShares Edge MSCI World Multifactor ETF | Australia | WDMF | Multi-Factor | 121.09 | Bronze | + | + | ● | + | + |
| iShares S&P/ASX Dividend Opps ETF | Australia | IHD | Dividend | 145.72 | Neutral | + | + | - | + | - |
| Russell Inv High Dividend Aus Shrs ETF | Australia | RDV | Dividend | 174.28 | Bronze | ● | ● | ● | + | ● |
| SPDR MSCI Australia Sel Hi Div Yld ETF | Australia | SYI | Dividend | 96.77 | Bronze | ● | + | ● | + | ● |
| SPDR S&P Global Dividend ETF | Australia | WDIV | Dividend | 130.88 | Neutral | ● | + | ● | + | ● |
| VanEck Vectors Australian Equal Wt ETF | Australia | MVW | Other | 429.94 | Bronze | ● | ● | + | + | ● |
| VanEck Vectors MSCI Wld ex Aus Qlty ETF | Australia | QUAL | Quality | 306.18 | Bronze | ● | ● | + | + | + |
| Vanguard Australian Shares High Yld ETF | Australia | VHY | Dividend | 715.36 | Bronze | + | + | - | + | ● |
| Invesco FTSE RAFI Canadian ETF | Canada | PXC | Fundamentals | 175.32 | Bronze | ● | + | ● | + | + |
| Invesco FTSE RAFI US ETF | Canada | PXU.F | Fundamentals | 78.40 | Bronze | ● | + | ● | + | + |
| Invesco FTSE RAFI US ETF II CAD | Canada | PXS | Fundamentals | 21.67 | Bronze | ● | + | ● | + | + |
| iShares Canadian Fundamental ETF Comm | Canada | CRQ | Fundamentals | 105.28 | Neutral | + | + | ● | ● | + |
| iShares Canadian Select Dividend ETF | Canada | XDV | Dividend | 944.91 | Neutral | + | + | ● | + | - |
| iShares Edge MSCI Min Vol Canada ETF | Canada | XMV | Risk-Oriented | 50.13 | Silver | + | + | ● | + | + |
| iShares Edge MSCI Min Vol EAFE ETF | Canada | XMI | Risk-Oriented | 186.55 | Silver | + | + | + | + | + |
| iShares Edge MSCI Min Vol Emerg Mkts ETF | Canada | XMM | Risk-Oriented | 65.68 | Silver | + | + | ● | + | + |
| iShares Edge MSCI Min Vol Global ETF | Canada | XMW | Risk-Oriented | 79.59 | Silver | + | + | + | + | + |
| Vanguard FTSE Canadian High Div Yld ETF | Canada | VDY | Dividend | 306.89 | Neutral | + | + | ● | + | - |
| iShares DivDAX (DE) | Germany | EXSB | Dividend | 594.36 | Negative | + | + | ● | ● | - |
| iShares STOXX Global Sel Div 100 (DE) | Germany | ISPA | Dividend | 1,183.57 | Neutral | + | + | ● | + | ● |
| Invesco FTSE RAFI US 1000 ETF | Ireland | PRUS | Fundamentals | 309.52 | Bronze | ● | + | + | + | + |
| Invesco S&P 500 High Div LowVol ETF | Ireland | HDLV | Dividend | 258.58 | Bronze | ● | + | + | + | ● |
| iShares Dev Mkts Prpty Yld ETF USD Dist | Ireland | IWDP | Dividend | 2,769.97 | Silver | + | + | + | + | + |
| iShares Edge MSCI EM Mini Vol ETF \$ Acc | Ireland | EMMV | Risk-Oriented | 597.00 | Silver | + | + | ● | + | + |
| iShares Edge MSCI Eurp Mini Vol ETF \$ Acc | Ireland | MVEU | Risk-Oriented | 1,181.81 | Silver | + | + | + | + | + |
| iShares Edge MSCI Eurp Mltfctr ETF \$ Acc | Ireland | IFSE | Multi-Factor | 331.47 | Bronze | + | + | + | + | + |
| iShares Edge MSCI USA Mltfct ETF USD Acc | Ireland | IFSU | Multi-Factor | 80.11 | Bronze | + | + | ● | + | + |
| iShares Edge MSCI USA Val Fac ETF \$ Acc | Ireland | IUVL | Value | 632.41 | Bronze | + | + | ● | + | + |
| iShares Edge MSCI Wld Min Vol ETF \$ Acc | Ireland | MVOL | Risk-Oriented | 2,670.72 | Silver | + | + | + | + | + |
| iShares Edge MSCI Wld Mltfct ETF \$ Acc | Ireland | IFSW | Multi-Factor | 439.97 | Bronze | + | + | + | + | + |
| iShares Edge MSCI Wld Qual Fctr ETF \$ Acc | Ireland | IWQU | Quality | 1,054.28 | Bronze | + | + | + | + | + |
| iShares Edge S&P 500 Min Vol ETF USD Acc | Ireland | SPMV | Risk-Oriented | 1,167.38 | Silver | + | + | + | + | + |
| iShares Euro Dividend ETF EUR Dist | Ireland | IDVY | Dividend | 897.64 | Neutral | + | + | + | ● | ● |
| iShares European Prpty Yld ETF EUR Dist | Ireland | IPRP | Dividend | 1,376.30 | Bronze | + | + | + | + | ● |
| iShares UK Dividend ETF GBP Dist | Ireland | IUKD | Dividend | 764.60 | Negative | + | + | - | + | - |
| iShares US Property Yield ETF USD Dist | Ireland | IDUP | Dividend | 618.65 | Bronze | + | + | ● | + | + |
| SPDR S&P Euro Dividend Aristocrats ETF | Ireland | SPYW | Dividend | 1,305.62 | Bronze | ● | + | + | + | + |
| SPDR S&P US Dividend Aristocrats ETF | Ireland | UDVD | Dividend | 2,310.07 | Silver | ● | + | + | + | + |
| UBS ETF Fact MSCI USA Qual USD A dis | Ireland | | Quality | 130.72 | Bronze | ● | + | ● | + | + |
| UBS ETF MSCI USA Sel Fac Mix USD A dis | Ireland | USFMD | Multi-Factor | 555.94 | Bronze | ● | + | ● | + | + |
| Vanguard FTSE All-World High Div Yld ETF | Ireland | VHYD | Dividend | 633.35 | Bronze | + | + | ● | + | + |
| X MSCI World Quality ETF 1C | Ireland | | Quality | 160.60 | Bronze | ● | ● | + | + | + |
| X S&P 500 Equal Weight ETF 1C | Ireland | XDEW | Other | 495.26 | Bronze | ● | ● | + | ● | ● |

Exhibit 43 Strategic-Beta ETPs With Morningstar Analyst Ratings (Continued)

| Name | Domicile | Ticker | Strategic-Beta Group | AUM (USD Mil) | Morningstar Analyst Rating | Pillars (+ Positive ● Neutral - Negative) | | | | |
|--|---------------|--------|----------------------|------------------|-------------------------------|---|--------|-------------|-------|---------|
| | | | | | | Parent | People | Performance | Price | Process |
| Amundi IS JPX-Nikkei 400 ETF-C JPY | Luxembourg | JPNY | Quality | 115.59 | Bronze | ● | + | ● | + | ● |
| Amundi IS MSCI Europe Quality Fctr ETF-C | Luxembourg | QCEU | Quality | 157.38 | Bronze | ● | + | ● | + | + |
| Lyxor JPX Nikkei 400 (DR) ETF C EUR | Luxembourg | JPX4 | Quality | 342.77 | Bronze | ● | + | ● | + | ● |
| Lyxor JPX Nikkei 400(DR)ETF DlyHdg C EUR | Luxembourg | JPXH | Quality | 105.64 | Bronze | ● | + | ● | + | ● |
| Lyxor JPX Nikkei 400(DR)ETF DlyHdg C GBP | Luxembourg | JPXX | Quality | 45.43 | Bronze | ● | + | ● | + | ● |
| Lyxor JPX Nikkei 400(DR)ETF DlyHdg C USD | Luxembourg | JPXU | Quality | 50.50 | Bronze | ● | + | ● | + | ● |
| Lyxor SG Global Qual Inc NTR ETF D EUR | Luxembourg | SGQI | Dividend | 110.56 | Negative | ● | + | - | + | - |
| X Stoxx Global Select Div 100 Swp ETF 1D | Luxembourg | DXSB | Dividend | 455.90 | Neutral | ● | ● | ● | + | ● |
| First Trust Large Cap Core AlphaDEX ETF | United States | FEX | Multi-Factor | 1,238.07 | Neutral | ● | ● | ● | ● | ● |
| First Trust Value Line Dividend ETF | United States | FVD | Dividend | 4,374.40 | Neutral | ● | ● | + | ● | ● |
| FlexShares iBoxx 3Yr Target Dur TIPS ETF | United States | TDTT | Fixed Income | 1,438.62 | Bronze | ● | ● | ● | + | + |
| FlexShares Quality Dividend ETF | United States | QDF | Dividend | 1,587.26 | Bronze | ● | ● | + | + | + |
| Goldman Sachs ActiveBeta EMkts Eq ETF | United States | GEM | Multi-Factor | 1,578.54 | Neutral | ● | ● | ● | + | ● |
| Goldman Sachs ActiveBeta Intl Eq ETF | United States | GSIE | Multi-Factor | 1,039.77 | Bronze | ● | ● | ● | + | + |
| Goldman Sachs ActiveBeta US LgCp Eq ETF | United States | GSLC | Multi-Factor | 3,659.39 | Bronze | ● | ● | ● | + | + |
| Invesco BuyBack Achievers ETF | United States | PKW | Other | 1,049.20 | Neutral | ● | + | + | ● | ● |
| Invesco Dynamic Large Cap Value ETF | United States | PWV | Value | 1,108.50 | Neutral | ● | + | + | ● | ● |
| Invesco Emerging Markets Sov Debt ETF | United States | PCY | Fixed Income | 3,596.16 | Neutral | ● | ● | ● | + | ● |
| Invesco FTSE RAFI Dev Mkts ex-US ETF | United States | PXF | Fundamentals | 1,322.21 | Bronze | ● | + | ● | + | + |
| Invesco FTSE RAFI US 1000 ETF | United States | PRF | Fundamentals | 4,834.02 | Bronze | ● | + | + | + | + |
| Invesco FTSE RAFI US 1500 Small-Mid ETF | United States | PRFZ | Fundamentals | 1,881.42 | Bronze | ● | + | + | + | + |
| Invesco Fundamental Hi Yld Corp Bd ETF | United States | PHB | Fixed Income | 818.57 | Neutral | ● | ● | ● | + | ● |
| Invesco S&P 500 Equal Weight ETF | United States | RSP | Other | 13,168.89 | Bronze | ● | + | + | + | ● |
| Invesco S&P 500 High Div Low Vol ETF | United States | SPHD | Dividend | 2,519.97 | Bronze | ● | + | + | + | ● |
| Invesco S&P 500 Low Volatility ETF | United States | SPLV | Risk-Oriented | 8,005.51 | Bronze | ● | + | + | + | + |
| Invesco S&P 500 Pure Growth ETF | United States | RPG | Growth | 2,001.69 | Neutral | ● | ● | + | + | ● |
| Invesco S&P 500 Pure Value ETF | United States | RPV | Value | 806.95 | Neutral | ● | ● | + | + | ● |
| Invesco S&P 500 Quality ETF | United States | SPHQ | Quality | 1,206.70 | Silver | ● | + | ● | + | + |
| Invesco S&P SmallCap Low Volatility ETF | United States | XSLV | Risk-Oriented | 1,289.78 | Bronze | ● | + | + | + | + |
| iShares Core S&P US Growth ETF | United States | IUSG | Growth | 5,464.21 | Silver | + | + | + | + | + |
| iShares Core S&P US Value ETF | United States | IUSV | Value | 4,717.85 | Silver | + | + | ● | + | + |
| iShares Edge MSCI Min Vol EAFE ETF | United States | EFAV | Risk-Oriented | 9,577.19 | Silver | + | + | + | + | + |
| iShares Edge MSCI Min Vol Emerg Mkts ETF | United States | EEMV | Risk-Oriented | 4,960.17 | Silver | + | + | + | + | + |
| iShares Edge MSCI Min Vol Global ETF | United States | ACWV | Risk-Oriented | 3,540.71 | Silver | + | + | + | + | + |
| iShares Edge MSCI Min Vol USA ETF | United States | USMV | Risk-Oriented | 18,887.14 | Silver | + | + | + | + | + |
| iShares Edge MSCI Multifactor EmMkts ETF | United States | EMGF | Multi-Factor | 269.28 | Neutral | + | + | ● | + | ● |
| iShares Edge MSCI Multifactor Intl ETF | United States | INTF | Multi-Factor | 926.92 | Bronze | + | + | ● | + | + |
| iShares Edge MSCI Multifactor USA ETF | United States | LRGF | Multi-Factor | 1,006.02 | Bronze | + | + | ● | + | + |
| iShares Edge MSCI USA Momentum Fctr ETF | United States | MTUM | Momentum | 8,014.79 | Silver | + | + | + | + | + |
| iShares Edge MSCI USA Quality Factor ETF | United States | QUAL | Quality | 6,714.52 | Silver | + | + | + | + | + |
| iShares Edge MSCI USA Value Factor ETF | United States | VLUE | Value | 3,445.73 | Bronze | + | + | ● | + | + |
| iShares Russell 1000 Growth ETF | United States | IWF | Growth | 38,591.99 | Bronze | + | + | + | + | + |
| iShares Russell 1000 Value ETF | United States | IWD | Value | 37,608.67 | Bronze | + | + | ● | + | + |
| iShares Russell 2000 Growth ETF | United States | IWO | Growth | 8,338.77 | Neutral | + | + | + | + | ● |
| iShares Russell 2000 Value ETF | United States | IWN | Value | 8,659.12 | Neutral | + | + | ● | + | ● |

Exhibit 43 Strategic-Beta ETPs With Morningstar Analyst Ratings (Continued)

| Name | Domicile | Ticker | Strategic-Beta Group | AUM (USD Mil) | Morningstar Analyst Rating | Pillars (+ Positive ● Neutral - Negative) | | | | |
|--|---------------|--------|----------------------|------------------|-------------------------------|---|--------|-------------|-------|---------|
| | | | | | | Parent | People | Performance | Price | Process |
| iShares Russell Mid-Cap Growth ETF | United States | IWP | Growth | 8,493.68 | Bronze | + | + | + | + | + |
| iShares Russell Mid-Cap Value ETF | United States | IWS | Value | 10,102.97 | Bronze | + | + | + | + | + |
| iShares S&P 500 Growth ETF | United States | IVW | Growth | 20,114.86 | Bronze | + | + | ● | + | + |
| iShares S&P 500 Value ETF | United States | IVE | Value | 14,747.33 | Bronze | + | + | ● | + | + |
| iShares S&P Mid-Cap 400 Growth ETF | United States | IJK | Growth | 6,825.72 | Bronze | + | + | + | + | + |
| iShares S&P Mid-Cap 400 Value ETF | United States | IJJ | Value | 5,509.56 | Bronze | + | + | + | + | + |
| iShares S&P Small-Cap 600 Growth ETF | United States | IJT | Growth | 5,258.67 | Bronze | + | + | + | + | + |
| iShares S&P Small-Cap 600 Value ETF | United States | IJS | Value | 5,385.77 | Bronze | + | + | + | + | + |
| iShares Select Dividend ETF | United States | DVY | Dividend | 16,675.67 | Neutral | + | + | + | + | ● |
| Schwab Fundamental Emerg Mkts Lg Co ETF | United States | FNDE | Fundamentals | 2,071.93 | Neutral | + | ● | - | + | ● |
| Schwab Fundamental Intl Lg Co ETF | United States | FNDF | Fundamentals | 3,697.48 | Bronze | + | ● | + | + | + |
| Schwab Fundamental US Large Company ETF | United States | FNDX | Fundamentals | 3,984.38 | Bronze | + | ● | + | + | + |
| Schwab Fundamental US Small Company ETF | United States | FNDA | Fundamentals | 2,804.64 | Bronze | + | ● | + | + | + |
| Schwab US Dividend Equity ETF | United States | SCHD | Dividend | 7,619.64 | Silver | + | ● | + | + | + |
| Schwab US Large-Cap Growth ETF | United States | SCHG | Growth | 5,831.65 | Silver | + | ● | + | + | + |
| Schwab US Large-Cap Value ETF | United States | SCHV | Value | 4,678.04 | Silver | + | ● | + | + | + |
| SPDR S&P Dividend ETF | United States | SDY | Dividend | 16,320.14 | Silver | ● | + | + | + | + |
| SPDR S&P International Dividend ETF | United States | DWX | Dividend | 739.33 | Negative | ● | + | - | + | - |
| Vanguard Dividend Appreciation ETF | United States | VIG | Dividend | 29,166.56 | Gold | + | + | + | + | + |
| Vanguard Growth ETF | United States | VUG | Growth | 32,400.58 | Silver | + | + | + | + | + |
| Vanguard High Dividend Yield ETF | United States | VYM | Dividend | 21,510.46 | Silver | + | + | + | + | + |
| Vanguard Intl Div Apprec ETF | United States | VIGI | Dividend | 857.28 | Bronze | + | + | ● | + | + |
| Vanguard Intl Hi Div Yld Idx ETF | United States | VYMI | Dividend | 878.27 | Bronze | + | + | ● | + | + |
| Vanguard Mega Cap Growth ETF | United States | MGK | Growth | 3,479.40 | Silver | + | + | + | + | + |
| Vanguard Mega Cap Value ETF | United States | MGV | Value | 2,014.76 | Silver | + | + | ● | + | + |
| Vanguard Mid-Cap Growth ETF | United States | VOT | Growth | 4,950.34 | Silver | + | + | ● | + | + |
| Vanguard Mid-Cap Value ETF | United States | VOE | Value | 7,876.00 | Silver | + | + | + | + | + |
| Vanguard S&P 500 Growth ETF | United States | VOOG | Growth | 2,071.79 | Bronze | + | + | + | + | + |
| Vanguard Small-Cap Growth ETF | United States | VBK | Growth | 7,281.84 | Silver | + | + | + | + | + |
| Vanguard Small-Cap Value ETF | United States | VBR | Value | 11,527.71 | Silver | + | + | + | + | + |
| Vanguard Value ETF | United States | VTV | Value | 41,408.40 | Silver | + | + | + | + | + |
| WisdomTree Emerging Markets High Div ETF | United States | DEM | Dividend | 1,980.04 | Neutral | ● | ● | ● | + | ● |
| WisdomTree Europe Hedged Equity ETF | United States | HEDJ | Dividend | 3,945.31 | Neutral | ● | ● | + | ● | ● |
| WisdomTree US High Dividend ETF | United States | DHS | Dividend | 831.08 | Neutral | ● | ● | ● | + | ● |
| WisdomTree US LargeCap Dividend ETF | United States | DLN | Dividend | 1,877.59 | Bronze | ● | ● | + | + | + |
| WisdomTree US MidCap Dividend ETF | United States | DON | Dividend | 3,012.28 | Bronze | ● | ● | + | + | + |
| WisdomTree US Quality Dividend Gr ETF | United States | DGRW | Dividend | 2,295.88 | Bronze | ● | ● | + | + | + |
| WisdomTree US SmallCap Dividend ETF | United States | DES | Dividend | 1,781.98 | Bronze | ● | ● | + | + | + |
| WisdomTree Yield Enhanced US Aggt Bd ETF | United States | AGGY | Fixed Income | 370.76 | Bronze | ● | ● | ● | + | + |

Source: Morningstar Direct. Data as of 12/31/18.

Definitions and New Morningstar Strategic-Beta and Index Attributes

Strategic beta—widely referred to as smart beta—refers broadly to a group of indexes and the exchange-traded products and other investment products that track them. Most seek to enhance returns or minimize risk relative to more-traditional benchmarks. Others seek to address oft-cited drawbacks of standard benchmarks such as the negative effect of contango in long-only commodity futures indexes and the overweighting of the most indebted issuers in market-value-weighted fixed-income benchmarks. These indexes may also aim to capture a specific factor or set of factors such as value, momentum, small size, low volatility, or quality.

Index selection and weighting methodologies can vary for different strategic-beta indexes that otherwise appear similar. These indexes can also employ some of the same selection or weighting methodologies as more-traditional benchmarks. Therefore, it is valuable to both recognize and distinguish strategic-beta indexes versus traditional benchmarks but also to understand the underlying index selection and weighting methodologies for both.

The goal of Morningstar's Strategic Beta and Index attribute data is to provide a more granular view of how indexes are constructed. Morningstar first introduced its strategic beta taxonomy in 2014; it aimed to provide additional detail on strategic-beta products through assignment of one or more Strategic Beta Attributes as well as a Strategic Beta Group. Our updated methodology replaces Strategic Beta Attributes with Index Selection and Index Weighting attributes for all eligible index-tracking products and uses a more descriptive list of Strategic Beta Groups for strategic-beta index-tracking products.

In addition to collecting Index Selection, Index Weighting, and Strategic Beta Group, Morningstar also has a Strategic Beta tag in some products. We define this as an indication that the index, or the investable product that tracks the index, follows a strategic-beta investment mandate. Strategic-beta products employ rules to exploit a specific list of factors in order to improve their return profile or alter their risk profile.

Below are general parameters and characteristics we use to recognize strategic-beta products:

- ▶ These benchmarks and the investable products that track them exploit many of the same "factors" (size, value, quality, momentum, and so on) or mitigate risk in a manner similar to active managers.
- ▶ This group represents a middle ground on the active-to-passive spectrum—deviating from a traditional strictly passive market portfolio but doing so in a rules-based, transparent, and relatively low-cost manner.
- ▶ Many have defined the space in the negative, including products tracking any benchmark that does not weight its constituents on the basis of their market capitalization.
- ▶ Per our definition, while most of the indexes' underlying investment products in this class are not market-cap-weighted, some are (for example, those that have style "tilts" that screen their investable universe for certain characteristics and subsequently weight constituents by their market cap).
- ▶ We do not include market-cap-weighted sector indexes (though we do include non-cap-weighted sector benchmarks), thematic indexes (for example, socially responsible indexes, clean energy indexes, and so on), market-cap-weighted country indexes (again, we will include non-cap-weighted ones), and other types of indexes that screen constituents strictly on the basis of sector membership, investment theme, or geography in this grouping.
- ▶ We exclude products tracking benchmarks that employ options strategies (for example, covered calls or protective puts).
- ▶ We exclude quantitative tactical strategies.
- ▶ We exclude products offering some form of exposure to volatility (for example, VIX or VSTOXX.)
- ▶ We also exclude benchmarks that underlie those products that are included in our "trading" categories, such as leveraged and inverse funds.

The common elements among this diverse set of products are:

1. They are index-tracking investment products.
2. They track nontraditional benchmarks that have an "active" element contained within their methodology that typically aims to either improve returns or alter the index's risk profile relative to a standard benchmark.
3. Many of their benchmarks have short track records and were designed for the sole purpose of serving as the basis of an investment product.
4. Their expense ratios tend to be lower relative to actively managed funds.
5. Their expense ratios are often substantially higher relative to products tracking "bulk beta" benchmarks, like the S&P 500.

Eligible for Collection

The Strategic Beta and Index Strategy data points reflect the methodology of an index, so that any two eligible investment products tracking the same index will also display the same data. Eligibility for collection is based off the investment product, though, so not all indexes Morningstar covers will have the Strategic Beta and Index Strategy data points populated.

Index Selection, Index Weighting, and Strategic Beta Group are not assigned to all indexes, exchange-traded products, and open-end funds. Index Selection and Index Weighting are collected for all eligible index-tracking products and the indexes they track. Strategic Beta Group will apply to eligible strategic-beta products and is assigned as "Not Applicable" for standard indexes and the investment products that track them. Index Selection, Index Weighting, and Strategic Beta Group will not be populated for excluded products.

Eligible

- ▶ We include global index-tracking exchange-traded products and open-end funds that do not track a blended benchmark and are not included in our "trading" categories, such as leveraged and inverse funds.
- ▶ An index will be assigned only when an eligible investment product is tracking it.
- ▶ If the investment product and its index are strategic-beta, a Strategic Beta Group is assigned.
- ▶ Standard benchmarks are assigned as "not applicable" for Strategic Beta Group.

Strategic-Beta Group

A strategic-beta group is defined as the group used to classify strategic-beta products with similar objectives. Eligible strategic-beta investment products and the indexes they track will be assigned to one group from the choices below.

Commodity

A group for strategic-beta products that aim to improve upon the performance of standard commodity indexes (such as the Bloomberg Commodity Index or S&P GSCI). They may do so by attempting to avoid the chief drawbacks of standard commodity indexes such as roll losses resulting from contango. These indexes may also seek to harness other fundamental factors, such as momentum.

Dividend

A group for strategic-beta products that seek to deliver equity income by employing a number of dividend-related screening and/or weighting criteria. Dividend-oriented strategies include screening a universe of stocks for dividend-paying firms, weighting stocks on the basis of dividend payments, screening on the basis of dividend growth or yield, isolating firms based on metrics that would indicate dividend stability, and other dividend-related criteria.

Fixed Income

A group for strategic-beta products that aim to enhance returns and/or reduce risk relative to traditional fixed-income benchmarks. They may do so by selecting and weighting constituents on the basis of measures of credit quality, momentum, yield, or other gauges of issuers' fundamentals in an effort. Other strategies in this category may have specific risk, yield, or duration targets.

Fundamentals

A group for strategic-beta products that select and weight constituents on a variety of fundamental measures of their value. These inputs may include sales, adjusted sales, cash flow, dividends, share buybacks, book value, and others.

Growth

A group for strategic-beta products that primarily aim to capture growth characteristics through their screening and/or weighting methodology. Strategic-beta products belonging to the growth strategic-beta group will screen a segment of the stock market looking to identify those stocks that display growth characteristics and/or may also more heavily weight constituents based on growth characteristics. These characteristics will differ across index providers. Common growth characteristics include above-average long-term projected earnings growth, historical earnings growth, sales growth, cash flow growth, book value growth, momentum, and others.

Momentum

A group for strategic-beta products that primarily aim to capture momentum characteristics through their screening and/or weighting methodology. Strategic-beta products belonging to the momentum strategic-beta group will select and/or weight their constituent securities on a number of momentum factors, which might include price momentum, adjustments to earnings estimates, and earnings surprises.

Multifactor

A group for strategic-beta products that set out to combine a variety of factors (such as value, growth, size, momentum, quality, and low volatility) to improve risk-adjusted performance relative to a standard benchmark.

Other

A group for strategic-beta products that do not fit neatly into any of the remaining strategic-beta groups. They will tend to be highly specialized strategies and may be few in number—thus, not warranting a dedicated group of their own. As such, this group will represent different types of strategies. Morningstar routinely reviews industry trends and what vehicles are being assigned to "other" group to determine if a new stand-alone group is warranted.

Quality

A group for strategic-beta products that primarily aim to capture quality characteristics through their screening and/or weighting methodology. Strategic-beta products belonging to the quality strategic-beta group will screen a segment of the stock market looking to identify those stocks that display quality characteristics and may also more heavily weight constituents based on quality characteristics. These characteristics will differ across index providers. Common quality characteristics include high and stable levels of profitability, clean balance sheets, capital efficiency, return on assets, economic moats, and others.

Risk-Oriented

A group for strategic-beta products that attempt to either reduce or increase the level of risk relative to a standard benchmark. Low-volatility and high-beta strategies are the most common examples of risk-oriented strategies.

Value

A group for strategic-beta products that primarily aim to capture value characteristics through their screening and/or weighting methodology. Strategic-beta products in the value strategic-beta group will screen a segment of the stock market looking to identify those stocks that display value characteristics and may also more heavily weight constituents based on value characteristics. These characteristics will differ across index providers. Common value characteristics include low price/prospective earnings, price/book, price/sales, and price/cash flow ratios, above-average dividend yields, and others.

Index Selection

Index selection is defined as the attributes that describe how indexes select their constituents. Eligible index-tracking investment products and the indexes they track will be assigned one or more index-selection criteria from the choices below.

Beta

An indication the index selects constituents based on their market beta.

Buyback/Shareholder Yield

An indication the index selects constituents based on one or more measures of share buybacks or shareholder yield.

Committee

An indication there is a committee that selects constituents based on various criteria.

Credit

An indication the index selects constituents based on one or more credit measures such as issuer credit ratings.

Dividend

An indication the index selects constituents based on one or more dividend-related measures such as dividend yield or dividend growth.

Duration

An indication the index selects bonds based on one or more duration measures such as targeted duration.

Earnings

An indication the index selects constituents based on one or more earnings measures such as the amount of earnings or earnings growth.

Fixed

An indication the index has a fixed universe of constituents.

Fundamentals

An indication the index selects constituents based on one or more measures of their fundamentals such as sales, adjusted sales, cash flow, dividends, share buybacks, book value, and others.

Growth

An indication the index selects constituents based on one or more growth measures such as long-term projected earnings growth, historical earnings growth, sales growth, cash flow growth, book value growth, momentum, and others.

Liquidity

An indication the index selects constituents based on one or more measures of their liquidity such as trading volume.

Market Capitalization

An indication the index selects constituents based on their market capitalization or market value.

Maturity

An indication the index selects bonds based on their maturity.

Momentum

An indication the index selects constituents based on one or more measures of their momentum such as price momentum, adjustments to earnings estimates, and earnings surprises.

Optimization

An indication the index uses an optimizer to select constituents.

Other

An indication the index selects constituents based on other measures that do not fit neatly within any of the remaining index-selection attributes. These factors will tend to be highly specialized. As such, they may be few in number and do not warrant a dedicated attribute of their own. Consequently, this attribute will be applied to a variety of different selection strategies. Morningstar routinely reviews industry trends to determine if a new stand-alone selection attribute may be warranted.

Proprietary

An indication the index selects constituents based on one or more proprietary measures.

Quality

An indication the index selects constituents based on one or more measures of quality such as profitability and financial leverage.

Sector

An indication the index selects constituents based on one or more specific sectors such as industrials and financial.

Single Commodity

An indication the index is composed of futures contracts for a single commodity.

Small Size

An indication the index tilts toward smaller stocks within its selection universe.

Target Maturity

An indication the index selects fixed-income constituents based on a targeted maturity date.

Value

An indication the index selects constituents based on one or more value measures such as low price/prospective earnings, price/book, price/sales, and price/cash flow ratios, above-average dividend yields, and others.

Volatility

An indication the index selects constituents based on one or more measures of volatility.

Yield

An indication the index selects constituents based on one or more yield measures.

Index Weighting

Index weighting is defined as the attributes that describe how indexes weight their constituents. Eligible index-tracking investment products and the indexes they track will be assigned one or more index-weighting criteria from the choices below.

Beta

An indication the index weights constituents based on their market beta.

Buyback/Shareholder Yield

An indication the index weights constituents based on one or more measures of share buybacks or shareholder yield.

Dividend

An indication the index weights constituents based on one or more dividend-related measures such as dividend yield or total dividend payments.

Duration

An indication the index weights bonds based on one or more duration measures such as targeted duration.

Earnings

An indication the index weights constituents based on one or more earnings measures such as the amount of earnings or earnings growth.

Equal

An indication the index weights constituents equally.

Fixed

An indication the index applies fixed weights to constituents.

Fundamentals

An indication the index weights constituents based on multiple fundamental measures such as sales, adjusted sales, cash flow, dividends, share buybacks, book value, and others.

Growth

An indication the index weights constituents based on their growth characteristics such as long-term projected earnings growth, historical earnings growth, sales growth, cash flow growth, book value growth, momentum, and others.

Liquidity

An indication the index weights constituents based on one or more measures of their liquidity such as trading volume.

Market Capitalization

An indication the index weights constituents by market capitalization or market value.

Maturity

An indication the index weights bonds based on their maturity.

Modified Market Capitalization

An indication the index weights constituents based on their modified market capitalization. Examples include benchmarks that apply weighting caps or other adjustments to conform with diversification-related regulatory requirements.

Momentum

An indication the index weights constituents based on one or more measures of their momentum such as price momentum, adjustments to earnings estimates, and earnings surprises.

Optimization

An indication the index uses an optimizer to weight constituents.

Other

An indication the index weights constituents based on other measures that do not fit neatly within any of the remaining index-weighting attributes. These factors will tend to be highly specialized. As such, they may be few in number and do not warrant a dedicated attribute of their own. Consequently, this attribute will be applied to a variety of different weighting strategies. Morningstar routinely reviews industry trends to determine if a new stand-alone weighting attribute may be warranted.

Production

An indication the index weights commodities based on the quantity of each commodity in the index that is produced.

Proprietary

An indication the index weights constituents based on proprietary metrics.

Quality

An indication the index weights constituents on the basis of their quality characteristics such as profitability and financial leverage.

Revenue

An indication the index weights constituents based on their revenue.

Single Commodity

An indication the index is composed of futures contracts for a single commodity.

Size

An indication the index weights constituents on the basis of their size in an effort to tilt toward smaller companies within the selection universe.

Tiered

An indication the index assigns constituents to multiple tiers. Each tier will likely have a target weight. Within each tier, constituents may be weighted in a variety of ways (equally, based on market cap, and so on).

Value

An indication the index weights constituents based on their value characteristics such as low price/prospective earnings, price/book, price/sales, and price/cash flow ratios, above-average dividend yields, and others.

Volatility

An indication the index weights constituents based on one or more measures of their volatility.

Yield

An indication the index weights constituents based on one or more measures of their yield.

Exhibit 44 New Morningstar Strategic-Beta and Index Attributes

| Strategic Beta | Strategic-Beta Group | Index Selection | Index Weighting |
|----------------|----------------------|---------------------------|--------------------------------|
| Yes | Commodity | Beta | Beta |
| No | Dividend | Buyback/Shareholder Yield | Buyback/Shareholder Yield |
| | Fixed Income | Committee | Dividend |
| | Fundamentals | Credit | Duration |
| | Growth | Dividend | Earnings |
| | Momentum | Duration | Equal |
| | Multifactor | Earnings | Fixed |
| | Other | Fixed | Fundamentals |
| | Quality | Fundamentals | Growth |
| | Risk-Oriented | Growth | Liquidity |
| | Value | Liquidity | Market Capitalization |
| | Not Applicable | Market Capitalization | Maturity |
| | | Maturity | Modified Market Capitalization |
| | | Momentum | Momentum |
| | | Optimization | Optimization |
| | | Other | Other |
| | | Proprietary | Production |
| | | Quality | Proprietary |
| | | Sector | Quality |
| | | Single Commodity | Revenue |
| | | Small Size | Single Commodity |
| | | Target Maturity | Size |
| | | Value | Tiered |
| | | Volatility | Value |
| | | Yield | Volatility |
| | | | Yield |

Source: Morningstar Research

Exhibit 45 Prior Morningstar Strategic-Beta Attributes

| Strategic Beta | Strategic-Beta Group | Index Selection |
|------------------|----------------------------|---------------------------------|
| Yes | Return-Oriented Strategies | Dividend-Screened/Weighted |
| No | | Size |
| | | Value |
| | | Growth |
| | | Fundamentally Weighted |
| | | Multifactor |
| | | Momentum |
| | | Buyback/Shareholder Yield |
| | | Earnings Weighted |
| | | Quality |
| Expected Returns | | |
| | Risk-Oriented Strategies | Low/Minimum Volatility/Variance |
| | | Low/High Beta |
| | | Risk-Weighted |
| | Other | Nontraditional Commodity |
| | | Equal-Weighted |
| | | Nontraditional Fixed Income |
| | | Multi-asset |

Source: Morningstar Research

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The Five Pillars

Morningstar has identified five key areas that we believe are crucial to predicting the future success of funds: People, Parent, Process, Performance, and Price. Each pillar is evaluated when assessing a fund as well as the interaction between the pillars, which we believe is crucial to understanding a fund's overall merit.

People

The overall quality of a fund's investment team is a significant key to its ability to deliver superior performance relative to its benchmark and/or peers. Evaluating a fund's investment team requires that analysts assess several relevant items including how key decisions are made.

Parent

We believe the parent organization is of utmost importance in evaluating funds. The fund's management set the tone for key elements of our evaluation, including capacity management, risk management, recruitment and retention of talent, and incentive pay. Beyond these operational areas, we prefer firms that have a culture of stewardship and put investors first to those that are too heavily weighted to salesmanship.

Process

We look for funds with a performance objective and investment process (for both security selection and portfolio construction) that is sensible, clearly defined, and repeatable. In addition, the portfolio should be constructed in a manner that is consistent with the investment process and performance objective.

Performance

We do not believe past performance is necessarily predictive of future results, and this factor accordingly receives a relatively small weighting in our evaluation process. In particular, we strive not to anchor on short-term performance. However, we do believe that the evaluation of long-term return and risk patterns is vital to determining if a fund is delivering to our expectations.

Price

To reflect actual investor experience, price is evaluated within the context of the relevant market or cross-border region—for example, the United States, Australia, Canada, or Europe. In recognition of differences in scale and distribution costs in various markets, the level at which a fund is penalised for high fees or rewarded for low fees can vary with region. In Europe, for example, funds are penalised if they land in the most expensive quintile of their Morningstar category and are rewarded if they land in the cheapest quintile. The assessment is made using annual expense ratios, but in the case of funds with performance fees, expenses are evaluated excluding any performance fees and then the structure of the performance fee is evaluated separately.

Morningstar Analyst Ratings

Morningstar Analyst Ratings are assigned on a five-tier scale running from Gold to Negative. The top three ratings, Gold, Silver, and Bronze, all indicate that our analysts think highly of a fund; the difference between them corresponds to differences in the level of analyst conviction in a fund's ability to outperform its benchmark and peers through time, within the context of the level of risk taken.

Gold

Represents funds that our analyst has the highest-conviction in for that given investment mandate. By giving a fund a Gold rating, we are expressing an expectation that it will outperform its relevant performance benchmark and/or peer group within the context of the level of risk taken over the long term (defined as a full market cycle or at least five years). To earn a Gold rating, a fund must distinguish itself across the five pillars that are the basis for our analysis.

Silver

Represents funds our analyst has high-conviction in, but not in all of the five pillars. With those fundamental strengths, we expect these funds will outperform their relevant performance benchmark and/or peer group within the context of the level of risk taken over the long term (defined as a full market cycle or at least five years).

Bronze

Represents funds that have advantages that clearly outweigh any disadvantages across the pillars, giving analyst the conviction to award them a positive rating. We expect these funds to beat their relevant performance benchmark and/or peer group within the context of the level of risk taken over a full market cycle (or at least five years).

Neutral

Represents funds in which our analysts don't have a strong positive or negative conviction. In our judgment, these funds are not likely to deliver standout returns, but they aren't likely to seriously underperform their relevant performance benchmark and/or peer group either.

Negative

Represents funds that possess at least one flaw that our analysts believe is likely to significantly hamper future performance, such as high fees or an unstable management team. Because of these faults, we believe these funds are inferior to most competitors and will likely underperform their relevant performance benchmark and/or peer group, within the context of the level of risk taken, over a full market cycle.

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Not Notable

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