

A Global Guide to Strategic-Beta Exchange-Traded Products

Morningstar Manager Research

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Executive Summary

In September 2014, Morningstar introduced its naming convention and taxonomy for the fast-growing universe of strategic-beta exchange-traded products, or ETPs. In this year's report, we provide an update on the state of the global strategic-beta ETP landscape, framed using our latest strategic-beta and index attributes, launched in Morningstar's global database in the fourth quarter of 2018.¹

Over most of the past decade, the strategic-beta space grew more rapidly than the broader ETP market. New cash flows, new launches, and the entrance of new players have driven strategic-beta ETPs' growth. However, more recently, these products' market share gains have stalled in most markets we examined—a sign that this segment has reached maturity.

While the strategic-beta ETP segment continued to see healthy net flows in 2022, the overall quantity of strategic-beta funds has decreased in most markets. The number of strategic-beta ETPs declined year over year in the United States, Canada, and Europe, and these ETPs' fees have been squeezed, albeit at a marginal pace. That said, the market share of strategic-beta funds relative to the total ETP market has remained stable in most of the markets that we examined. Environmental, social, and governance products, actively managed exchange-traded funds, and thematic funds have been hogging the spotlight in terms of new launches in recent years. However, it seems that the integration of strategic beta and sustainability is not a prevailing trend across most markets. The subset of sustainable strategic-beta ETPs accounted only for a small percentage of the strategic-beta ETP market.

Key Takeaways

- ▶ As of Dec. 31, 2022, there were 1,384 strategic-beta ETPs worldwide, with collective assets under management of approximately \$1.53 trillion.
- ▶ Assets in these products fell 6.5% in 2022. Top-line figures were hindered by the retreat of the equity markets and foreign-exchange movements, as the Morningstar Global Markets Index fell 17.9%, along with an 8.3% appreciation of the U.S. dollar, as measured by the ICE USD Spot Index.
- ▶ Strategic-beta ETPs amassed \$161.2 billion in net new cash flows, translating to organic growth of 9.8%. Annual net flows were at a record high for two consecutive years.
- ▶ A sharp slowdown in new launches and unrelenting fee competition are signs that the space has reached maturity.
- ▶ The number of strategic-beta ETPs listed worldwide grew just 1.8% in 2022. However, this growth was mostly attributable to the net adds in the Asia-Pacific region. In the U.S., the number of closures (45)

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

exceeded the number of new product launches (22) in 2022. Closures have outnumbered launches in two of the past three years. This slowdown is clear evidence that the market has been oversaturated.

- ▶ Despite the growth in sustainable products in the asset-management industry in recent years, the idea of combining strategic beta and sustainability does not appear to be a universal trend in most markets. In Europe, the biggest market for sustainable funds,² assets in sustainable strategic-beta ETPs accounted for 8.5% of the strategic-beta ETP market; this was notably smaller than the market share of sustainable funds at 20% of the European fund assets² as of December 2022.
- ▶ A crowded and competitive landscape has and will continue to put downward pressure on fees. Products with high fee tags and ones that have not gathered assets are expected to be prone to closure as the strategic-beta ETP market consolidates further.
- ▶ Exchange-traded products belonging to Morningstar's Dividend strategic-beta group continue to rank at or near the top of the list of the most popular strategic-beta ETPs in terms of assets and flows. This should come as little surprise when considered in the context of the prevailing interest-rate environment, inflationary pressure, and secular growth in the demand for quality income.
- ▶ In 2022, ETPs belonging to Morningstar's Risk-Oriented strategic-beta group gathered \$9.6 billion of net inflows globally. This compared with around \$30 billion of net assets that fled out of those products in 2020 and 2021. The tide turned in terms of flows in 2022 amid some volatile market movements as investors sought a smoother ride in choppy markets.
- ▶ The organic growth rate of strategic-beta ETPs in the Asia-Pacific region was the strongest, at 18%, among all regions in 2022. Australia, China, India, and Taiwan were the key growth drivers in terms of strategic-beta product offerings or assets in Asia-Pacific. The region saw a net addition of strategic-beta ETPs by 44 to 267 products.
- ▶ The proliferation of these strategies and their complexities have created a significant due-diligence burden. To help investors in this process, Morningstar Analysts have assigned Morningstar Medalist Ratings to 121 strategic-beta ETPs worldwide, which are covered directly by analysts with analyst-assigned ratings for the People, Process, and Parent pillars and Summary Analysis written by analysts. These ETPs held \$0.99 trillion of investors' assets as of Dec. 31, 2022, representing 65% of the total amount invested in global strategic-beta ETPs.

² Bioy, H, et al. 2023. "Global Sustainable Fund Flows—Q4 2022." Morningstar. <https://research.morningstar.com/articles/1133348/global-sustainable-fund-flows-q4-2022-in-review>

The Global Strategic-Beta ETP Landscape

Global Summary

As of Dec. 31, 2022, there were 1,384 strategic-beta ETPs, with collective assets of approximately \$1.53 trillion worldwide.³ For most of the past decade-plus, strategic-beta ETPs made inroads against their peers that are benchmarked to more-traditional indexes. More recently, the space has matured in the U.S. and Europe. The category's market share gains have stalled, and closures of products that have not gathered assets have been a common theme. In the Asia-Pacific region, on the other hand, net flows and product launches both picked up in certain markets in 2022.

Regional markets are at varying stages of market and product development, but some common themes can be observed in the strategic-beta ETP market across geographies. For many years, ETPs belonging to Morningstar's Dividend strategic-beta group have been one of the most popular groupings of strategic-beta ETPs. This should come as little surprise given the prevailing interest-rate environment and inflationary pressure. In 2022, in particular, ETPs belonging to the Dividend strategic-beta group gathered \$85 billion of net new money globally, accounting for 52% of the global net flows into all strategic-beta products. After two years of significant net outflows from low-volatility ETPs, the tide turned in 2022 amid volatile market movements. In 2022, ETPs belonging to Morningstar's Risk-Oriented strategic-beta group gathered \$9.6 billion of net inflows globally. This compared with around \$30 billion of net assets in total that fled out of those products in 2020 and 2021.

There is a clear positive relationship between adopting 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 ETP market in the world (next to Canada's). Thus, the fact that U.S. strategic-beta ETPs account for 89% of total global 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 that is a multiple of that levied by their more-ordinary passive peers. We expect fees charged by strategic-beta ETPs will remain under significant pressure as providers seek to stand out in a cramped market where many investors have a difficult time differentiating between seemingly similar strategies. Products with high fee tags and ones that have not gathered assets are expected to be prone to closure as the strategic-beta ETP market consolidates further.

³ Note that all monetary figures in this report are shown in U.S. dollars, unless stated otherwise. All data is as of Dec. 31, 2022.

Another commonality among the markets we examined is the complexity of the benchmarks that underlie newer ETPs. This has been 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, industry, and so on.

In recent years, sustainable investments have become more prevalent, particularly in Europe. Some new products have also introduced the combination of sustainability and strategic beta. However, it is worth mentioning that this blend has not become a prominent trend in terms of asset-gathering at the time of writing this report.

As these strategies continue becoming more complex, investors' due-diligence burden has grown commensurately. This has been further complicated by increasingly frequent changes to the methodologies of the indexes that underpin these funds. To assist investors in their due-diligence process, Morningstar Analysts have assigned Morningstar Medalist Ratings to 121 strategic-beta ETPs worldwide which are covered directly by analysts with analyst-assigned ratings for the People, Process, and Parent pillars and Summary Analysis written by analysts. These ETPs collectively held \$0.99 trillion in investors' money as of Dec. 31, 2022, representing 65% of the total amount invested in global strategic-beta ETPs.

Exhibit 1 The Global Strategic-Beta ETP Landscape in 2022

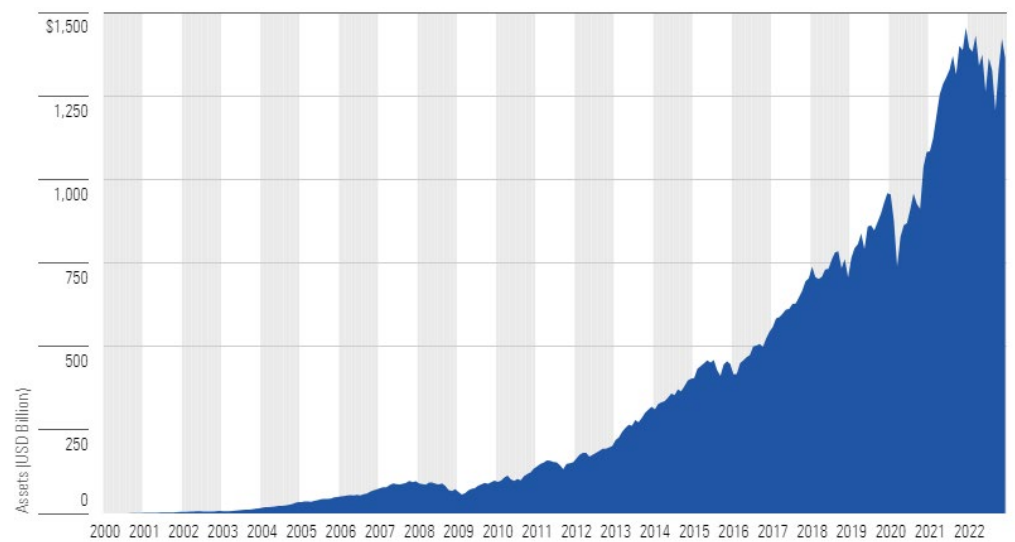
	Assets 2022 (USD Bil)	Global Market Share (%)	Assets 2021 (USD Bil)	One-Year % Change	2022 Flows (USD Bil)	Organic Growth %	No of ETPs 12/2022	No of ETPs 12/2021	One-Year % Change
U.S.	1,362.4	88.8	1,453.4	-6.3	148.0	10.2	615	635	-3.1
Canada	20.2	1.3	23.9	-15.2	0.0	0.1	155	159	-2.5
Europe	96.0	6.3	108.1	-11.3	3.2	3.0	310	312	-0.6
Asia-Pacific	53.5	3.5	53.9	-0.6	9.8	18.2	267	223	19.7
Other	1.5	0.1	1.3	17.4	0.1	7.7	37	31	19.4
Total	1,533.6		1,640.5	-6.5	161.2	9.8	1,384	1,360	1.8

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

United States

The United States is home to far and away the largest and most-diverse stable of strategic-beta ETPs. The U.S. market accounts for 44% of the total number of strategic-beta ETPs, which compose 89% of global assets. This makes sense, given the overall size and maturity of the U.S. asset-management and financial-services industries. The first strategic-beta ETPs came to the U.S. market in May 2000. **iShares Russell 1000 Growth ETF IWF** and **iShares Russell 1000 Value ETF IWD** were not only the first but remain two of the five 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 20 years to Dec. 31, 2022, and U.S. strategic-beta ETPs numbered 615 and had collective assets of \$1.36 trillion.

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



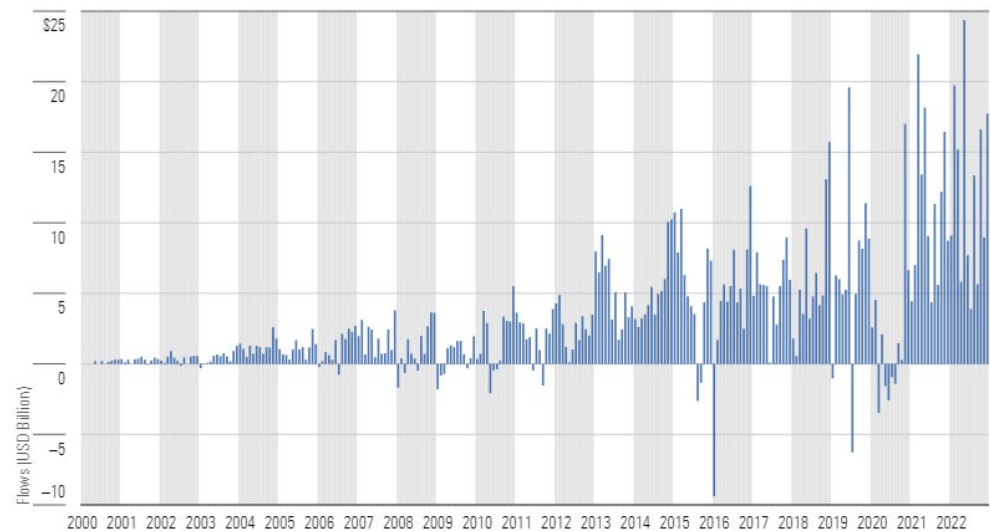
Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Even Flows

Growth in strategic-beta ETPs owes primarily to new adopters across the investor spectrum, ranging from individuals to state pension funds. Approximately 68% of the aggregate growth in strategic-beta ETP assets dating back to May 2000 has come from net new inflows, while the remaining 32% reflects asset appreciation. Healthy inflows and widespread investment losses in 2022 inflated net flows' proportional contribution to asset growth, which registered at a significantly lower 54% as of Dec. 31, 2021. Net new flows into strategic-beta ETPs had another record year at \$148 billion, putting organic growth at 10.2%.

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 hit the market 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 there were pockets of familiarity with the concept of factors, owing in part to a rapidly growing and loyal army of Dimensional Fund Advisors⁴ converts who were well versed in Size, Value, and Momentum.

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



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Until recently, growth in strategic-beta ETP assets outpaced that of the broader ETP industry. Strategic-beta ETPs' share of the overall U.S. ETP marketplace climbed as high as 21.7% at the end of November 2019 from zero in 2000. Their market share has hovered near 20% since. Actively managed ETFs continued to expand their asset base in 2022, but investors soured on the ESG and thematic strategies

⁴ 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.

that thrived in years prior. That ensured strategic-beta ETPs' strong year of inflows pushed their market share back toward its 2019 peak, closing 2022 with 20.9% of overall ETP assets.

Strategic-beta ETPs have not benefited from the rise in sustainable investing. At the end of 2022, the 15 strategic-beta ETPs labeled as sustainable tallied \$3.1 billion in assets. That represented only 3.3% of the sustainable ETP market and less than 0.2% of the U.S. strategic-beta ETP market. Nuveen ESG Large-Cap Value ETF NULV was the lone sustainable strategic-beta product to crack \$1 billion in assets as of Dec. 31, 2022. Despite sustainable investments having proliferated in recent years, the idea of combining strategic beta and sustainability does not appear to be a trend in the U.S. market.

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



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Refining the Menu

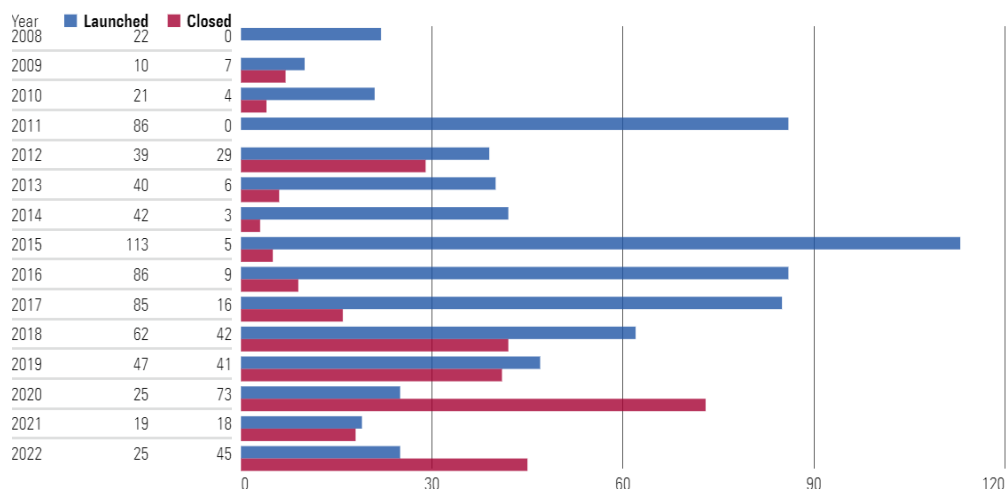
The first generation of strategic-beta ETPs delivered straightforward style tilts. Subsequently, there was a flurry of launch activity from 2005 to 2007, as strategic-beta-focused ETF providers rolled out full families of more-complex strategies. These included Invesco's (then known as PowerShares) roster 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 again in 2011 as providers moved to cover new bases (low-volatility strategies, for example).

New launches accelerated in 2015, and a total of 284 new strategic-beta ETPs hit the market from 2015 through 2017. The surviving funds from that three-year window represented about 26% of the offerings on the strategic-beta ETP menu at the end of 2022.

New product launches have since slowed considerably. Just 25 new strategic-beta ETPs rolled out in the U.S. in 2022, a mild year-over-year increase in new launches but a 78% decline from the 2015 record. As launches have slowed, closures have accelerated. In 2022, 45 strategic-beta ETPs shuttered. Closures

have outnumbered launches in two of the past three years, a span that saw 136 strategic-beta ETPs shut down and the number of available products shrink by nearly 10%. The past three years resemble a shakeout for a market that was—and may still be—oversaturated.

Exhibit 5 U.S. Number of Strategic-Beta ETP Launches and Closures by Year



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Dawn of the Dividends

While the strategic-beta market has evolved, investors' preferences remain plain-vanilla. Classifying the current roster of U.S. strategic-beta ETPs according to their strategic-beta groups shows that ETPs offering exposure to Value, Growth, and Dividend-screened/weighted strategies—the more straightforward genres—account for over three fourths of strategic-beta ETP assets. Demand for more-complex strategies found in the risk-oriented or multifactor arenas has run hot and cold in recent years, but Value, Growth, and Dividend funds' cut-and-dried approaches have continued to resonate with investors.

Funds belonging to Morningstar's Dividend strategic-beta group claimed the top spot in the flows league table in 2022, as they reeled in \$69.8 billion in net new money. That translated into a 21% organic growth rate—Dividend strategic-beta ETPs' best clip since 2013, when their asset base was less than one third the size. Investors flocked to these strategies as many of them navigated 2022's bear market better than traditional broad index funds. Dividend ETPs' market share ballooned to 27.4% by the end of the banner year, making them the largest strategic-beta group across the U.S. strategic-beta ETP landscape.

ETPs that screen or weight stocks by fundamentals collected \$10.3 billion in 2022, equating to an organic growth rate of 22.1%. Between Dividend ETPs' breakout year, strong inflows into fundamental strategies, and the rise of cash flow-centric products like Pacer US Cash Cows 100 ETF COWZ, investors

favored strategies that prioritize concrete economic value, as the frothier standout ETPs of previous years lost momentum.

Growth and Value ETPs, the two groups that Dividends leapfrogged on their way to first place, hauled in \$24.7 billion and \$18.6 billion, respectively. That marked the first time the Growth strategic-beta cohort absorbed more money than Value since 2015. Investors have long bet that the clouds would lift from the Value factor. Once they did, investors seemed to believe Value's day in the sun was a short one.

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

Strategic Beta Group	No of ETPs	Assets (USD Bil)	% of Assets	2021 Flows (USD Bil)	2021 Organic Growth %
Dividend	146	373.0	27.4	69.8	21.0
Value	46	356.1	26.1	18.6	5.0
Growth	41	302.0	22.2	24.7	6.2
Risk-Oriented	39	70.8	5.2	8.8	12.4
Multi-Factor	152	68.4	5.0	2.4	3.1
Other	42	57.9	4.3	13.6	25.4
Fundamentals	31	50.4	3.7	10.3	22.1
Quality	20	43.6	3.2	0.0	0.0
Momentum	30	21.7	1.6	0.2	0.8
Fixed Income	41	12.0	0.9	-0.2	-1.1
Commodity	27	6.4	0.5	-0.3	-5.2
Total	615	1,362.4		148.0	10.2

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

By Provider

iShares and Vanguard account for just 15% of the total number of strategic-beta ETPs but have amassed nearly 64% of the assets in this universe. Their suites of strategic-beta ETPs align closely with the rankings of the most popular secondary attributes. Specifically, their Dividend-screened/weighted, Value, and Growth funds are among the largest in this universe.

Occupying the third spot among the top five is an ETP provider that has made strategic beta its calling card: Invesco. After acquiring the ETF ranges of Guggenheim and Oppenheimer in the late 2010s, the firm's lineup of strategic-beta ETPs is robust even after some recent pruning.

Schwab and its ascendant ETF lineup are hot on Invesco's trail thanks to a blend of no frills, low-cost index funds, and fundamentally weighted funds that have a prominent place in the firm's Intelligent Portfolios. State Street Global Advisors and First Trust are not far behind and round out the top five in the strategic-beta ETP provider standings.

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

	AUM (USD Bil)	No of ETPs	Market Share (%)
iShares	467.0	73	34.3
Vanguard	399.1	22	29.3
Invesco	115.9	121	8.5
Charles Schwab	100.2	10	7.4
State Street	77.0	26	5.7
First Trust	65.0	71	4.8
WisdomTree	36.2	42	2.7
Goldman Sachs	16.8	15	1.2
ProShares	14.3	11	1.0
Pacer	12.9	8	1.0
Others	57.9	210	4.3
Total	1,362.4	615	

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

By Fund

The top 10 strategic-beta ETPs by assets represent about 39% of assets in this corner of the ETP market. Again, straightforward Value, Growth, and Dividend-screened/weighted approaches—many of which come with an attractive price tag and long track record—dominate their ranks. Each of the five largest strategic-beta ETPs boasts a competitive fee, at least 15 years of experience, and the backing of a behemoth parent organization.

There are, however, some notable exceptions: Schwab US Dividend Equity ETF SCHK and iShares MSCI USA Minimum Volatility Factor ETF USMV. SCHK ranked outside the top 10 as recently as 2020, but a torrid run of commercial and investment success boosted it to the place of sixth-largest strategic-beta ETP by 2022's end. Over 2021 and 2022, the fund's return ranked within the top 15% of the large-value peer group, and it hauled in \$25.3 billion of new money. USMV was another indication that performance and flows are often joined at the hip. After quickly ascending to the top of the ETP pile, the risk-oriented strategy shed a total \$12.4 billion from 2020-21 as it predictably lagged the roaring broad market. When it held up better than most in 2022, it brought in a respectable \$2.7 billion. Like the market at large, short-term flows in the strategic-beta arena can be fickle and intertwined with recent performance.

Exhibit 8 U.S. Largest Strategic-Beta ETPs

Name	Ticker	Inception Date	Strategic-Beta Group	Expense Ratio (%)	Assets (USD Bil)	2022 Flows (USD Bil)
Vanguard Value ETF	VTV	2004-01-26	Value	0.04	99.5	11.2
Vanguard Growth ETF	VUG	2004-01-26	Growth	0.04	68.2	9.4
Vanguard Dividend Appreciation ETF	VIG	2006-04-21	Dividend	0.06	65.4	3.6
iShares Russell 1000 Growth ETF	IWF	2000-05-22	Growth	0.18	59.4	3.7
iShares Russell 1000 Value ETF	IWD	2000-05-22	Value	0.18	54.3	-0.2
Vanguard High Dividend Yield ETF	VYM	2006-11-10	Dividend	0.06	50.3	9.0
Schwab US Dividend Equity ETF™	SCHD	2011-10-20	Dividend	0.06	44.6	15.6
Invesco S&P 500® Equal Weight ETF	RSP	2003-04-24	Other	0.20	32.7	5.3
iShares MSCI USA Min Vol Factor ETF	USMV	2011-10-18	Risk-Oriented	0.15	29.9	2.7
iShares S&P 500 Growth ETF	IWW	2000-05-22	Growth	0.18	28.1	-0.6

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

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 excluding strategic beta. Of course, fees should be considered on a case-by-case basis. For example, Schwab US Broad Market ETF SCHB, which tracks the market-capitalization-weighted Dow Jones U.S. Broad Stock Market Index, charges an annual fee of just 0.03%. Schwab Fundamental US Broad Market 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.

All else equal, investors mostly prefer cheaper offerings, as indicated by the fact that the asset-weighted average expense ratios tend to be lower than the simple averages. The lone exception lies with strategic-beta Fixed-Income ETPs, where investors bent toward pricier fare. Three of the four largest ETPs in this cohort target niche corners of the bond market and charge a more-than-0.50% fee for the service. When investors encounter ETPs that charge fees comparable to those of active managers, they should take extra care to assess whether such tolls are justifiable for an index-tracking product.

Among the 564 strategic-beta ETPs that have reported annual report net expense ratios for their 2021 and 2022 fiscal years to Morningstar's database, 69 (12%) saw their fees decrease during their 2022 fiscal year. The median decline in fees among this group was 0.03%. Meanwhile, 36 (6%) strategic-beta ETPs saw their fees inch higher, by a median level of 0.01%. The toll taken by the remaining 459 (81%) products remained unchanged. We expect that fees for strategic-beta ETPs will continue to trend lower with time.

Exhibit 9 U.S. Fees Under the Microscope

	Average	Combined (%)	Equity (%)	Fixed Income (%)	Commodity (%)	Allocation (%)
All ETFs	Asset-Weighted	0.17	0.16	0.14	0.38	0.35
	Equal-Weighted	0.50	0.47	0.31	0.66	0.56
ETPs ex-Strategic Beta	Asset-Weighted	0.16	0.14	0.14	0.37	0.34
	Equal-Weighted	0.53	0.50	0.31	0.55	0.55
Strategic-Beta	Asset-Weighted	0.19	0.19	0.33	0.45	0.73
	Equal-Weighted	0.40	0.39	0.26	0.89	0.74

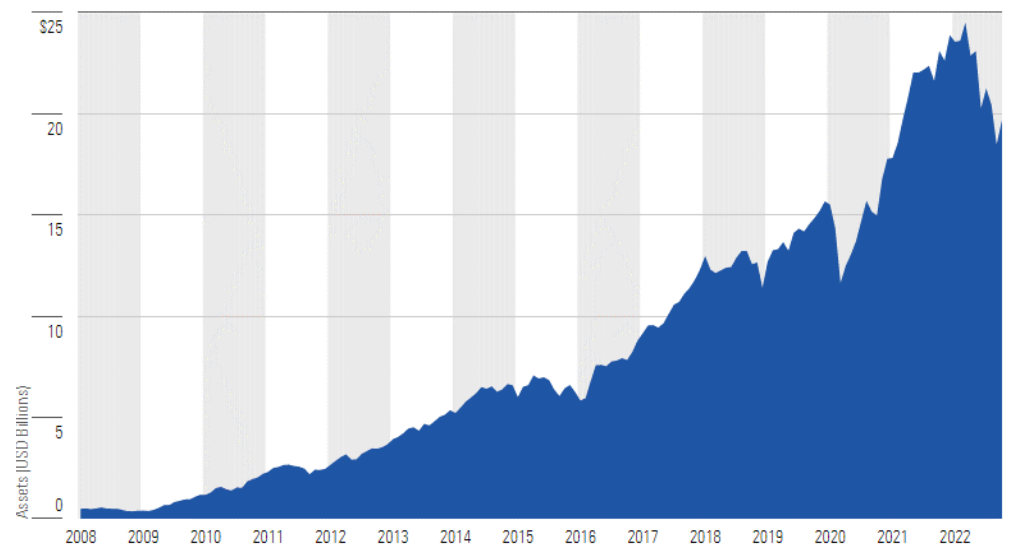
Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Canada

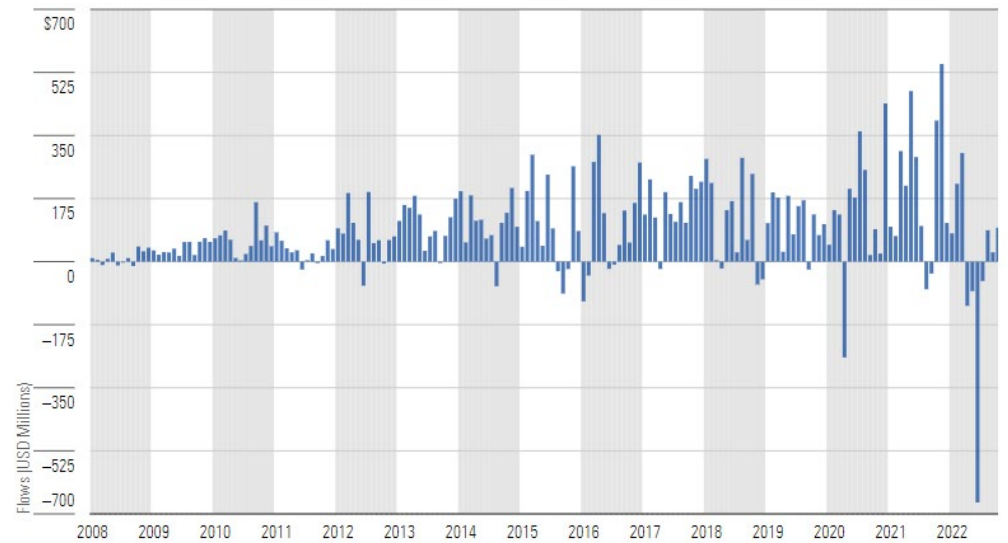
In absolute terms, Canadian strategic-beta ETPs have grown considerably over the past 15 years. However, these funds still represent a small part of the market, and their market share hasn't grown in years. Broad, market-cap-weighted index, and actively managed ETPs dominate this market.

Assets invested in Canadian strategic-beta ETPs grew from \$518 million to \$20.2 billion between December 2007 and December 2022. During that time, the number of strategic-beta funds on the market ballooned from 8 to 155. So, it's not surprising that most of the asset growth came from inflows, totaling nearly \$16.2 billion. Inflow-driven growth has been consistent. Aggregate flows into these funds were positive in 150 of the 180 months over the 15 years through December 2022. However, 2022 proved to be a volatile year for Canadian strategic-beta ETPs as investors' flows flip-flopped amid the poor performance of the equity market (the Morningstar Global Markets Index fell 17.9%). In terms of flows, for example, strategic-beta funds saw \$594 million in flows in the first quarter. However, they hemorrhaged \$668 million in June alone. By year-end, they barely finished in the black with \$26.5 million as inflows slightly increased.

Exhibit 10 Canada Strategic-Beta ETP Asset Growth



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Exhibit 11 Canada Strategic-Beta ETP Monthly Asset Flows

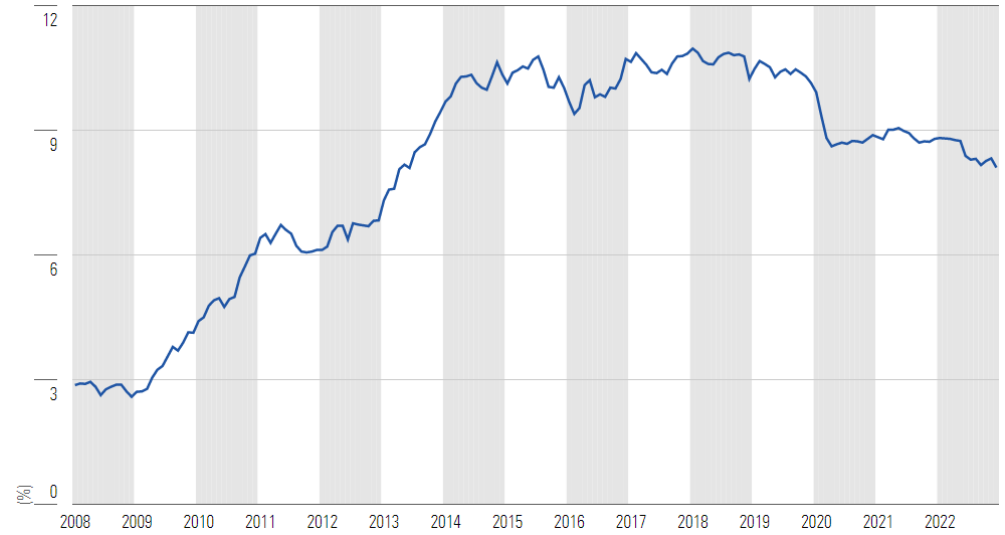
Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Despite their growth, strategic-beta ETPs still claim a small share of the Canadian market. At the end of 2022, they represented about 8.1% of the total Canadian ETP market by assets, up from 2.8% at the end of 2007. The group has steadily lost market share since it peaked at 10.9% in January 2018.

Many strategic-beta ETPs have been around for some time with an established track record. Of the 155 strategic-beta ETPs listed in Canada at the end of 2022, 94 were launched after 2014, representing 64% of the market. However, they still lack size and have had stagnant growth since their 2018 high.

Sustainable strategic-beta ETPs represented a small fraction of the strategic-beta market as of December 2022—only 6% of strategic-beta assets were in sustainable ETPs with only \$1.4 billion in assets. Furthermore, sustainable ETPs—both strategic-beta and non-strategic-beta ETPs—have \$7.2 billion in assets representing approximately 3% of the overall Canadian ETP market.

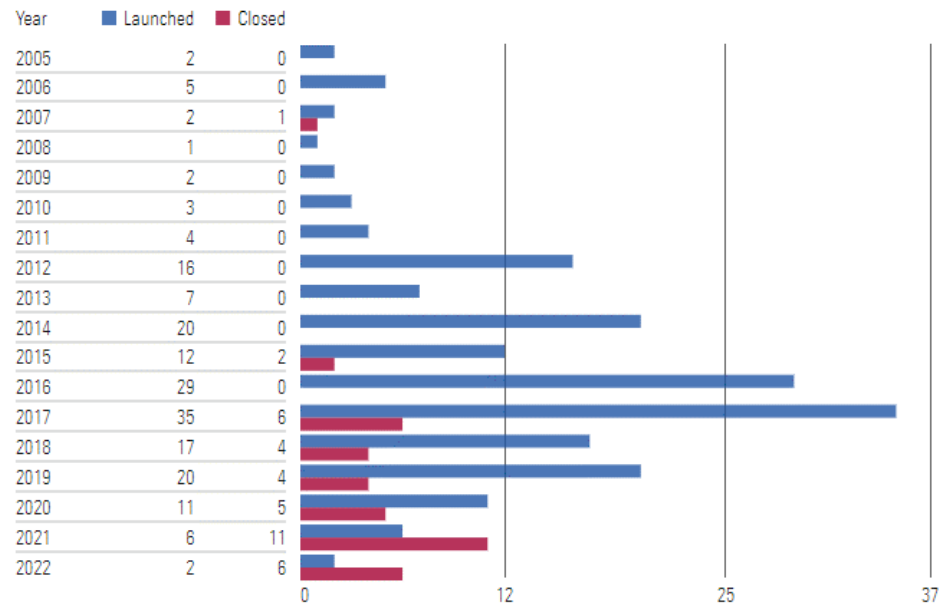
Exhibit 12 Strategic-Beta ETPs' Share of the Overall Canadian ETP Market (%)



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

In 2022, just two new strategic-beta funds were launched, which was less than half the previous year's figure and the lowest since 2009. Meanwhile, six strategic-beta funds were closed.

Exhibit 13 Canada Number of Strategic-Beta ETP Launches and Closures by Year



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Investors Still Prefer Income

It can be hard for investors to get their hands around factors. However, funds designed to achieve specific outcomes like Dividend income and low volatility have resonated with Canadian investors.

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 2022. That's not surprising. Many investors, particularly retirees, gravitate toward funds that can deliver income. Investors poured an estimated \$673 million into these funds in 2022.

Risk-Oriented and Multifactor funds represent the second- and third-largest strategic-beta groups in Canada. However, as markets tumbled in 2022, investors soured on funds in these two groups. Risk-Oriented and Multifactor groups saw more than \$494 million and \$295 million in outflows—equating to organic growth of negative 12.3% and negative 8.9%, respectively.

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

Strategic Beta Group	No of ETPs	Assets (USD Mil)	% of Assets	2022 Flows (USD Mil)	2022 Organic Growth %
Dividend	42	9,106.4	45.0	673.2	6.9
Multifactor	28	2,938.5	14.5	-494.5	-12.3
Risk-Oriented	27	2,544.1	12.6	-295.4	-8.9
Other	7	1,672.5	8.3	31.5	1.5
Quality	8	1,363.8	6.7	245.7	16.6
Value	12	936.4	4.6	83.2	8.4
Fundamentals	11	639.5	3.2	-34.3	-4.4
Momentum	12	616.3	3.0	-241.0	-24.1
Fixed Income	6	298.8	1.5	-13.0	-3.6
Commodity	1	76.6	0.4	71.5	N/A
Growth	1	53.5	0.3	-0.4	-0.5
Total	155	20,246.4		26.6	0.0

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

By Provider

While many asset managers offer strategic-beta ETPs in Canada, assets are concentrated among the largest providers. BlackRock's iShares is by far the largest player here, capturing about 29% of the market as of December 2022. Vanguard, the second-largest strategic-beta ETP provider, has only 12 % of the market. Eighteen asset managers offer strategic-beta ETPs in Canada. The smallest 15 have a combined market share of nearly 46%.

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, and RBC's quantitative dividend ETFs. Morningstar considers these actively managed strategies.

Several of these asset managers compete in both the U.S. and Canadian markets, including BlackRock, Invesco, Vanguard, and Fidelity, and offer many of the same strategies in both markets. For example,

versions of Fidelity US High Dividend ETF *FCUD* and iShares Edge MSCI Minimum Volatility Global ETF *XMW* are available in both the U.S. and Canada.

Exhibit 15 Canada Largest Strategic-Beta ETP Providers

Provider	AUM (USD Mil)	No of ETPs	Market Share (%)
iShares	5,933.4	36	29.3
Vanguard	2,541.7	4	12.6
BMO	2,458.6	10	12.1
CI Investments	2,363.2	24	11.7
Invesco	1,685.1	16	8.3
Mackenzie	1,626.9	9	8.0
Fidelity	1,403.8	23	6.9
Manulife	1,093.9	7	5.4
DGAM	432.7	5	2.1
AGF	244.5	1	1.2
Others	462.6	20	2.3
Total	20,246.4	155	

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Biggest Funds

The largest 10 strategic-beta ETPs jointly represent 38% of all assets invested in such funds in Canada. The largest fund has a little over \$1.3 billion in assets—a slight drop from 2021's \$1.5 billion. Dividend funds are well represented with seven among the top 10.

Exhibit 16 Canada Largest Strategic-Beta ETPs

Name	Ticker	Inception Date	Strategic-Beta Group	Expense Ratio (%)	Assets (USD Mil)
Vanguard FTSE Canadian High Div Yld ETF	VDY	12/19/2005	Dividend	0.22	1,365.4
iShares Canadian Select Dividend ETF	XDV	4/12/2011	Dividend	0.55	1,156.8
iShares S&P/TSX Composite High Div ETF	XEI	11/2/2012	Dividend	0.22	989.7
Vanguard US Dividend Appreciation ETF	VGG	8/2/2013	Dividend	0.30	741.3
iShares S&P/TSX Cdn Div Aristcr ETF Comm	CDZ	9/8/2006	Dividend	0.66	697.7
Invesco Canadian Dividend ETF	PDC	2/10/2014	Dividend	0.54	616.5
BMO Equal Weight US Banks ETF	ZBK	6/8/2011	Other	0.38	524.8
iShares Core MSCI Canadian Qual Div ETF	XDIV	2/13/2012	Dividend	0.11	523.2
BMO MSCI Europe Hi Qual Hdgd to CAD ETF	ZEQ	11/5/2014	Quality	0.45	505.6
CI Mstar Canada Mom ETF Comm*	WXM	6/7/2017	Momentum	0.66	474.6

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022. *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 visit <https://indexes.morningstar.com/investable-products?sortBy=indexName&sortOrder=1> for a list of investable products that track or have tracked a Morningstar index. Morningstar, Inc. does not market, sell, or make any representations regarding the advisability of investing in any investable product that tracks a Morningstar index.

Fees

Strategic-beta ETPs appear more expensive than non-strategic-beta ETPs based on both equal-weighted and asset-weighted average fees. That's because cheap, broad, market-cap-weighted funds 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.

Compared with 2021, strategic-beta funds have gotten slightly cheaper. The asset-weighted average fee has dropped by 0.1 percentage points as investors amass their assets in the cheapest funds.

The fee comparisons are only meaningful for the equity funds, since the other groups of strategic-beta funds are small—if they exist at all. All but 10 of the 155 Canadian-listed strategic-beta ETPs are focused exclusively on equities.

Exhibit 17 Canada Fees Under the Microscope

	Average	Combined (%)	Equity (%)	Fixed Income (%)
All ETPs	Asset-Weighted	0.33	0.30	0.31
	Equal-Weighted	0.62	0.57	0.42
ETPs ex-Strategic Beta	Asset-Weighted	0.31	0.27	0.32
	Equal-Weighted	0.58	0.58	0.39
Strategic Beta	Asset-Weighted	0.32	0.29	0.31
	Equal-Weighted	0.64	0.60	0.43

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Europe

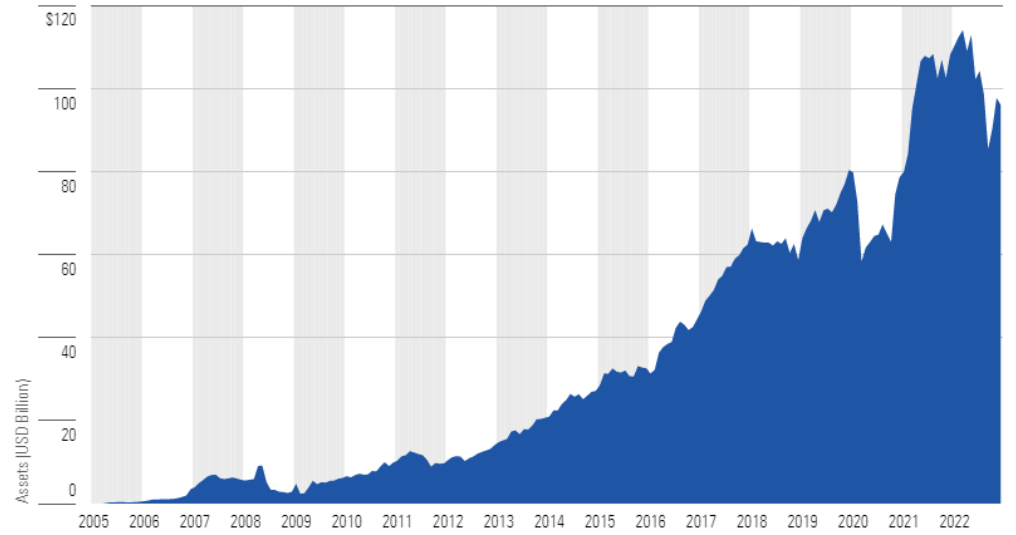
Strategic-beta funds have failed to generate the same level of enthusiasm in Europe as they have in the U.S. Assets in strategic-beta ETPs account for a modest share of approximately 6.8% of the total pool of ETP assets domiciled in Europe.

Throughout 2022, European-domiciled strategic-beta ETP assets and flows exhibited significant volatility owing to challenging equity market performance and fluctuations in foreign-exchange rates. This volatility was reflected in the fluctuating net assets of strategic-beta ETPs, which reached a peak of \$114 billion in March but experienced a substantial outflow in September, hitting their lowest value of \$85.4 billion for the year.

The selloff in strategic-beta funds in September 2022 can be attributed to several factors. First, September was a challenging month for investors, with the Morningstar Global Net Return Index falling by more than 9% over the month, one of its worst monthly declines in the past two decades. Market sentiment in September was weighed down by increasing concerns over high inflation and the Federal Reserve's decision to raise interest rates, which further added to market uncertainty. Moreover, the lingering impact of the coronavirus pandemic, including disruptions in global supply chains, exacerbated market volatility and intensified selling pressure. Consequently, strategic-beta funds faced significant outflows during this period. However, there was a modest recovery toward the end of the year, with net assets in strategic-beta ETPs reaching approximately \$96 billion.

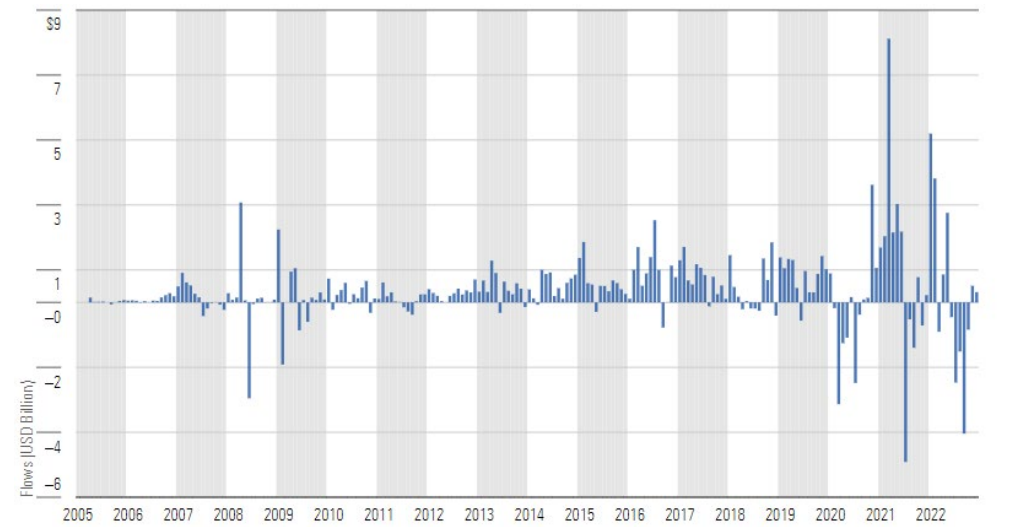
Strategic-beta ETPs have not experienced significant traction owing to the growing popularity of sustainable investing. In December 2022, assets in European-domiciled sustainable strategic-beta ETPs constituted only 8.5% of the total strategic-beta ETP market. This market share is notably lower than the 20% market share of sustainable funds in European fund assets.² The limited adoption of sustainable strategic-beta ETPs reflects the continued dominance of traditional strategic-beta approaches and the slower integration of sustainability factors within these investment products.

Exhibit 18 Europe Strategic-Beta ETP Asset Growth



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Exhibit 19 Europe Strategic-Beta ETP Monthly Asset Flows



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

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

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

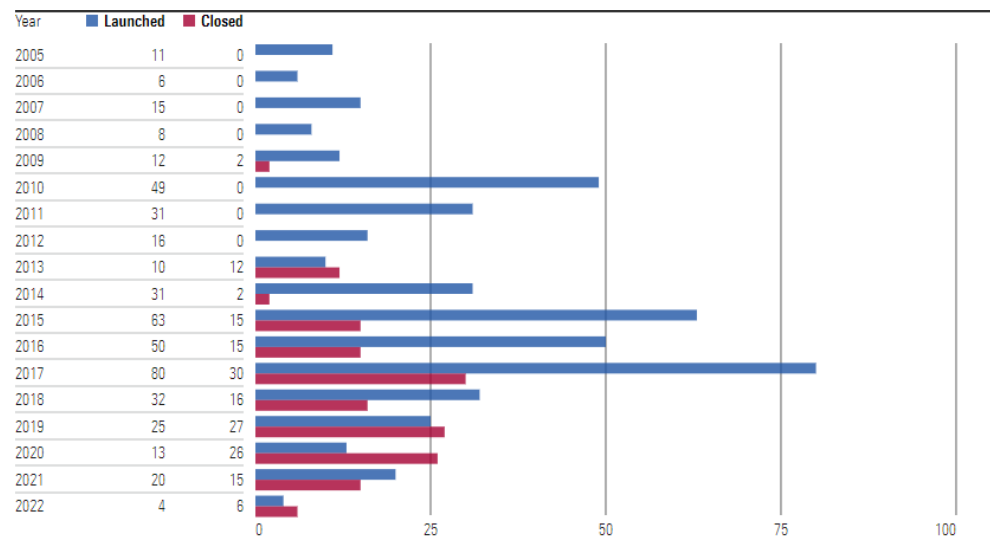
Few Launches and Closures in 2022, but ETP Industry Product Development Focus Is Not on Strategic Beta

The ETP industry initially saw a period of growth, with the number of launches increasing from 11 in 2005 to 49 in 2010. This was then followed by a decline in 2012, and a subsequent rise again, peaking in 2017 with 80 launches. However, the number of launches has since been on the decline.

Only four new strategic-beta ETPs were launched in Europe in 2022. Among these, the iShares S&P 500 Equal Weight stood out, successfully accumulating \$717 million. The fund's launch was impeccably timed. Last year, the S&P 500 Equal Weighted Index outperformed the S&P 500 for the first time since 2016. The technology giants that had previously dominated the U.S. market underwent a notable pullback in 2022, following almost a decade of impressive gains. This shift in performance can be illustrated by contrasting the S&P 500 — where technology and communication services once held a combined weight of nearly 40% at their peak — with an equal-weighted index that doesn't assign such large allocations to the two sectors.⁵ The other three ETP launches have failed to gather more than \$20 million in assets, each.

On the closure side, the market remained relatively stable from 2005 until 2012, with very few, if any, closures reported. From 2013 to 2021, there was an uptick in closures, but in 2022 this pattern took a turn when the closure count dropped to just six. This is a natural consequence of the strategic-beta ETP market in Europe reaching maturity. It also shows how asset managers' product development efforts have shifted to other areas such as ESG and thematic funds in recent years.

⁵ Miller, Jon. And They're Off!. Morningstar. <https://research.morningstar.com/articles/1139864/and-theyre-off>

Exhibit 21 Europe Number of Strategic-Beta ETP Launches, Closures by Year

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Investors Embraced Dividend Funds Amid Bond Market Uncertainty

ETPs belonging to the Dividend and Value strategic-beta groups continue to dominate the strategic-beta ETP market. In 2022, the highest flows of over \$6.7 billion went into Dividend strategies. As 2022 marked a period of historic downturns in the global market, many investors found themselves reconsidering their strategies for income stability. The traditional negative correlation between equities and bonds, often relied upon for diversification, seemed to wane in 2022. Against that backdrop, Dividend funds offered an attractive alternative for those seeking regular income and some measure of stability.

In 2022, investors grappled with economic turbulence, including rising inflation, fluctuating markets, losses in tech, and cryptocurrency downturns, amid ongoing pandemic challenges.⁶ In this uncertain climate, Risk-Oriented strategies came back into favor. These strategies saw inflows of \$785 million and their assets grew to \$13.4 billion. Risk-Oriented ETPs in Europe mostly consist of minimum-variance or low-volatility strategies, which seek to offer investors a balance between gaining equity market exposure and minimizing risk.

Momentum and Commodity ETPs experienced the largest outflows of over \$2 billion each. Meanwhile, Fixed Income, Growth, and Fundamentals experienced modest inflows.

⁶ Ward, Sandy. What Investors Can Learn From a Terrible Year. Morningstar. <https://research.morningstar.com/articles/1130318/what-investors-can-learn-from-a-terrible-year>

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

Strategic Beta Group	No of ETPs	Assets (USD Mil)	% of Assets	2022 Flows (USD Mil)	2022 Organic Growth %
Dividend	75	32,949.7	34.3	6,730.0	21.1
Value	21	15,327.2	16.0	460.7	2.6
Risk-Oriented	28	13,360.2	13.9	784.6	5.3
Commodity	89	9,043.2	9.4	-2,097.5	-22.4
Quality	15	7,892.5	8.2	-378.0	-3.7
Other	13	5,585.7	5.8	-237.1	-3.4
Multifactor	38	4,865.3	5.1	-109.4	-1.8
Momentum	8	3,684.6	3.8	-2,178.0	-29.8
Fixed Income	12	1,904.9	2.0	65.0	2.8
Growth	6	900.1	0.9	107.3	8.9
Fundamentals	5	453.6	0.5	89.8	21.9

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

iShares Remains Undisputed Market Leader

ETF behemoth iShares comfortably retained the number-one spot in the European strategic-beta ETP space with a market share of 45.3% at the end of 2022. Its Edge-branded suite of ETFs that track factor indexes focused on global, U.S., and European exposures has played a key role in cementing the firm's standing in recent years. Funds from this stable take up six spaces in the list of the 10 largest strategic-beta ETPs in Europe.

Xtrackers sits in a distant second place with a market share of 9.0%, largely built on the popularity of the Xtrackers S&P 500 Equal Weight ETF *XDEW*. By equally weighting the constituents of the S&P 500, the fund offers exposure to the Size factor in U.S. large-cap equities. The popularity of this strategy can be explained by the fact that smaller companies have historically outperformed their larger counterparts in economic recoveries.

Exhibit 23 Europe Largest Strategic-Beta ETP Providers

Provider	AUM (USD Bil)	No of ETPs	Market Share (%)
iShares	43.5	50	45.3
Xtrackers	8.7	14	9.0
State Street	8.5	17	8.9
Amundi	7.0	28	7.2
UBS	6.5	23	6.8
Vanguard	3.5	1	3.7
Natixis	2.8	6	2.9
WisdomTree	2.0	18	2.1
Invesco	2.0	21	2.1
Handelsbanken Fonder AB	1.9	2	1.9
Others	9.6	130	10.0
TOTAL	96.0	310	

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Third in the provider table is SPDR, State Street's ETF franchise. SPDR's growth has been largely led by its flagship Dividend Aristocrats products. However, the firm also offers exposure to Risk-Oriented and Value strategies. In June 2021, State Street launched ESG alternatives to its European, U.S., and Global Dividend Aristocrats strategies. However, assets in these products have stayed low, perhaps signaling the market's lack of demand—at least at this stage—for strategies that pair ESG with factor investing.

Exhibit 24 Largest European Strategic-Beta ETPs

Name	Ticker	Inception Date	Strategic Beta Group	Assets (USD Bil)
SPDR® S&P US Dividend Aristocrats ETF	UDVD	10/14/2011	Dividend	4.8
iShares Edge MSCI Wld Val Fctr ETF	IWVL	10/3/2014	Value	3.9
iShares Edge MSCI Wld Min Vol ETF	MVOL	11/30/2012	Risk-Oriented	3.5
Vanguard FTSE AllWld HiDivYld ETF	VHYD	5/21/2013	Dividend	3.2
Xtrackers S&P 500 Equal Weight ETF	XDEW	6/10/2014	Other	3.1
iShares Edge MSCI USA Val Fac ETF	IUVL	10/13/2016	Value	3.0
iShares Edge MSCI Eurp Val Fctr ETF	IEVL	1/16/2015	Value	2.5
iShares Edge MSCI Wld Qual Fctr ETF	IWQU	10/3/2014	Quality	2.3
iShares STOXX Global Sel Div 100 ETF	ISPA	9/25/2009	Dividend	2.1
iShares Edge MSCI Wld Mom Fctr ETF	IWMO	10/3/2014	Momentum	1.7

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Strategic Beta Still Commands a Fee Premium

Europe-domiciled strategic-beta ETPs still demand a sizable fee premium above their market-cap-weighted equity peers. On the equities side, single-factor ETPs generally remain fairly priced, with most of their fees coming in under 0.35%. Where fees start to tick up is on less-popular strategies in the Fundamentals and Growth strategic-beta groups, or more complex Multifactor ETPs.

In most asset classes, strategic-beta ETPs tend to command a higher fee than their mainstream counterparts. This disparity is most evident in the realm of Commodity strategic-beta products, where the average fee is 0.84%, compared with the more modest 0.66% for mainstream offerings. However, when assessing these fees based on asset-weighted terms, the difference is less significant—standing at 0.33% for strategic-beta ETPs versus 0.23% for mainstream products.

Exhibit 25 Europe Fees Under the Microscope

	Average	Combined (%)	Equity (%)	Fixed Income (%)	Commodity (%)	Alternative (%)
All ETFs	Asset-Weighted	0.22	0.22	0.20	0.23	0.29
	Equal-Weighted	0.34	0.33	0.21	0.66	0.48
ETPs ex-Strategic Beta	Asset-Weighted	0.21	0.21	0.20	0.23	0.27
	Equal-Weighted	0.33	0.33	0.20	0.52	0.43
Strategic-Beta	Asset-Weighted	0.32	0.37	0.39	0.33	0.60
	Equal-Weighted	0.45	0.36	0.33	0.84	0.58

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Asia-Pacific

Asia-Pacific strategic-beta ETPs' organic growth clocked in at 18% in 2022, faster than 2021's 12% organic growth rate. However, volatile equity markets and foreign-exchange movements in Asia-Pacific pushed the headline strategic-beta ETP assets down slightly by 0.6% to \$53.5 billion. Following the pattern of the last two years, growth was uneven across markets in the region. Australia, China, India, and Taiwan were the key growth drivers in terms of strategic-beta product offerings or assets while other markets continue to show signs of maturation in the strategic-beta field.

Japan remains the largest strategic-beta ETP market in the region with \$24.3 billion of assets but experienced negative organic growth of 0.6% in 2022. Recall that the Bank of Japan's ETF purchase came to a halt since April 2021 and the full-year effect has been felt in both the broader Japanese ETP market and the local strategic-beta ETP market. The weak Japanese yen, which depreciated 13% against the U.S. dollar in 2022, drove both the headline broader Japanese ETP market and the local strategic-beta ETP market down by 17%.

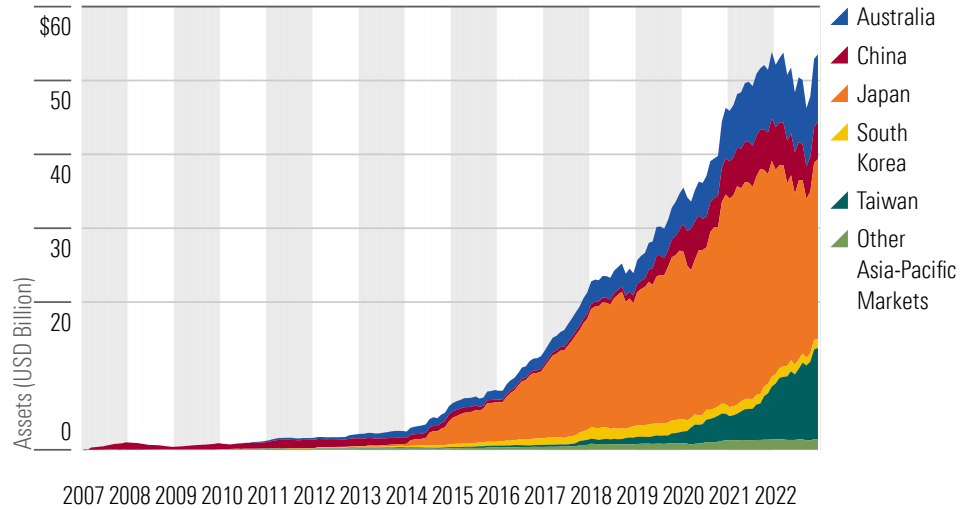
Taiwan had a strong year in the strategic-beta ETP market and ended in second place in the region. Taiwan's strategic-beta ETP market clocked an organic growth rate of 110%, putting assets at \$12.4 billion. Australia, despite dropping to third place in the region, had a decent organic growth rate of 16% in 2022 with \$9.1 billion of strategic-beta assets.

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

Market	No of ETPs	Total Assets (USD Mil)	% of Tot Assets of Strategic-Beta ETPs in APAC	Largest ETP (USD Mil)	Avg ETP Assets (USD Mil)	% of Tot Local ETP market	2022 Flows (USD Mil)	2021-2022 Growth (%)		
								% Organic Growth	Strategic -Beta ETPs	Total ETP Market
Australia	36	9,132.6	17.1	1,997.8	253.7	10.2	1,479.8	16.4	1.2	-10.1
China	66	5,058.1	9.4	2,046.9	76.6	2.7	300.6	5.2	-12.0	10.0
Hong Kong	13	499.3	0.9	151.7	38.4	1.1	-48.5	-7.1	-26.8	-5.4
India	23	308.9	0.6	204.3	13.4	0.5	175.7	114.5	101.3	15.1
Japan	28	24,317.3	45.4	8,580.2	868.5	5.4	-181.8	-0.6	-16.6	-17.2
Malaysia	4	17.3	0.0	11.1	4.3	3.8	-1.8	-8.6	-14.9	-8.6
New Zealand	4	241.9	0.5	112.5	60.5	6.9	19.1	6.5	-18.0	-8.5
Singapore	4	293.1	0.5	217.5	73.3	4.0	73.7	28.6	14.0	-8.6
South Korea	68	1,254.2	2.3	175.8	18.4	2.0	163.4	11.9	-8.5	-0.2
Taiwan	20	12,422.8	23.2	5,540.4	621.1	16.2	7,837.1	109.7	73.8	-0.3
Thailand	1	4.4	0.0	4.4	4.4	0.8	0.0	-0.1	-1.6	-5.5
Total/average	267	53,549.8	100.0	8,580.2	200.6	5.4	9,817.2	18.2	-0.6	-7.8

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Exhibit 27 Asia-Pacific Strategic-Beta ETP Asset Growth

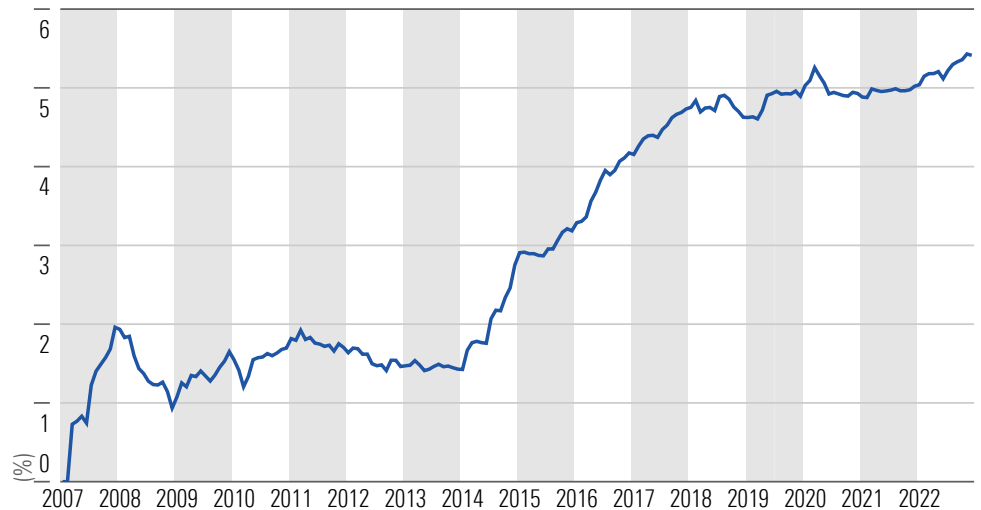


Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Market Share Gains

In 2022, assets in Asia-Pacific strategic-beta ETPs grew faster than the overall regional ETP market. Consequently, their market share rose to 5.4% from 5.0% in 2021, but this jump was driven mainly by the growth in Taiwan and Australia, with local market share at 16.2% and 10.2%, respectively.

Exhibit 28 Strategic-Beta ETPs' Share of the Overall Asia-Pacific ETP Market (%)



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Sustainable Strategic-Beta ETPs Skew to One Product in the Region

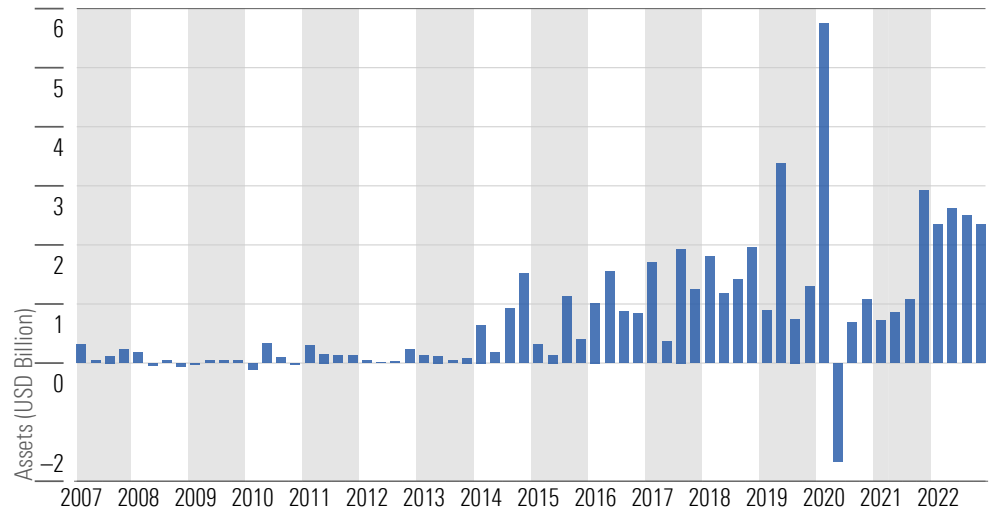
As of the end of 2022, sustainable strategic-beta ETPs accounted for 9.2% total assets in strategic-beta ETPs, similar to 8.5% in Europe. However, the idea and popularity of combining strategic-beta and sustainability in Asia-Pacific is very skewed toward one product, the Cathay Sustainability High Dividend ETF 00878, available to Taiwan investors. This Cathay ETF is one of the seven strategic-beta ETPs in the region identified as sustainable ETPs using the "Sustainable Investment—Overall" datapoint in Morningstar Direct. Its \$4.5 billion of assets represents 91% of the total assets of these seven ETPs. The idea of combining strategic-beta and sustainability does not appear to be a universal trend in the Asia-Pacific region.

Strong Flows Into Strategic-Beta Products From Australia and Taiwan Investors

The year 2022 saw the strongest annual net inflows into the strategic-beta ETPs in the region in history, at \$9.8 billion, thanks to the strong inflows into products domiciled in Australia and Taiwan. The two markets accounted for 95% of the region's net flows in 2022. Taiwan was the key contributor, with \$7.8 billion going into strategic-beta ETPs in the local market.

Japan had been a key contributor to the growth of strategic-beta ETPs in Asia-Pacific for years with Bank of Japan's ETF purchases. In 2022, the market's strategic-beta recorded annual net outflows, the first time we noted this in the history of Morningstar's strategic-beta products landscape report.

Exhibit 29 Asia-Pacific Strategic-Beta ETP Quarterly Asset Flows

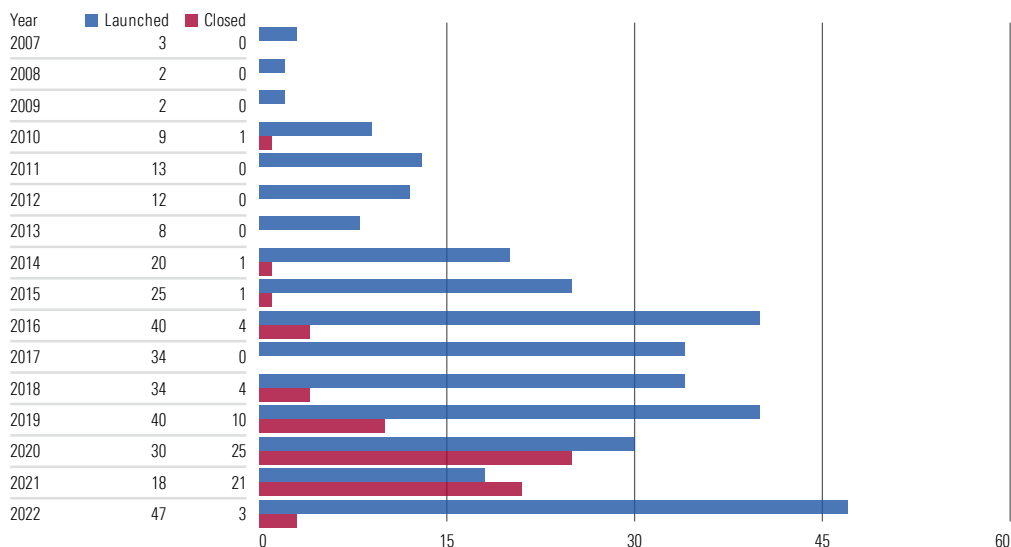


Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Launches Pick Up in Some Markets

After two years of a slowdown in launches and heightened closures of strategic-beta ETPs in the Asia-Pacific region, there were 47 new launches in 2022, the highest annual number in the history of this report, and there were only three closures during the year. Dividend strategic-beta group ETPs were the most popular among the launches with 18 new products in various markets. In 2022, China was the key contributor for new strategic-beta ETP launches in the region, with 18 additions, followed by India with 13 additions. Taiwan also welcomed seven additions to its relatively small strategic-beta ETP menu, putting the total number of strategic-beta ETPs at 20 as of the end of 2022.

Exhibit 30 Asia-Pacific Number of Strategic-Beta ETP Launches and Closures by Year



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Quality Trumps in Assets and Dividend Catching-up With Very Strong Inflows

ETPs belonging to the Quality strategic-beta group continued to rank at the top of the region's strategic-beta ETP assets, accounting for 47%, or \$25.2 billion. However, this cohort of products recorded organic growth of only 2%. Meanwhile, assets in the Dividend strategic-beta group recorded strong organic growth of 47%, attracting \$7.8 billion of net inflows in 2022 and putting assets at \$21.2 billion. They accounted for 40% of strategic-beta market share.

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

Strategic-beta Group	# of ETPs	AUM (USD Mil)	% Attribute AUM											2022 Flows (USD Mil)	Organic Growth %	
			Australia	China	Hong Kong	India	Japan	Malaysia	New Zealand	Singapore	South Korea	Taiwan	Thailand			Total Asia-Pac
Quality	41	25,201.9	6.0	0.5	0.1	0.0	40.3	0.0	0.0	0.0	0.1	0.0	0.0	47.1	555.3	1.8
Dividend	96	21,201.7	5.5	5.6	0.4	0.0	3.9	0.0	0.1	0.5	1.4	22.0	0.0	39.6	7,811.4	47.3
Other	16	2,162.7	2.6	0.2	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	4.0	23.2	0.9
Multifactor	43	1,962.6	0.5	2.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.0	3.7	457.4	21.0
Risk-Oriented	20	891.3	0.4	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.1	0.5	0.0	1.7	371.9	55.8
Fixed Income	8	719.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.3	141.3	19.4
Growth	6	457.9	0.0	0.6	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.9	290.4	105.2
Fundamentals	6	441.3	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	12.4	2.6
Value	17	332.2	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.6	98.2	34.0
Momentum	12	149.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	62.7	42.3
Commodity	2	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-7.0	-21.3
Total	267	53,549.8	17.1	9.4	0.9	0.6	45.4	0.0	0.5	0.5	2.3	23.2	0.0	100.0	9,817.2	18.2

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Japanese Sponsors' Market Share Continues to Shrink; Market Remains Fragmented

With strategic-beta ETPs losing steam in Japan, the market shares of Japanese strategic-beta ETP sponsors continue to shrink. Nomura, the backer of the region's largest strategic-beta ETP, retained as the leader in terms of strategic-beta ETP assets, but its market share shrank to 18% from 21% at the end of 2021. Meanwhile, strategic-beta ETP sponsors in Taiwan saw a big jump through the ranks. In particular, Yuanta Financials and Cathay SITC ranked second and third, respectively, in the region, with market shares of 11% and 9%, respectively. More notably, Cathay SITC was not within the top 10 in the prior year.

The Asia-Pacific market remains deeply fragmented. At the end of 2022, 22% of the region's strategic-beta ETP assets were managed across 213 products offered by 73 different providers.

Exhibit 32 Asia-Pacific Largest Strategic-Beta ETP Providers

	AUM (USD Mil)	# of ETPs	Market Share (%)
Nomura	9,761.3	5	18.2
Yuanta Financial	6,045.3	3	11.3
Cathay SITC	4,729.7	3	8.8
MUFG	4,651.4	5	8.7
VanEck	4,443.8	13	8.3
iShares	2,974.5	9	5.6
Daiwa	2,683.2	2	5.0
Nikko AM	2,414.4	5	4.5
Huatai-PineBridge	2,197.7	5	4.1
AM One	2,031.8	4	3.8
Others	11,616.6	213	21.7
Total	53,549.8	267	100.0

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Dividend Strategic-Beta ETPs Climbing Up the Ranks

ETPs tracking the JPX-Nikkei Index 400 continue to dominate the ranks of the largest strategic-beta ETPs in the Asia-Pacific region, but these products saw some small outflows. One of these ETPs fell out of the standings where five of the seven ETPs tracking the JPX-Nikkei Index 400 remained among the top 10 strategic-beta ETPs by assets in the region. The Dividend strategic-beta ETPs sponsored by Yuanta and Cathay gathered assets strongly, collectively by \$6.5 billion, putting them at second and third place, respectively. The \$6.5 billion of net inflows into these two ETPs accounted for 66% of the region's total net inflows in 2022.

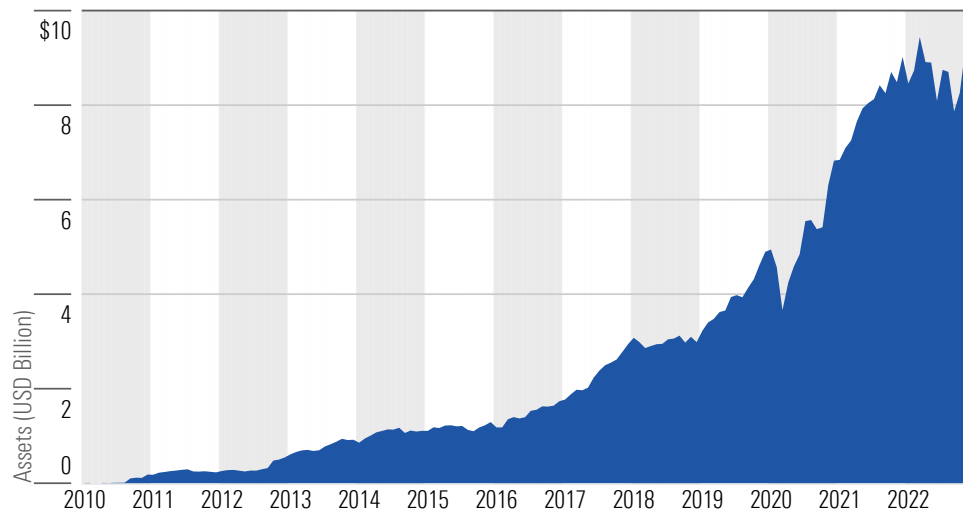
Exhibit 33 Largest Asia-Pacific Strategic-Beta ETPs

Name	Ticker	Inception Date	Market	Strategic Beta Group	Expense Ratio (%)	Assets (USD Mil)	2022 Flows (USD Mil)
NEXT FUNDS JPX-Nikkei Index 400 ETF	1591	1/24/2014	Japan	Quality	0.16	8,580.2	-112.9
Yuanta/P-shares Taiwan Dividend Plus ETF	0056	12/13/2007	Taiwan	Dividend	0.42	5,540.4	2,740.9
Cathay Sustainability High Dividend ETF	00878	7/10/2020	Taiwan	Dividend	0.32	4,478.3	3,748.3
MAXIS JPX-Nikkei Index 400 ETF	1593	2/5/2014	Japan	Quality	0.09	4,374.3	-51.9
Daiwa ETF JPX-Nikkei 400	1599	3/26/2014	Japan	Quality	0.26	2,494.0	-28.8
Listed Index Fund JPX-Nikkei Index 400	1592	1/27/2014	Japan	Quality	0.16	2,229.3	-15.5
Huatai-PB SSE Dividend Index ETF	510880	11/17/2006	China	Dividend	0.60	2,046.9	-545.6
Vaneck MSCI International Quality ETF	QUAL	10/29/2014	Australia	Quality	0.40	1,997.8	456.4
iShares JPX-Nikkei 400 ETF	1364	12/1/2014	Japan	Quality	0.17	1,961.9	-19.3
Vanguard Australian Shares High Yld ETF	VHY	5/23/2011	Australia	Dividend	0.25	1,793.1	314.0

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Australia

Following multiple years of steady growth, the broad Australian ETP market had a muted year in 2022. AUM declined by 10.1% to \$89.4 billion at the end of 2022 due to the market downturn which also reflecting a 6.7% depreciation of the Australian dollar against the U.S. dollar. Reeling under worsening macroeconomic conditions, equity markets declined worldwide last year (the S&P ASX 200 Index fell 7.7%, while the MSCI ACWI ex Australia tumbled 18.6%), weighing on investor sentiment as the net inflows into locally listed ETPs slowed to \$9.8 billion, showing a 39.7% decline relative to 2021.

Exhibit 34 Australia Strategic-Beta ETP Asset Growth

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Overall the Australian strategic-beta ETP market remained steady in 2022 with a net increase of two strategic-beta ETPs, bringing the total to 36 products. The assets grew by a meager 1.2% to \$9.1 billion, primarily attributed to net new inflows. Notably, the contraction of the broader local market meant that the strategic-beta ETPs' market share grew to 10.2% in 2022 from 9.1% in 2021. For the second consecutive year, strategic-beta ETPs registered a gain in net flows. The strategic-beta cohort absorbed \$1.5 billion in net inflows during 2022, a 9.3% jump from 2021.

The Quality strategic-beta group remained the top choice among local investors amid inflation-induced uncertain macro conditions. At \$3.2 billion, Quality-oriented ETPs represented 35.3% of assets invested into local strategic-beta ETPs.

Quality factor ETPs dwarfed other strategic-beta products in 2022 in terms of net inflows, drawing \$792 million. Flows into these funds accounted for more than half (53.5%) of all flows into strategic-beta ETPs in Australia. Flows into ETPs belonging to the Dividend-oriented strategic-beta group ranked a distant second with \$358 million of net inflows.

VanEck retained its market leadership across the board. As of December 2022, the issuer had a 48.7% market share in strategic-beta ETPs with \$4.4 billion in AUM across 13 products. The firm was also the most preferred among the investors for strategic-beta ETP investing in 2022, amassing \$772 million, the highest among all strategic-beta ETP providers.

Exhibit 35 Australia Ranking of Strategic-Beta ETPs by Strategic-Beta Group

Strategic Beta Group	No of ETPs	Assets (USD Mil)	% of Assets	2022 Flows (USD Mil)	2022 Organic Growth %
Quality	9	3,220.4	35.3	792.4	24.3
Dividend	10	2,948.0	32.3	358.1	13.2
Other	4	1,412.8	15.5	6.6	0.4
Fixed Income	4	625.0	6.8	193.8	35.2
Fundamentals	1	309.6	3.4	29.3	10.0
Multifactor	5	253.4	2.8	-22.2	-6.3
Risk-Oriented	2	227.5	2.5	58.3	30.5
Value	1	135.8	1.5	63.4	74.7

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

At the end of 2022, VanEck MSCI International Quality ETF *QUAL* was the largest strategic-beta ETP in the Australian market, with \$2.0 billion in assets. It was followed closely by Vanguard Australian Shares High Yield ETF *VHY* (\$1.8 billion) and VanEck Australian Equal Weight ETF *MVW* (\$1.2 billion). These top three largest funds collectively accounted for 54.4% of all strategic-beta ETP assets in Australia.

Based on their equal-weighted average fees, strategic-beta ETPs are priced at a modest premium to their market-cap-weighted counterparts in Australia. However, a caveat here is the inclusion of a few ETPs in the strategic-beta cohort with fees comparable to the active managers. For example, VanEck Vectors China New Economy ETF *CNEW* charges an annual fee of 0.95%. Australian investors have generally leaned toward less pricey options across all asset class groupings. The fact that asset-weighted average costs are lower than equal-weighted fees supports this point.

Exhibit 36 Australia Fees Under the Microscope

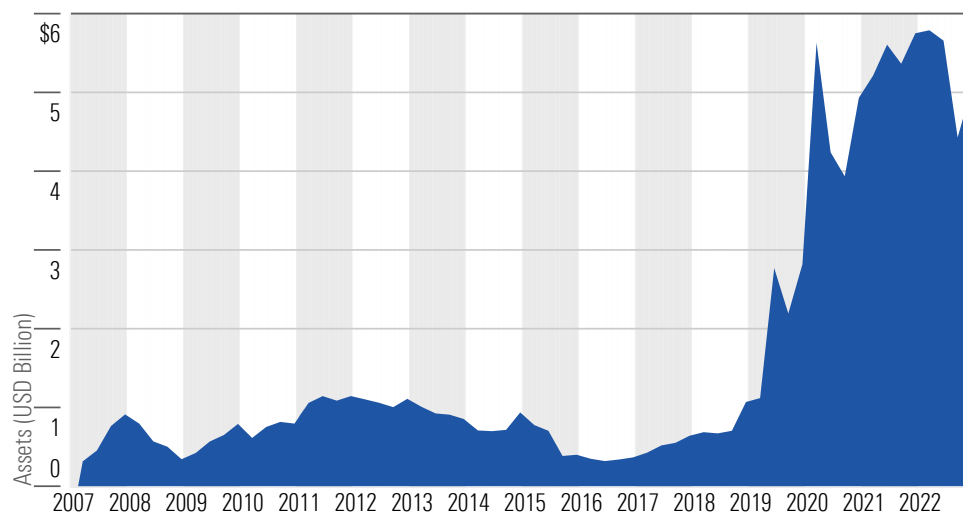
	Average	Combined (%)	Equity (%)	Fixed Income (%)
Pure Passive ETPs (ex-Strategic Beta)	Asset-Weighted	0.25	0.25	0.21
	Equal-Weighted	0.42	0.43	0.25
Strategic-Beta	Asset-Weighted	0.37	0.38	0.22
	Equal-Weighted	0.47	0.45	0.29
Active ETPs	Asset-Weighted	0.95	1.27	0.53
	Equal-Weighted	0.92	1.02	0.52

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

China

The overall China ETP market had more than 100 ETPs launched in 2022 but only 18 of these were strategic-beta ETPs, where thematic funds continued to be the key driving force in these new launches. Assets in strategic-beta ETPs fell 12% in 2022 as the overall equity market dipped, while the overall ETP market grew 10%. Strategic-beta ETP assets' organic growth was just 5.2% in 2022, further slowing from 2021's 7.6%. The 18 new strategic-beta ETPs brought in \$562 million of assets while outflows and closures of existing strategic-beta ETPs put net inflows at \$301 million for 2022, slightly higher than the \$296 million in 2021. At the end of 2022, total assets in Chinese strategic-beta ETPs stood at \$5.1 billion, representing 2.7% of the overall ETP market, smaller than the 3.3% as of end of 2021. The total of 66 strategic-beta ETPs in the Chinese ETP market was just slightly below the 68 strategic-beta ETPs in the South Korean market, which is at second position in terms of number of strategic-beta ETPs in Asia-Pacific.

Exhibit 37 China Strategic-Beta ETP Asset Growth



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

ETPs in the Dividend strategic-beta group remained the most popular among investors in China, representing a 59.5% market share of the strategic-beta ETP market. The group is, again, dominated by the largest strategic-beta ETP, the Huatai-PB SSE Dividend Index ETF 510880. Net outflows from this ETP contributed most of the net outflows from the Dividend strategic-beta ETPs in 2022. Meanwhile, nine of the 18 new strategic-beta launches belong to the Multifactor strategic-beta group.

Exhibit 38 China Ranking of Strategic-Beta ETPs by Strategic-Beta Group

Strategic Beta Group	No of ETPs	Assets (USD Mil)	% of Assets	2022 Flows (USD Mil)	2022 Organic Growth %
Dividend	18	3,007.2	59.5	-455.0	-11.7
Multifactor	24	1,094.9	21.6	506.0	54.7
Growth	3	296.8	5.9	276.6	918.4
Quality	8	272.3	5.4	-17.0	-4.5
Fundamentals	3	119.7	2.4	-9.1	-5.5
Other	3	116.8	2.3	1.8	1.0
Value	4	81.9	1.6	24.0	31.4
Risk-Oriented	2	47.3	0.9	-10.7	-15.1
Fixed Income	1	21.1	0.4	-16.0	-38.3

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Fragmentation continued to be the key characteristic of the strategic-beta ETP market. At the end of 2022, there were 30 different ETP providers offering a total of 66 strategic-beta ETPs. Huatai-Pinebridge retained its top spot with a 43% market share, down from 2021's 50%. The firm's Huatai-PB SSE Dividend Index ETF is the largest strategic-beta ETP in the market with \$2.0 billion of assets. It shrunk 27% in 2022 owing to market performance and saw net outflows of \$546 million. This moved the ETP to seventh largest in the Asia-Pacific region, down two positions.

Hong Kong

Hong Kong's menu of strategic-beta ETPs experienced a third straight year of contraction despite two additions. Net outflows from existing products and market performance led assets in Hong Kong-domiciled strategic-beta ETPs to shrink 27% in 2022, to \$500 million.

The ongoing charges levied by locally domiciled strategic-beta ETPs ranged from 0.45% to 1.38%. Taking the ETPs in the Hong Kong equity category as an example, strategic-beta ETPs' asset-weighted ongoing charge was 0.72%. This is materially higher than the 0.09% charged by Hong Kong equity ETPs tracking conventional market-cap-weighted benchmarks.

India

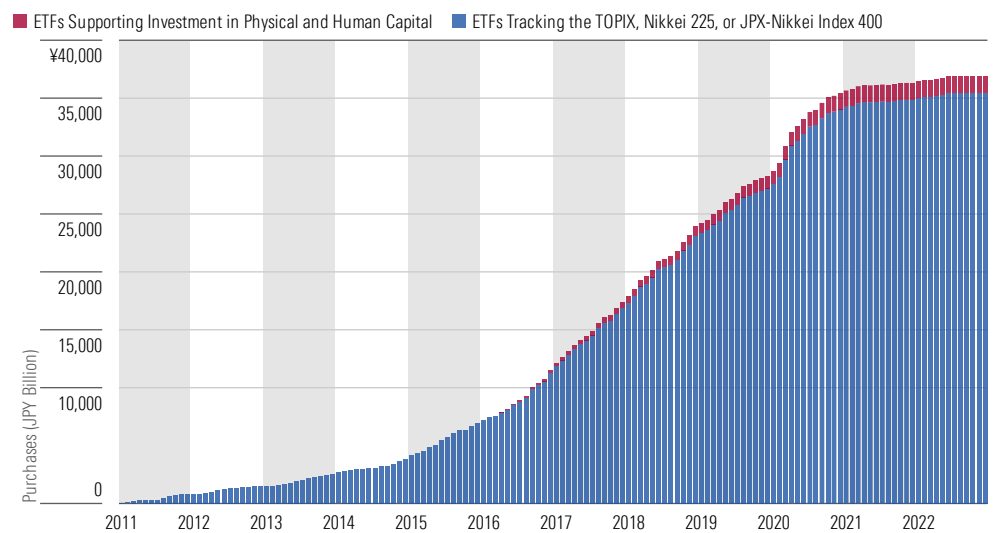
Indian strategic-beta ETPs had another impressive year. AUM doubled to \$309 million in 2022 after almost tripling in 2021. The growth came from net inflows into existing products and the launch of 12 new products. This more than doubled the total count of strategic-beta ETPs to 23. The new launches belonged to various strategic-beta groups, including Momentum, Quality, Value, Growth, and Risk-Oriented. Despite strong growth, strategic-beta ETPs remained a tiny portion of the overall Indian ETP market, with a market share of just 0.5%.

The ICICI Pru Alpha Low Vol 30 ETF ICICILOVOL remained the largest strategic-beta ETP in the local market with a 66% market share. This ETP helped ICICI Prudential Asset Management to retain its top spot in the Indian strategic-beta ETP market with 82% market share. The remaining six ETP providers with strategic-beta ETP offerings each have 1%-5% market share.

Japan

2022 saw the full-year effect from the Bank of Japan backing down on ETF purchases since April 2021. In the 12 months up to December 2022, the bank only purchased JPY 631 million worth of ETFs, 20% less than the purchases made during the same period in 2021. Overall ETP assets fell 17% amid the limited purchases by the bank and the depreciated yen against the U.S. dollar (negative 13% in 2022). As of December 2022, the Bank of Japan held \$280 billion worth of ETFs, representing 62% of total assets in Japan-domiciled ETPs. The percentage would be even higher if we factored in the unrealized gains of these holdings.

Exhibit 39 Aggregate ETP Purchases by the Bank of Japan

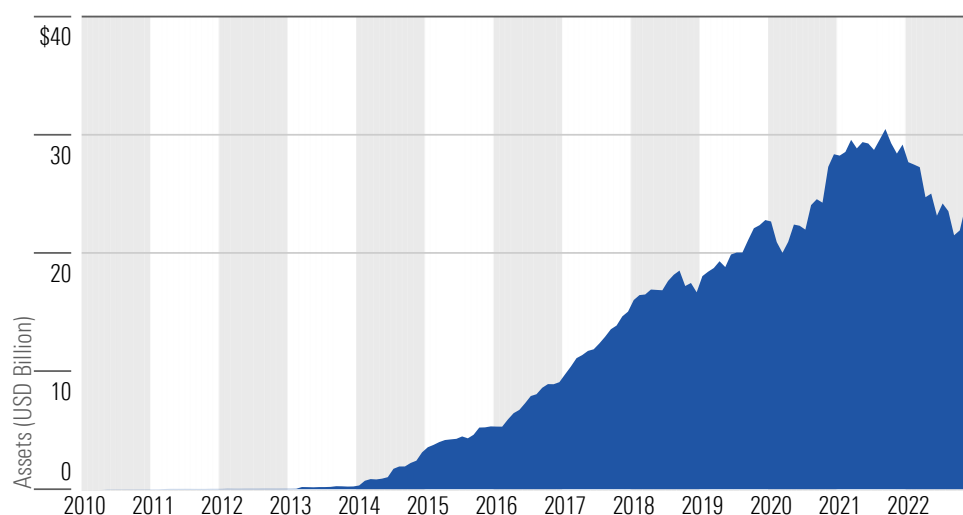


Source: Bank of Japan, Morningstar Research. Data as of Dec. 31, 2022.

Given that the JPX-Nikkei Index 400 was no longer eligible within the Bank of Japan's purchases as of April 1, 2021, and the Bank of Japan's purchases of ETFs supporting firms proactively investing in physical and human capital stopped in April 2021, we saw net outflows from the strategic-beta ETPs. Together with the currency effect, strategic-beta assets dropped 16.6% in 2022 to \$24.3 billion.

Just one new strategic-beta ETP was launched in Japan in 2022. At year's end, the total number of strategic-beta ETPs in the local market sat at 28. The seven ETPs tracking the JPX-Nikkei Index 400 together retained the lion's share of strategic-beta ETP assets, at 88%. As a result, Quality was by far the largest strategic-beta group represented in the Japanese market.

Exhibit 40 Japan Strategic-Beta ETP Asset Growth



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Nomura is the manager of the largest strategic-beta ETP in the market, the NEXT FUNDS JPX-Nikkei Index 400 ETF 1591, which held \$8.6 billion as of the end of 2022. This ETP alone accounted for 35% of Japan's strategic-beta ETP assets. Together with its four other strategic-beta ETPs, Nomura has a leading market share of 40% of the Japanese strategic-beta ETP market.

The ongoing charges levied by locally domiciled strategic-beta ETPs ranged from 0.09% to 0.64%.

Exhibit 41 Japan Ranking of Strategic-Beta ETPs by Strategic-Beta Group

Strategic Beta Group	No of ETPs	Assets (USD Mil)	% of Assets	2022 Flows (USD Mil)	2022 Organic Growth %
Quality	12	21,584.1	88.8	-236.8	-0.9
Dividend	11	2,071.6	8.5	57.8	2.8
Other	4	600.6	2.5	2.7	0.4
Risk-Oriented	1	61.0	0.3	-5.5	-7.1

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Malaysia

The menu of the Malaysia-listed strategic-beta ETPs remained unchanged in 2022. There remain four offerings, dominated by three ETPs belonging to the Dividend strategic-beta group. Total AUM landed at \$17 million as of the end of 2022, shrinking 15% from a year ago, slightly more than the 9% decline in the broader ETP market.

New Zealand

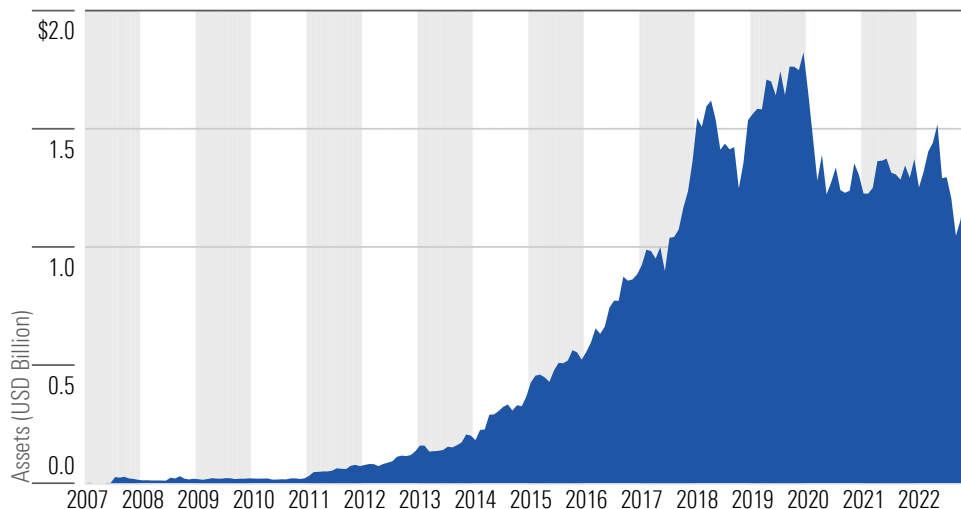
Assets in New Zealand-domiciled strategic-beta ETPs contracted by a notable 18.0% in 2022, landing at \$242 million. The decline was in sync with the overall contraction in the New Zealand ETP market. As such, strategic-beta ETPs' market share marginally declined to 6.9% in 2022 (from 7.5% in 2021). Strong underperformance of the domestic-equity market (the S&P NZX 50 tumbled 18.7%) weighed on investors' sentiment as the strategic-beta ETPs' net flows significantly declined by 54.1% to \$19 million in 2022 compared with 2021, marking the second consecutive year of decline. The two ETPs belonging to the Dividend strategic-beta group (Smartshares Aus Dividend and Smartshares NZ Dividend) represented 31.1% of all assets invested in New Zealand strategic-beta ETPs.

Singapore

There were no changes in the strategic-beta ETP menu in Singapore with four products in the market. All four belong to the Dividend strategic-beta group. AUM in these four ETPs totaled \$293 million as of the year's end, marking 14% year-over-year growth. The growth in the strategic-beta ETP market was stronger than that of the broader ETP market, which contracted 9%. As a result, strategic-beta ETPs' market share rose to 4.0%, from 3.1% as of the end of 2021.

South Korea

South Korea remains the leader in the Asia-Pacific region in terms of the number of strategic-beta ETPs available to local investors, with 68 strategic-beta ETPs on the menu as of the end of 2022. Although retaining the lead, this position appears to be threatened by China with 66 strategic-beta ETPs. The 68 strategic-beta ETPs in the local market span all 11 strategic-beta groups. Total AUM in strategic-beta ETPs shrank 9% to \$1.3 billion, while the asset size of overall local ETP market was largely unchanged in 2022. As a result, the market share of strategic-beta ETPs further slipped to 2.0% from 2.2% as of the end of 2021.

Exhibit 42 South Korea Strategic-Beta ETP Asset Growth

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

The Dividend strategic-beta group remains the most popular, with \$0.8 billion in AUM. The three new strategic-beta ETPs launched during the year belong to this group, which hosts 27 of the 68 strategic-beta ETPs on the local menu. The assets of ETPs in the Dividend strategic-beta group accounted for 63% of the local strategic-beta ETP market.

Exhibit 43 South Korea Ranking of Strategic-Beta ETPs by Strategic-Beta Group

Strategic Beta Group	No of ETPs	Assets (USD Mil)	% of Assets	2022 Flows (USD Mil)	2022 Organic Growth %
Dividend	27	768.0	62.9	259.1	40.4
Multifactor	7	132.5	10.9	-37.2	-17.6
Quality	5	72.3	5.9	-25.8	-21.5
Fixed Income	2	57.8	4.7	-29.1	-31.0
Risk-Oriented	8	53.5	4.4	3.9	6.1
Growth	1	47.7	3.9	-1.6	-2.1
Value	6	37.1	3.0	-2.7	-5.2
Other	4	26.3	2.2	10.3	41.2
Momentum	5	25.1	2.1	-1.6	-4.5
Commodity	1	21.7	1.8	-4.0	-16.1
Fundamentals	2	12.0	1.0	-7.9	-32.4

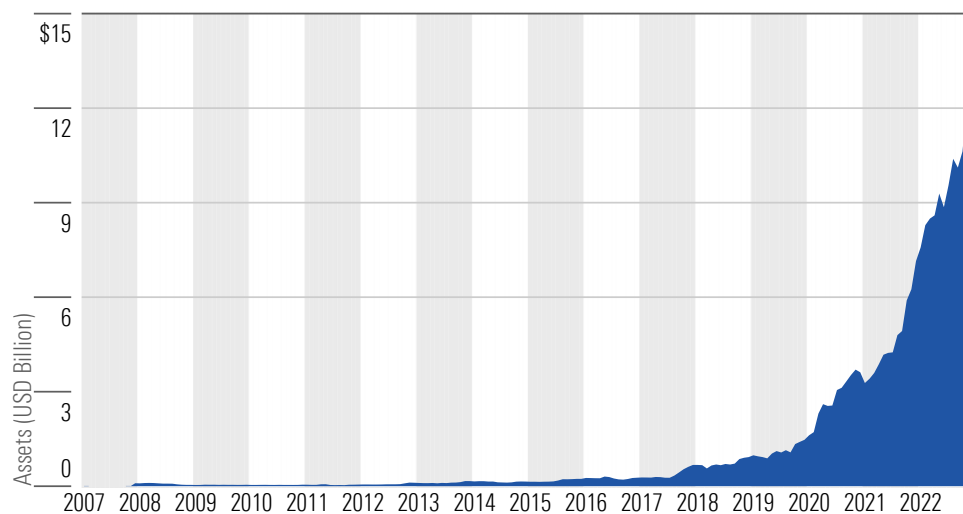
Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

The South Korea strategic-beta ETP market remains fragmented. At the end of 2022, the average AUM among strategic-beta ETPs stood at \$18 million, and 37 of them had less than \$10 million in AUM. Mirae Asset leapfrogged Samsung and Hanwha Group to the top of the local market strategic-beta ETPs leaders from inflows into Mirae's existing and two newly launched strategic-beta ETPs, with 11 offerings and a market share of 28%. This is followed by Samsung and Hanwha Group, with 17 and 12 offerings, respectively, and respective market shares of 24% and 18%.

Taiwan

Taiwan's strategic-beta ETP market recorded 110% in organic growth in 2022, pushing assets to \$12.4 billion. This helped Taiwan surpass Australia to become the second-largest strategic-beta ETP market in the region, after Japan. Growth was driven mainly by net inflows into existing Dividend ETPs as well as seven new launches. Growth in the strategic-beta ETP market continued to surpass that of the overall ETP market in Taiwan in 2022, and strategic-beta ETPs' market share rose to 16.2% up from 9.3% at the end of 2021. This is the highest strategic-beta ETP market share in the Asia-Pacific region.

Exhibit 44 Taiwan Strategic-Beta ETP Asset Growth



Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Dividend-focused strategies dominate the strategic-beta ETP market in Taiwan with combined AUM of \$11.8 billion spread across 13 ETPs. This represented 95% of the entire strategic-beta ETP market. This cohort also received 96% of the total strategic-beta ETP flows (\$7.5 billion) during the year. In particular, net inflows to the Yuanta/P-shares Taiwan Dividend Plus ETF 0056 and the Cathay Sustainability High Dividend ETF contributed to the majority of the market's net inflows, at \$2.7 billion and \$3.7 billion, respectively.

Yuanta Financial retained its market-leading position with its three strategic-beta products and a market share of 49%. The firm also manages the market's largest strategic-beta ETP, the Yuanta/P-shares Taiwan Dividend Plus ETF, the second-largest strategic-beta ETP in Asia-Pacific. Cathay SITC had a strong year in gathering assets, with its three strategic-beta ETPs and a market share of 38%. In particular, the Cathay Sustainability High Dividend ETF is the market's largest strategic-beta ETP and became the third-largest strategic-beta ETP in the Asia-Pacific region.

Exhibit 45 Taiwan Ranking of Strategic-Beta ETPs by Strategic-Beta Group

Strategic Beta Group	No of ETPs	Assets (USD Mil)	% of Assets	2022 Flows (USD Mil)	2022 Organic Growth %
Dividend	13	11,783.2	94.9	7,516.6	113.8
Multifactor	3	260.3	2.1	89.0	33.8
Risk-Oriented	1	246.7	2.0	181.5	134.2
Momentum	2	117.3	0.9	57.4	51.2
Fixed Income	1	15.4	0.1	-7.4	-25.6

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Thailand

ThaiDEX SET High Dividend ETF 1DIV remained the one and only strategic-beta ETP in the Thailand ETP market. At the end of 2022, the fund's assets totaled \$4.4 million, little changed from the previous year. This lone strategic-beta ETP's assets represented only a small portion (0.8%) of the total assets in the Thai ETP market.

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. **III**

Exhibit 46 ETPs From Emerging (Strategic-Beta) Markets































Name	Domicile	Ticker	Inception Date	Assets (USD Mil)	Strategic-Beta Group
MEXTRAC	Mexico	MEXTRAC	8/27/2009	601.7	Dividend
It Now IMA-B5+ FUNDO DE ÍNDICE	Brazil	IB5M11	9/23/2019	235.5	Fixed Income
Satrix Divi Plus ETF	South Africa	STXDIV	8/30/2007	135.3	Dividend
It Now IDIV Index Fund ETF	Brazil	DIV011	1/3/2012	99.0	Dividend
1invest SWIX 40 ETF	South Africa	ETFSWX	10/5/2010	88.7	Other
Satrix RAFI 40 ETF	South Africa	STXRAF	10/16/2008	72.6	Fundamentals
CoreShares S&P Gbl Div Aristocrats ETF	South Africa	GLODIV	2/22/2018	65.0	Dividend
ETF Bradesco IMAB-5+ Fundo de Índice	Brazil	B5MB11	12/11/2019	34.6	Fixed Income
Satrix Swix Top 40 ETF	South Africa	STXSWX	4/10/2006	22.9	Other
Safra ETF Mulheres Na Liderança FIA	Brazil	ELAS11	3/7/2022	15.1	Other
BB ETF Índice Futuro de Boi Gordo B3	Brazil	BBO11	11/28/2022	12.2	Commodity
Sygnia Itrix SWIX 40 ETF	South Africa	SYGGSW4	10/30/2017	10.5	Other
CoreShares S&P SA Dividend Arst ETF	South Africa	DIVTRX	4/14/2014	10.5	Dividend
BTG Pactual Teva Ações Commod Bra Índice	Brazil	CMDB11	11/29/2021	10.5	Commodity
ETF Trígono Teva Ações Micro/Small Cap	Brazil	TRIG11	11/11/2021	10.2	Other
QVGMEX 18	Mexico	QVGMEX	5/2/2018	9.7	Multi-Factor
BB ETF Índice Futuro de Milho B3 Índice	Brazil	CORN11	10/24/2022	8.7	Commodity
CoreShares SciBeta M-FI ETF	South Africa	SMART	7/10/2019	6.8	Multi-Factor
Empiricus Teva Criptomoeas Top20 Ind IE	Brazil	CRPT11	5/6/2022	6.1	Other
ETF It Now S&P/CLX Chile Dividend UNICA	Chile	CFMDIVO	1/11/2019	5.7	Dividend
BTG Pactual Teva Debêntures DI Índice	Brazil	DEBB11	6/22/2022	4.7	Commodity
Satrix Quality South Africa ETF	South Africa	STXQUA	9/26/2017	3.6	Other
Hashdex Defi Index ETF	Brazil	DEFI11	2/18/2022	3.1	Dividend
QR Bloomberg Defi Fundo de Índice IE	Brazil	QDFI11	2/7/2022	2.5	Commodity
Satrix Momentum ETF	South Africa	STXMMT	11/16/2018	2.0	Other
Inter Eqi Teva ETF GrandesGurusdoMercado	Brazil	GURU11	12/3/2021	2.0	Commodity
Índice de Ações Brasil ETF Fundo Índice	Brazil	TECB11	10/4/2021	1.9	Other
BB ETF S&P Dividendos Brasil	Brazil	BBSD11	12/8/2014	1.7	Dividend
1invest MSCI EM Asia Index Feeder ETF	South Africa	ETFEMA	8/18/2022	1.4	Commodity
Investo Vaneck ETF MVSCLE BR Índice IE	Brazil	BLOK11	6/20/2022	1.4	Other
Investo VanEck ETF M&ELdr Brazil IE	Brazil	NFTS11	3/31/2022	1.3	Commodity
Hashdex Smart Contract Platforms Índice	Brazil	WEB311	3/29/2022	1.0	Other
Investo MarketvectorBriSmallCapValue ETF	Brazil	SCVB11	10/3/2022	0.8	Dividend
Investo ETF S&P Smallcap 600 Value IE	Brazil	SVAL11	7/12/2022	0.7	Commodity
Investo Marketvector Bri Dmstc Expsr ETF	Brazil	BDOM11	9/21/2022	0.7	Other
BluestarTop10USLstdAltAstMngETFÍndice IE	Brazil	PEVC11	8/31/2022	0.4	Other
Investo Marketvector Bri Gbl Expsr ETF	Brazil	BXPO11	9/20/2022	0.2	Fundamentals

Source: Morningstar Direct, Morningstar Research. Data as of Dec. 31, 2022.

Appendix—The Morningstar Medalist 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 analysts have assigned Morningstar Medalist Ratings to 121 strategic-beta ETPs worldwide which are covered directly by analysts with analyst-assigned ratings for the People, Process, and Parent pillars and Summary Analysis written by analysts. Exhibit 47 contains our ratings for those currently covered by our global manager research team. They collectively held \$0.99 trillion in investors' money as of Dec. 31, 2022, representing 65% of the total amount invested in global strategic-beta ETPs.

Exhibit 47 Strategic-Beta ETPs with Morningstar Medalist Ratings and Analysts Written Summary Analysis

Name	Domicile	Ticker	Strategic-Beta Group	Assets (USD Mil)	Morningstar Medalist Rating
Amundi IS JPX-Nikkei 400 ETF-C JPY	Luxembourg	JPNY	Quality	265.8	 Silver
BetaShares FTSE RAFI Australia 200 ETF	Australia	QOZ	Fundamentals	309.6	 Bronze
BetaShares S&P 500 Equal Weight ETF	Australia	QUS	Other	144.5	 Neutral
Fidelity® High Dividend ETF	United States	FDVV	Dividend	1,343.3	 Silver
First Trust Value Line® Dividend ETF	United States	FVD	Dividend	12,442.2	 Bronze
FlexShares Quality Dividend ETF	United States	QDF	Dividend	1,529.5	 Silver
Franklin U.S. Low Volatility Hi Div ETF	United States	LVHD	Dividend	954.4	 Silver
Goldman Sachs Acss Invmt Grd Corp Bd ETF	United States	GIGB	Fixed Income	553.3	 Neutral
Goldman Sachs ActiveBeta® EMkts Eq ETF	United States	GEM	Multifactor	902.5	 Neutral
Goldman Sachs ActiveBeta® Intl Eq ETF	United States	GSIE	Multifactor	2,848.8	 Silver
Goldman Sachs ActiveBeta® US LgCp Eq ETF	United States	GSLC	Multifactor	10,228.9	 Silver
Hartford Multifactor Dev Mkts (exUS) ETF	United States	RODM	Multifactor	1,429.7	 Silver
Hartford Multifactor US Equity ETF	United States	ROUS	Multifactor	445.0	 Silver
Invesco BuyBack Achievers ETF	United States	PKW	Other	1,521.6	 Neutral
Invesco FTSE RAFI Canadian ETF	Canada	PXC	Fundamentals	157.3	 Neutral
Invesco FTSE RAFI Dev Mkts ex-US ETF	United States	PXF	Fundamentals	1,267.6	 Silver
Invesco FTSE RAFI US 1000 ETF	United States	PRF	Fundamentals	5,861.0	 Silver
Invesco FTSE RAFI US 1000 ETF	Ireland	PRUS	Fundamentals	368.8	 Silver
Invesco FTSE RAFI US 1500 Small-Mid ETF	United States	PRFZ	Fundamentals	1,916.4	 Silver
Invesco FTSE RAFI US ETF	Canada	PXU.F	Fundamentals	84.9	 Silver
Invesco Fundamental Hi Yld® Corp Bd ETF	United States	PHB	Fixed Income	743.4	 Negative
Invesco S&P 500® Equal Weight ETF	United States	RSP	Other	32,683.0	 Neutral
Invesco S&P 500® Low Volatility ETF	United States	SPLV	Risk-Oriented	10,782.2	 Neutral
Invesco S&P 500® Quality ETF	United States	SPHQ	Quality	3,587.2	 Silver
Invesco S&P Intl Dev Low Vol ETF	United States	IDLV	Risk-Oriented	457.7	 Neutral
Invesco S&P SmallCap Low Volatility ETF	United States	XSLV	Risk-Oriented	706.8	 Neutral
iShares Canadian Fundamental ETF Comm	Canada	CRQ	Fundamentals	67.1	 Neutral
iShares Canadian Select Dividend ETF	Canada	XDV	Dividend	1,156.8	 Neutral
iShares Core S&P US Growth ETF	United States	IUSG	Growth	11,366.1	 Silver
iShares Core S&P US Value ETF	United States	IUSV	Value	12,770.4	 Silver















































Source: Morningstar Direct, Morningstar Research. Assets as of Dec. 31, 2022. Morningstar Medalist Ratings as of May 29, 2023. Cont. on next page.

Exhibit 47 Strategic-Beta ETPs with Morningstar Medalist Ratings and Analysts Written Summary Analysis
(continued)

Name	Domicile	Ticker	Strategic-Beta Group	Assets (USD Mil)	Morningstar Medalist Rating
iShares Dev Mkts Prpty Yld ETF USD Dist	Ireland	IWDP	Dividend	1,616.4	Bronze
iShares Edge MSCI EM Mini Vol ETF \$ Acc	Ireland	EMMV	Risk-Oriented	311.9	Silver
iShares Edge MSCI USA Val Fac ETF \$ Acc	Ireland	IUVL	Value	3,273.1	Silver
iShares Edge MSCI Wld Min Vol ETF \$ Acc	Ireland	MVOL	Risk-Oriented	3,731.2	Silver
iShares Edge MSCI World Multifactor ETF	Australia	WDMF	Multifactor	96.0	Silver
iShares Edge S&P 500 Min Vol ETF USD Acc	Ireland	SPMV	Risk-Oriented	2,110.2	Silver
iShares Em Mkts Eq Fac ETF	United States	EMGF	Multifactor	758.3	Neutral
iShares European Prpty Yld ETF EUR Dist	Ireland	IPRP	Dividend	1,229.5	Neutral
iShares International Equity Factor ETF	United States	INTF	Multifactor	857.5	Bronze
iShares MSCI EAFE Growth ETF	United States	EFG	Growth	9,779.9	Bronze
iShares MSCI EAFE Min Vol Factor ETF	United States	EFAV	Risk-Oriented	7,494.1	Silver
iShares MSCI EAFE Value ETF	United States	EFV	Value	15,214.5	Bronze
iShares MSCI Emerg Mkts Min Vol Fctr ETF	United States	EEMV	Risk-Oriented	8,160.9	Silver
iShares MSCI Global Min Vol Factor ETF	United States	ACWW	Risk-Oriented	4,559.8	Silver
iShares MSCI Intl Momentum Factor ETF	United States	IMTM	Momentum	867.6	Bronze
iShares MSCI Intl Quality Factor ETF	United States	IQLT	Quality	4,095.1	Silver
iShares MSCI Min Vol Canada ETF	Canada	XMV	Risk-Oriented	124.6	Silver
iShares MSCI Min Vol EAFE ETF	Canada	XMI	Risk-Oriented	116.5	Silver
iShares MSCI Min Vol Emerg Mkts ETF	Canada	XMM	Risk-Oriented	49.5	Silver
iShares MSCI Min Vol Global ETF	Canada	XMW	Risk-Oriented	124.4	Silver
iShares MSCI USA Min Vol Factor ETF	United States	USMV	Risk-Oriented	29,908.8	Silver
iShares MSCI USA Momentum Factor ETF	United States	MTUM	Momentum	12,047.1	Bronze
iShares MSCI USA Quality Factor ETF	United States	QUAL	Quality	17,582.4	Silver
iShares MSCI USA Value Factor ETF	United States	VLUE	Value	7,571.5	Silver
iShares Russell 1000 Growth ETF	United States	IWF	Growth	59,393.7	Silver
iShares Russell 1000 Value ETF	United States	IWD	Value	54,276.7	Silver
iShares Russell 2000 Growth ETF	United States	IWO	Growth	9,524.6	Neutral
iShares Russell 2000 Value ETF	United States	IWN	Value	11,936.2	Neutral
iShares Russell Mid-Cap Growth ETF	United States	IWP	Growth	11,787.4	Bronze
iShares Russell Mid-Cap Value ETF	United States	IWS	Value	12,981.1	Bronze
iShares S&P Mid-Cap 400 Growth ETF	United States	IJK	Growth	7,020.4	Silver
iShares S&P Mid-Cap 400 Value ETF	United States	IJJ	Value	7,448.2	Bronze
iShares S&P Small-Cap 600 Growth ETF	United States	IJT	Growth	5,213.6	Bronze
iShares S&P Small-Cap 600 Value ETF	United States	IJS	Value	6,820.7	Bronze
iShares S&P/ASX Div Opps ESG Scrnd ETF	Australia	IHD	Dividend	196.8	Bronze
iShares U.S. Equity Factor ETF	United States	LRGF	Multifactor	1,162.1	Bronze
iShares US Property Yield ETF USD Dist	Ireland	IDUP	Dividend	476.9	Gold
JHancock Multifactor Mid Cap ETF	United States	JHMM	Multifactor	2,733.4	Silver
JPMorgan Diversified Return Intl Eq ETF	United States	JPIN	Multifactor	742.8	Neutral
JPMorgan Diversified Return US Eq ETF	United States	JPUS	Multifactor	492.6	Neutral
Russell Inv High Dividend Aus Shrs ETF	Australia	RDV	Dividend	164.7	Neutral
Schwab Fundamental Emerg Mkts Lg Co ETF	United States	FNDE	Fundamentals	4,332.6	Neutral
Schwab Fundamental Intl Lg Co ETF	United States	FNDF	Fundamentals	8,407.5	Silver
Schwab Fundamental US Large Company ETF	United States	FNDX	Fundamentals	9,938.7	Silver
Schwab Fundamental US Small Company ETF	United States	FNDA	Fundamentals	5,755.3	Silver

Source: Morningstar Direct, Morningstar Research. Assets as of Dec. 31, 2022. Morningstar Medalist Ratings as of May 29, 2023.

Exhibit 47 Strategic-Beta ETPs with Morningstar Medalist Ratings and Analysts Written Summary Analysis
(continued)

Name	Domicile	Ticker	Strategic-Beta Group	Assets (USD Mil)	Morningstar Medalist Rating
Schwab International Dividend Equity ETF	United States	SCHY	Dividend	533.3	 Silver
Schwab US Dividend Equity ETF™	United States	SCHD	Dividend	44,612.7	 Gold
Schwab US Large-Cap Growth ETF™	United States	SCHG	Growth	13,547.1	 Silver
Schwab US Large-Cap Value ETF™	United States	SCHV	Value	9,951.0	 Silver
SPDR® MSCI Australia Sel Hi Div Yld ETF	Australia	SYI	Dividend	232.1	 Neutral
SPDR® MSCI EAFE StrategicFactors ETF	United States	QEFA	Multifactor	886.4	 Silver
SPDR® MSCI USA StrategicFactors ETF	United States	QUS	Multifactor	903.5	 Silver
SPDR® MSCI World Quality Mix ETF	Australia	QMIX	Multifactor	22.7	 Silver
SPDR® Portfolio S&P 500 Growth ETF	United States	SPYG	Growth	13,573.9	 Silver
SPDR® Portfolio S&P 500 Value ETF	United States	SPYV	Value	15,159.4	 Silver
SPDR® Russell 1000® Yield Focus ETF	United States	ONEY	Dividend	864.3	 Silver
SPDR® S&P Dividend ETF	United States	SDY	Dividend	23,526.6	 Silver
SPDR® S&P Global Dividend ETF	Australia	WDIV	Dividend	239.8	 Neutral
UBS ETF Fact MSCI USA Qual USD A dis	Ireland	UQLTD	Quality	998.3	 Silver
UBS ETF MSCI USA Sel Fac Mix USD A dis	Ireland	USFMD	Multifactor	186.4	 Silver
VanEck Australian Equal Wt ETF	Australia	MVW	Other	1,172.6	 Silver
Vaneck Msci International Quality Etf	Australia	QUAL	Quality	1,997.8	 Silver
VanEck MSCI Intl Quality (Hedg) ETF	Australia	QHAI	Quality	380.1	 Silver
Vanguard Australian Shares High Yld ETF	Australia	VHY	Dividend	1,793.1	 Bronze
Vanguard Dividend Appreciation ETF	United States	VIG	Dividend	65,375.4	 Gold
Vanguard FTSE Canadian High Div Yld ETF	Canada	VDY	Dividend	1,365.4	 Neutral
Vanguard Growth ETF	United States	VUG	Growth	68,198.3	 Gold
Vanguard High Dividend Yield ETF	United States	VYM	Dividend	50,296.8	 Silver
Vanguard Intl Div Apprec ETF	United States	VIGI	Dividend	4,067.5	 Silver
Vanguard Intl Hi Div Yld Idx ETF	United States	VYMI	Dividend	4,998.8	 Silver
Vanguard Mega Cap Growth ETF	United States	MGK	Growth	9,472.2	 Silver
Vanguard Mega Cap Value ETF	United States	MGV	Value	5,989.7	 Silver
Vanguard Mid-Cap Growth ETF	United States	VOT	Growth	9,313.1	 Gold
Vanguard Mid-Cap Value ETF	United States	VOE	Value	15,994.8	 Gold
Vanguard Small-Cap Growth ETF	United States	VBK	Growth	12,036.0	 Gold
Vanguard Small-Cap Value ETF	United States	VBR	Value	23,785.7	 Gold
Vanguard US Dividend Appreciation ETF	Canada	VGG	Dividend	741.3	 Silver
Vanguard Value ETF	United States	VTV	Value	99,459.2	 Gold
VictoryShares Emerging Mkts Val MomtETF	United States	UEVM	Multifactor	174.8	 Neutral
VictoryShares International Val MomtETF	United States	UIVM	Multifactor	272.7	 Neutral
VictoryShares US Sm Md Cp Val Momt ETF	United States	USVM	Multifactor	217.5	 Silver
VictoryShares US Value Momentum ETF	United States	ULVM	Multifactor	246.9	 Neutral
WisdomTree Europe Hedged Equity ETF	United States	HEDJ	Dividend	1,196.8	 Neutral
WisdomTree US High Dividend ETF	United States	DHS	Dividend	1,466.7	 Bronze
WisdomTree US LargeCap Dividend ETF	United States	DLN	Dividend	3,770.3	 Silver
WisdomTree US MidCap Dividend ETF	United States	DON	Dividend	3,233.7	 Silver
WisdomTree US Multifactor	United States	USMF	Multifactor	249.2	 Silver
WisdomTree US SmallCap Dividend ETF	United States	DES	Dividend	1,836.0	 Silver
WisdomTree Yield Enhanced US Aggt Bd ETF	United States	AGGY	Fixed Income	879.7	 Neutral
Xtrackers Russell US Multifactor ETF	United States	DEUS	Multifactor	137.1	 Silver
Xtrackers S&P 500 Equal Weight ETF 1C	Ireland	XDEW	Other	3,259.1	 Neutral

Source: Morningstar Direct, Morningstar Research. Assets as of Dec. 31, 2022. Morningstar Medalist Ratings as of May 29, 2023.

Definitions and Morningstar Strategic-Beta and Index Attributes

Strategic beta — widely referred to as “smart beta” — refers broadly to a group of indexes and the ETPs 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, which took effect in 2018, replaced 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 the 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, 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:

- ▶ They are index-tracking investment products.
- ▶ They track nontraditional benchmarks that have an "active" element contained within their methodology that typically aims to improve returns and/or alter the index's risk profile relative to a standard benchmark.
- ▶ Many of their benchmarks have short track records and were designed for the sole purpose of serving as the basis of an investment product.
- ▶ Their expense ratios tend to be lower relative to actively managed funds.
- ▶ Their expense ratios are often substantially higher relative to products tracking broad, market-capitalization-weighted 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, ETPs, 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 ETPs 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.

Exhibit 48 Morningstar Strategic-Beta and Index Construction 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.

Strategic-Beta Group

A 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 based on measures of credit quality, momentum, yield, or other gauges of issuers' fundamentals. 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

The Other group is 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 products are being assigned to the Other group to determine whether 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 attributes 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 is applied to a variety of different selection strategies. Morningstar routinely reviews industry trends to determine whether 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 or 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 attributes 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 is applied to a variety of different weighting strategies. Morningstar routinely reviews industry trends to determine whether 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 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.

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