A Guided Tour of the European ETF Marketplace

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Executive Summary

In this third edition of "A Guided Tour of the European ETF Marketplace," we analyse the latest trends in the European exchange-traded fund marketplace. We cover aspects such as asset growth, product proliferation, regulation, and investment stewardship.

Additionally, this report provides some insights into the crucial issue of ETF selection. It also includes summaries of our in-depth due diligence on the eight largest European ETF providers, examining the key aspects of their portfolio management practices as well as their investment stewardship programmes.

Landscape Highlights

- Assets under management in European-domiciled ETFs have more than doubled over the past five years to EUR 760 billion at the end of March 2019. ETFs account for 8.6% of total AUM in European investment funds, up from 5.5% five years earlier.

- ETF adoption across Europe is set to accelerate, spurred by favourable regulatory changes, innovation, and an increasing acknowledgement of the long-term benefits of low-cost investing. The sector could hit EUR 2 trillion of assets by 2024.

- The past two years have seen a burst of merger and acquisition activity in the European ETF marketplace. Several of the world's largest asset managers have entered the arena and begun to flex their muscles.

- Product proliferation sees no signs of abating. Surprisingly, plain-vanilla equity ETFs continue to hit the shelves, but providers are also looking for areas in which they can differentiate themselves. Strategies that consider environmental, social, and governance (ESG) issues have become a key battleground.

- Despite all the talk about actively managed ETFs, they remain a tiny slice of the market, with just 1% of assets.

- The downward pressure on ETF fees continues apace and has already moved from mainstream to strategic beta, and increasingly to ESG-focused ETFs. Cost pressures forces ETF sponsors to partner with smaller and cheaper index providers and even consider self-indexing.

- With increased interest in sustainable investing and concerns about the impact of the growth of indexing on corporate governance, scrutiny of index managers' stewardship practices is intensifying. Europe's largest ETF providers are increasingly taking an active role in the oversight of the companies they invest in, through proxy voting and engagement. That said, stewardship approaches vary across providers. Also, while voting and engagement disclosure is improving, more can be done. We expect the revised European Shareholder Rights Directive, or SRD II, which is due to come into force in June, will accelerate the development of disclosure best practices.

Foreword

A lot has happened since the last edition of "A Guided Tour of the European ETF Marketplace" in February 2017. Assets in European-domiciled ETFs have grown by 38%, reaching EUR 760 billion at the end of March 2019. More investors have adopted the ETF vehicle, new asset managers have entered the fray, products have proliferated, and fees have dropped to rock-bottom levels.

Meanwhile, sustainable investing has grown in popularity, and investors are paying increased attention to investment stewardship activities.

This report is split into three parts. In the first part, we examine the latest trends in the European ETF landscape. In the second part, we provide insights into the crucial issue of ETF selection. The final section contains comprehensive profiles for each of Europe's eight largest ETF providers. The profiles detail the most important aspects of these firms' portfolio-management practices. We also provide insights into each ETF provider’s investment stewardship practices, building upon our original examination of their voting and engagement activities in the study Passive Fund Providers Take an Active Approach to Investment Stewardship. We complement this objective due-diligence exercise with our own view on each of the providers.

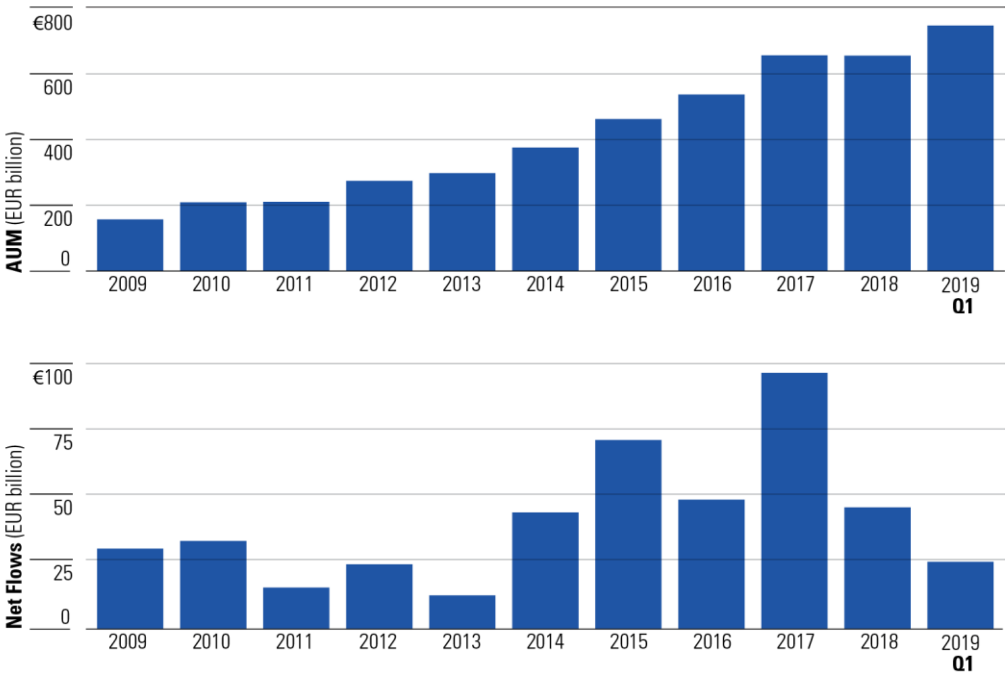
In Appendix I, we offer an educational guide that outlines the replication methods and portfolio-management techniques used by ETF managers. Appendix II contains a list of the European-domiciled ETFs that have been assigned a Morningstar Analyst Rating.

The European ETF Landscape and Recent Trends

The European ETF marketplace has grown at a rapid pace in the past decade, rising from EUR 100 billion in assets under management at the end of 2008 to around EUR 760 billion at the end of the first quarter of 2019.[1] Net flows into ETFs have been consistently positive over the decade, and on an upward trend, averaging EUR 62 billion per year in 2014-18 relative to EUR 24 billion in 2009-13. In the first quarter of 2019 alone, net flows totalled EUR 26 billion, thus auguring another bumper year for the ETF marketplace.

The annual growth in assets has typically clocked in double digits. The only exceptions occurred in 2011 and 2018, two years of high volatility and broad declines in stock prices. The double-digit growth trend in AUM resumed in the first quarter of 2019.

Exhibit 1 European ETF Market – AUM and Flows



Source: Morningstar Direct. Data as of 31 March 2019.

1 This includes exchange-traded-commodities and currencies.

European ETFs to Hit EUR 2 Trillion by 2024

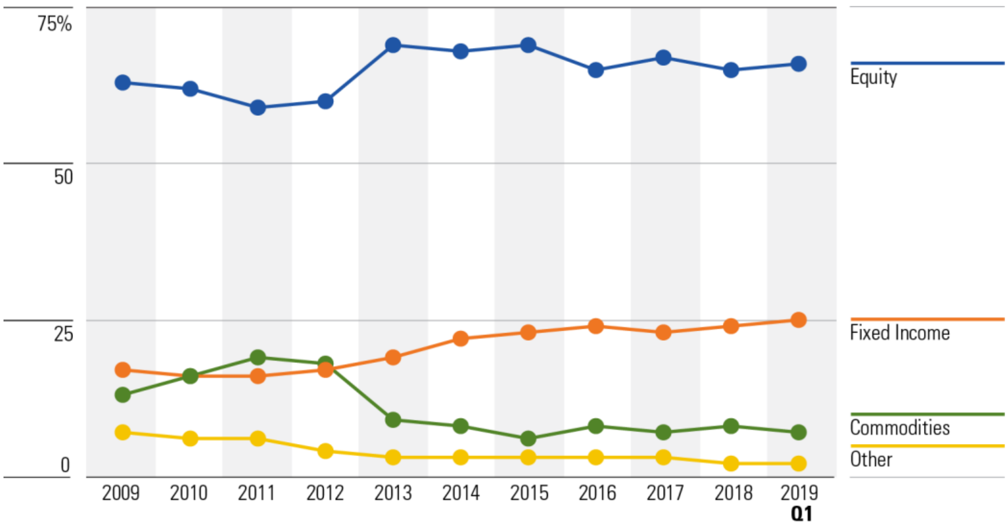
The outlook for the European ETF industry remains positive. The trend in favour of low-cost investment solutions is well-entrenched. Even under conservative assumptions, assets in European-domiciled ETFs are well on course to hit EUR 1 trillion by 2020. This is the prediction we made at the beginning of 2017. We now believe that assets could reach EUR 2 trillion by 2024, under the positive assumptions of accelerating inflows and upward-trending market prices.[2] In addition to home growth, the appeal of the UCITS structure bodes well for increased takeup by Asian and Latin American investors.

Meanwhile, passive funds as a whole–that is, ETFs and index mutual funds–are widely expected to continue taking market share away from their active counterparts. Passive funds could account for 25%-28% of the European investment fund market by 2025, up from 17.3% at the end of March 2019. The consensus view is that ETFs will be the key driving force behind this growth. ETFs now account for 8.6% of total AUM in European investment funds, up from 5.5% five years earlier.

Equity ETFs Still Dominate, but Bond ETFs Are Growing Fast

In terms of AUM distribution by broad asset class, the European ETF marketplace remains biased towards equities. Equity ETFs accounted for about two thirds of total AUM at the end of the first quarter of 2019. This was in line with the average for the past decade but significantly down from the 80%-95% tallied in the early to mid-2000s when market exposures other than equity were largely absent from the product menu.

Exhibit 2 Breakdown of European ETF AUM by Broad Asset Class



Source: Morningstar Direct. Data as of 31 March 2019.

Fixed-income ETFs have seen the strongest growth in the past decade and represented about a quarter of total AUM at the end of March 2019. Growth has been driven by improvements in bond index construction as well as the ability of market-makers to overcome technical barriers that previously precluded the provision of real-time single pricing for an asset class that operates over the counter.

2 Our calculation assumes that inflows will increase by 10% every year from their 2017 levels of EUR 100 billion and capital will appreciate by an average of 7% per year.

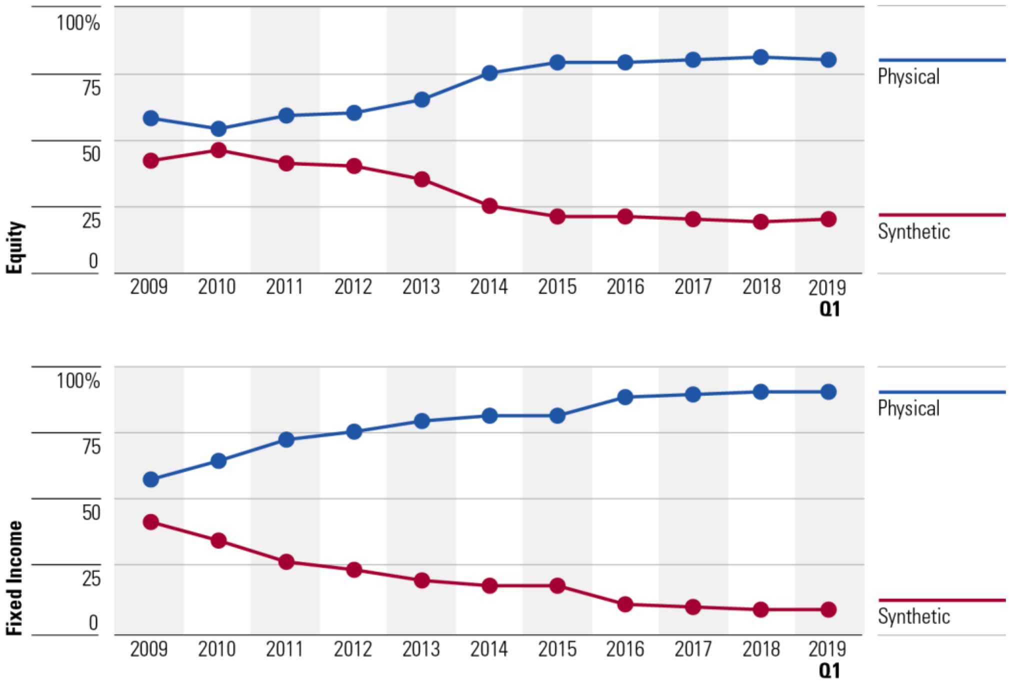
Products offering exposure to commodities accounted for close to 7% of total AUM. This area continues to be dominated by precious metals --in particular, gold. The value of assets is thus intimately shaped by general attitudes to risk. For example, at the height of the eurozone debt crisis, commodities accounted for 19% of total ETF AUM in Europe.

The remaining 2% is broadly split between money market and alternative ETFs, with the latter mostly composed of products offering leveraged and inverse exposure to equity, bond, and commodity indexes.

Physical Is King, but Synthetic Still Has Its Place

The past decade has seen a significant shift in the distribution of ETF assets by synthetic replication in favour of physically replicated funds. From a broad 60/40 physical/synthetic split at the beginning of the period, physical funds now account for 80% of equity ETF assets and 90% of fixed income.

Exhibit 3 AUM Split by Replication Method



Source: Morningstar Direct. Data as of 31 March 2019.

The decline in assets in synthetic ETFs has been driven by investors' preference for the simplicity and lower perceived risk of the physical approach. Providers such as Xtrackers, Lyxor, and Amundi, which in the early years espoused a synthetic-only product lineup, have transitioned to a hybrid model, switching many of their ETFs to physical replication and/or launching new physical ETFs.

For many years, synthetic replication has carried negative connotations, with concerns expressed about the complexity of the structure and swap counterparty risk. These are valid arguments, but many investors are comfortable with the synthetic structure. They value its more consistent tracking—as measured by tracking error—and in the case of certain market exposures its superior benchmark-relative return relative to the physical model.

For example, in the past few years many investors have become aware that the synthetic model offers a sizeable performance edge relative to physical funds in the case of mainstream US equity exposure (S&P 500, MSCI USA Index), as synthetic ETFs avoid the payment of withholding tax on dividends. Providers with both physical and synthetic S&P 500 ETFs have confirmed growing interest for the synthetic vehicle, both from new investors and holders of physical products.

IShares Loses Market Share but Retains Massive Lead

The European ETF market remains top-heavy, with the three largest providers controlling close to two thirds of the assets. Within these, iShares saw its market share slightly erode to 44.6% from 46.4% two years ago, while Xtrackers saw its own climb to 11% from 9.8%, boosted partly by the consolidation its previously separated ETF and commodities ETC business units. The dominance of iShares is particularly overwhelming in the case of fixed income, where it controls more than 60% of the assets.

Exhibit 4 Europe ETF Providers League Table

	March 2019		**December 2016**		**March 2019**						
	Total				**Equity**		**Fixed Income**		**Commodities**		**Other**
	AUM (EUR billion)	Market Share (%)	AUM (EUR billion)	Market Share (%)	AUM (EUR billion)	Market Share (%)	AUM (EUR billion)	Market Share (%)	AUM (EUR billion)	Market Share (%)	AUM (EUR billion)
iShares	339.0	44.6	253.0	46.4	213.8	42.5	118.7	63.0	6.1	11.7	0.4
Xtrackers	83.8	11.0	53.4	9.8	58.9	11.7	16.1	8.5	5.6	10.8	3.2
Lyxor	64.1	8.4	51.0	9.3	45.4	9.0	11.6	6.2	0.7	1.3	6.3
UBS	51.2	6.7	30.1	5.5	41.1	8.2	5.5	2.9	4.5	8.6	0.1
Amundi	44.9	5.9	25.2	4.6	33.3	6.6	10.5	5.6	—	—	1.1
Vanguard	35.5	4.7	23.9	4.4	34.5	6.8	1.0	0.5	—	—	—
State Street	30.5	4.0	17.6	3.2	18.6	3.7	10.8	5.7	—	—	1.1
Invesco[1]	25.0	3.3	2.3	0.4	14.9	3.0	9.1	4.8	0.9	1.8	0.0
WisdomTree[2]	17.0	2.2	0.4	0.1	0.8	0.2	0.04	0.0	14.6	28.0	1.5
BNP Paribas	10.0	1.3	6.0	1.1	9.3	1.9	0.3	0.2	0.4	0.7	—
Comstage	8.9	1.2	7.4	1.4	6.8	1.3	0.3	0.2	0.7	1.4	1.1
Deka	8.8	1.2	8.3	1.5	6.3	1.3	2.5	1.3	—	—	0.0
Deutsche Borse	7.1	0.9	4.2	0.8	—	—	—	—	7.1	13.7	—
Swisscanto	6.8	0.9	6.6	1.2	—	—	—	—	6.8	13.0	—
HSBC	6.3	0.8	4.9	0.9	6.3	1.3	—	—	—	—	—
XACT	3.4	0.4	2.4	0.4	3.0	0.6	0.1	0.0	0.0	0.0	0.3
Legal & General	3.0	0.4	—	—	2.0	0.4	0.3	0.2	0.6	1.1	0.1
Ossiam	2.8	0.4	1.9	0.3	2.7	0.5	0.04	0.0	—	—	0.0
VanEck	2.2	0.3	—	—	1.9	0.4	0.3	0.1	—	—	0.0
GAM	1.6	0.2	1.9	0.4		0.0	—	—	1.6	3.0	—
Rest of Providers	7.9	1.0	45.2	8.3	3.6	0.7	1.4	0.7	2.6	5.0	0.3
Total Market	**759.7**		**545.7**		**503.2**		**188.5**		**52.3**		**15.7**

Source: Morningstar Direct. Data as of 31 March 2019. 1. Inclusive of PIMCO 2. Inclusive of ETF Securities

A Flurry of M&A Activity and New Players

Over the past two years we have seen a burst of merger and acquisition activity in the European ETF marketplace, amidst which several of the world's largest asset managers have entered the arena and begun to flex their muscles.

Invesco's acquisition of Source in mid-2017 is the standout deal. The move catapulted Invesco, which had operated as a niche ETF player under the PowerShares brand since 2009, into the top 10 ETF providers in Europe.

Other US-based providers such as Fidelity, Franklin Templeton, and JPMorgan have entered the market by opting to build out their own platforms. Fidelity, which also has a strong index mutual fund business, has remained relatively quiet on the product development front since first launching back in 2017. JPMorgan and Franklin Templeton have launched products designed to amplify their own research capabilities.

Another major player in the mutual fund indexing business, Legal & General entered the market with its own range of core equity ETFs after acquiring the equity and fixed-income Canvas platform from ETF Securities in 2017.

WisdomTree acquired ETF Securities' commodities business and has now become the dominant player in the commodities space.

In the summer of 2018, Lyxor moved to acquire Comstage, Commerzbank's ETF business, to reinforce its presence in Germany, a key ETF market. At the time of writing, the acquisition has yet to be completed. Smaller in size was the acquisition of Dutch regional player Think ETF by VanEck in a move to expand its small European footprint.

Other players, including Tabula and Candriam, also came into the frame in the past two years. Tabula is a fixed-income ETF specialist focusing on the development of non-market-cap-weighted strategies. Candriam made its debut with a suite of factor equity and fixed-income ETFs with an ESG overlay.

Goldman Sachs is expected to make its debut in the European ETF market sometime in 2019.
Another major development has been the launch of white-labelling service HanETF. The firm facilitates the launch and distribution of ETFs for asset managers looking to enter the space. It has so far launched four ETFs. We expect the service to be used primarily by smaller players, particularly those with successful products in other geographies looking to dip their toes in the European market.

Product Development Focuses on Multifactor, Thematic, and Above All, ESG
The geographically fragmented nature of the European market has strongly influenced the development of the European ETF industry. This has resulted in a market cluttered with numerous offerings for the same exposure. For example, there are 13 separate providers offering ETFs that track the Euro Stoxx 50 Index.

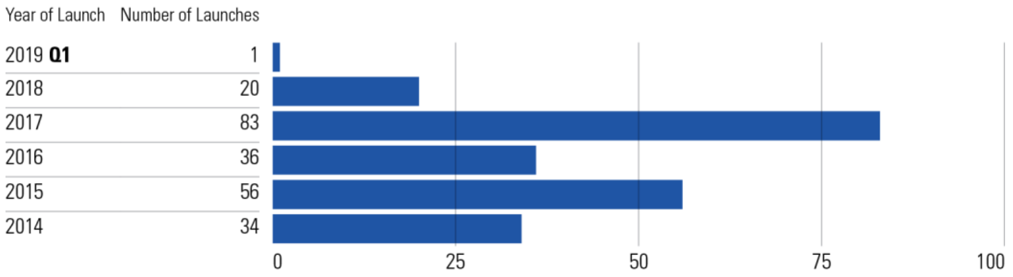
This explains why the number of European ETF offering is larger than that in the US, despite being one fifth of the size in AUM terms. And yet, we continue to see plain-vanilla ETFs coming to the market. Vanguard EuroStoxx 50 & DAX ETFs and Amundi's Prime ETF range covering mainstream equity and bond market exposures are recent examples. In some cases, launches fill gaps in providers' offerings, while other providers see an opportunity to compete on price. Irrespective, the end result is further fragmentation.

As the space for mainstream exposures becomes increasingly crowded, ETF providers have shifted their product development efforts towards areas in which they can differentiate themselves and/or maintain margins.

A) Strategic Beta Matures, Focus Shifts to Multifactor

Strategic beta–also known as smart beta–has been one of the key ETF product development battlegrounds of recent years. That said, there are signs that the market is maturing. In 2018, 20 new strategic-beta ETFs hit the shelves, less than a fourth of the launches seen the previous year. A single product has been launched in the first quarter of 2019.

Exhibit 5 Number of European Strategic-Beta ETF Launches



Source: Morningstar Direct. Data as of 31 March 2019.

Most new launches now focus on multifactor equity strategies. These are marketed as a way of improving the risk/reward profile of a broad market-cap index by diversifying across factors, each of which can suffer long periods of underperformance.

It is fair to expect more innovation in this area. Multifactor ETFs can be churned in many different combinations of factors and geographies. This allows providers scope to differentiate themselves and often charge a premium for their intellectual property.

Some providers have taken tentative steps into the fixed-income space, but the long-predicted flurry of innovation has as yet failed to materialise and assets remain subdued. Most new launches have focused on quality, which can be linked to lower volatility of returns. However, when it comes to other factors the jury is still out. There is no consensus view on whether the factors recognised in equity investing can be applied to fixed income.

See our A Global Guide to Strategic-Beta Exchange-Traded Products for details.

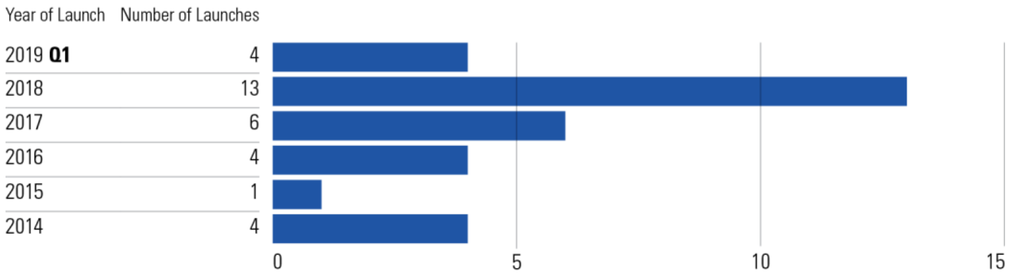
B) Tech-Themed ETFs Capture the Imagination

Spurred by the success of two robotics and automation ETFs,[3] there has been a renewed interest in thematic ETFs. These funds attempt to profit from long-term macro or structural trends such as demographic shifts, technological advances, and environmental changes.

Technological ETFs in particular have caught investors' imagination, with launches covering artificial intelligence, cloud computing, digital security, and e-commerce.

3 IShares Automation & Robotics ETF and L&G ROBO Global Robotics and Automation ETF.

Exhibit 6 Number of European Thematic ETF Launches



Source: Morningstar Direct. Data as of 31 March 2019.

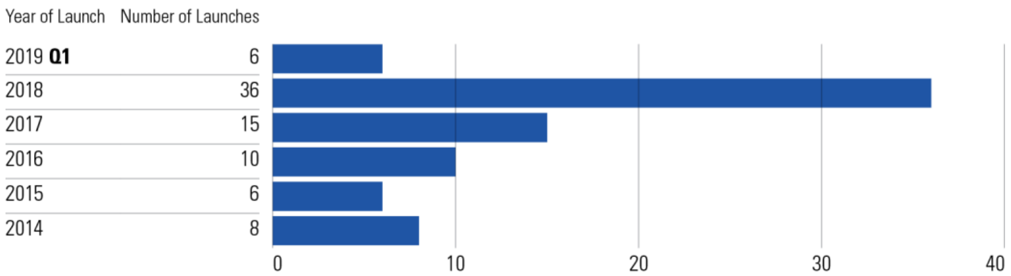
Some of the most popular thematic ETFs in Europe first cut their teeth in the US market before being repackaged and sold in a UCITS wrapper. Their success in attracting assets and the relatively low risk involved for the fund provider, particularly when using a white-labelling fund service, means that we anticipate more funds will be "ported" to Europe in this way.

See our Picking Your Dream Theme report for details.

C) ESG ETFs Are Taking Off

Sustainable investing has grown from its niche to become one of the most fiercely contested areas of product development. In response to growing investor demand, many providers now offer a core set of ESG-focused ETFs, offering varying approaches to ESG integration and hard exclusions. In fact, 2018 was a banner year for ESG ETFs, with assets growing by 50% to EUR 9.95 billion and 36 new products coming to the market, up from 15 in 2017.

Exhibit 7 Number of European ESG ETF Launches



Source: Morningstar Direct. Data as of 31 March 2019.

The bulk of the ESG ETF offering is in the equity space, but there have been several fixed-income launches, too. Also, providers like JPMorgan and Ossiam have used their in-house research capabilities to launch actively managed ETFs.

On a provider level, UBS and iShares lead the rest of the pack by some margin. Although UBS still boasts the most assets, iShares now has a broader offering and is well-positioned to overtake. On a fund level, the five largest ETFs track MSCI SRI equity indexes.

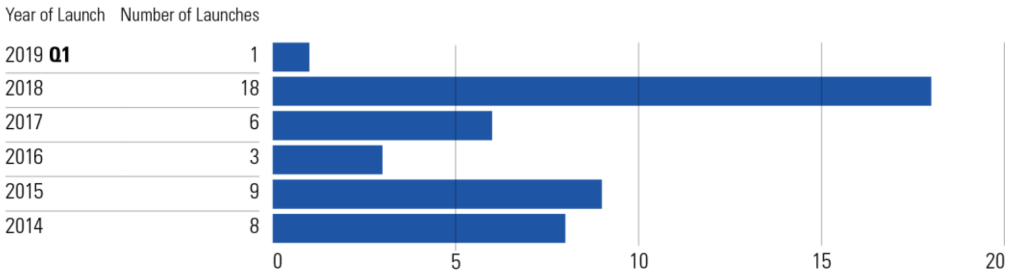
See our European Sustainable ETF Roundup and Global Passive Sustainable Landscape for details.

Active ETFs: Much Talk, Little Action

Actively managed ETFs have long been touted as a natural area of development for the ETF industry, largely due to the fact that most–if not all–of the ETF providers in Europe have both passive and active asset management capabilities. However, expectations have not been matched by reality.

As of the end of March 2019, there were only 38 actively managed ETFs with combined AUM of EUR 8 billion, representing just over 1% of the European ETF assets. Furthermore, close to 70% of the money is invested in just three ETFs–two from PIMCO (distributed by Invesco) and one from Lyxor–marketed as alternatives to money-market-rate-tracking instruments for cash management purposes.

Exhibit 8 Number of European Actively Managed ETF Launches



Source: Morningstar Direct. Data as of 31 March 2019.

The arrival of new providers may act as a catalyst for change. JPMorgan has been particularly keen on using the ETF wrapper to deliver some of its active strategies. In fact, it has become the largest provider of actively managed ETFs in Europe by number of products, launching ten funds (six fixed income and four equity) in 2018.

Ongoing Fee Pressure

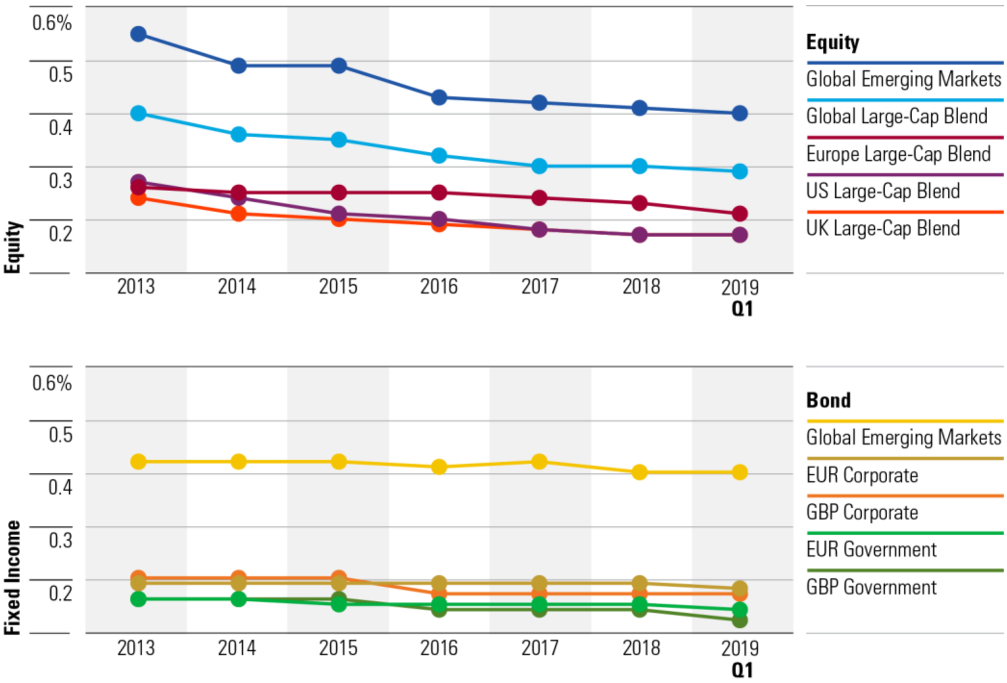
The downward pressure on ETF fees continues apace, and it is no longer exclusive to mainstream exposures. In the past two years we have seen the first signs of fee competition in the strategic-beta ETF space. There is a growing sense that the development and management of these products do not entail much in the way of additional costs for ETF providers to justify much higher fees relative to plain-vanilla offerings.

Many of the recently arrived ETF sponsors are not vying for a slice of the crowded market of mainstream core exposures–at least not initially. Instead, they are focusing their efforts on the strategic-beta and alternative fields; often leveraging on their active management capabilities to bring a mix of rules-based and active strategies via the ETF wrapper at very competitive fees.

There has also been increased fee competition in the field of ESG-focused ETFs. In fact, the launch in 2018 of aggressively priced ETFs by iShares, Xtrackers, and L&G was something of a milestone. With ongoing charges ranging from 0.05% to 0.20%, investors can now buy a range of sustainable portfolio building blocks without having to pay a premium for the privilege.
Still, the bulk of ETF fee cuts has continued to affect mainstream–mostly equity–market exposures. In fact, in the wake of developments in the US, where Fidelity launched a range of zero-fee index mutual

funds on its platform, European investors now wonder who the first asset manager will be to go down the “free” road this side of the Atlantic.[4]

Exhibit 9 Average Fee of Broad Market-Cap Equity and Bond Market ETFs



Source: Morningstar Direct. Data as of 31 March 2019.

Fee compression in the mainstream fixed-income space is also gathering pace in Europe. For most providers, fee competition is the obvious strategy to gnaw away market share from a dominant iShares. Lyxor, Amundi, and Invesco now all have several mainstream bond market ETFs with single-digit ongoing charges. However, unlike in the equity space, where iShares has cut prices for several ETFs in its core range to respond to cheaper challengers, there have not been fee moves in the suite of iShares bond ETFs–yet.

Providers Consider Self-Indexing, but Barriers Remain

As ongoing charges are squeezed, index licensing fees are becoming a growing component of ETFs’ costs (in relative terms). The delivery of in-house-built index investment strategies is a way for ETF sponsors to keep costs in check. But it is also a useful tool to differentiate themselves in terms of product offering. In fact, recently arrived ETF provider but long-time index fund manager L&G has made self-indexing a central element of its expansion plans with the establishment of an index-solutions team specifically tasked with the design of customised index-based investment strategies.

In Europe, significant regulatory hurdles exist for pure self-indexers, which is enough to deter most asset managers. As a result, the construction, calculation and labelling of indexes is often outsourced to third-party index providers such as FTSE and Solactive. The licensing fee for these indexes should be more competitive, as the index provider can charge only for its services as calculation agent and not for the

4 Note that Xtrackers cut the fee on its Euro Stoxx 50 ETF to zero in 2009 but brought it back up to 0.09% in 2014 when it switched from synthetic to physical replication.

intellectual property rights over the investment strategy, which originate and often remain with the ETF provider.

Regulatory Changes Provide Tailwind for ETFs

The largest regulatory change to impact the European ETF industry in recent years has been the Markets in Financial Instruments Directive, commonly known as Mifid II, which came into force in January 2018.

With its focus on improving transparency, the revised directive is viewed as broadly positive for the ETF market. In particular, increased reporting requirements for over-the-counter trades–which have historically accounted for approximately 70% of transactions–allow for a fuller understanding of fund liquidity.

That said, Mifid II stops short of forcing the creation of a consolidated tape for the reporting of OTC trades. However, a consortium of the major ETF players in Europe, including iShares, Lyxor, and DWS, have partnered with Bloomberg to take matters into their own hands and create one themselves. This is good news for investors and should lead to increased trading efficiency and ultimately lower trading costs for ETFs.

Mifid II also imposes tighter restrictions on the generous commission (retrocession) payments that asset managers in Europe have been permitted to pay fund distributors in return for selling their products. This allows the true cost of a fund to be seen more clearly and should also play in favour of low-cost ETFs.

Elsewhere, in 2018 the Central Bank of Ireland announced a relaxation of the regulatory barrier between ETFs and traditional index funds. Managers of Irish-domiciled funds can now set up ETF and non-ETF share classes in a single fund structure, offering them the same flexibility as their Luxembourg-domiciled peers. This means that providers can benefit from even larger economies of scale, which should help to further reduce costs and increase liquidity. It also lowers the barriers of entry for existing index fund and active fund providers looking to expand into the ETF market.

Variety and Versatility Ensures Popularity With Institutional Investors, Retail Market Remains Largely Untapped

The European ETF client base remains institutional in nature. There are no solid statistics on ETF client type, but the consensus amongst industry players is that more than 80% of ETF assets in Europe are in the hands of institutional investors, such as private banks, wealth managers, hedge funds, pension funds, and insurers.

What we know with certainty is that plain-vanilla strategies that use market-cap weighting retain the lion's share of ETF assets in Europe. Despite intense product development, funds that track strategic-beta benchmarks hold less than one tenth of assets.

For some investors, the combination of simplicity, low cost, and lack of consistently strong actively managed alternatives makes ETFs a superior "buy-and-hold" option for core market exposures. Private banks and wealth managers are amongst the most frequent users of ETFs as buy-and-hold strategies.

For others, ETF usage is more tactical in nature for day-to-day cash management purposes or to gain fine-tuned exposure to specific segments of the broad market. Slicing and dicing has become part and parcel of the ETF offering, affording investors targeted access to individual countries and regions, sectors, currencies, styles, or factors. Maturity-segmented bond ETFs are used for duration management purposes.

ETFs are also touted as a substitute for futures, while leveraged and inverse ETFs are often employed by hedge funds to execute high-conviction long or short positions.

The European retail investor community remains largely untapped by ETF providers. However, most ETF providers agree that, as has been the case in the US, retail investors could play a key role in supporting the growth of the ETF market.

Most stockbroker services in Europe now offer ETFs for individual investors, some with very competitive trading commissions, while in the UK, Vanguard offers a commission-free trading service on its own ETFs specifically targeted to retail clients.

The benefits of investing with ETFs have not gone unnoticed by financial services firms serving retail clients who are unwilling to build portfolios themselves. As a result, ready-made portfolios with ETFs are now offered by fund houses, commercial banks, fund supermarkets, and robo-advisors.

Many of these firms offer a target-risk asset-allocation portfolio building service, mixing equity and bond ETFs to suit various investment risk profiles. Low-cost mainstream market exposures are the preferred building blocks across most offerings.

With their focus on technology and web-based customised service, robo-advisers like Nutmeg, Moneyfarm, or Scalable Capital appeal to the growing body of cost-conscious retail investors.

Scrutiny of Investment Stewardship Practices Is Intensifying

The rapid growth of ETFs–and index investing in general–continues to raise questions about the impact on stock prices, the allocation of capital, and corporate governance.

The International Organization of Securities Commissions, or IOSCO, is the latest regulatory body planning to increase scrutiny of ETFs, and passive funds more broadly. Among other aspects, it will examine the possible impact of ETFs on market liquidity.

Meanwhile, investment stewardship practices–that is, proxy voting and engagement–of index managers are also attracting more attention. Concerns are mounting about the impact of index managers on corporate governance and how far they go to ensuring that the companies they hold are acting in investors' best interests.

It may be tempting to assume that index managers are passive owners and have little incentive to devote resources to monitoring companies; after all, they tend to compete on fees and their primary objective is to match the performance of indexes.

However, index managers have a fiduciary duty to their investors to push for changes that will increase shareholder value. Most passive fund providers also operate an active fund business, which in some cases is much larger than their passive one. Most, therefore, apply the same principles to all their holdings irrespective of whether they are in active or passive portfolios, except for synthetic ETFs, for which voting rights cannot be exercised.[5]

Our 2017 research on this topic, showed that the rise of index investing hasn't led to an abdication of stewardship responsibilities–quite the contrary. The world's largest index managers have expanded their stewardship teams and stepped up their efforts in the areas of voting and engagement in order to influence investee companies and help improve ESG standards across the board [6].

When it comes to voting, there is evidence from voting records and high-profile cases that index managers are increasingly willing to challenge corporate management. See The Proxy Process report for details.

Many index managers are also intensifying their engagement efforts. With the caveat that there is no standard definition of what constitutes an engagement and it is difficult to compare engagement activities across asset managers and their success, our collected data reveals an increase in the aggregate number of engagements in recent years.

That said, we observed a range of stewardship practices among index managers based on not only their size and predominant investment style (passive or active), but also their philosophy, region, and history.

With increased investor scrutiny of investment stewardship has come more criticism about inconsistencies between votes and public statements on material ESG risk issues by some of the largest index managers, particularly BlackRock, Vanguard, and State Street. Managers attribute these inconsistencies to a stated preference for engagement over voting: they take voting action as a last resort, when dialogue with the company has failed to effect change.

It is also questionable whether index managers are doing enough to boost their engagement efforts. While the majority have expanded their stewardship and ESG analyst teams, these teams represent a tiny fraction of the firms' total number of personnel. Given their large and growing assets under management, we think that the leading index managers have the resources available to further bolster their stewardship teams without resorting to fee rises. This may be more of a challenge for the smaller firms. To remain competitive, these will have little choice but to either do the minimum required or go down the outsourcing route.

With increased investor scrutiny also comes the need for more transparency. Voting and engagement disclosure is improving, but more can be done. We expect the revised European Shareholder Rights Directive, or SRD II, which is due to come into force in June, will contribute to the development of disclosure best practices.

Enhancing transparency and communication will improve public awareness and understanding of index managers' stewardship activities.

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5 Synthetically replicated funds are designed to track an index through a performance swap. To mitigate risk, the swap counterparty delivers a basket of securities to the fund. Because the "substitute basket" or collateral can change composition every day and does not match the economic exposure of the fund, voting rights are not exercised.

ETF Selection: No Such Thing as a One-Size-Fits-All Approach

Product proliferation is making the task of ETF selection increasingly difficult. In the realm of plain-vanilla market exposures, investors are confronted with a large and continuously expanding choice of instruments tracking the same or similar indexes. Meanwhile, for factor investing and the growing field of ESG-focused products, index diversity is the norm. Irrespective, investors are called to closely scrutinise and pitch against each other the multiple propositions on offer.

To help investors in their fund selection process, Morningstar issues Morningstar Analyst Ratings. These are designed to identify the best investment strategies within a Morningstar Category irrespective of where they sit on the active-to-passive continuum or the type of vehicle (open-ended, close-ended, or ETF) used to deliver them. Thus, it is a holistic and qualitative approach that in the case of passive funds goes beyond the mere analysis of tracking performance.

The Morningstar Analyst Rating is underpinned on the analysis of five pillars: Process, Performance, People, Parent, and Price. The two pillars with the biggest impact on the overall rating of a passive fund, and indeed an ETF, are Process and Price.

1. Process–The key focus is on the index, as this is the investment proposition that passive funds offer. For plain-vanilla exposures, we tend to favour indexes that adequately represent the opportunity set available to investors. For strategic-beta funds, we value diversified indexes built on economic intuition that seek to exploit well-known, time-tested risk premiums.
2. Price–We rate more highly ETFs that have the lowest fees in the same category.
3. Performance–We assess how the ETF has performed on a risk-adjusted basis relative to category peers, both active and passive. We also assess how well the ETF tracks its index.
4. People–We value stable teams of experienced managers, though we acknowledge that passive fund management is highly automated.
5. Parent–When assessing a parent, we aim to ascertain that it is a good steward of capital that aligns its interests to those of the investors it serves.

The Morningstar Analyst Rating comes on a five-tier scale, with three Positive Medallist ratings of Gold, Silver, and Bronze; a Neutral rating; and a Negative rating.

A medallist strategy–whether passive or active–is one that analysts believe is in good stead to deliver above-category-average risk-adjusted returns over a full market cycle. Gold, Silver, and Bronze grade the level of conviction in the prediction.

The Neutral rating indicates lack of conviction on the strategy's ability to beat the category average. In the case of ETFs, this is often indicative of a process (that is, an index) lacking in terms of representativeness of the asset class.

Finally, a Negative rating is usually reserved for ETFs tracking indexes with structural deficiencies that place investors at a significant disadvantage.

See the Morningstar Analyst Rating methodology document for details and the full list of rated ETFs in Appendix II.

Exhibit 10 Distribution of Rated ETFs

	Equity	Fixed Income
Gold	21	4
Silver	25	10
Bronze	34	10
Neutral	45	9
Negative	4	—

Source: Morningstar Direct as of 31 March 2019.

Which Is the Best ETF for You?

The Morningstar Analyst Rating is a helpful tool, but it is designed to provide a broad answer rather than one tailored to the specific requirements of each investor. This means that there are further steps in the ETF selection process that must be taken individually to suit one's needs.

In exhibit 11 we examine a group of ETFs tracking the S&P 500 index. All have been awarded a Gold rating. This conveys a strong conviction on the ability of S&P 500 ETFs to beat the average peer in the US large-cap blend category over the long term.

But there are differences in price, domicile, and replication methodologies. Which one is the best ETF for you? That's a question that only each individual investor can answer based on their unique circumstances.

Exhibit 11 Performance Comparison of S&P 500 ETFs

Name	Domicile	Replication Method	Ongoing Charge (%)	Total Return % (Annualised) 1 Year	3 Year	5 Year
BNPP Easy S&P 500 ETF C USD	France	Synthetic	0.15	9.40	13.48	10.76
X S&P 500 Swap ETF 1C	Luxembourg	Synthetic	0.15	9.41	13.41	10.71
Lyxor S&P 500 ETF D USD	Luxembourg	Synthetic	0.15	9.28	13.34	10.67
Invesco S&P 500 ETF	Ireland	Synthetic	0.05	9.40	13.23	10.57
iShares Core S&P 500 ETF USD Acc	Ireland	Physical	0.07	9.10	13.11	10.50
Amundi IS S&P 500 ETF C USD	Luxembourg	Synthetic	0.15	9.30	13.20	10.49
HSBC S&P 500 ETF	Ireland	Physical	0.09	9.31	13.11	10.48
Vanguard S&P 500 ETF	Ireland	Physical	0.07	9.06	13.07	10.48
SPDR S&P 500 ETF	Ireland	Physical	0.09	9.07	13.06	10.46
UBS ETF S&P 500 USD A dis	Ireland	Physical	0.12	9.05	13.05	10.43
US Large-Cap Blend Equity Morningstar Category				**6.08**	**10.86**	**7.96**

Source: Morningstar Direct. Data as of 31 March 2019. Table sorted by 5-year annualised returns.

The analysis of returns over trailing one-, three-, and five-year periods shows that all ETFs have beaten the category average by wide margins. Also, irrespective of ongoing charge, the ETFs following synthetic replication have typically beaten physically replicated peers. This is primarily because swap-based ETFs avoid the payment of withholding tax on US stock dividends, whereas physical ones cannot (the withholding rate is 15% for Irish-domiciled funds and 30% for those domiciled in Luxembourg).

For US equity market exposure, the synthetic ETF structure comes with a technical edge to performance. But this doesn't mean that synthetic ETFs are the best choice for all investors. For example, some investors may have constraints or concerns about swap counterparty risk that rule out investing in synthetic ETFs, in which case a physical fund will better fit their needs.

All physical ETFs in this example are domiciled in Ireland. Price would be a good guiding light in the selection process. Fees eat into returns, and so the lower the amount we must give up each year, the higher the chances of maximising returns.

But things are not always that simple. Many physical ETFs engage in securities lending to boost returns, and some investors feel unnerved by the practice. In practicality, the ultimate decision may depend on personal requirements about dividend treatment (distributing or accumulating), availability on platforms, trading currencies, or ETF liquidity.

Here we provide a list of relevant items that investors should consider during the ETF selection process:

- Index
- ETF Provider
- Replication Methodology
- Domicile
- Fees
- Dividend Treatment
- Securities Lending
- Tracking
- Trading and Liquidity

Provider Profiles

Please note that the information provided in these profiles was either supplied to us directly by the relevant providers or taken from public sources. As such, we cannot guarantee that it is complete, accurate, or timely. Please refer to ETF prospectuses and providers' websites for the latest information.

Amundi

Manager Description	► Amundi ETF is part of a dedicated business line within Amundi Asset Management. Resulting from the merger of Crédit Agricole AM and Société Générale AM, Amundi became a publicly listed company in December 2015. Crédit Agricole Group remains the main shareholder, with a 75% stake. ► Amundi ETF is currently the fifth-largest ETF provider in Europe, with EUR 45 billion in AUM as of March 2019. ► The first Amundi ETFs were launched in 2001, but it wasn't until 2008 that Amundi placed the ETF activity at the centre of its strategic development. ► In July 2017, the firm completed the acquisition of Pioneer Investments. Currently, Amundi is the largest asset manager headquartered in Europe, with EUR 1.4 trillion in AUM as of the end of 2018.
Morningstar View	► Amundi can rightly lay claim to being one of the trailblazers of the European ETF market, having launched its first ETF back in 2001. ► Formerly a staunch advocate of synthetic replication, Amundi has now embraced a more pragmatic approach in its replication strategy, with the choice of method determined on a fund-by-fund basis depending on feasibility, cost, and tracking efficiency. ► Amundi has developed a distribution structure that allows investors to invest in a fund through an ETF or a nonlisted share class. We view this positively, as it provides an option to investors who do not have access to ETFs while bringing scale and efficiency to the business. This in turn can help bring down cost to investors. Nearly all the firm's new index funds are offered in both ETF and nonlisted share classes by default. ► Amundi benefits from one of the most experienced and stable portfolio management teams in the European ETF market. ► With no borrower indemnification and a potential conflict of interest with the lending agent, the securities-lending program could certainly be improved, especially as the number of ETFs engaged in the program has increased over the past year. ► We value Amundi's strong ESG and investment stewardship capabilities, underpinned by a large team of ESG analysts and a long-running internal ESG rating system. However, when it comes to expressing its ESG views, Amundi currently focuses more on its active strategies than passive strategies.
ETF Offering	► Amundi ETF offers close to 180 ETFs covering a broad range of equity and fixed-income exposures. ► In 2016, the firm began to expand its physically replicated ETF lineup. The number of physical ETFs has since grown to 47 from three, representing 26% of the ETF range by number, and one fifth by assets. ► All Amundi ETFs are UCITS-compliant.
People	► Amundi ETFs are managed by the Amundi ETF, Indexing & Smart Beta business team headed by Laurent Trottier. The team currently consists of 16 people split by asset class. ► The equity management team, headed by Lionel Brafman, is composed of nine portfolio managers in Paris and three in Tokyo. ► The fixed-income portfolio management team is headed by Stephanie Pless and consists of four portfolio managers in Paris.

Amundi

Portfolio Management: Physical ETFs

Process

- For equity ETFs, portfolio managers opt for full replication.
- Fixed-income ETFs are typically fully replicated. For benchmarks with a wide geographical scope or special liquidity conditions, portfolio managers use stratified sampling.
- Securities of companies involved in the production or sale of controversial weapons are excluded.

Trading

- All trading is done in-house via Amundi Intermediation, a 100%-owned subsidiary of Amundi. By aggregating trades from other parts of the group, Amundi Intermediation can take advantage of economies of scale and ensure that transactions costs are minimised.
- Cross-trading of individual securities is not a regular practice as the opportunities to do so are scarce. To follow best execution procedure, the trades are done through an external broker.

Index-Related Events

- For equity ETFs, portfolio managers use external research to analyse index rebalancing, particularly to identify events likely to generate sizeable market impact.
- Portfolio managers have some leeway to trade pre/post announcement to minimise market impact. On these occasions, trading orders are typically split on a volume-weighted basis.
- For fixed-income ETFs, portfolios are typically rebalanced in line with benchmark rules at month-end.

Cash and Coupon/Dividend Management

- Residual cash and equity dividends are routinely equitised using index futures. The use of derivatives rarely exceeds 1% of the ETF's NAV outside the dividend period, when it can go up to 2%.
- Portfolio managers use futures for cash management purposes, including for the reinvestment of dividends to minimise tracking error. In the case of scrip dividend, portfolio managers decide between receiving the dividend in stock or cash.
- Bond coupon payments are reinvested to the fund directly in bonds in accordance with benchmark rules, typically at month-end.

Securities Lending

- Scope: Although all ETFs are legally permitted to lend up to 100% of their assets, Amundi has set a daily cap of 45% of their NAV. For PEA eligible (French tax wrapper) physical ETFs, the cap is 23%.
- Lending Agent: Amundi Intermediation, a wholly owned subsidiary of Amundi Group.
- Counterparties: A list of 20-plus counterparties is selected by Amundi's Risk Committee and reviewed continuously after an annual due-diligence process. A team within Amundi's Risk Department is dedicated to monitoring counterparty risk.
- Eligible Collateral includes equities, bonds, and cash to which 110.5%, 105%, and 103% haircuts are applied. Eligible collateral must belong to OECD well-known indexes (for stocks) and issuers from the largest OECD countries for bonds. Securities of companies involved in the production or sale of controversial weapons are excluded.
- The mark-to-market collateral is held in a segregated account in the name of the fund by CACEIS, the ETF's custodian.
- Indemnification: Investors are not offered indemnification in the event of borrower default.
- Revenue split: the ETF receives minimum 65% of the gross lending revenue. Amundi retains a maximum of 35% to cover operational costs.
- Disclosure: On its website, Amundi discloses key securities-lending information per ETF, including current and 12-month average on-loan values, identity of the counterparties, the type and amount of collateral, and the lending revenues for the year.

Portfolio Management: Synthetic ETFs

Process

- All of Amundi's synthetic ETFs use the unfunded swap model. Under this model, each ETF buys and holds a basket of securities and simultaneously enters into a swap agreement with a counterparty that commits to pay the index performance in exchange for the performance of the fund holdings.

Amundi

Swap Counterparties

- Each Amundi ETF enters into a swap agreement with a single counterparty. BNP Paribas is used as the swap provider for equity ETFs, while Société Générale is used for fixed-income ETFs.
- Counterparties are selected following an auction process implemented every five years, with competitiveness monitored and changes negotiated on an ongoing basis.

Substitute Baskets

- For equity ETFs, substitute baskets consist of stocks in the STOXX Europe 600, S&P 500, and MSCI Japan indexes and stocks from the underlying index.
- For fixed-income ETFs, portfolio managers buy investment-grade bonds issued by OECD countries and/or securities from the underlying index and, to a lesser extent, investment-grade corporate or covered. The collateral may also include bonds from the underlying index.
- As an additional protection measure, BNP Paribas, Société Générale, Crédit Agricole, and Amundi Securities are excluded from all substitute baskets.
- Substitute baskets comply with UCITS diversification rules.
- Securities of companies involved in the production or sale of controversial weapons are not eligible for inclusion.
- No securities lending is carried out within the substitute baskets.

How Is Counterparty Risk Managed?

- Swaps are reset daily to offset counterparty risk.
- The assets in substitute baskets are the property of the ETF and are kept in a segregated account with the custodian bank.
- In the case of swap counterparty default, Amundi would try to seek a new counterparty, switch the fund to physical replication, or sell the assets in the substitute basket and pass the cash to the fundholders.

Disclosure

- Amundi discloses daily on its website each ETF substitute basket's contents and swap mark-to-market values.

Investment Stewardship

Team

- Amundi has a dedicated corporate-governance team made up of five people in Paris and one in Tokyo.
- The team has responsibility for coordinating voting and engagement-related tasks with the ESG Analysis team, which consists of 12 analysts in Paris and one in Tokyo.

Voting

- Voting Coverage: Amundi votes on all holdings in European-domiciled companies and for international companies where it holds more than 0.05% of the share capital. Amundi ETF exercises voting rights for its physically replicated ETFs, representing around 20% of its AUM. Amundi does not exercise voting rights for the holdings of substitute baskets of synthetic ETFs.
- The Voting process is internal, centralized, and implemented by the corporate-governance team. Proxy advisors are used for general research only.
- Negative votes are cast on proposals that go against Amundi's policy principles, allowing for geographical specificities.
- The corporate-governance team aims to exercise the voting rights of all lent stocks and will typically recall them ahead of votes.

Engagement

- Engagement Coverage: The number of company engagements over the past three years has ranged between 450 and 650 annually.
- Engagement Strategy: Amundi carries out three types of engagement: related to AGM voting, engagements for influence, and to gather information for ESG rating purposes.
- Amundi prefers one-to-one engagement with investee companies. But collaborative initiatives can be carried out in certain circumstances, often in situations where Amundi's holding in a company is too small or when a prior individual engagement has been unsuccessful.

Amundi

	► Amundi contributes to the development of regulator policy with other asset managers and participates in industry events and relevant working groups.
	Disclosure ► Voting Guidelines: Proxy voting guidelines are available on Amundi's website. ► Voting Records: Amundi doesn't publish votes per fund on its website. ► Engagement Disclosure: Amundi publishes its principle of dialogue with issuers, as well as an annual engagement report, which details its interactions with investee companies, including measures implemented to address concerns and an assessment of the achieved results. The report discloses the name of most of companies it has engaged with during the year. ► The ESG Analysis team publishes SRI discussion papers on its website.

Invesco

Manager Description	► Invesco became the eighth-largest ETF provider in Europe following its acquisition of Source in 2017. It currently has a 3.3% market share with EUR 25 billion in AUM as of March 2019. ► Prior to that, Invesco operated under the PowerShares ETF brand, which it acquired in 2006. ► Invesco is one of the world's largest asset managers, with global AUM of USD 888.2 billion globally, as of the end of 2018.
Morningstar View	► Invesco made the leap from niche provider to a major player in the European ETF market with its purchase of Source in mid-2017. ► The subsequent integration appears to have been undertaken with relative ease. This owes partly to the lack of overlap between the PowerShares and Source product lines but also to the unique management structure at Source. All Source ETFs were managed externally, and therefore the day-to-day running of the funds has continued undisturbed while ownership has changed to Invesco. ► While all Invesco ETFs can benefit from the brand and distribution networks of Invesco, the external management arrangement in place for some of its funds means that they cannot fully benefit from enhanced operational efficiencies and economies of scale gained by being part of one of the world's largest asset managers. Should Invesco choose to in-house them in future, then a wholesale migration may be a little more challenging. ► As part of the Source takeover, Invesco acquired ETFs that are joint ventures with rival asset managers (such as PIMCO). These products remain part of the Invesco lineup, but question marks hang over their long-term ownership. ► We view positively the firm's recent initiative to build out its in-house ETF management capabilities. New funds can now be launched using physical replication using the internal management team or on the synthetic platform, managed externally by Assenagon Asset Management. ► The prevalence of synthetic ETFs in Invesco's European ETF lineup limits the impact of the firm's investment stewardship programme. By not holding the index constituents, Invesco's synthetic ETFs forgo their voting rights and dampen Invesco's efforts to influence and effect change through engagement.
ETF Offering	► Invesco's 113-strong ETF range covers all major asset classes and is predominately synthetically replicated. It also offers physically replicated and actively managed ETFs. ► As part of the acquisition of Source, Invesco gained ETFs that are joint ventures with other asset managers. Examples include partnerships with Goldman Sachs and PIMCO, with which Invesco offers a handful of actively managed ETFs, all providing exposure to fixed income. ► Invesco offers a range of commodity products, including a broad suite of precious metal exchange-traded commodities. ► All Invesco ETFs are domiciled in Ireland and, bar the precious metal ETCs,[7] are UCITS-compliant.

7 They are UCITS eligible.

Invesco

People

- Invesco's physical ETFs are managed by teams based in London and the US.
- In London, three portfolio managers are supported by 10 analysts and an eight-strong product development team.
- Managed by Peter Hubbard, the US portfolio management team consists of 11 portfolio managers and two associate portfolio managers. This team is also managing the US-domiciled ETF range.
- The PIMCO fixed-income ETFs are managed by PIMCO from Europe and the US depending on the underlying exposure. The investment manager for the physically replicated CSOP Source FTSE China A50 UCITS ETF is CSOP Asset Management, based in Hong Kong.
- The day-to-day investment management of all Invesco's synthetic ETFs is outsourced to Assenagon Asset Management, a third-party financial asset and risk manager specialising in passive and structured investment solutions. Assenagon currently has a team of seven portfolio managers supported by six professionals in operational roles working on Invesco ETF projects in Munich and Luxembourg.

Portfolio Management: Physical ETFs

Process

- For equity ETFs, portfolio managers employ full replication where possible and cost-effective to do so.
- Typically, Invesco uses derivatives only in ETFs where the index also invests in derivatives, such as Invesco S&P 500 VEQTOR UCITS ETF.
- For fixed-income ETFs, stratified sampling is commonly employed to ensure tight tracking at low cost.
- The physical fixed-income ETFs use Treasury and Bund futures to hedge duration when participating in the primary bond market. The externally managed PIMCO ETFs may also use derivatives such as foreign exchange forward contracts and interest-rate swaps in their portfolios.

Trading

- Trading for Invesco's internally managed ETFs is undertaken in-house.
- The fixed-income portfolio managers have access to the centralized trading desk to execute bonds.
- Trading functions are covered by CSOP for CSOP Source FTSE China A50 UCITS ETF and PIMCO for its fixed-income ETFs.

Index-Related Events

- Portfolio managers do not pre-emptively trade on potential index events (that is, additions and deletions).

Cash and Coupon/Dividend Management

- Coupons and dividends are treated according to index rules. The use of futures for cash management is permitted for all funds, but their use is generally limited as most physically replicated funds in the range offer esoteric exposures and therefore cannot benefit from highly liquid futures markets.

Securities Lending

- None of the Invesco UCITS ETFs are currently engaged in securities lending.

Portfolio Management: Synthetic ETFs

Process

Invesco's synthetic ETFs use the unfunded swap model. Under this model, each ETF buys and holds a basket of securities and simultaneously enters into swap agreements with one or multiple counterparties that commit to pay the index performance in exchange for the performance of the fund holdings.

Swap Counterparties

- Where possible, the ETFs, via the investment manager Assenagon, use multiple swap counterparties.
- The currently preferred swap providers are Goldman Sachs, JPMorgan, and Morgan Stanley. Other swap providers used are UBS, Citigroup, Société Générale Paris, and Deutsche Bank AG.
- The board of directors and the credit committee consider several areas, including legal capacity, credit quality, and operational capabilities. The minimum short-term credit rating for swap providers is Moody's P-2, S&P A-2. Invesco periodically reviews the terms of the swap agreements. There are no fixed renegotiation timelines.

Substitute Baskets

- Invesco accepts equity only within the substitute basket (T-Bills or cash in the case of the Invesco commodity ETFs). The eligible securities are subject to pre- and post-trade screening. Equities must be listed on a market

Invesco

deemed acceptable by Invesco, and each individual basket must comply with liquidity and UCITS diversification requirements.

- Substitute baskets comply with UCITS diversification rules.
- Assenagon does not engage in securities lending with the constituents of the substitute basket.

How Is Counterparty Risk Managed?

- For equity ETFs, swaps are reset (reducing counterparty exposure to zero) whenever: end-of-day exposure to a counterparty exceeds EUR 400,000 or more than 0.20% of fund assets and EUR 100,0000; there is a creation or redemption; or individual swap counterparty exposure exceeds 4.5% of swap notional. If none of these thresholds are breached, swaps are reset every 30 days.
- For broad-basket commodity ETFs, swaps are reset weekly.
- Between resets, the exposure will be fully collateralised with cash, US T-bills, UK Gilts, or German Bunds. Should it become necessary to reduce or eliminate exposure to a specific counterparty, their swap notional would be expected to be taken over by another swap provider.
- For ETFs tracking indexes where the intellectual property lies with a third-party asset manager, only a single swap counterparty may be available, meaning investors may bear single counterparty risk (currently this applies only to the Goldman Sachs Equity Factor indexes).

Disclosure

- The composition of the substitute basket is disclosed on the company website, and the information is updated daily. Additionally, the website discloses swap fees and graphs the daily swap mark-to market value.

Investment Stewardship

Team

- Invesco's Global Responsible Investment team was formed in 2013 and employs eight people. Split between Houston, Hyderabad (India), and London, the team supports portfolio managers in their ESG integration, voting, and engagement efforts.
- It works closely with the seven-member Global Proxy Services team, which is solely in charge of the operational voting aspect.

Voting

- Voting Coverage: Invesco votes all holdings of physical ETFs where feasible. Seventeen European ETFs (the PowerShares legacy UCITS ETFs) are set up for proxy voting. Invesco does not exercise voting rights for the holdings of substitute baskets of synthetic ETFs.
- Voting Process: Voting rights for ETFs are exercised by their portfolio managers who mirror the voting decisions of active portfolio managers. Active portfolio managers are given full discretion over proxy voting decisions for the securities they hold. For securities in ETFs that are not held in active portfolios, ETF managers revert to a custom voting policy (currently only relevant for US stocks), or recommendations provided by ISS, the proxy advisor.
- Lent securities are recalled only in instances where voting can have measurable impact.

Engagement

- Engagement Coverage: The firm engaged with approximately 900 companies in 2018.
- Engagement Strategy: Engagements are led by active portfolio managers, supported by the Global Responsible Investment team. Individual investment teams have the discretion to determine the best approach and will engage with company management on a number of issues, including ESG-related issues. They leverage third-party ESG research to help with their targeted engagement efforts.
- Invesco participates in collective engagement initiatives such as those arranged by PRI.

Disclosure

- Voting Guidelines: Proxy voting guidelines are available on the Invesco corporate website.
- Voting records for UCITS ETFs are available upon request.
- Engagement Disclosure: Invesco publishes an annual Investment Stewardship & Proxy Voting Report. It includes high-level statistics regarding engagement and details a series of case studies.

iShares

Manager Description	► IShares, a wholly owned division of BlackRock since 2009, is the largest ETF provider in Europe, with a market share of 44.6% as of March 2019. ► Headquartered in the US, BlackRock is also the world's largest asset manager, with USD 6.4 trillion in AUM. ► IShares began operations in Europe in April 2000.
Morningstar View	► IShares remains a formidable force in the European ETF industry, commanding a hefty market share, particularly in fixed income. This dominance is underpinned by a variety of factors, including its commitment to invest in topnotch technology. BlackRock's Aladdin portfolio management platform is widely regarded as amongst the best by industry practitioners. ► The breadth of its product lineup makes iShares a one-stop-shop solution for many investors. ► IShares has responded to competition from other providers by cutting fees on its core equity range. While welcome, this has widened the fee differential with the rest of the product lineup. Fixed income is an area where fee cuts have been lacking, and its mainstream bond ETF offering now looks pricey relative to competitors. ► We hold the iShares portfolio management team in high regard. Its size dwarfs some of its competitors, and it counts on the support of extensive resources across the BlackRock group, including large-scale global trading capabilities. ► IShares' securities-lending programme seems tightly controlled for risk, and the proceeds from this practice typically help to lower the overall cost of investing in iShares ETFs relative to cheaper competitors. However, the large on-loan volumes for some ETFs can be unnerving for investors. BlackRock acting as the lending agent creates a conflict of interest. ► As one of the largest shareholders of companies globally, BlackRock is aware of its responsibility and power of influence, and we view positively that it has become more vocal about material ESG issues, including climate risk. The firm has also stepped up its stewardship activities, with growing headcount in the Investment Stewardship team and a higher number of engagements. In terms of the information provided to investors, disclosing rationales for key votes and more details on engagement activities would be welcome.
ETF Offering	► IShares 300-plus strong range of equity and bond ETFs is exclusively physical and spans a wide variety of market exposures, ranging from plain vanilla to strategic beta, thematic, and ESG-focused strategies. ► IShares offers a small number of commodity products: four physical ETCs and three swap-based ETFs. ► IShares ETFs are managed across three platforms domiciled in Ireland, Germany, and Switzerland. ► All iShares EMEA-domiciled ETFs, bar those domiciled in Switzerland, are UCITS-compliant.
People	► IShares equity and commodity ETFs in Europe are managed by the EMEA Portfolio Engineering Team headed by Debbie Jelilian. Within this team, Rob Shimmel (institutional indexing) and Jonathan Van Ginneken (ETFs) head a combined group of 23 London-based and five Germany-based portfolio managers. Each portfolio manager is responsible for 15-20 funds on average. ► IShares fixed-income ETFs are managed by the EMEA Portfolio Solutions division within BlackRock's Model-Based Fixed Income Portfolio Management Group headed by Sid Swaminathan and with Darren Wills acting as ETF & Index Investment EMEA Lead. This group is supported by 15 portfolio managers: seven dedicated to rates, inflation, and aggregate mandates and eight to credit.

Portfolio Management: Physical ETFs	**Process** ► For equity ETFs, portfolio managers opt for full replication whenever feasible. For ETFs that track markets with liquidity constraints and/or high transaction costs, portfolio managers use optimisation. ► For fixed-income ETFs, the default replication methodology is stratified sampling. ► Portfolio managers rely on proprietary analytical and risk-control systems to meet all aspects of fund management. The risk-monitoring system is integrated into the portfolio-building solution (Aladdin).
	Trading ► All trading is done in-house by BlackRock's Trading and Liquidity Strategy Group. ► Global presence, with desks in Europe, the US and Asia ensure a 24-hour trading cycle and local execution of trades based on the assets' geographical exposure.

iShares

- Internal crossing opportunities are actively pursued to maximise savings in trading costs. IShares sees this as an important element that supports the efficient management of the ETF range.

Index-Related Events

- For equity ETFs, portfolio managers, aided by BlackRock's equity analysts and capital markets desk, carry out detailed research ahead of index rebalancings to identify likely leavers and joiners. Security liquidity and pricing are closely monitored to spot trading opportunities that would reduce market impact.
- Portfolio managers have some leeway to submit trading orders ahead of or after rebalancing–typically one or two days–but not ahead of announcement.
- Bond ETF portfolios are typically rebalanced in line with benchmark rules at month-end. However, in the case of large additions (for example, syndicated launch of new bonds) portfolio managers carry out a detailed cost-benefit analysis to decide whether to go to primary market or trade via the secondary market later.
- All index rebalancing trades are subject to tight risk control limits to not compromise tracking error.

Cash and Dividend Management

- For equity ETFs, cash dividends are routinely equitised from the ex-dividend date using index futures. Once received, the dividends accrue in a cash account until they are reinvested in stocks. When this happens, the positions in index futures are unwound to keep the ETF portfolio unleveraged.
- In the case of scrip dividends, the portfolio management team carries out a cost-benefit analysis to decide whether taking cash or stock is the best course of action.
- For bond ETFs, bond-coupon payments accrue in a cash account until reinvestment according to benchmark rules, typically at month-end.

Securities Lending

- Scope: iShares ETFs, except those with an ESG investment focus, are authorised to engage in securities lending and can lend up to 100% of their NAV.
- Lending Agent: BlackRock.
- Counterparties: iShares selects highly creditworthy borrowers based on a set of conservative credit standards defined by the risk team.
- Collateral: Lending operations are backed by UCITS-approved stock and bond collateral–cash and ETFs are also accepted–in excess of the loan value.
- The level of overcollateralisation varies in relation to the asset class lent out and the type of collateral taken. It ranges between 105% and 112% for equity, 102.5%-106% for government bonds, and 102.5%-108% for cash (USD, EUR, GBP).
- Loan and collateral value are marked-to-market daily.
- The collateral is held in a ring-fenced account in the name of the ETF and separate from BlackRock's balance sheet.
- Indemnification: BlackRock offers indemnity against the risk of borrower default, committing to cover any collateral shortfall to the fund.
- Revenue Split: The ETF receives 62.5% of gross lending revenue. BlackRock retains 37.5% to cover operational costs.
- Disclosure: IShares discloses quarterly on its website a summary of key securities-lending statistics per ETF for the previous 12 months. These include average and maximum on-loan values, collateral value (% of loan), list of collateral holdings, and lending return to the fund over the period.

Investment Stewardship

Team

- The BlackRock Investment Stewardship (BIS) team consists of 40-plus people dedicated to voting and engagement. The size of the team has doubled since 2014 and is expected to grow further in coming years.
- Presence in the US, UK, Japan, Hong Kong, Singapore, and Australia ensures local expertise.

Voting

- Voting Coverage: BlackRock votes all holdings where feasible.
- Voting Process: Proxy Advisors issue recommendations based on BlackRock's voting policy, but all proxies are voted internally and can be tailored to varying regional realities. Many of these votes are routine and

iShares

automated, but the stewardship team runs annual audits to ensure that policy guidelines are correctly applied. For nonroutine votes, including shareholder resolutions, the stewardship team conducts additional analysis using input from investment teams, as required.

- Voting against management is a last resort. Blackrock prefers to engage in the first instance where it has concerns and give management time to address or resolve the issue.
- BlackRock generally does not communicate voting intentions to companies ahead of AGMs.
- Lent securities are recalled only in instances where voting can have measurable impact.

Engagement

- Engagement Coverage: The number of company engagements has increased over the past three years to more than 2,100 from around 1,500.
- Engagement Strategy: The stewardship team prioritizes engagements based on its level of concern and the likelihood that the engagement will lead to positive change. It favours private direct engagement with companies to foster a fruitful long-term relationship. The team doesn't typically join collaborative engagements with other stakeholders.
- BlackRock's CEO issues an annual letter outlining the group's priorities on ESG issues.

Disclosure

- Voting Guidelines: Proxy voting guidelines are available on BlackRock's website.
- Voting records are not disclosed on BlackRock websites in Europe where it isn't a regulatory requirement.
- Engagement Disclosure: BlackRock publishes quarterly and annual voting and engagement statistics reports.
- The annual stewardship report provides practical examples of the team's work over the year. Examples of engagement with topics covered are kept anonymous. A handful of high-profile cases are disclosed on the website.
- BlackRock also makes public consultation responses, position papers, and other commentaries written by the Investment Stewardship team.
- The disclosure of sustainability characteristics, including ESG scores, carbon intensity, and controversial business involvement, is being rolled out across the full iShares ETF range.

Lyxor

Manager Description

- Lyxor Asset Management, a wholly owned subsidiary of the Société Générale, was founded in 1998 and launched its first ETF in 2001. It is headquartered in Paris.
- Lyxor is the third-largest ETF provider in Europe, with a market share of 8.4% as of March 2019.
- Lyxor acquired Commerzbank's ETF business (Comstage) in July 2018. Subject to regulatory approval, the acquisition is expected to be completed in the second half of 2019. As of end 2018, Comstage had EUR 8 billion in AUM and a market share of 1.2%.

Morningstar View

- Lyxor was one of the first ETF providers in Europe and is known for taking pragmatic business decisions to meet investors' preferences. Lyxor has switched many funds from synthetic to physical replication where feasible in cost terms and provided it doesn't compromise tracking efficiency. Also, it has redomiciled many funds from France to Luxembourg while changing their legal structure from FCP to SICAV to ease the fiscal administrative burden to non-French investors.
- The firm has invested heavily in personnel and technology. We value the stability of the portfolio management team.
- Lyxor's reliance on parent company Société Générale as a swap provider, securities-lending agent, and custodian is a potential source of conflicts of interest.
- Lyxor has been at the forefront of pushing for fee cuts for fixed-income ETFs, with many of its core bond market ETFs now offered at single-digit ongoing charges.

Lyxor

- The incorporation of Comstage will provide Lyxor with a foothold in the German market, but it will present administrative challenges in the consolidation of the ETF ranges, with numerous fund mergers and closures to be expected.
- Lyxor is a latecomer to investment stewardship. However, since setting up an SRI team in 2015 it has taken steps in the right direction, hiring professionals and launching a programme of direct engagement in 2017. More progress is still required, but we welcome Lyxor's willingness to expand actions on this front.

ETF Offering

- Lyxor's 200-strong ETF offering primarily focuses on equity and fixed-income market exposures. These range from plain vanilla to strategic beta and ESG-focused. The product suite includes 30 ETFs offering inverse and leveraged exposure to mainstream equity and bond market indexes.
- Lyxor ETFs are incorporated in two types of structure: SICAV with legal domiciles in Luxembourg and France and FCP (Fonds Commun de Placement) domiciled in France.
- The FCP structure is being phased out for all ETFs except those sold to French retail investors under the Plan de Epargne Action programme.
- All Lyxor ETFs are UCITs-compliant.
- Lyxor started off as a wholly synthetic ETF provider. Since late 2012, it has operated on a mixed synthetic-physical replication model. As of end 2018, 40% of AUM is in physical products and 60% in synthetic. Lyxor’s goal is to have a 50/50 split.
- Lyxor adopts a pragmatic view on replication choice. It favours physical where feasible in cost terms and as long as it offers the same tracking efficiency as synthetic.

People

- The ETF portfolio management team is made up of 10 professionals, headed by Raphael Dieterlen. The team is split by replication method.
- Lyxor physical ETFs are managed by five portfolio managers, of whom three are dedicated to equity funds and two to fixed-income funds.
- Lyxor synthetic ETFs are run by three portfolio managers and they all cover equity and fixed income.
- The team is supported by two assistant portfolio managers.

Portfolio Management: Physical ETFs

Process

- For equity ETFs, portfolio managers opt for full replication whenever feasible. For markets with liquidity constraints and/or high transaction costs, portfolio managers use optimization. This involves investing in a representative sample of securities that on aggregate present similar metrics–for example, market capitalisation, yield–as the index of reference.
- Fixed-income ETFs are typically fully replicated. However, for benchmarks with a wide geographical scope or special liquidity conditions, portfolio managers use stratified sampling.

Trading

- All trading is done in-house by Lyxor Intermediation, a dealing subsidiary created in January 2017.
- In-house centralised trading has helped streamline the fund management process, enhancing transparency in reporting and facilitating analysis of index rebalancing-related trading actions.
- Lyxor does not use internal crossing of securities between ETFs.

Index-Related Events

- For equity ETFs, portfolio managers use external equity research to analyse index rebalancings, particularly to identify events likely to generate sizeable market impact.
- Portfolio managers have some leeway to trade pre/pos tannouncement to minimise market impact and/or achieve tighter bid/offer spreads. On these occasions, trading orders are typically split on a volume-weighted basis.
- Bond ETF portfolios are typically rebalanced in line with benchmark rules at month-end.

Cash and Coupon/Dividend Management

- For equity ETFs, residual cash and equity dividends are routinely equitised using index futures. The use of derivatives rarely exceeds 1% of ETFs' NAV outside the dividend period, when it can go up to 2%.
- In the case of scrip dividends, the portfolio management team carries out a cost-benefit analysis to decide whether taking cash or stock is the best course of action.

Lyxor

- For bond ETFs, bond coupon payments are reinvested to the fund directly in bonds in accordance with benchmark rules, typically at month-end.

Securities Lending

- Scope: Securities lending is used for a selected group of equity ETFs only, subject to a cap of 25% of NAV per ETF.
- Lending Agent: Société Générale Securities Services.
- Counterparties: Borrowers must belong to a list agreed by the risk divisions of Lyxor and Société Générale. All borrowers must have a minimum credit rating of A-.
- Collateral: Lending operations are hedged by taking high-quality UCITS-approved stock and bond collateral in excess of the loan value. Cash is not accepted.
- The level of overcollateralisation is set at 105% for bonds and 110% for stocks.
- Loan and collateral values are marked-to-market daily.
- The collateral is held in a ring-fenced account in the name of the ETF at the custodian bank.
- Indemnification: Lyxor offers indemnity against the risk of borrower default, committing to cover any collateral shortfall to the fund.
- Revenue Split: The ETF receives a minimum of 65% of gross lending revenue. A maximum of 20% is retained by Lyxor and 15% by the lending agent.
- Disclosure: Lyxor discloses daily on its website all key information pertaining to its securities-lending programme, including on-loan levels (% of NAV) per ETF; one-year rolling average and maximum on-loan values; collateral value (% of loan), list of collateral holdings, and lending return in basis points to the fund since inception.

Portfolio Management: Synthetic ETFs

Process

- For its entire range of synthetic ETFs, Lyxor uses the unfunded swap model. Under this model, each ETF buys and holds a basket of securities and simultaneously enters into a swap agreement with a counterparty that commits to pay the index performance in exchange for the performance of the fund holdings.

Swap Counterparties

- Lyxor uses Société Générale as the sole direct swap counterparty for the purposes of operational efficiency. Société Générale works back-to-back with counterparties selected by Lyxor in the frame of a request for pricing process to obtain the best swap price, but counterparty risk arising from these back-to-back operations lies exclusively with Société Générale.
- Portfolio managers launch an RFP for swap pricing for all synthetic ETFs with AUM over EUR 250 million. Swap contracts are negotiated for one year. ETFs with AUM below EUR 250 million do not need RFP, but swap prices are routinely monitored for competitiveness.

Substitute Baskets

- Lyxor seeks a high degree of consistency between the eligible securities for substitute baskets and the nature of the ETF's index.
- Substitute baskets comply with UCITS diversification rules.
- Baskets for equity and commodity ETFs are made up of liquid stocks belonging to major developed-markets indexes.
- Baskets for fixed-income ETFs are made up of investment-grade sovereign and corporate bonds from the eurozone and other major developed economies.
- Société Générale bonds are not eligible for inclusion, while there are limits on the eligibility of Société Générale shares depending on the ETF’s underlying equity index.
- Controversial weapon manufacturers and companies in violation of the UN Global Compact principles are not eligible for inclusion.

How Is Counterparty Risk Managed?

- Lyxor targets zero counterparty risk daily.
- The value of assets in substitute baskets represents 100%-102% of index’s NAV, in effect ensuring overcollaterallisation.

Lyxor

- The assets in substitute baskets are the property of the ETF and are kept in a segregated account with the custodian bank.
- Lyxor does not engage in securities lending with the contents of substitute baskets.
- In the case of swap counterparty default, Lyxor would give first priority to selecting a new counterparty and arrange a new swap contract. Alternatively, it would consider a change to physical replication, and as a last resort it would terminate the fund, selling its assets and redeeming investors.

Disclosure

- Lyxor discloses daily on its website each ETF substitute basket contents and the relevant swap mark-to-market values.

Investment Stewardship

Team

- Lyxor's Socially Responsible Investment team was set up in 2015, is based in Paris, and consists of five analysts–two hired in 2018.

Voting

- Voting Coverage: Lyxor votes for all European developed-markets physical equity holdings in excess of 0.1% ownership irrespective of each ETF's domicile. In 2018 the team voted for 74% of all physical ETF equity holdings. Lyxor does not exercise voting rights for the holdings of substitute baskets of synthetic ETFs.
- Voting Process: Proxy advisors issue voting recommendations based on Lyxor's policy, but all proxies are voted internally.
- Lent securities are typically recalled prior to AGMs.
- The team communicates opposing voting intentions to companies ahead of AGMs to foster engagement and gather information. In some instances, this has led to the direction of the vote being changed.

Engagement

- Engagement Coverage: The team began a programme of engagements in 2017. In 2018 it carried out 36 engagements with 32 companies, including some as part of its participation in the Climate Action 100+ Initiative.
- Engagement Strategy: Lyxor distinguishes between two distinct types of engagements, those to discuss company-specific resolutions and those with a broad thematic focus. So far, the team has collaborated with other asset managers only in the climate initiative but is open to considering collaboration for targeted voting and engagement actions.

Disclosure

- Voting Guidelines: Proxy voting guidelines are available on the Lyxor website.
- Engagement Disclosure: Lyxor publishes an annual report with detailed accounts of voting and engagement activities, including names of companies.
- For all equity ETFs, Lyxor publishes the carbon footprint of indexes it its website. Lyxor publishes monthly full climate and ESG reports for all equity and bond ETFs.

Other

- Divesting from physical portfolios is not an option. Lyxor prefers to launch ESG-focused funds to meet clients' concerns on specific sectors. However, the substitute baskets of synthetic ETFs exclude stocks that fall short of Lyxor's ESG policy–for example, UN Global Compact, controversial weapons.

State Street

Manager Description

- SPDR ETFs, the ETF business of US-based asset manager State Street Global Advisors, has been offering ETFs in Europe since 2001. After several years of limited growth, the European SPDR ETF business was relaunched in 2011.
- SPDR ETFs ranks as the seventh-largest provider in Europe with a market share of 4% as of March 2019.

State Street

	► SSGA is the world's third-largest asset manager, with USD 2.5 trillion in AUM as of the end of 2018.
Morningstar View	► SSGA has a thoroughbred pedigree when it comes to indexing, having launched the first-ever US-listed ETF, SPDR S&P 500, in 1993. Despite its strong presence in the US ETF market and handful of highly popular products in Europe, SPDR ETFs remains a relatively small player in the European ETF arena. ► The real strength of SPDR's business is in the economies of scale gained from its relationship with the parent State Street Corporation, one of the largest custodians in the world. The firm's trading systems allow a large percentage of trades to be settled internally with other business areas globally, which allows for a reduction in trading costs. This close relationship also allows SPDR to leverage State Street's global technology expertise and risk-management systems. ► In fixed income, SSGA can leverage a solid infrastructure and heritage in the management and custody of bond portfolios. SSGA's recent initiatives have been well-received by investors, including the launch of a wide range of sector-focused equity ETFs. ► The securities-lending programme appears to be efficient and tightly controlled for risk. However, the decision to use State Street Securities Finance as the lending agent may lead to a conflict of interest. ► Given its strong institutional heritage, SSGA boasts a solid investment stewardship programme. Compared with other US asset managers, SSGA demonstrates strong leadership on various ESG issues. The Stewardship team has been proactive in public campaigns to promote ESG issues (for example, Fearless Girl on gender diversity). ► State Street is one of the better firms at reporting stewardship and engagement activities. It has been more transparent than many of its competitors.
ETF Offering	► The European SPDR range is entirely physically replicated and gives exposure to the two main asset classes: equity and fixed income. SPDR currently offers **close to 100 ETFs**. ► Sector ETFs make up a large part of the SPDR equity product lineup and offer granularity, both in terms of individual sectors and geographical exposures (US, Europe, and world). ► SPDR is also present in the area of strategic beta, with its popular Dividend Aristocrats ETF range. ► All European SPDR ETFs are domiciled in Ireland and UCITS-compliant.
People	► Equity ETFs are managed by the Global Equity Beta Solutions team. It comprises 60 portfolio managers, 11 of which are based in London and led by Richard Hannam, senior managing director and head of GEBS EMEA. ► Fixed-income ETFs are managed by the GEBS team. It is made up of 34 indexing portfolio management professionals, 12 of which are in EMEA headed by Stephen Yeats, managing director and APAC/EMEA head of fixed-income beta solutions. ► Equity and fixed-income portfolios are primarily run from London, except for US-only equity strategies, which are managed out of Boston. ► Fund management is carried out as a team effort, along with globally consistent processes and practices.

Portfolio Management: Physical ETFs	**Process** ► Equity ETFs employ full, sampled, or optimized physical replication. ► Fixed-income ETFs employ full replication and stratified sampling. ► The choice of method is underpinned on several factors, including the size of the portfolio, liquidity of the benchmark, custody costs, tracking error tolerance, and general availability of data.
	Trading ► SSGA has a global trading desk located in Boston, London, and Hong Kong. Portfolio managers do not trade directly. ► All trading is done in-house via an internal 24-hour trading desk, and only SSGA's traders are authorised to trade. ► Crossing trades is not permitted within the SPDR UCITS ETFs.
	Index-Related Events ► Portfolio managers may engage in some pre- or postevent trading in connection with particularly large or complex index events. These trading decisions are made on a case-by-case basis and rely on internal forecasts from equity analysts and external brokers. Preannouncement trading is not allowed.

State Street

- For simpler and/or more liquid exposures, portfolio managers prefer to trade in line with the index change itself so as not to incur unnecessary tracking error.

Cash and Coupon/Dividend Management

- For equity ETFs, Portfolio managers use index futures contracts to equitise stock dividends and manage daily cash flows. The use of futures is typically limited to 1%-2% of NAV.
- For bond ETFs, cash from bond coupon payments is left uninvested until rebalancing at month-end, when it is reinvested in the portfolios.

Securities Lending

- Scope: Only 22 legacy equity ETFs participate in securities lending. The percentage out on-loan is capped at 70% of NAV.
- Lending Agent: State Street Securities Finance.
- Revenue Split: The gross revenue is split between the ETF and the lending agent at a ratio of 70:30.
- Collateral: The collateral amount is marked-to-market daily and overcollateralized at the respective level of 105% for equities and 102% for government securities. The minimum acceptable collaterals are government securities issued by countries with long-term debt ratings of A and global listed equities.
- Indemnification: State Street Bank and Trust Company provides a borrower default indemnity.
- Disclosure: SPDR publishes quarterly reports showing the minimum, maximum, and average on-loan levels, as well as lending revenue and collateral value and holdings for the previous 12 months. Funds within SSGA SPDR ETFs EUROPE I PLC are not part of the lending program.

Investment Stewardship

Team

- SSGA's investment stewardship team has been in place since 2014 and comprises 12 members: three in EMEA, eight in the US, and one in APAC.

Voting

- Voting Coverage: SSGA votes all holdings where feasible.
- Voting Process: SSGA utilises Institutional Shareholder Service as its proxy voting agent. ISS provides voting recommendations based on SSGA's global proxy voting guidelines and execute routine votes in an automated manner. Key and controversial resolutions are rerouted, analysed, and voted by the SSGA Stewardship team.
- The investment stewardship team retains ownership of votes for both active and passive funds.
- Voting against management is a last-resort option. SSGA prefers to engage in the first instance where it has concerns and give management time to address or resolve the issue.
- Vote intentions are not disclosed ahead of AGMs.
- Lent securities may be recalled if it is believed that a particular vote will have a material impact.

Engagement

- Engagement Coverage: SSGA has engaged with around 600 companies annually in the past three years. This represents 40%-50% of global AUM in equity funds.
- Engagement Strategy: Each year, SSGA identifies key ESG themes and a few sectors where it will focus its attention and prioritize engagements. The team further prioritizes engagements with firms where it has concerns about governance or sustainability practices.
- The stewardship team may collaborate with active portfolio managers to engage with companies on corporate governance issues.
- Most corporate engagements are carried out on a one-to-one basis behind closed doors, but where appropriate, SSGA participates in collaborative engagement activities.
- SSGA is proactive in public campaigns to promote ESG issues (for example, Fearless Girl on gender diversity).

Disclosure

- Voting Guidelines: Voting guidelines are not available on SPDR's European websites.
- Voting records are not disclosed on SPDR's European websites.
- Engagement Disclosure: SSGA publishes an annual stewardship report that provides details of engagement and voting activities during the year, perspectives on governance and sustainability trends and themes, and forward-looking priorities. Voting and engagement success examples with company names are provided.

State Street

	► The annual report is supplemented by a quarterly stewardship activity report and the quarterly publication of voting record. Lists of companies engaged during the quarter are published.

UBS

Manager Description	► UBS Asset Management launched its first ETFs in 2001 and is now the fourth-largest ETF provider in Europe with a market share of 6.7% as of March 2019. ► UBS has about USD 780 billion in AUM globally as of the end of 2018.
Morningstar View	► As part of a top European asset manager, UBS ETFs boasts a solid portfolio management team with a well-established leadership. The stability of the team is a key strength, and we believe UBS ETFs benefit from the expertise of UBS Asset Management where passive investment and indexing are a core offering. ► We value UBS' heavy investment in the development and ongoing improvement of its in-house-built Portfolio Optimization Platform. ► We give UBS credit for its early commitment to providing ETFs to ESG-conscious investors. Other areas where UBS ETFs is particularly strong are currency-hedged ETFs. ► UBS ETFs are not known for being amongst the most competitively priced. ► The use of UBS as sole swap counterparty for its range of synthetic ETFs can be seen as a conflict of interest. And although the use of securities lending is conservative, the revenue split in favour of the ETFs is slightly below the industry average. ► We value the fact that in the past few years UBS has strengthened its stewardship capabilities and processes. Its expanded stewardship team works closely with ESG analysts and portfolio managers for proxy voting and engagement activities. We view positively UBS' willingness to collaborate with other shareholders.
ETF Offering	► UBS offers more than 110 ETFs. Around 80% of ETF assets are in physically replicated funds covering a large variety of equity and fixed-income markets. It also offers a range of commodity ETFs. ► UBS has the largest range of SRI ETFs and currency-hedged ETFs in Europe. ► The ETF range is built across four platforms domiciled in Luxembourg, Ireland, and Switzerland. ► All UBS ETFs are UCITS-compliant, except those domiciled in Switzerland.
People	► The Index Equity and Alternatives Investment team is headed by Ian Ashment and comprises 21 portfolio managers and six research analysts. The team operates in London, Zurich, and Sydney. ► The fixed-income index team is headed by Matthias Dettwiler and comprises 11 portfolio managers. The team is mostly based in Zurich but has presence in London, Chicago, Sydney, and New York. ► The leadership of the index investment team has remained unchanged since 2006.

Portfolio Management: Physical ETFs	**Process** ► Equity ETFs employ full, sampled, or optimized physical replication. ► Fixed-income ETFs employ full replication and stratified sampling.
	Trading ► All trading is done in-house. ► Most trades are executed centrally by the global trading team, but on occasion ETF trading can be implemented by portfolio managers. ► UBS might cross on stock level, but the view of the portfolio management team is that most transaction costs stem from fiscal charges rather than traditional brokerage activities.
	Index-Related Events ► Portfolio managers have leeway to trade pre- or post-rebalancing to minimise market impact. ► UBS conducts extensive research on performance patterns of stocks added to and deleted from indexes, and such analysis supports effective trading strategy for index rebalancing. Part of this research includes predicting potential additions and deletions. However, preannouncement trading is not used for ETFs.

UBS

Cash and Coupon/Dividend Management

- For equity ETFs, Routine cash stock dividends are reinvested according to index rules using an overdraft facility available from the custodians, State Street Bank and UBS. Similar to a credit line, State Street Bank lends the ETF cash to reinvest any receivable dividends on the ex-dividend date. Once the dividend is paid to the underlying stocks, the ETF returns the borrowed cash to State Street Bank.
- UBS has also started to use futures for cash equitisation purposes. The total exposure is typically less than 1% of NAV.
- For bond ETFs, bond coupon cash is typically reinvested according to index rules at month-end rebalancing.

Securities Lending

- Scope: UBS engages in securities lending for a selection of physical equity ETFs only. Securities lending is not available for socially responsible ETFs and fixed-income ETFs. The percentage out on-loan is capped at 50% of NAV (except for UBS ETF Euro Stoxx 50, which is capped at 25%).
- Lending Agent: State Street acts as lending agent for ETFs domiciled in Ireland and Luxembourg. UBS Investment Bank (Zurich) is the lending agent for Swiss-domiciled ETFs.
- Revenue Split: 60% of the securities-lending gross revenues are paid to the fund and 40% to the lending agent; UBS covers the operational costs
- Collateral: Minimum acceptable collateral includes government bonds with at least an A rating, equities in the form of world stock indexes, and corporate bonds with at least an A rating (only for Switzerland-domiciled ETFs).
- Haircuts applied include 2%-5% for government bonds, 5%-8% for equities, and 4% for corporate bonds.
- Loans are overcollateralised to at least 105%, after haircuts have been applied.
- Indemnification: The lending agents provide full borrower default indemnification.
- Disclosure: For each of the ETF subfunds, details are published monthly, on a rolling one-year basis, on the UBS website, including minimum/maximum/average % balance on loan, net return to the fund, collateralization level, and collateral holdings.

Portfolio Management: Synthetic ETFs

Process

- All UBS synthetically replicated ETFs are explicitly identified by the acronym "SF" in the ETF's name.
- Subscriptions to the ETF are generally invested in a ratio of approximately 95:5 in a portfolio of assets (asset "portfolio") and swap agreements.
- The ETF also enters into an unfunded swap agreement with the swap counterparty to exchange the return of this portfolio for the desired index performance.
- The remaining fund assets (roughly 5%) are used by the ETF to enter into a fully funded swap agreement in which the swap counterparty agrees to deliver the desired index performance.

Swap Counterparties

- UBS ETFs face UBS Investment Bank as the sole swap counterparty.
- Swap agreements are reviewed periodically, and pricing is tested via a range of panel banks at least once a year. When appropriate, the portfolio manager will instruct UBS Investment Bank to source the index performance from a panel bank to ensure best execution.

Substitute Baskets

- Substitute baskets ("asset portfolios") consist of liquid developed-markets equities.
- Eligible collateral for the fully funded swap agreement consists of G10 government bonds, bonds issued by supranational entities with a minimum long-term credit rating of AA, and cash.
- UBS does not engage in securities lending with the contents of the asset portfolios.

How Is Counterparty Risk Managed?

- Swaps are reset at a minimum of every three months or whenever a predetermined exposure threshold is met or exceeded. In practice, swaps are frequently reset owing to subscription and redemption activity within the ETFs.
- Counterparty exposure is fully collateralized, and the amount of collateral transferred is subject to haircuts. Collateral is transferred to the ETF's custodian bank and held in a segregated account in the name of the fund.

UBS

	► The portfolio manager has absolute control over the exposure and risk within the asset portfolio and collateral. UBS uses an independent risk team to further monitor the quality of the securities held by the ETF and of those posted as collateral on a monthly basis. **Disclosure** ► UBS fully discloses the composition of the asset portfolio and collateral as well as the collateralisation level on its website.
Investment Stewardship	**Team** ► UBS has a Sustainable Investing Research and Stewardship team of 10 people, which has grown from six three years ago. It is responsible for conducting and supporting ESG integration and stewardship activities across asset classes. ► The team is part of the Sustainable and Impact Investing team, which consists of 18 professionals in total, including five ESG analysts. The team has global scope, with presence in Zurich, London, Amsterdam, New York, and San Francisco. **Voting** ► Voting Coverage: UBS votes all holdings where feasible covering 94% of companies held in passive physical equity portfolios. UBS does not exercise voting rights for the holdings of substitute baskets of synthetic ETFs. ► Voting Process: UBS relies on Institutional Shareholder Service to provide voting recommendations in accordance with UBS' own policy, but these recommendations are not always followed. ISS recommendations are also reviewed for a watchlist of companies including major holdings and those on the engagement focus list. ► UBS' policy allows flexibility according to different levels of ESG development by region. ► UBS does not conduct pre-AGM communication for specific voting. ► Stocks on loan are recalled in exceptional circumstances to maximize impact. **Engagement** ► Engagement Coverage: UBS uses a proprietary database and several ESG data providers to screen out ESG issues and prioritise company engagements. Throughout 2018, the firm engaged with 229 companies across regions and sectors. ► Engagement Strategy: UBS conducts four types of engagement: thematic (sustainability topics), reactive (in reaction of controversies), proxy voting-related, and proactive (following the identification of material ESG risks and opportunities). ► UBS participates in collaborative engagements. **Disclosure** ► Voting Guidelines: Proxy voting guidelines are available on the UBS website. ► Voting Records are disclosed at the company but not the ETF level. ► Engagement Disclosure: UBS publishes an annual stewardship report, which includes voting and engagement statistics, including a list of companies engaged during the year. Examples of engagement with topics covered are kept anonymous. ► PRI reporting framework responses, PRI assessment reports, and thought leadership research on ESG topics are also available on the UBS website.

Vanguard

Manager Description	► Vanguard Asset Management Limited is the European asset-management arm of The Vanguard Group, which was founded in the US in 1975. Vanguard has a unique mutual ownership structure, whereby it is owned by investors in its US-domiciled funds.

Vanguard

- While Vanguard has been active in the US ETF market since 2001, it launched its ETF business in Europe in 2012. Since then it has grown to become the sixth-largest ETF provider in Europe, with a market share of 4.7% as of March 2019.
- Vanguard is the world's second-largest asset manager, with USD 5.2 trillion in AUM.

Morningstar View

- Vanguard was a late entrant to the European ETF marketplace but backed by its strong reputation in the US it has quickly established itself as a force to be reckoned with. This is despite offering a significantly narrower range of products than its direct competitors.
- We hold Vanguard in high regard. The source of the firm's competitive advantage and the foundation of its investor-focused culture is its distinctive mutual ownership structure. Fund shareholders own Vanguard through its funds, which compels the firm to put fund shareholders' interests first.
- It specialises in low-cost straightforward ETFs that are well-suited as core building blocks in investors' portfolios. However, for all its reputation for low-fee investing, in Europe Vanguard rarely offers the lowest-cost ETF for a given exposure, but rather "one of the lowest."
- By focusing on plain-vanilla products, Vanguard's ETF offering may not be sufficient to cover all investor needs. Besides, the benefits to investors of bringing additional me-too products (Euro Stoxx 50 and DAX ETFs) at no lower fees into an already saturated market are questionable.
- We have confidence in the well-resourced indexing team. The fund management process is efficient and tightly controlled for operational risk.
- Compared to other large asset managers, Vanguard has dragged its feet with respect to investment stewardship. It has stepped up its efforts of late, growing its stewardship team from 10 professionals in 2015 to 33 in 2018. It's a move in the right direction. But given its scale, we expect Vanguard to increase its capabilities further, especially outside of its home market, and play a more influential role in improving ESG standards across the board. There is also significant room for improvement when it comes to disclosure of engagement. Disclosure of rationales behind controversial votes would be welcome too.

ETF Offering

- Vanguard's 25-strong ETF offering is exclusively physical and gives access to broad equity and fixed-income market beta exposures. This total also includes four actively managed equity ETFs.
- All Vanguard ETFs are domiciled in Ireland and UCITS-compliant.

People

- The Vanguard ETF and index fund businesses are part of the same operation, with portfolio managers overseeing both ETFs and index funds.
- Vanguard uses a global team approach to management and trading in which portfolio managers manage and trade assets locally. (For example, all wholly North American exposures are managed from the US.) However, each portfolio manager can carry out other team members' responsibilities. The European and Australian teams are entirely integrated with the US team, using the same processes and systems.

Portfolio Management: Physical ETFs

Process

- For equity ETFs, portfolio managers use two techniques: full replication and optimisation.
- For actively managed equity ETFs, portfolio managers implement a rules-based approach using dynamic quantitative models. This means they are not tied to a fixed rebalancing schedule. Instead, they have flexibility to react to changing prices and opportunities in the market to help maintain a constant factor exposure.
- For fixed-income ETFs, the default replication methodology is stratified sampling.

Trading

- Cross-trading– crossing security trades between funds–is allowed though used minimally in practice. Trades are geographically carried out by portfolio managers based on best execution (for example, US securities are traded in the US, Asian securities are traded in Australia).
- Vanguard ETFs also engage in cross-buying, crossing creations against redemptions, which accounts for a majority of cash flow.

Index-Related Events

- For equity index-tracking ETFs, portfolio managers analyse index events such as index rebalancing and corporate actions and, on a case-by-case basis, implement the appropriate trading strategy to implement the changes in order to limit market impact.

Vanguard

- Fixed-income ETFs are rebalanced monthly to account for changes in the index at month-end.

Cash and Coupon/Dividend Management

- For equity ETFs, dividends are reinvested into additional securities on the underlying stock's ex-dividend date, in line with the fund's index. Also, managers typically use futures contracts to reinvest dividend income until the ETF's dividend distribution date and to reinvest reclaimed tax. This helps reduce tracking error by allowing the ETFs to follow the index's dividend methodology more closely. Futures positions are limited to 1% of the funds' value.
- For fixed-income ETFs, bond coupon payments are reinvested directly in bonds in accordance with benchmark rules, typically at month-end.

Securities Lending

- Scope: Vanguard currently lends securities on 12 of its ETFs. The amount of assets that can be lent out by any ETF is capped at 7.5% of NAV, although the figure is typically much lower in practice.
- Lending Agent: Brown Brothers Harriman & Co.
- Counterparties: An independent team within the firm analyses all prospective borrowers on an ongoing basis using both quantitative and qualitative criteria to ensure that they meet credit standards.
- Collateral: The securities-lending programme accepts only sovereign debt securities as collateral. These include US Treasuries, UK Gilts, German Bunds, French OATs, and Dutch Sovereign Debt securities. Vanguard requires 102% collateral for all loans, and 105% if the underlying currency of the security on loan is different from the underlying currency of the accepted collateral.
- Indemnification: Brown Brothers Harriman & Co. provides full indemnification in the event the borrower is unable to return the securities. Specifically, it will cover losses incurred by counterparty default, operational error, or settlement error.
- Revenue Split: The current securities-lending revenue split is 95/5, with 95% of gross revenue returned to the fund and 5% paid to the lending agent,
- Disclosure: Annual securities-lending reports are available upon request.

Investment Stewardship

Team

- The Vanguard Investment Stewardship Group team employs 33 people dedicated to voting and engagement. The size of the team has doubled since 2015.
- The bulk of team personnel are stationed in the US, although the establishment of a London-based European investment stewardship team shows a commitment to expanding non-US engagement activities.

Voting

- Voting Coverage: Vanguard exercises voting rights on all holdings where practical to do so.
- Proxy Process: Proxies are voted internally by the stewardship team in line with the published voting policy. The team uses the recommendations of proxy advisors but does not solely rely on these.
- Vanguard will not vote against management until it has a chance to share its concerns with the company (or tries to do so) and gives it a chance to address the issue. Only when engagement results in no change after six to 12 months would Vanguard vote against company management.
- The team does not communicate voting intentions to companies ahead of AGMs.
- Vanguard doesn't typically recall securities on loan but will do so ahead of votes on material issues to increase its impact.

Engagement

- Engagement Coverage: The number of annual company engagements has crept up over the past three years to more than 731 from 631.
- Engagement Strategy: The stewardship team prioritizes candidates for engagement based on material events, such as a controversy or major issue up for vote, or corporate-governance practices that it believes don't adequately protect shareholders, looking for industry outliers.
- The stewardship team prefers private direct engagement with companies. It does not collaborate with other investors in its engagements with individual companies.

Vanguard

	Disclosure ► Voting Guidelines: Proxy voting guidelines are available on Vanguard's websites. ► Voting records: Voting records for the previous proxy year are disclosed in fund specific reports on Vanguard's European websites. Aggregated voting statistics for the same period are also available in the annual Investment Stewardship report. ► Engagement Disclosure: Vanguard produces annual and semi-annual investment stewardship reports. In the annual report, high-level engagement statistics are presented, and trends and priorities are discussed. Examples of engagement with topics covered are kept anonymous.

Xtrackers

Manager Description	► Xtrackers is part of DWS Group, which oversees around EUR 700 billion in AUM. The majority of DWS' share capital (around 77%) is owned by Deutsche Bank. ► When the ETF business was launched in 2007, it was part of Deutsche Bank's Corporate Banking and Securities division. It moved into DWS (formerly Deutsche Asset Management) in 2012. ► Xtrackers is currently the second-largest ETF provider in Europe, with a market share of 11% as of March 2019.
Morningstar View	► The growth of Xtrackers since its inception has been impressive. From a small team within Deutsche Bank's Investment Bank, it has developed into the second-largest ETF provider in Europe, offering a broad menu of funds spanning all major asset classes. ► We value Xtrackers' pragmatic approach to growing the business by responding to client's concerns. The switch to physical replication and the incorporation of a multiple swap-counterparty model for its remaining range of synthetic ETFs are examples. However, question marks remain about the future of DWS as part of the Deutsche Bank group and the implications this may have for the ETF business. ► With the rapid transformation of Xtrackers, its portfolio management team has experienced an above-average turnover rate, but it doesn't seem to have negatively affected the funds' performance. The retention rate of the senior portfolio managers is satisfactory. ► The securities-lending programme appears to be efficient and tightly controlled for risk. However, the decision to use DB Agency Securities Lending as the lending agent may lead to a conflict of interest. ► In the past three years, DWS has taken positive steps to strengthen its investment stewardship duties. However, its coverage is not comprehensive as it solely targets the companies included in its "watchlist."
ETF Offering	► Xtrackers' offering of around 190 ETFs covers all main asset classes. ► ETFs are available to investors via three platforms. Two of them—Xtrackers and Xtrackers II— are domiciled in Luxembourg, while Xtrackers (IE) PLC is domiciled in Ireland. All three platforms offer a mixture of physical and synthetic ETFs. ► Xtrackers started as a wholly synthetic ETF provider, but in 2012, the decision was taken to introduce physically replicated ETFs. As of the end of December 2018, nearly three fourths of AUM was in physically replicated products. The choice of replication method will continue to be made on a case-by-case basis, depending on what is deemed more efficient. ► All Xtrackers ETFs are UCITS-compliant.
People	► Xtrackers' in-house portfolio management team is led by Julien Boulliat and consists of 22 investment professionals. They focus on both synthetic and physical offerings and are based in London, Hong Kong, and Mumbai.

Portfolio Management: Physical ETFs	**Process** ► Xtrackers refers to physical replication as "direct replication." ► For equity ETFs, portfolio managers opt for full replication whenever feasible. For indexes with a wider scope or lower liquidity, the portfolio is likely to be more optimised.

Xtrackers

- Fixed-income ETFs are typically managed using a stratified sampling approach. In some cases, for indexes with narrower scope and higher liquidity, the fund will use full replication.

Trading

- For equity ETFs, trading is handled by DWS' global trading team with desks in Frankfurt, New York, and Hong Kong.
- For fixed-income ETFs, trading is also performed in-house by DWS' global trading team. Each desk comprises of sector specialists focusing on rates, investment-grade credit, high-yield credit, and emerging markets.
- Xtrackers currently does not implement internal crossing.

Index-Related Events

- For equity ETFs, index events are analysed by the index analysis team; index predictions are also produced in-house.
- Portfolio managers have some leeway to trade around the index rebalancing date to mitigate trading cost.
- For fixed-income ETFs, portfolios are typically rebalanced in line with benchmark rules at month-end. New issue participation provides an opportunity to take advantage of new issue concession ahead of upcoming index inclusion. Ratings changes and corporate actions are analysed to predict upcoming index changes.

Cash and Coupon/Dividend Management

- For equity ETFs, dividends received from the underlying stocks are reinvested in line with the index methodology to minimise tracking error. And portfolio managers may use futures to do so.
- For bond ETFs, coupon payments are reinvested into the fund directly in bonds in accordance with benchmark rules, typically at month-end.

Securities Lending

- Scope: Most Xtrackers' physical ETFs, except the ESG ETF range, are authorized to lend securities. The maximum a fund can lend out is 50% of its assets at any given time, while lower limits can apply for certain funds.
- Lending agent: Deutsche Bank Agency Securities Lending.
- Counterparties: A list of 20-plus counterparties is selected and monitored by Deutsche Bank's credit risk management department. DWS can remove borrowers or overlay restrictions/limits if required.
- Collateral: Lending transactions are fully collateralised by taking eligible high-quality collateral.
- The level of overcollateralisation varies depending on the asset class received as collateral, whereby the margins applied are 110% for equity and corporate bond collateral, 105% for government/supranational bonds, and 100% for cash.
- The mark-to-market collateral is held in a segregated account in the name of the fund by State Street Fund Services, which also acts as the custodian of the ETF.
- Revenue split: For the Irish- and Luxembourg-domiciled physically replicated ETFs, 70% of gross lending revenue is passed on to the fund, while 15% is retained by the management company (to cover operational costs) and 15% by the lending agent. For Xtrackers DAX UCITS ETF and Xtrackers DAX Income UCITS ETF, 90% of gross securities-lending revenue is passed on to the fund.
- Disclosure: Xtrackers discloses daily on its website all key information pertaining to its securities-lending programme, including current on-loan levels (% of NAV) per ETF; one-year rolling average and maximum on-loan percentage; collateral value (% of loan), lending counterparties, list and breakdown of collateral holdings, and lending return in basis points to the fund since inception.
- Indemnification: Deutsche Bank provides investors with full indemnification in the event of borrower default.

Portfolio-Management: Synthetic ETFs

Process

- Xtrackers refers to synthetic replication as "indirect replication." All synthetic ETFs are explicitly identified by the word “Swap” in their name and follow the unfunded swap model. Xtrackers has completed its transition initiated in 2013 from the fully funded to the unfunded swap structure, a move prompted by client demand and regulatory preference.

Xtrackers

- Under the unfunded swap model, each ETF buys and holds a basket of securities, and simultaneously enters into a swap agreement with a single or a number of counterparties that commit to pay the index performance in exchange for the performance of the fund holdings.

Swap Counterparties

- All synthetic equity ETFs are now enrolled in the multiswap counterparty model to allow for a better diversification of risks. As of now, most of Xtrackers' synthetic equity ETFs have more than one swap counterparty at any point. The synthetic fixed-income and commodity ETFs are still currently on the single-counterparty model.
- In addition to Deutsche Bank AG, approved swap counterparties include Barclays, HSBC, Goldman Sachs International, Société Générale, J.P. Morgan Securities, and Morgan Stanley Capital Services LLC.

Substitute Baskets

- Substitute baskets consist of OECD equities for equity ETFs and typically government and corporate bonds for fixed-income ETFs. Substitute baskets comply with UCITS diversification rules.
- Assets within substitute baskets are held in a ring-fenced segregated account by the custodian in the name of the ETF.
- State Street Custodial Services (Ireland) Limited serves as custodian of the funds on the Concept Fund Solutions platform, while State Street Bank Luxembourg is the custodian of the Xtrackers and Xtrackers II platforms.
- No securities lending is carried out within the substitute baskets.

How Is Counterparty Risk Managed?

- Xtrackers has a policy of resetting swaps to zero when a maximum exposure of 5% of the ETF's prevailing NAV to each counterparty is reached or whenever there is significant creation or redemption of ETF units. However, Xtrackers often achieves zero or negative net swap counterparty exposure at the end of each day, meaning that the ETFs are either fully collateralised or overcollateralised.
- The assets in substitute baskets are the property of the ETF and are kept in a segregated account with the custodian bank.
- Xtrackers does not engage in securities lending with the contents of substitute baskets.
- In the case of swap counterparty default, Xtrackers would liquidate the securities in the substitute basket associated with that particular counterparty and execute the swap with one of the other approved counterparties.

Disclosure

- Xtrackers discloses daily on its website each ETF substitute basket contents and swap mark-to-market values.

Investment Stewardship

Team

- DWS has had a dedicated Corporate Governance Centre since 2016 as part of its chief investment office. The team, based in Frankfurt, is currently made up of six members and is responsible for voting and engagement.
- The CGC is part of a dedicated ESG team of 10 individuals focused on supporting the integration of ESG into DWS' investment process.

Voting

- Voting Coverage: DWS' policy is to vote only for the companies included in its watchlist, which includes the most relevant equity holdings globally.
- As of this review, the watchlist consisted of 700-750 firms, representing 60% of AUM in terms of voted meetings in physical equity ETFs. DWS does not exercise voting rights for the holdings of substitute baskets of synthetic ETFs.
- Voting Process: DWS uses recommendations issued by proxy advisors in line with DWS' voting policy. The CGS team cross-checks for potential conflicts and carries out additional analysis.
- The CGC team and/or active portfolio managers can propose votes deviating from the DWS policy. These votes need the approval of the Proxy Voting Group.
- DWS' voting principles are universal, but the detailed guidelines are adapted to the specificities of different geographical areas.

Xtrackers

- Restrictions on lendable securities tend to be placed four to six weeks ahead of a vote to ensure voting rights can be exercised.

Engagement

- Engagement Coverage: The CGC carried out 170 engagements in 2018, up from 81 in 2017.
- Engagement Strategy: The CGC carries out proactive engagements to address important governance-related concerns or in relation to major M&A transactions.
- In addition, the CGC responds to investee companies that approach it; this is normally done ahead of AGMs to enquire about voting intentions but also increasingly to seek opinions on ESG issues.
- DWS sends an annual letter to companies listing its expectations regarding key governance issues. It is followed by another letter outlining reasons behind the votes.

Disclosure

- Voting Guidelines: DWS publishes a Corporate Governance and Proxy Voting policy document that details voting principles.
- Voting Records: Xtrackers does not yet disclose the voting records for its physical ETF range.
- Engagement Disclosure: DWS publishes an annual proxy voting and governance engagement report featuring high-level statistics on voting activities. However, the report does not contain specific examples of interactions with individual companies.
- DWS' dedicated ESG Thematic Research team publishes reports on ESG issues.

Appendices

Appendix I: A Guide to Replication Methods and Portfolio-Management Techniques

Like any index fund, ETFs are designed to track the performance of an index. While this concept is easy to understand, putting it into practice is far more difficult than it seems. Indexes are theoretical portfolios that don't reflect what is happening in the "real" world as they ignore the practicalities of portfolio construction and ongoing management.

The key objective of ETF managers is to minimise tracking deviations—commonly measured by tracking difference and tracking error—by choosing the most appropriate replication method for a fund and putting in place efficient portfolio-management techniques.

In this section, we examine each aspect of the ETF portfolio-management process, starting with the choice of replication method.

The method employed to replicate an index is key to the success of an ETF, and the choice of one over another is often made on a case-by-case basis. When deciding which methodology to use, portfolio managers consider several factors such as the size and liquidity of the index, operational efficiency, ownership restrictions, cost, taxes, tracking-error tolerance, and client demand.

The various replication methods used by European ETF providers can be split into two main groupings: physical replication and synthetic replication.

Exhibit 12 Two Measures of Tracking Performance

Tracking Difference	Tracking Error
Tracking difference is the difference in returns between a fund and its benchmark over a period of time. A small negative tracking difference indicates the fund has done a good job matching its benchmark. A positive tracking difference indicates the fund has outperformed its benchmark.	Tracking error is the volatility (as measured by the annualised standard deviation) of a fund's return differences over a period of time (return differences referring to the differences in periodic returns between the fund and its benchmark). A low tracking error indicates the fund has consistently tracked its benchmark

Source: Morningstar Manager Research.

Physical Replication

Physical replication, also known as direct replication, is the most straightforward way to mimic the performance of an index. Physical ETFs own the constituents of the index they track. This can be done in one of three ways: full replication, sampling, or optimisation.

Each approach has benefits and drawbacks depending on the circumstances of a particular ETF.

Full Replication

With full replication, portfolio managers build a portfolio of all the index constituents in the same weights as stipulated by the index. This approach works well for highly liquid indexes such as the EURO STOXX 50 or FTSE 100 indexes.

Full replication may not be possible or economically efficient when the index being tracked references a high number of securities or contains small and relatively illiquid constituents (for example, the MSCI World IMI with nearly 6,000 constituents; the MSCI Emerging Markets IMI with more than 2,700; or the Barclays Global Aggregate Index with nearly 23,000). To replicate these indexes, managers may use sampling or optimisation techniques.

Sampling

Sampling involves investing in a select basket of the largest and most liquid constituents of the index to minimise costs. The portfolio manager will segment the index constituents into subgroups (for example, by sector, country, interest rate, credit rating, currency, or issuer) and then purchase underlying securities representative of each subgroup.

While sampling has undeniable cost advantages by virtue of excluding smaller, less liquid constituents of an index, it creates a potential source of tracking error as the fund strays from perfectly mirroring its benchmark.

Sampling tends to work well during normal market conditions. However, in an adverse market environment, historical statistical attributes (correlations, volatility measures, and so on) are less likely to align with the index, and sampling can result in higher-than-expected tracking error.

Optimisation

Unlike sampling, optimisation uses a risk model based on the security's size, valuation characteristics, historical momentum, or historical volatility, among other predefined variables.

Optimisation has the benefit of minimising tracking error and works relatively well in a low-volatility environment. However, because it considers market access in structuring the selection and weighting of individual securities, it introduces a trade-off between greater investability and the extent to which the index adequately represents its chosen market. Optimisation techniques are not practical in fixed-income markets for this reason, as well as because of the OTC nature of bonds.

Asset-Management Techniques

Managing a physically replicated ETF is not limited to choosing the most efficient replication method. Portfolio managers use "active" management techniques to try to minimise costs and enhance returns.

This includes techniques such as managing cash, trading around index reconstitutions, using derivatives, optimising tax, and engaging in securities lending.

When trying to minimise costs and/or enhance returns, the challenge for ETF managers is not to deviate too much from the index and to keep tracking error as low as possible. These objectives are potentially conflicting.

Index portfolio managers operate within a framework where risk is tightly monitored and controlled. Their day-to-day actions are highly automated and tightly constrained by parameters set and reviewed regularly in partnership with the business, under the control of the risk management department. This leaves very little room for operational error.

Index Changes
Index changes that occur as a result of index rebalancing and corporate actions are the most frequent source of activity for managers of physically replicated ETFs. They can be handled in a variety of ways.

Index Rebalancing
Most index providers carry out regular index reviews to ensure their universe remains representative of the underlying market. At these reviews, they make additions and deletions deemed necessary in accordance with the index methodology. These changes are usually announced several days in advance, which portfolio managers may take advantage of to formulate a trading strategy.

When appropriate, managers may begin buying securities prior to the day that they are added to the index, and conversely, securities may also be sold ahead of the deletion date. This is often done to minimise market impact and may at times capture some value that can offset some other unavoidable costs of portfolio management. With this, a small amount of market risk is introduced that may affect the tracking accuracy of the fund. However, if executed effectively, this may improve the fund's tracking performance.

Corporate Actions
In the equity space, there are a number of events such as mergers and acquisitions, bankruptcy, rights issues, and IPOs that can lead to noteworthy changes in the index. Examples of corporate actions that may strongly affect the value of fixed-income securities—and therefore the index they belong to—include the temporary suspension of interest payments, instances of voluntary or forced debt restructuring, and, ultimately, default. All these changes, which are also usually announced in advance, are managed in a similar way as regular index rebalancings.

Trading
Minimising transaction costs is a key consideration for passive fund managers. Given the scale of their firm's investment operation, some managers are able to effect portfolio transactions through internal crossing. These transactions are traded off-market, without any brokerage commissions.

Where internal crossing transactions are not available or permitted, managers attempt to execute transactions in the most cost-effective manner, relying on low-cost, often automated, external trading and trade-crossing systems.

Cash Management

There are many instances where managers of physically replicated ETFs will be faced with cash flows that need to be managed efficiently in order to limit cash drag and ultimately minimise tracking error. For instance, when an index changes composition, there may be a time lag between the liquidation of the index's old constituents and the addition of its new constituents. During this span, the fund will hold cash.

Also, for those ETFs that regularly distribute income to shareholders, there can often be a lag between the time when the ETF receives dividends (or coupon payments) from its underlying holdings and the time that it ultimately distributes this income to its own investors.

In both cases, depending on the underlying index, portfolio managers can reinvest the cash through the use of futures contracts or other derivatives. For markets not covered by futures, managers may use proxy and correlation techniques.

Dividend and Coupon Reinvestment

When the ETF is benchmarked to a total return index that reinvests dividends, the portfolio manager must reinvest the dividends according to the index methodology.

Total return equity indexes typically add dividends on the ex-dividend date and assume they are reinvested from that point. However, funds often don't receive the cash until sometime after this date. For example, for Japanese stocks, there can be a difference of 70 days between the ex-dividend and payment dates. To minimise tracking risk, managers may equitise accrued dividends from the ex-dividend date using index futures. Once the account reaches a certain size (generally less than 2% of the portfolio value), futures positions are reduced and the cash is reinvested. At all times, the portfolio remains unleveraged, and its beta to the benchmark remains equal to 1.

For bond ETFs, the cash from coupon payments is left uninvested until the next rebalancing date—typically the end of the month as is customary for most bond indexes—at which time the portfolio managers invest across the portfolios. When the ETFs pay out dividends, securities are sold to meet those payments.

Scrip Dividends

Instead of traditional cash dividends, some stocks issue optional dividends in which shareholders can choose to receive either cash or discounted stocks. Indexes usually assume that investors elect for the cash option. Managers can try to add value by opting for the discounted stock and subsequently sell it at a profit or sell the optionality to a counterpart. These solutions can be implemented at virtually no risk.

Tax Optimisation

Indexes make assumptions for the amount of withholding tax applied on the dividends paid by index constituents. In practice, managers can recoup either a portion of or all of this tax, depending on the fund's country of domicile and double-tax treaties. This activity, known as tax optimisation or dividend tax enhancement, can boost a fund's return relative to its benchmark.

Foreign Exchange Management

Foreign-exchange exposure is managed in line with the index methodology. Portfolio managers may outsource their foreign-exchange transactions or execute them in-house.

To manage currency exposure, portfolio managers mainly use foreign-exchange forwards, but can also resort to other derivatives, such as foreign-exchange options. The exposures may be adjusted daily or according to a predetermined threshold (for currency-hedged share classes), or monthly (for funds that track a currency-hedged index).

American and Global Depositary Receipts

Managers may also use American and Global Depositary Receipts to gain exposure to stocks that it would not be efficient or possible to hold directly because of local restrictions, liquidity, taxes, or quota limitations. These are certificates issued by a custodian bank that purchases stocks of foreign companies and holds them on deposit in the companies' home country. These instruments are typically used for accessing emerging markets (for example, Russia and India).

Securities Lending

Securities lending is perhaps the most popular technique to enhance performance. Portfolio managers lend out a fund's assets to generate income, which in turn can help partially, or in some cases completely, offset management fees and other sources of tracking difference. However, this practice is not free of risk. Specifically, there is always a risk that the borrower of the fund's securities becomes insolvent and is unable to return them.

To mitigate counterparty risk, borrowers are carefully selected, and their creditworthiness is closely monitored. Moreover, borrowers are asked to post collateral in an amount usually in excess of the value of the securities on loan. Should a borrower default, the collateral would be liquidated in compensation to the fund.

As an additional risk-mitigating measure, a majority of ETF issuers, usually through their lending agent, provide borrower default indemnification. They offer to indemnify investors for any shortfall between the proceeds from the liquidation of the collateral and the market value of the unreturned securities.

Synthetic Replication

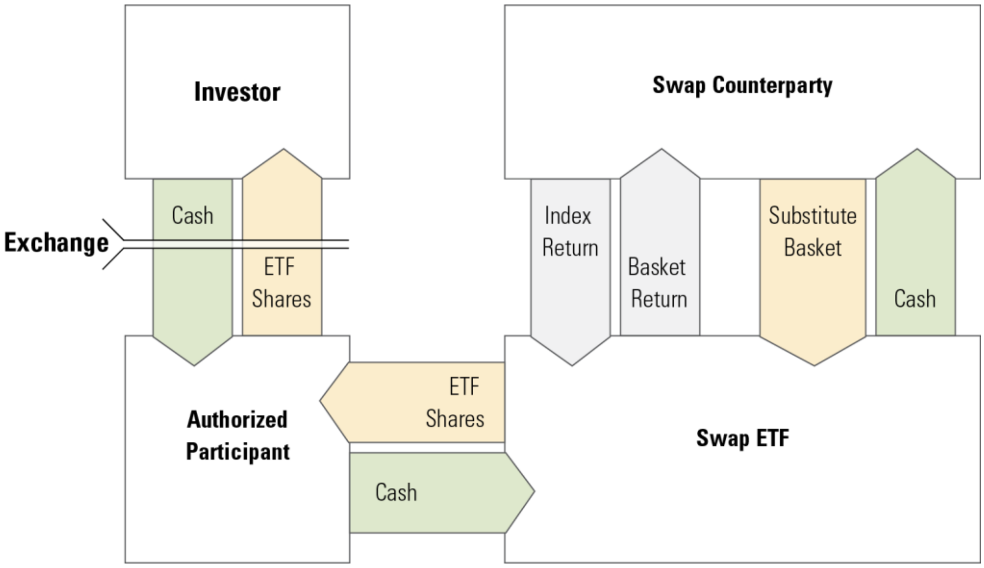
Synthetic replication, also known as indirect replication, offers advantages in terms of tracking error and operational efficiency. While it tends to deliver closer tracking than physical replication, it is also often the most efficient way to track indexes made up of illiquid or difficult to access securities such as those in emerging markets. It also offers other return-enhancing opportunities such as implementing cross-currency basis swaps.

There are two main models currently used by European ETF providers to track an index synthetically: the unfunded swap model and the funded swap model.

Unfunded Swap Model

The unfunded swap model is the most commonly used synthetic-replication method.

Exhibit 13 Simplified Unfunded Swap ETF Structure



Source: Morningstar Manager Research.

The ETF enters into a total return swap agreement with a counterparty (often the provider's parent bank) to receive the performance of the index. Effectively, the portfolio manager uses cash from investors to buy a basket of securities from the swap counterparty, which commits to deliver the performance of the index (adjusted for a swap spread) in exchange for the performance of the securities bought by the fund.

Substitute Baskets

The assets bought by the ETF, which are also referred to as "substitute basket," "fund holdings," or "asset portfolio," typically do not include the constituents of the reference index but can have a high degree of correlation with them. For UCITS ETFs, the substitute basket must comply with UCITS regulations on asset type, liquidity, and diversification. The securities are held in a segregated account at a custodian where they are monitored and verified daily.

It is important to note that at all times the fund remains the owner of these assets and the portfolio manager enjoys direct access to them. This means that if the swap counterparty defaults, the manager should be able to liquidate the assets swiftly and return the cash to investors should this option be chosen and in accordance with the relevant home domicile law. Other options include initiating a swap with another counterparty or converting the fund to physical replication.

Counterparty Risk Defined

Swap transactions expose ETFs to counterparty risk—that is, the possibility that the party providing the swap will fail to fulfil its obligation to deliver the performance of the index being tracked.

Net counterparty exposure is measured as the difference between the NAV of the ETF and the value of the substitute basket. And in accordance with UCITS regulations, this exposure should not exceed 10% of the fund's NAV. In other words, the daily NAV of the substitute basket should amount to at least 90% of the fund's NAV.

How Counterparty Risk Is Managed

Counterparty risk in ETFs that employ the unfunded swap model is actively managed by the fund managers on a daily basis. Swaps are marked-to-market daily and reset whenever the counterpart exposure approaches the 10% UCITS limit (or a lower limit set at the discretion of the firm). In the case of a swap reset, the manager asks the counterparty to pay the swap marked-to-market value by delivering additional securities to top up the substitute basket.

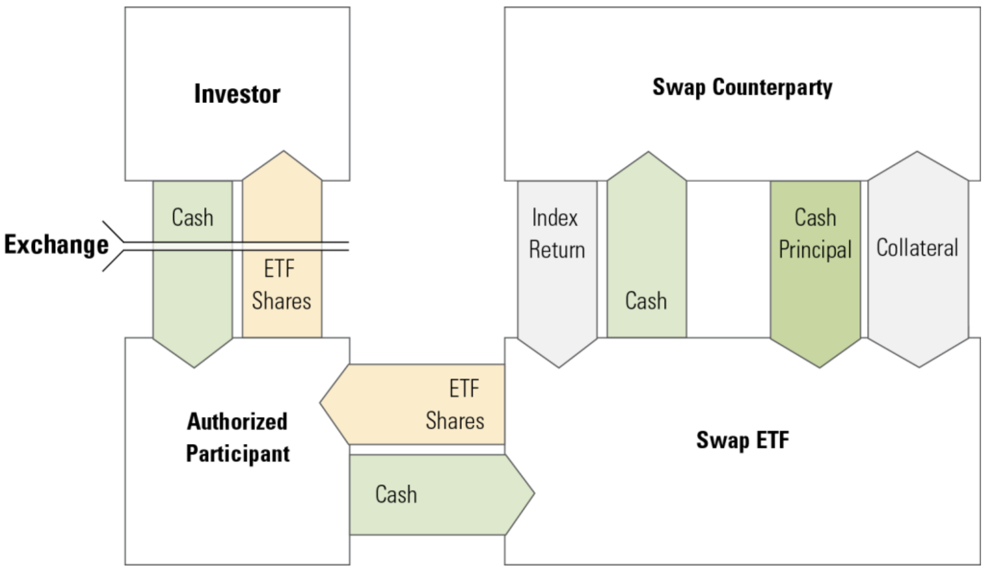
Some managers may engage multiple swap counterparties in an effort to minimise exposure to any one of them.

In practice, swap reset policies vary across providers, but today, the majority employing the unfunded swap structure apply much stricter reset triggers than the UCITS rule of 10%, which results in more frequent resets and generally lower counterparty risk. Some ETFs may even see their swaps reset to zero on a daily basis as a result of daily creation/redemption activity or a daily target of zero counterparty exposure.

Funded Swap Model

Under the funded—also known as fully funded—swap model, the portfolio manager transfers investors' cash to a swap counterparty in exchange for the index performance (adjusted for a swap spread) plus the principal at a future date. The counterparty posts collateral assets in a segregated account with a third-party custodian.

Exhibit 14 Simplified Funded Swap ETF Structure



Source: Morningstar Manager Research.

Collateral Composition Access

The collateral basket posted by the counterparty complies with UCITS regulations on asset type, liquidity, and diversification.

Regulations also require that appropriate haircuts (or margins) be applied to the assets posted as collateral to account for the risk of value fluctuations and the fact that the fund doesn't hold the assets. The level of haircuts (or margins) applied typically depends on the type of securities delivered and the relevant home domicile law.

As a direct result of these rules, funds relying on the funded swap approach are normally overcollateralised—that is, the market value of the collateral posted by the swap counterparty exceeds the NAV of the ETF.

The collateral account can be held either in the name of the fund (in the case of a transfer of title) or in the name of the counterparty and pledged in favour of the fund (in the case of a pledge arrangement). With a transfer of title, the collateral is treated as the property of the fund. This means that if the swap counterparty defaults, the portfolio manager should be able to gain direct access to the assets and sell them. Under a pledge structure, the manager would have to claim ownership of the collateral assets before liquidating them.

As with the unfunded swap model, providers using funded swaps may engage multiple swap counterparties in an effort to minimise exposure to any one of them.

Counterparty Risk Defined

Swap transactions expose ETFs to counterparty risk—that is, the possibility that the party providing the swap will fail to fulfil its obligation to deliver the performance of the index being tracked.
Net counterparty exposure is measured as the difference between the fund's NAV and collateral value (less haircuts or margins). Under UCITS, the net counterparty risk exposure may not exceed 10% of the fund's NAV, which means that at least 90% of the ETF must be collateralised.

How Counterparty Risk Is Managed

Counterparty risk in ETFs that employ a funded swap model is actively managed by portfolio managers on a daily basis.

Whenever the collateral value falls below the level of collateralisation agreed with the swap counterparty, the manager will ask the counterparty to post additional collateral. This is to ensure that the agreed-upon level of collateralisation is maintained at the end of each business day.

Appendix II: List of Rated European-Domiciled ETFs

See the Morningstar Analyst Rating methodology document for details.

Exhibit 15 Rated European-Domiciled ETFs

Pillars (Positive Neutral Negative)

Name	Ticker	Morningstar Analyst Rating	Parent	People	Performance	Price	Process
US Large-Cap Blend Equity							
Amundi IS S&P 500 ETF C EUR	500	Gold	Neutral	Positive	Positive	Positive	Positive
iShares Core S&P 500 ETF USD Acc	CSSPX	Gold	Positive	Positive	Positive	Positive	Positive
iShares Edge MSCI USA Mltfct ETF USD Acc	IFSU	Bronze	Positive	Positive	Neutral	Positive	Positive
iShares Edge S&P 500 Min Vol ETF USD Acc	SPMV	Silver	Positive	Positive	Positive	Positive	Positive
iShares MSCI North America ETF USD Dist	INAA	Bronze	Positive	Positive	Positive	Neutral	Positive
iShares S&P 500 ETF USD Dist	IDUS	Gold	Positive	Positive	Positive	Positive	Positive
Lyxor MSCI USA ETF Dist A/I	USA	Silver	Neutral	Positive	Positive	Positive	Positive
Lyxor S&P 500 ETF D USD	LSPU	Gold	Neutral	Positive	Positive	Positive	Positive
SPDR S&P 500 ETF	SPY5	Gold	Neutral	Positive	Positive	Positive	Positive
UBS ETF Fact MSCI USA Qual USD A dis	M1CXUBK	Bronze	Neutral	Positive	Neutral	Positive	Positive
UBS ETF MSCI USA (USD) A-dis	USAUSY	Gold	Neutral	Positive	Positive	Positive	Positive
UBS ETF MSCI USA Sel Fac Mix USD A dis	USFMD	Bronze	Neutral	Positive	Neutral	Positive	Positive
Vanguard S&P 500 UCITS ETF	VUSD	Gold	Positive	Positive	Positive	Positive	Positive
X MSCI USA ETF 1C	XD9U	Gold	Neutral	Neutral	Positive	Positive	Positive
X MSCI USA Swap ETF 1C	XMUS	Silver	Neutral	Neutral	Positive	Neutral	Positive
X S&P 500 Equal Weight ETF 1C	XDEW	Bronze	Neutral	Neutral	Positive	Neutral	Neutral
X S&P 500 Swap ETF 1C	XSPU	Gold	Neutral	Neutral	Positive	Positive	Positive
US Large-Cap Growth Equity							
Invesco EQQQ NASDAQ-100 ETF	EQQQ	Neutral	Neutral	Positive	Positive	Positive	Negative
iShares NASDAQ 100 ETF USD Acc	CSNDX	Neutral	Positive	Positive	Positive	Positive	Negative
US Large-Cap Value Equity							
Invesco FTSE RAFI US 1000 ETF	PRUS	Bronze	Neutral	Positive	Positive	Positive	Positive
Invesco S&P 500 High Div LowVol ETF	HDLV	Bronze	Neutral	Positive	Positive	Positive	Neutral
iShares Edge MSCI USA Val Fac ETF $ Acc	IUVL	Bronze	Positive	Positive	Neutral	Positive	Positive
SPDR S&P US Dividend Aristocrats ETF	UDVD	Silver	Neutral	Positive	Positive	Positive	Positive
US Mid-Cap Equity							
SPDR S&P 400 US Mid Cap ETF	SPY4	Gold	Neutral	Positive	Positive	Positive	Positive
US Small-Cap Equity							
iShares MSCI USA Small Cap ETF USD Acc	CSUSS	Silver	Positive	Positive	Positive	Positive	Positive
iShares S&P SmallCap 600 ETF USD Dist	IDP6	Silver	Positive	Positive	Positive	Positive	Positive
SPDR Russell 2000 US Small Cap ETF	R2US	Bronze	Neutral	Positive	Neutral	Positive	Neutral

Source: Morningstar Direct. Data as of 31 March 2019.

Exhibit 15 Rated European-Domiciled ETFs (Continued)

Name	Ticker	Morningstar Analyst Rating	Pillars (Positive, Neutral, Negative): Parent	People	Performance	Price	Process
Eurozone Large-Cap Equity							
iShares Core EURO STOXX 50 ETF EUR Acc	CSSX5E	Neutral	Positive	Positive	Neutral	Positive	Neutral
iShares Euro Dividend ETF EUR Dist	IDVY	Neutral	Positive	Positive	Positive	Neutral	Neutral
iShares EURO STOXX (DE)	EXSI	Gold	Positive	Positive	Positive	Positive	Positive
iShares EURO STOXX 50 (DE)	EXW1	Neutral	Positive	Positive	Neutral	Positive	Neutral
iShares EURO STOXX 50 ETF EUR Dist	EUEA	Neutral	Positive	Positive	Neutral	Positive	Neutral
iShares MSCI EMU ETF EUR Acc	CSEMU	Gold	Positive	Positive	Positive	Positive	Positive
Lyxor Euro Stoxx 50 DR ETF Dist A/I	MSE	Neutral	Neutral	Positive	Neutral	Positive	Neutral
SPDR S&P Euro Dividend Aristocrats ETF	SPYW	Bronze	Neutral	Positive	Positive	Positive	Positive
UBS ETF EURO STOXX 50 EUR A dis	UIM1	Neutral	Neutral	Positive	Neutral	Positive	Neutral
UBS ETF MSCI EMU EUR A dis	UIM4	Gold	Neutral	Positive	Positive	Positive	Positive
UBS ETF MSCI EMU SRI EUR A dis	UIMR	Bronze	Neutral	Positive	Positive	Positive	Positive
X Euro Stoxx 50 ETF 1C	DXET	Neutral	Neutral	Neutral	Neutral	Positive	Neutral
X MSCI EMU ETF 1D	XD5E	Gold	Neutral	Neutral	Positive	Positive	Positive
Eurozone Mid-Cap Equity							
iShares EURO STOXX Mid ETF EUR Dist	DJMC	Neutral	Positive	Positive	Neutral	Positive	Neutral
iShares EURO STOXX Small ETF EUR Dist	DJSC	Neutral	Positive	Positive	Negative	Positive	Neutral
Eurozone Small-Cap Equity							
iShares MSCI EMU Small Cap ETF EUR Acc	CSEMUS	Bronze	Positive	Positive	Neutral	Positive	Positive
Europe Large-Cap Blend Equity							
iShares Cor MSCI Eurp UCITS ETF EUR Dist	IMEU	Silver	Positive	Positive	Positive	Positive	Positive
iShares Edge MSCI Eurp Mini Vol ETF Acc	MVEU	Silver	Positive	Positive	Positive	Positive	Positive
iShares STOXX Europe 50 ETF EUR Dist	EUNA	Neutral	Positive	Positive	Negative	Neutral	Neutral
iShares STOXX Europe 600 (DE)	EXSA	Gold	Positive	Positive	Positive	Positive	Positive
Lyxor MSCI Europe (DR) ETF Dist A/I	MEU	Silver	Neutral	Positive	Positive	Positive	Positive
SPDR MSCI Europe ETF	ERO	Silver	Neutral	Positive	Positive	Positive	Positive
Vanguard FTSE Dev Eurp UCITS ETF	VEUR	Gold	Positive	Positive	Positive	Positive	Positive
X MSCI Europe ETF 1C	XMEU	Silver	Neutral	Neutral	Positive	Positive	Positive
X Stoxx Europe 600 ETF 1C	DX2X	Gold	Neutral	Neutral	Positive	Positive	Positive
Europe Large-Cap Growth Equity							
Amundi IS MSCI Europe Quality Fctr ETF-C	QCEU	Bronze	Neutral	Positive	Neutral	Positive	Positive

Source: Morningstar Direct. Data as of 31 March 2019.

Exhibit 15 Rated European-Domiciled ETFs (Continued)

Pillars (⊕ Positive ⊙ Neutral ⊖ Negative)

Name	Ticker	Morningstar Analyst Rating	Parent	People	Performance	Price	Process
Europe ex-UK Large-Cap Equity							
iShares MSCI Europe ex-UK ETF EUR Dist	IEUX	Neutral	⊕	⊕	⊙	⊕	⊕
France Large-Cap Equity							
Amundi IS CAC 40 ETF-C	C40	Bronze	⊙	⊕	⊕	⊕	⊙
Lyxor CAC 40 (DR) ETF Dist A/I	CAC	Bronze	⊙	⊕	⊕	⊕	⊙
Germany Large-Cap Equity							
iShares Core DAX (DE)	EXS1	Bronze	⊕	⊕	⊙	⊕	⊙
iShares DivDAX (DE)	EXSB	Negative	⊕	⊕	⊙	⊙	⊖
Lyxor DAX (DR) ETF Acc	LYY7	Bronze	⊙	⊕	⊙	⊕	⊙
X DAX ETF 1C	DBXD	Bronze	⊙	⊙	⊙	⊕	⊙
Germany Small/Mid-Cap Equity							
iShares MDAX (DE)	EXS3	Bronze	⊕	⊕	⊕	⊙	⊙
Italy Equity							
iShares FTSE MIB ETF EUR Dist	IMIB	Neutral	⊕	⊕	⊖	⊕	⊖
Lyxor FTSE MIB ETF Dist A/I	MIB	Neutral	⊙	⊕	⊖	⊕	⊖
Spain Equity							
Lyxor Ibex 35 (DR) ETF Dist A/I	LYXIB	Neutral	⊙	⊕	⊙	⊕	⊙
Switzerland Large-Cap Equity							
iShares SLI (CH)	CSSLI	Neutral	⊕	⊕	⊙	⊕	⊙
iShares SMI (CH)	CSSMI	Neutral	⊕	⊕	⊙	⊕	⊖
UBS ETF (CH) SMI A dis	SMICHA	Neutral	⊙	⊕	⊙	⊕	⊖
Switzerland Small/Mid-Cap Equity							
iShares SMIM (CH)	CSSMIM	Neutral	⊕	⊕	⊙	⊕	⊙
UK Equity Income							
iShares UK Dividend ETF GBP Dist	IUKD	Negative	⊕	⊕	⊖	⊕	⊖
UK Large-Cap Equity							
iShares Core FTSE 100 ETF GBP Dist	ISF	Neutral	⊕	⊕	⊙	⊕	⊙
Lyxor FTSE 100 ETF Acc	L100	Neutral	⊙	⊕	⊙	⊕	⊙
SPDR FTSE UK All Share ETF Acc	FTAL	Silver	⊙	⊕	⊕	⊕	⊕
UBS ETF MSCI United Kingdom GBP A acc	UKGBPB	Neutral	⊙	⊕	⊙	⊕	⊙
Vanguard FTSE 100 UCITS ETF	VUKE	Neutral	⊕	⊕	⊙	⊕	⊙

Source: Morningstar Direct. Data as of 31 March 2019.

Exhibit 15 Rated European-Domiciled ETFs (Continued)

Name	Ticker	Morningstar Analyst Rating	Parent	People	Performance	Price	Process
			Pillars (Positive, Neutral, Negative)				
UK Mid-Cap Equity							
iShares FTSE 250 ETF GBP Dist	MIDD	Neutral	Positive	Positive	Neutral	Positive	Neutral
Global Large-Cap Blend Equity							
iShares Core MSCI World ETF USD Acc	IWDA	Silver	Positive	Positive	Positive	Positive	Positive
iShares Edge MSCI Wld Min Vol ETF $ Acc	MVOL	Silver	Positive	Positive	Positive	Positive	Positive
iShares Edge MSCI Wld Qual Fctr ETF $Acc	IWQU	Bronze	Positive	Positive	Positive	Positive	Positive
iShares MSCI World ETF USD Dist	IDWR	Silver	Positive	Positive	Positive	Positive	Positive
Lyxor MSCI World ETF Dist A/I	WLD	Silver	Neutral	Positive	Positive	Positive	Positive
UBS ETF MSCI World USD A dis	WRDUSA	Silver	Neutral	Positive	Positive	Positive	Positive
Vanguard FTSE All-World UCITS ETF	VWRD	Silver	Positive	Positive	Positive	Positive	Positive
Vanguard FTSE Dev World UCITS ETF	VDEV	Silver	Positive	Positive	Positive	Positive	Positive
X MSCI World ETF 1C	XDWD	Silver	Neutral	Neutral	Positive	Positive	Positive
X MSCI World Swap ETF 1C	XMWO	Silver	Neutral	Neutral	Positive	Positive	Positive
Global Large-Cap Growth Equity							
X MSCI World Quality ETF 1C	XDEQ	Bronze	Neutral	Neutral	Positive	Positive	Positive
Global Equity Income							
iShares STOXX Global Sel Div 100 (DE)	ISPA	Neutral	Positive	Positive	Neutral	Positive	Neutral
Lyxor SG Global Qual Inc NTR ETF D EUR	SGQI	Negative	Neutral	Positive	Negative	Positive	Negative
Vanguard FTSE AllWld HiDivYld UCITS ETF	VHYD	Bronze	Positive	Positive	Neutral	Positive	Positive
X Stoxx Global Select Div 100 Swp ETF 1D	DXSB	Neutral	Neutral	Neutral	Neutral	Positive	Neutral
Global Emerging Markets Equity							
iShares Core MSCI EM IMI ETF USD Acc	EIMI	Bronze	Positive	Positive	Neutral	Positive	Neutral
iShares Edge MSCI EM Mini Vol ETF $ Acc	EMMV	Silver	Positive	Positive	Neutral	Positive	Positive
iShares MSCI EM ETF USD Dist	IEEM	Neutral	Positive	Positive	Neutral	Neutral	Neutral
Lyxor MSCI Emerging Markets ETF Acc EUR	LEM	Neutral	Neutral	Positive	Negative	Positive	Neutral
UBS ETF MSCI Emerging Mkts SF USD A acc	EGUSAS	Bronze	Neutral	Positive	Neutral	Positive	Neutral
X MSCI Emerging Markets Swap ETF 1C	XMEM	Neutral	Neutral	Neutral	Neutral	Positive	Neutral
Asia ex Japan Equity							
Amundi IS MSCI Em Asia ETF-C EUR	AASI	Bronze	Negative	Positive	Neutral	Positive	Neutral
iShares MSCI AC Far East exJpn ETF $ Dis	IFFF	Neutral	Positive	Positive	Neutral	Neutral	Neutral
X MSCI AC Asia ex Japan Swap ETF 1C	XAXD	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
X MSCI EM Asia Swap ETF 1C	XMAI	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Asia-Pacific ex-Japan Equity							
Lyxor MSCI AC AsiaPac Ex Jpn ETF Acc EUR	AEJ	Neutral	Neutral	Positive	Neutral	Positive	Neutral

Source: Morningstar Direct. Data as of 31 March 2019.

Exhibit 15 Rated European-Domiciled ETFs (Continued)

Pillars (Positive Neutral Negative)

Name	Ticker	Morningstar Analyst Rating	Parent	People	Performance	Price	Process
Pacific ex-Japan Equity							
X MSCI Pacific ex Japan ETF 1C	XPXD	Neutral	Neutral	Neutral	Neutral	Positive	Neutral
Japan Large-Cap Equity							
Amundi IS JPX-Nikkei 400 ETF-C JPY	JPNY	Bronze	Neutral	Positive	Neutral	Positive	Neutral
iShares Core MSCI Japan IMI ETF USD Acc	IJPA	Gold	Positive	Positive	Positive	Positive	Positive
iShares MSCI Japan ETF USD Dist	IJPU	Neutral	Positive	Positive	Neutral	Neutral	Positive
Lyxor Japan Topix DR ETF Dist EUR A/I	JPN	Silver	Neutral	Positive	Positive	Positive	Positive
Lyxor JPX Nikkei 400 (DR) ETF C EUR	JPX4	Bronze	Neutral	Positive	Neutral	Positive	Neutral
UBS ETF MSCI Japan JPY A dis	JPNJPA	Bronze	Neutral	Positive	Neutral	Positive	Positive
Vanguard FTSE Japan UCITS ETF	VDJP	Gold	Positive	Positive	Positive	Positive	Positive
X MSCI Japan ETF 1C	XMJD	Bronze	Neutral	Neutral	Neutral	Positive	Positive
Korea Equity							
iShares MSCI Korea ETF USD Dist	IKOR	Neutral	Positive	Positive	Positive	Neutral	Neutral
X MSCI Korea ETF 1C	XMKO	Neutral	Neutral	Neutral	Positive	Positive	Neutral
China Equity							
iShares China Large Cap ETF USD Dist	FXC	Neutral	Positive	Positive	Negative	Positive	Neutral
Lyxor China Enterprise HSCEI ETF Acc EUR	ASI	Neutral	Neutral	Positive	Negative	Positive	Negative
X FTSE China 50 ETF 1C	XXXI	Neutral	Neutral	Neutral	Negative	Positive	Neutral
X MSCI China ETF 1C	LG9	Neutral	Neutral	Neutral	Neutral	Positive	Neutral
X CSI300 Swap ETF 1C	XCHA	Neutral	Neutral	Neutral	Neutral	Positive	Negative
India Equity							
Lyxor MSCI India ETF C-EUR	INR	Negative	Neutral	Positive	Negative	Neutral	Negative
Latin America Equity							
Amundi IS MSCI Em Latin America ETF-C	ALAT	Neutral	Neutral	Positive	Neutral	Positive	Neutral
Other Equity							
iShares MSCI Japan EUR Hedged ETF Acc	IJPE	Neutral	Positive	Positive	Neutral	Neutral	Positive
iShares MSCI Japan GBP Hedged ETF Acc	IJPH	Neutral	Positive	Positive	Neutral	Neutral	Positive
iShares MSCI World EUR Hedged ETF Acc	IWDE	Silver	Positive	Positive	Positive	Positive	Positive
iShares S&P 500 EUR Hedged ETF Acc	IUSE	Gold	Positive	Positive	Positive	Positive	Positive
Lyxor Cor STOXX Eurp 600 DR ETFMHEURDist	STXH	Gold	Neutral	Positive	Positive	Positive	Positive
Property–Indirect Europe							
iShares European Prpty Yld ETF EUR Dist	IPRP	Bronze	Positive	Positive	Positive	Positive	Neutral
X FTSE Developed Europe Real Estt ETF 1C	D5BK	Bronze	Neutral	Neutral	Neutral	Positive	Positive

Source: Morningstar Direct. Data as of 31 March 2019.

Exhibit 15 Rated European-Domiciled ETFs (Continued)

			Pillars (Positive Neutral Negative)				
Name	Ticker	Morningstar Analyst Rating	Parent	People	Performance	Price	Process
Property–Indirect North America							
iShares US Property Yield ETF USD Dist	IDUP	Bronze	Positive	Positive	Positive	Positive	Positive
Property–Indirect Global							
iShares Dev Mkts Prpty Yld ETF USD Dist	IWDP	Silver	Positive	Positive	Positive	Positive	Positive
Sector Equity Infrastructure							
iShares Global Infras ETF USD Dist	INFR	Bronze	Positive	Positive	Neutral	Positive	Positive
Sector Equity Water							
iShares Global Water ETF USD Dist	DH2O	Bronze	Positive	Positive	Positive	Positive	Positive
EUR Corporate Bond							
iShares Corp Bond ex-Fncl ETF EUR Dist	IEXF	Neutral	Positive	Positive	Neutral	Positive	Neutral
iShares Corp Bond Lg Cp ETF EUR Dist	IBCX	Bronze	Positive	Positive	Neutral	Positive	Positive
iShares Covered Bond ETF EUR Dist	ICOV	Bronze	Positive	Positive	Neutral	Positive	Positive
iShares Core Corp Bond ETF EUR Dist	IEAC	Silver	Positive	Positive	Positive	Positive	Positive
iShares Pfandbriefe (DE)	EXHE	Neutral	Positive	Positive	Neutral	Positive	Neutral
Lyxor Euro Corporate Bond ETF Acc	CRP	Neutral	Neutral	Positive	Neutral	Positive	Neutral
EUR Corporate Bond–Short Term							
iShares Corp Bond 1-5yr ETF EUR Dist	IE15	Bronze	Positive	Positive	Positive	Positive	Positive
EUR Diversified Bond							
iShares Aggregate Bond ETF EUR Dist	IEAG	Silver	Positive	Positive	Positive	Positive	Positive
EUR Government Bond							
Amundi IS Gvt Bd Lwst Rtd Er InvGr ETF-C	X1G	Neutral	Neutral	Positive	Positive	Positive	Neutral
iShares Core Govt Bond ETF EUR Dist	IEGA	Gold	Positive	Positive	Positive	Positive	Positive
Lyxor EuroMTS AllMat IG(DR)ETFAcc	EMG	Gold	Neutral	Positive	Positive	Positive	Positive
X II Eurozone Government Bond ETF 1C	DBXN	Gold	Neutral	Neutral	Positive	Positive	Positive
X II iBoxx Euroz Govt Bd Yld Plus ETF 1C	XY4P	Neutral	Neutral	Neutral	Positive	Positive	Neutral
EUR High Yield Bond							
iShares High Yield CorpBd ETF EUR Dist	IHYG	Neutral	Positive	Positive	Neutral	Positive	Neutral
EUR Inflation-Linked Bond							
iShares Inflat Lnkd GovtBd ETF EUR Acc	IBCI	Silver	Positive	Positive	Positive	Positive	Positive
Lyxor EuroMTS InfLkd IG(DR)ETFAcc	EMI	Silver	Neutral	Positive	Positive	Positive	Positive

Source: Morningstar Direct. Data as of 31 March 2019.

Exhibit 15 Rated European-Domiciled ETFs (Continued)

			Pillars (Positive Neutral Negative)				
Name	Ticker	Morningstar Analyst Rating	Parent	People	Performance	Price	Process
GBP Corporate Bond							
iShares £ Corp Bond 0-5yr ETF GBP Dist	IS15	Bronze	Positive	Positive	Neutral	Positive	Positive
iShares Core £ Corp Bond ETF GBP Dist	SLXX	Bronze	Positive	Positive	Neutral	Positive	Positive
GBP Government Bond							
iShares Core UK Gilts ETF GBP Dist	IGLT	Silver	Positive	Positive	Positive	Positive	Positive
GBP Inflation-Linked Bond							
iShares £ Index-Lnkd Gilts ETF GBP Dist	INXG	Neutral	Positive	Positive	Neutral	Neutral	Neutral
Global Bond							
iShares Global Govt Bond ETF USD Dist	IGLO	Bronze	Positive	Positive	Neutral	Positive	Neutral
Global Emerging Markets Bond							
iShares JP Morgan $ EM Bond ETF USD Dist	IEMB	Silver	Positive	Positive	Positive	Positive	Positive
Global Emerging Markets Bond–Local Currency							
iShares JPMorgan EM Lcl Govt Bd ETF$Dist	IEML	Silver	Positive	Positive	Neutral	Positive	Positive
SPDR Blmbrg Bcly EM Lcl Bd ETF	EMDD	Silver	Neutral	Positive	Positive	Positive	Positive
Global Inflation-Linked Bond–EUR Hedged							
X II Global Infl-Lnkd Bd ETF 1C EUR H	DBXH	Silver	Neutral	Neutral	Positive	Positive	Positive
USD Corporate Bond							
iShares $ Corp Bond ETF USD Dist	LQDE	Bronze	Positive	Positive	Positive	Positive	Neutral
USD Government Bond							
iShares $ Treasury Bd 1-3y ETF USD Dist	IBTS	Bronze	Positive	Positive	Neutral	Neutral	Positive
iShares $ Treasury Bd 3-7y ETF USD Acc	CSBGU7	Bronze	Positive	Positive	Neutral	Neutral	Positive
iShares $ Treasury Bd 7-10yr ETFUSD Dist	IDTM	Bronze	Positive	Positive	Neutral	Neutral	Positive
USD High Yield Bond							
iShares $ High Yld Corp Bd ETF USD Dist	IHYU	Neutral	Positive	Positive	Neutral	Positive	Neutral
PIMCO ST HY Corp Bd Sour ETF Inc	STHY	Neutral	Positive	Positive	Neutral	Positive	Neutral
USD Inflation-Linked Bond							
iShares $ TIPS ETF USD Acc	ITPS	Silver	Positive	Positive	Positive	Neutral	Positive

Source: Morningstar Direct. Data as of 31 March 2019.

Morningstar Manager Research Services, EMEA Report Disclosure

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The Five Pillars

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

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

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

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

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

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

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

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

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

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

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

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Under Review

This designation means that a change that occurred with the fund or at the fund company requires further review to determine the impact on the rating.

Not Ratable

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