Executive Summary

In a world of low expected returns across all asset classes, investors are becoming increasingly concerned about costs and many are scrutinising their investment costs more closely than ever.

Meanwhile, recent and upcoming regulatory changes in Europe (e.g. Retail Distribution Review in the UK and Netherlands) and a shift to a fee-based advice environment have created new waves of interest in passive vehicles such as exchange-traded products (ETPs) and conventional index funds.

Yet, navigating the various costs associated with investing in each and trying to make like-for-like comparisons between these two types of investment vehicles remains a challenge for many investors.

The purpose of this study is to provide a comprehensive comparative analysis of the costs of investing in ETPs and index funds across different asset classes and sub-asset classes.

The first and second parts of the report focus on the most visible component of the total cost of ownership, namely the total expense ratio (TER), which was replaced in July 2012 by the ongoing charge. We have conducted a comparative analysis of both current and historical charges across ETPs and index funds.

The third part of the report discusses other, albeit less visible, costs that investors in passively managed instruments should consider to form a more complete view of the total cost of ownership.

Our Key Findings

- Across all equity and fixed income exposures, ETPs are on average cheaper than index funds when measured against the latter’s retail pricing structure. However, ETPs tend to be more expensive than index funds when measured against the latter’s institutional pricing structure. For example, weighted by assets, the average TER for equity exchange-traded funds (ETFs) is 0.39%, compared to 0.73% for retail equity index funds. Investors able to access index funds via the institutional share class avenue would be charged a relatively lower TER of 0.32%, on average.

- While the institutional share classes of index funds might be cheaper, the trade-off is one of significant lack of choice when compared to the menu of exposures available via ETPs.
Looking more specifically at the European large-cap equity category, we found a number of index funds levying unjustifiably high fees. About 40% of European large cap equity retail share classes levy a TER greater than 1%. This clearly shows a lack of awareness among investors about fees and calls for more education on the importance of fees.

When it comes to ETPs, we find that for a majority of equity categories and for the totality of fixed income categories, asset-weighted average TERs are almost always higher than the simple measure. This implies that the majority of ETP investors are not necessarily choosing the cheapest options, as measured in TER terms. Taken at face value, this flies in the face of investor attitude surveys routinely showing the TER as one of or the most important factors in the selection process of ETPs. However, it is important to underline that TER alone is not the only factor shaping ETP investors’ choices. There are other factors (e.g. liquidity, underlying exposure, replication methodology) that could play an important role in the decision-making process.

The UK comes ahead of Germany, France and Italy as the most competitive market when it comes to retail index funds providing equity and fixed income market exposure. Likely reasons for this include a much more open distribution channel for investment products in the UK compared to other European countries, where high street banks continue to be a dominant actor. Another factor is the more developed private pension provision market in the UK, which encourages an investment culture in society. The UK’s competitive edge is likely to be further cemented in the wake of the implementation of the Retail Distribution Review (RDR) which bans commission payments made by fund managers to advisers.

Given the distinct lack of index funds offering exposure to commodities other than broad commodity baskets, ETPs seem to be the only option for investors seeking more narrow exposure to agriculture, energy, precious metals and industrial metals, with asset-weighted average TERs ranging from 0.41% to 0.58%.

Looking at historical data, we found that TERs for index funds and ETFs providing exposure to equities have dropped on average over the past five years. For example, for European large cap equity ETFs, the simple average expense ratio fell from 0.40% to 0.32% (20%). This decline, however, has come largely as a result of new products undercutting older ones, rather than the latter cutting fees. Meanwhile, the simple average TER dropped from 0.96% to 0.68% (about 29%) for retail index funds and from 0.40% to 0.37% (7.5%) for institutional index funds, as a result of new and cheaper products coming onto the market as well as incumbent providers slashing fees on existing products.

The much more muted decline in asset-weighted TERs for equity ETFs suggests that new and cheaper products have been slow at garnering assets.

In contrast to our findings for equity market exposure, fixed income ETFs saw an overall increase in average TERs since 2008. This result can be attributed to growing product specialisation and lack of
real competition within that asset class. For example, average expense ratios for European corporate bond ETFs soared from 0.17% to 0.21% in simple terms and from 0.17% to 0.23% in asset-weighted terms.

- Average TERs for precious metals ETPs, which account for over 80% of total assets invested in commodity ETFs and ETCs, were almost flat from 2008 to 2012, with simple and asset-weighted averages standing at 0.46% and 0.41%, respectively.

- Going forward, we expect a variety of dynamics to keep downward pressure on expense ratios. The growing popularity of passive instruments across all types of investors, helped by regulatory changes like RDR in the UK, is expected to fuel fee competition in Europe, similar to the one witnessed in the US. The principal beneficiary of any fee war will be the investor.

- Furthermore, as the European index-tracking industry grows, we expect fund providers to share economies of scale with investors, resulting in lower fees.

- As in the US, we see cost pressures spreading to other areas of the value chain in Europe, with ETF and index fund issuers continuing to pursue ways to reduce index licensing fees—such as changing index providers or self-indexing—and we would also hope providers would share those savings with investors, in the form of lower fees.

- Beyond the TER, there are other costs incurred by investors in ETPs and index funds. Additional costs may include rebalancing costs, swap costs, index licensing fees, initial charges, and ETP-related trading costs such as bid-offer spreads, brokerage commissions and market impact. All these costs may ultimately affect an investment's total return.

- While selecting a passive investment product based solely on total cost of ownership seems to be the most intuitive way to achieve the best returns, it is important to put costs into perspective. There are other considerations specific to each vehicle, especially as it pertains to their structural and operational risks that need to be taken into account. The relative benefits of each investment vehicle are highly relevant too.

**Foreword**

In a world of low expected returns across all asset classes, investors are becoming increasingly concerned about costs and many are scrutinising their investment costs more closely. Meanwhile, recent and upcoming regulatory changes in Europe (e.g. Retail Distribution Review in the UK and Netherlands) and a shift to a fee-based advice environment have created new waves of interest in passive investment vehicles such as exchange-traded products (ETPs) and conventional index funds.

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**Footnotes**

1. Conventional index funds are better known in some countries as index trackers or tracker funds.
European-domiciled ETP\(^2\) and conventional index funds assets have grown considerably over the past five year years. However, on a comparative basis, ETP assets have grown at a much faster pace. According to Morningstar data, total ETP assets as of end June 2013 totalled € 272 billion, up 205% from € 89 billion at end June 2008. Meanwhile over the same period, total assets in conventional index funds have gone up by 89% from € 134 billion to € 254 billion.

Navigating the various costs and trying to make like-for-like comparisons between different types of investment vehicles remains a challenge for many investors.

The purpose of this study is to provide a comprehensive comparative analysis of the costs of investing in index funds and ETPs\(^3\) across a series of sub-asset categories within the broad equity, fixed income and commodity universes.

The first layer of the comparative cost analysis focuses on the most visible cost, namely the “total expense ratio” (TER) which was replaced in July 2012 by the “ongoing charge”. We start with a comparative analysis of TERs based on current data. We then carry out a historical analysis of TERs based on data reported from 2008 to 2012 to see how fees have evolved over this five-year period.

For every defined sub-asset category in the study, we calculate two sets of average TER: a simple average TER and an asset-weighted average TER, the latter offering a more accurate picture of where the bulk of investors’ money is held. Also, we calculate average TERs for both retail and institutional share classes based on Morningstar’s classification.

In a second layer of the analysis, we define all other visible and not-so-visible costs investors may face when investing in either of the two investment vehicles under scrutiny.

**Part 1—Comparative Analysis of Current Total Expense Ratios**

The total expense ratio (TER)—and its new reincarnation the ongoing charge\(^4\)—is the most explicit cost of fund ownership. The ratio represents the portion of an investment that will be extracted by the fund on an annual basis, and as such, it directly affects an investment’s overall return.

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**Footnotes**

2. Total ETP assets include exchange-traded funds (ETFs), exchange-traded commodities/currencies (ETCs) and exchange-traded notes (ETNs).

3. For the purposes of this study, we use exchange-traded products (ETPs) as an umbrella term encompassing European-domiciled UCITS-compliant ETFs, Swiss-domiciled non UCITS-compliant ETFs and exchange-traded commodities (ETCs).

4. Under the UCITS IV regulations enforced in July 2012, the “total expense ratio” (TER) has been replaced by a new cost measure called the “ongoing charge”. However, it is fair to say that at this early stage after the change, the TER continues to be the most easily-identified measure of cost incurred by investors in Europe. In contrast to the ongoing charge, the regulator never enforced a standard definition of TER, despite requiring its disclosure in the Simplified Prospectus under UCITS III. This has effectively left industry players relatively free to adopt ad-hoc interpretations. As such, different TERs could cover different costs for different funds in different countries. Besides a legal requirement to prominently disclose the ongoing charge in the KIID of all UCITS funds —something that did not apply to the TER— the practical differences between the ongoing charge and the TER are minimal and mostly relate to the former’s explicit exclusion of performance fees.
This charge covers costs incurred by the fund in direct relation to the management and administration of the fund, inclusive of payments for delegated services such as accounting, valuation, distribution, registration and regulatory fees and auditing.

In this first section, we compare the total expense ratio (TER) currently charged by European-domiciled index funds and ETPs across three asset classes—equity, fixed income and commodity—and 19 sub-asset classes.

**Comparison of TERs across Equity Funds**

<table>
<thead>
<tr>
<th>Equity Categories</th>
<th>INDEX FUNDS</th>
<th>ETFs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Retail</td>
<td>Institutional</td>
</tr>
<tr>
<td></td>
<td>Share Funds</td>
<td>Classes</td>
</tr>
<tr>
<td>Global</td>
<td>31</td>
<td>61</td>
</tr>
<tr>
<td>Europe Large Cap</td>
<td>183</td>
<td>295</td>
</tr>
<tr>
<td>Europe Mid-Small Cap</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>US Large Cap</td>
<td>47</td>
<td>76</td>
</tr>
<tr>
<td>US Mid-Small Cap</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Emerging Markets</td>
<td>21</td>
<td>49</td>
</tr>
<tr>
<td>Developed Asia-Pacific</td>
<td>41</td>
<td>72</td>
</tr>
<tr>
<td>Sector</td>
<td>30</td>
<td>36</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>357</strong></td>
<td><strong>594</strong></td>
</tr>
</tbody>
</table>

Source: Morningstar Direct. Asset-weighted average calculations of TER at March 2013. N/A where the fund sample was too small to be considered representative.

**Exhibit 2:** Equity Index Funds vs ETFs: Comparative TER
The analysis shows that equity ETFs are cheaper on average than index funds when measured against the latter’s retail share pricing structure (asset-weighted TER of 0.39% vs. 0.73%). But, all necessary caveats considered, equity ETFs would tend to be more expensive than index funds if measured against their institutional share class pricing structure (0.39% vs. 0.32%). In this case, however, for some equity categories, the trade-off with index funds would be one of a more limited choice of exposures and strategies, as evidenced by the plethora of equity ETFs available (even after discounting “me too” products) and the variety of exposures these offer. ETFs give access to more specific and targeted corners of the equity markets (e.g. regional small caps and sectors, individual country-frontier markets, etc.) which provide investors with greater opportunities for tactical portfolio strategies.

Focusing on ETFs, the lowest asset-weighted average TER is levied by funds offering exposure to European large cap equities (0.26%), while the highest is charged by funds providing exposure to emerging market equities (0.68%). In between, the charging structure largely follows what one would intuitively assume to be a rational pattern for European-domiciled funds, with large-cap equity cheaper on average than mid- and small-cap equity, and developed market exposure (e.g. Europe, US, Developed Asia-Pac) cheaper than emerging markets. Also, within developed markets, European equity market exposure tends to be offered at a lower TER vs. other geographical areas (e.g. US).

The findings for index funds differ from this general pattern, with the lowest average TER found in the European small- and mid-cap equity categories. However, rather than challenging conventional wisdom, these results are strongly conditioned by a) a very limited sample of index funds providing this kind of exposure relative to the much wider universe of ETFs tracking European large-cap equity market indices (i.e. 4 vs. 34) and b) a very heavy statistical AUM bias to a single index fund (namely HSBC FSTE 250 Index Retail fund) within this reduced universe, skewing the resulting asset-weighted average calculation.

**Index Funds Linked to European Large-Cap Equities are on Average Unfairly Expensive**

It is also worth noting that, contrary to the general pattern found in ETFs, exposure to the European large-cap equity markets via index funds is on average more expensive than the US equivalent, whether the exposure is accessed via the retail or institutional share pricing structure (0.73% vs. 0.64% for the retail class and 0.30% vs. 0.22% for the institutional class, respectively). This is so despite a similar number of index funds and ETFs providing this market exposure.

One could argue that, on average, European index fund providers may be charging investors over the odds for what in effect is the most heavily-demanded equity market exposure, as measured in AUM terms. Indeed, looking more closely at our index fund sample, we find many funds that charge fees close or at par with those levied by actively-managed funds. About 14% of the index funds we examined in the European large cap equity category (retail share classes) charge anywhere between 1.50% and 2.70%, while 40% charge more than 1%.

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**Footnotes**

5. For some categories, the fund sample for index funds was too small to be considered representative for calculations.
We think these levels of TER are unjustifiable for index trackers. But perhaps more importantly, they are financially very damaging, in particular for retail investors, most of who would seek European large cap equity exposure as a “buy and hold” investment. These high charges would significantly eat into returns over the long-term. This clearly shows a lack of awareness about fund fees and calls for more education for retail investors and, in some cases, their advisers, empowering them to seek cheaper alternatives and forcing the more expensive providers to cut unfairly high fees.

Comparison of TERs across Fixed Income Funds

<table>
<thead>
<tr>
<th>Fixed Income Categories</th>
<th>INDEX FUNDS</th>
<th>ETFs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Retail</td>
<td>Retail</td>
</tr>
<tr>
<td></td>
<td>Funds Classes</td>
<td>TER (%)</td>
</tr>
<tr>
<td>Global</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Europe Sovereign</td>
<td>30</td>
<td>42</td>
</tr>
<tr>
<td>Europe Corporate</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>US Sovereign</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>US Corporate</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Emerging Markets</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>73</td>
</tr>
</tbody>
</table>

Source: Morningstar Direct. Asset-weighted average calculations of TER at March 2013. N/A where the fund sample was too small to be considered representative.

Exhibit 4: Fixed income index funds vs ETFs: comparative TER

The analysis shows that, on an asset-weighted average basis, fixed-income ETFs as a whole are cheaper than index funds for all categories and irrespective of share class. The asset-weighted average TER for fixed income ETFs (exclusive of money markets) stands at 0.23%, while for fixed
income index funds they are 0.35% and 0.28% for retail and institutional share classes, respectively. Irrespective of vehicle type, the lowest average TER is charged by funds offering exposure to the European government bond market. A separate mention would need to be made for money market instruments, which by nature (i.e. cash management), charge lower fees. Meanwhile, at the high-end of the range, we find emerging market bond market exposure.

Even accounting for the ad-hoc factors affecting the index fund universe (i.e. lack of representative samples for some categories), we found that, overall, the pricing structure follows what one would expect to be a coherent rationale for European-domiciled fixed-income funds. As a rule, European bond market exposure carries a lower TER on average than non-European (e.g. US, Emerging Markets, World) and government bond exposure carries a lower TER on average than corporate bond market exposure.

In contrast to our findings for equity market exposure, fixed income ETFs are cheaper than index funds when measured against the latter’s institutional share pricing structure for a larger number of categories (three out of six versus one out of eight). In our view, this can be largely explained by the differences in the size of samples for index funds between fixed income and equity relative to the equivalent offering of ETFs. Indeed, in comparative terms, the universe of fixed income index funds is much more limited than for equity. More so, within this smaller universe, most index funds tend to provide broad mainstream exposures (e.g. European sovereign), which by definition should be cheaper. By contrast, we find more specialised exposures in equity index funds, and thus a wider price range.

Taking all these factors into consideration, we can argue that ETFs are a more obvious passive alternative to actively-managed funds than index funds when it comes to fixed income. However, it is fair to point out that, although ETFs are cheaper than actively-managed alternatives, at this stage there is a clear trade-off in terms of choice. The fixed income segment of the European ETF market is still underdeveloped vis-à-vis equity, both in terms of number of products and, more importantly, market exposures. This is particularly evident for some categories, such as corporate and emerging market bonds.

**Comparison of TERs across Commodity Funds**

The comparative analysis of TERs in the case of the commodities asset class requires a different approach to that employed for equity and fixed income. According to the Morningstar database, there is a distinct lack of index funds offering exposure to the various narrow categories (e.g. agriculture, precious metals, energy, and industrial metals) that we have selected under the commodity asset class umbrella. As such, we can only confidently run a comparative analysis of levied TER in the case of funds providing exposure to broad commodity baskets for which we have found representative-enough samples across the two types of investment vehicles.

The analysis shows that for investors seeking broad commodity exposure, ETPs (i.e. ETCs and ETFs) would be significantly cheaper than index funds when measured against the average TER charged by retail share classes (0.53% vs. 1.19%). However, investors able to access index funds via
the institutional share class avenue would be faced with a lower TER than that charged by ETPs, although the difference, at five basis points, would not be particularly substantial.

Exhibit 5: Average Total Expense Ratio for Commodity Funds per Category

<table>
<thead>
<tr>
<th>Commodity Categories</th>
<th>INDEX FUNDS</th>
<th>ETFs/ETCs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Retail Share</td>
<td>Institutional Share</td>
</tr>
<tr>
<td>Broad Basket</td>
<td>13 34 1.19</td>
<td>9 39 0.48</td>
</tr>
<tr>
<td>Agriculture</td>
<td>N/A N/A N/A</td>
<td>N/A N/A N/A</td>
</tr>
<tr>
<td>Precious Metals</td>
<td>N/A N/A N/A</td>
<td>N/A N/A N/A</td>
</tr>
<tr>
<td>Energy</td>
<td>N/A N/A N/A</td>
<td>N/A N/A N/A</td>
</tr>
<tr>
<td>Industrial metals</td>
<td>N/A N/A N/A</td>
<td>N/A N/A N/A</td>
</tr>
<tr>
<td>TOTAL</td>
<td>13 34 1.19</td>
<td>9 39 0.48</td>
</tr>
</tbody>
</table>

Source: Morningstar Direct. Asset-weighted average calculations of TER at March 2013. N/A where the fund sample was too small to be considered representative.

Exhibit 6: Commodity index funds vs ETPs: comparative TER

Regarding other categories under the commodity asset class umbrella, and according to our research, European investors wanting to use a passively-managed investment vehicle will have little option but to go down the ETP route. In fact, according to our database, there is also a severe lack of choice of actively-managed funds providing exposure other than broad basket commodity, thus making ETPs the most obvious—in some cases the only—choice for investors wanting to gain exposure to agriculture, precious metals, energy or industrial metals as standalone commodity markets.

Specificities of Key European Countries

The fragmented geographical reality of the European investment fund market makes it advisable to complement any pan-European study with some observations on the specific factors affecting
individual countries. For the purposes of this study we have chosen to focus on the four largest European economies, namely Germany, the UK, France and Italy.

A quick round of calculations puts the UK ahead of Germany, France and Italy as the most competitive market when it comes to index funds providing equity and, particularly so, fixed income market exposure. Bar some exceptions, we found that UK investors, whether retail or institutional, would generally pay a lower TER on average than their continental counterparts for accessing most investment categories under the broad equity and fixed income asset class umbrellas. Meanwhile, at the other end of the cost spectrum, we found Italy to be the least competitive marketplace.

For example, UK retail investors aiming to gain exposure to their domestic equity market, as measured by the FTSE 100 (or equivalent), via an index fund would pay on average 0.65–0.75%, whereas their continental cousins would face higher TERs (0.90–1.05%) to access equivalent exposure (i.e. DAX, CAC 40, FTSE MIB).

Likely reasons for the UK’s comparative advantage in pricing terms include a distribution channel for investment products to retail clients that is much more open to competition in the UK than in other European countries, where high street banks continue to be a dominant actor. Another factor to take into consideration is the more developed private pension provision market in the UK in comparison to its continental counterparts. This encourages an investment culture in society, which in turns supports and promotes product development by investment fund providers.

The UK’s competitive edge could consolidate further upon full implementation of the Retail Distribution Review (RDR), which bans the payment of retrocession fees to investment advisers. One of the RDR’s aims is to create more of a level playing field on the supply side (i.e. more opportunities for passive investments), while empowering end-investors to seek out “value for money”. In fact, since RDR came into force in January 2013, fund providers have significantly increased their offering of clean share classes (i.e. excluding distribution fees and adviser commissions), and the running assumption is that legacy class unit-holders will gradually migrate to these new, cheaper, share classes. However, it is still early days to make a firm judgement on the success of RDR.

When assessing competitiveness, one must adopt a holistic approach, looking beyond the crucial issue of pricing to consider factors such as the availability of products. On that score, we found that UK investors enjoy a more competitive marketplace. Sticking with the example of investors seeking exposure to their domestic equity market via a passively-managed vehicle; UK-based investors can pick from a fairly well populated universe of both index funds and ETFs. French investors would not do too badly; although the number of index funds tracking the CAC 40 (or equivalent) are less than half of those tracking the FTSE 100 (or equivalent) and available for sale to UK investors. Meanwhile we found that German and Italian investors seeking exposure to the either the DAX or the FTSE MIB have very limited availability of index funds and mostly have to make do with ETFs.

With regards to fixed income, we found that the offering of index funds is much more limited than for equity in all four countries considered. In fact, in some cases—particularly in Italy—the fixed income
index fund universe is almost non-existent. However, here also the UK would come up top as the most competitive marketplace, both in terms of choice and pricing.

The relative lack of fixed income index funds simply corroborates at single country level one of the key findings of the pan-European analysis, namely that ETFs have become the true passive alternative to actively-managed funds. In fact, the limited number of fixed income index funds available has a translation in cost terms. According to our observations, the average TER for fixed income ETFs was lower than that levied by index funds, both on a retail and institutional share class basis, in all four countries considered.

**Pricing Power Dynamics**

One interesting finding of our analysis relates to differences between asset-weighted and simple TER averages.

In the case of equity index funds, for all categories and irrespective of share class, we find that the asset-weighted average is always lower than the simple arithmetical average (note—the only exception is the institutional share class for emerging market equity index funds, where both average metrics are equal). This implies a certain degree of pricing power in favour of the end-investor, which might further encourage index fund providers to pass on economies of scale by cutting fees as their funds gain more assets.

We find the same pattern for index funds for the most popular fixed income categories, as measured in AUM terms (e.g. European sovereign), irrespective of share class structure. However, we also find a higher number of exceptions to the rule than was the case for equity funds. This is probably to do with the aforementioned peculiarities of the fixed income index fund universe in Europe, with the very limited number of available funds in some categories effectively neutralising the need for price competition amongst providers.

However, when it comes to ETFs, we find that for a majority of equity categories and for the totality of fixed income categories, asset-weighted average TERs are almost always higher than the simple measure. This implies that the majority of investors are not necessarily choosing the cheapest options, as measured in TER terms. This flies in the face of investor attitude surveys conducted by both Morningstar and other independent research houses (e.g. EDHEC) routinely showing the TER as one of or the most important factors in the selection process of ETFs.

This apparent contradiction between investors’ intentions and actions becomes less so when put against the realities of the ETF market in Europe. In spite of a large number of providers, the fact remains that only a handful can be truly classed as pan-European in their scope, with the remaining probably best described as either national or regional (e.g. Nordic, German & Swiss) operators. This fragmented geographical landscape hinders the development of a fully competitive pan-European market environment.

Besides, within the small group of pan-European providers, one in particular, namely iShares, has a significantly higher market share than its closest competitors db X-trackers and Lyxor, particularly
so in the case of fixed income funds. This dominant position probably gives iShares a higher level of pricing power in Europe than it would enjoy in the single fully-competitive market that is the US. Besides, it may also be reasonable to assume that a fair number of ETF investors might see products with the highest assets under management as offering the best chances of quality trading execution (e.g. bid/offer spreads) and thus feel this compensates for a potentially higher ongoing charge vis-à-vis smaller-sized competitors.

However, it is worth noting that in the case of European large cap equity ETFs—the most popular in AUM terms—and, to a lesser extent, Global equity ETFs, we find that asset-weighted average expense ratios are lower than simple averages. This suggests a higher level of price competition between ETFs tracking major equity indices such as the EURO STOXX 50 or MSCI World.

**Part 2—Comparative Analysis of Historical Total Expense Ratios**

In this second section of the report, we discuss how expense ratios in index funds and ETPs have evolved over the past five years.

**Equity ETFs**

On average, total expense ratios for European-domiciled equity ETFs have dropped since 2008. This decline, however, has come primarily as a result of new products undercutting older ones, rather than the latter cutting fees.

Perhaps unsurprisingly, given that they account for the lion’s share of the market, the biggest decline in TER over the past five years was registered by ETFs offering exposure to developed market equities, with a decrease in simple average TER for European Large Cap ETFs from 0.40% to 0.32%...
and for US Large Cap ETFs from 0.45% to 0.34%. In asset-weighted average terms, the TER for these two equity categories fell from 0.27% to 0.26% and from 0.38% to 0.35%, respectively.

The much more muted decline in asset-weighted terms relative to simple average succinctly tells the story of how the less expensive new entrants to the European marketplace have yet to make a significant impact amongst investors. Amongst the possible factors explaining this we would highlight the fact that these new entrants likely face something of a visibility problem when it comes to on-exchange trading. Indeed, thinner on-screen trading volumes could lead some investors to conclude that any potential TER savings vis-à-vis long-established competitors may be cancelled out—even outstripped—on the back of higher bid/offer spreads.

Meanwhile, the Emerging Markets equity category, a traditionally difficult and expensive asset class to access, has seen the smallest decline in TER since 2008, with a decrease in simple average terms from 0.68% to 0.66%, and from 0.71% to 0.68% in asset-weighted average terms.

We found that, historically, and for all equity categories—bar European Large Cap—asset-weighted averages have been higher than simple averages. This phenomenon, which we have previously defined as the "iShares effect", suggests that investors flock to more expensive ETFs, as purely measured in TER terms. Or said differently, new and cheaper products have been slow at garnering assets.

A perfect case in point is the S&P 500 ETFs launched by HSBC, db X-trackers, Amundi, Credit Suisse, and Vanguard since 2010. With TERs ranging from 0.09% to 0.20%, they each attracted between EUR 470mn and EUR 580mn of net new assets by the end of 2012, while the longer-running iShares S&P 500 (IE), which levies a significantly higher TER of 0.40%, gained EUR 2.2bn over the same period.

Still, growing competition is certainly putting pressure on all ETF providers to keep fees in check. This creates the conditions for a potential “fee war” developing in future, provided the cheaper new entrants capture significant market share away from the longer established players. As previously mentioned, we see increased on-exchange liquidity / trading as a key factor in helping investors—both retail and institutional—become increasingly aware and take full advantage of the many choices available to them.
Equity Index Funds
Mirroring the trend observed for equity ETFs, overall expense ratios for European-domiciled equity index funds have also decreased on average since 2008.

Retail Share Class
Focusing on the retail share class of equity index funds, we found that the sharpest decline in fees was registered by funds providing exposure to US large cap equities. The simple average TER for this category dropped by almost a third over the past five years (from 0.96% to 0.68%). However, the asset-weighted average TER declined only slightly from 0.65% to 0.64%.

European large cap equity index trackers saw both simple and asset-weighted averages drop, from 0.96% to 0.85% and from 0.80% to 0.73%, respectively.

These results are in keeping with the trend towards reduced fees that we have seen over the past five years in the traditional index-tracking industry. This trend has been most prominent in the UK since 2009, and was spurred by Vanguard’s entry into the market. The US firm rolled out a suite of ultra-cheap trackers, which immediately prompted HSBC to slash fees on several of its UK index funds.

Going forward, competition is expected to continue to put downward pressure on fees. With regulatory changes like the UK Retail Distribution Review (RDR) creating new interest in passive investments, and the growing popularity of ETFs as a cheaper passive alternative, more providers
of index funds may be forced to review their pricing strategies. The most recent evidence of this was the decision in April 2013 by Legal and General Investments to cut fees on a number of its products.

**Institutional Share Class**

As in the case of the retail share class, we also found a decrease in the simple average TER for the institutional share class of equity index tracking funds.

The simple average TER declined from 0.37% to 0.29% for US large cap and from 0.40% to 0.37% for European large cap equity index funds. However, in asset-weighted average terms, TERs rose for European large cap equity exposure between 2008 and 2010 (from 0.27% to 0.36%) before falling to 0.30% in 2012, registering a net increase over the five-year period under analysis.

**Fixed Income ETFs**

Overall, total expense ratios for European-domiciled fixed income ETFs have risen on average since 2008. Taken at face value, these results are at odds with the trend observed in equity ETFs. However, this apparent contradiction is less so when put against the context of the different speeds at which the equity and fixed income segments of the ETF market have developed in Europe. Indeed, comparatively, fixed income was a late starter. As such, the increase in TERs is reflective of developments in product offering over the period we have analysed, from plain vanilla to more specialised sovereign debt exposure and the expansion to the likes of corporate and emerging market debt.
Digging deeper into the data, we found that the largest category as measured in AUM terms, European sovereign bond ETFs, registered only a slight increase in TER in simple average terms from 0.165% to 0.169%, though it was of higher magnitude in asset-weighted average terms, moving from 0.164% to 0.177%. This uptick reflects the growing specialisation of this segment of the ETF market, particularly so in response to the Eurozone sovereign debt crisis, with the launch of products offering more targeted exposures, such as single country or credit rating-specific (e.g. top-rated, low-rated) Eurozone sovereigns.

Meanwhile, the second largest category within the fixed income asset class, namely European corporate bond ETFs, have witnessed a substantial increase, with their simple and asset-weighted average expense ratios soaring 26.8% (from 0.17% to 0.21%) and 37.4% (from 0.17% to 0.23%), respectively.

One of the key reasons is the relatively recent development of the high yield corporate debt segment of the European ETF market in response to investors’ search for yield. In the context of rock-bottom interest rates, not to mention the shift in risk perceptions brought about by the Eurozone debt crisis, yield-seeking fixed income investors have transitioned away from sovereigns to corporate debt, with the comparatively higher-yielding, but also more expensive, non-investment-grade high yield bond ETF category attracting a great deal of net inflows.
Meanwhile, simple average expense ratios for emerging market bond ETFs also increased from 2010\textsuperscript{6} to 2012. They went up from 0.38% to 0.45%, largely due to the growing specialisation of the emerging market debt exposures on offer, most notably with the launch of ETFs providing access to Emerging Market sovereign debt denominated in local currency and Emerging Market corporates.

In asset-weighted terms, the average expense ratio for emerging market bond ETFs witnessed a modest increase from 0.47% to 0.48%. However, this can be attributed to a statistical AUM bias to a single fund within this, still, reduced universe, namely the iShares J.P. Morgan $ Emerging Markets Bond ETF, a long-running ETF in comparative terms (it was launched in 2008), skewing the resulting asset-weighted average calculation.

### Emerging Markets Bond ETFs

<table>
<thead>
<tr>
<th>Year</th>
<th>TER (Asset-weighted Average)</th>
<th>TER (Simple Average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>.19%</td>
<td>.18</td>
</tr>
<tr>
<td>2011</td>
<td>.18%</td>
<td>.17</td>
</tr>
<tr>
<td>2012</td>
<td>.16%</td>
<td>.15</td>
</tr>
</tbody>
</table>

### Fixed Income Index Funds

Unlike for fixed income ETFs, we found no clear pattern for the evolution of the expenses levied by fixed income index funds.

The absence of discernible patterns for the largest categories in AUM terms, namely European sovereign and European corporate bonds, is symptomatic of the underdevelopment and lack of specialisation of the fixed income offering within the index fund universe. Indeed, the choice of funds remains overwhelmingly biased to mainstream plain vanilla sovereign exposures. This is in stark contrast with the evolution in product development that we have seen in the ETF world over the past five years.

Furthermore, it must be noted that any historical analysis of TERs for fixed income index funds needs to be almost exclusively circumscribed to the institutional share class structure. Measured in AUM terms, the combined weight of fixed income retail share classes is not statistically representative in what, as a whole, is an under-developed asset class for the European index fund industry. This is further evidence that when it comes to fixed income in the European marketplace, ETFs have become the passive alternative of choice to actively-managed funds.

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Footnotes

6. Note that the fund sample for 2008 and 2009 was too small to be considered representative for calculations.
European Sovereign Bond Index Funds—Retail Share Class
- TER (Asset-weighted Average)
- TER (Simple Average)

European Corporate Bond Index Funds—Retail Share Class
- TER (Asset-weighted Average)
- TER (Simple Average)

European Sovereign Bond Index Funds—Institutional Share Class
- TER (Asset-weighted Average)
- TER (Simple Average)

European Corporate Bond Index Funds—Institutional Share Class
- TER (Asset-weighted Average)
- TER (Simple Average)
Commodity ETPs

Overall, total expense ratios for European-domiciled commodity ETPs have dropped on average since 2008. However, the driver of this general decline is found in categories other than precious metals ETFs, by far the most popular with over 80% of the total assets invested in commodity ETFs and ETCs. According to our analysis, average fees for precious metals ETPs have remained broadly flat from 2008 to 2012, with the single and asset-weighted average TER standing at 0.46% and 0.41%, respectively.

The uptick in average TER observed in 2010, both in asset-weighted, but particularly so in simple average terms, can be attributed to a record number of products coming to the market that year in response to growing investor demand for more granular and specialised exposure. A total of 67 ETFs and ETCs were launched in 2010, offering access to more expensive corners of the precious metals commodity market such as palladium or platinum, as well as currency hedged exposures to metals.

Meanwhile, the second largest category of commodity ETPs, namely broad basket ETPs, representing some 10% of total commodity ETP assets, was 6.2% cheaper in 2012 compared to 2008, with the simple average TER dropping from 0.58% to 0.55% and the asset-weighted average down by 11.4% from 0.59% to 0.53%.
Commodity Index Funds
As previously discussed, there is a severe lack of choice of index funds offering access to commodities. In fact, the choice for investors is almost entirely limited to funds providing exposure to broad commodity baskets.

Retail Share Class
Looking at the evolution of fees across all retail commodity index funds over the past five years, we found that the average TER increased by 13% when measured in simple average terms. This increase was mainly due to a slew of more expensive products coming onto the market in 2009 and 2011. However, when measured in asset-weighted terms, we found very different results. The average TER for that category dropped by almost 15% (from 1.39% to 1.19%), although a large part of this decrease could be explained by a statistical AUM bias to a lone relatively cheap index fund. Launched in 2010, Luxembourg-domiciled Handelsbanken Commodity A, which charges a TER of 0.80%, accounted for a quarter of the total category AUM in 2012.

Institutional Share Class
With regards to the institutional share class of broad basket index funds, we found that the simple average TER remained fairly flat from 2008 to 2012, despite a spike in 2009, mainly attributed again to a record number of expensive products being launched that year. In asset-weighted average terms, however, the TER followed a downward trend comparable to that experienced by broad basket ETPs over the same period, with a decline from 0.54% to 0.48%.
What's Next?
We expect the growing popularity of passive instruments, helped by regulatory changes across Europe, to trigger a fee war in Europe, similar to the one witnessed in the US. As previously discussed, a few fund providers have already started cutting fees on a number of core index funds and ETFs to make them more competitive. More should follow.

Furthermore, as the European index-tracking industry grows, we expect fund providers to share economies of scale with investors, resulting in lower fees. This is standard practice in the US, where firms explicitly state by how much the expense ratio will be reduced as assets grow past different levels, but it is virtually unheard of in Europe. We also anticipate more proactive, competitively-driven fee reductions from fund providers seeking to grab the attention of investors.

Finally, we see cost pressures spreading to other areas of the value chain, with ETF and index fund issuers continuing to pursue ways to reduce index licensing fees—such as changing index providers or self-indexing—and we would also hope providers would share those savings with investors.

Part 3—Other Costs
As we mentioned before, the total expense ratio only captures the visible costs of a fund. In practice, investment funds incur a host of additional, albeit less visible, implicit costs that many investors seem to overlook, especially when making comparisons between different types of funds. In this section, we discuss the most common “hidden costs” involved in transacting and owning traditional index funds and ETPs.

Rebalancing Costs
While index investing is an inherently passive strategy, the fact of the matter is that indices do experience turnover. Rebalancing costs relate to the costs incurred by physically-replicated funds to re-align their portfolio to reflect the changes in the index they aim to track. These costs typically cover any bid-offer spreads and commission paid to brokers for trading, as well as any transaction taxes the fund may have to pay (e.g. stamp duty).

Rebalancing costs are not included in the calculation of a fund’s TER and thus represent an additional expense that will directly affect the fund’s return. For some funds, this expense may be higher in magnitude than the expense ratio. This is often the case for funds that seek to replicate non-market cap-weighted indices, such as fundamental and equal-weighted indices. These strategies tend to have high turnover, which require frequent rebalancing of the fund.

Rebalancing costs directly affect both the tracking difference and tracking error of physically-replicated ETFs and index funds. However, synthetic ETFs are not directly affected by these costs, although the level of index turnover will be taken into consideration in the negotiation of the swap price. Rebalancing costs may also manifest themselves as a premium between the ETF’s market price and its net asset value in secondary market trading.

Footnotes
7. Tracking difference measures the under- or outperformance of a fund relative to its benchmark.
8. Tracking error is a measure of how consistently a fund is tracking its benchmark.
Since mid-2011 there is no longer a requirement for UCITS fund providers to report portfolio turnover figure, but transaction costs are usually disclosed in funds’ annual reports.

**Swap Cost**

Swap-based ETPs, also known as synthetic ETPs, are designed to deliver the performance of a reference index through the use of swap agreements. The cost associated with the swap is not included in the product’s headline expense ratio, and thus also represents an additional cost that should be taken into consideration when assessing the total cost of owning a synthetic ETP.

Swap fees vary quite widely across issuers and across ETPs. While some levy zero charge for the swap, others bear a spread, which may, in some instances, exceed the TER. This can be the case for synthetic ETPs that aim to track indices or strategies which are particularly difficult to replicate (e.g. emerging markets). Swap fees depend on a variety of factors including the costs borne by the swap provider in hedging its exposure, any revenue generated from practices such as securities lending and tax optimisation, or the cost of collateral. Depending on the underlying index the ETP tracks, the swap provider may decide to pass on some of the revenues generated to the product. Thus, the swap spread may be negative (i.e. a gain for the fund rather than a cost), which will have a direct positive impact on the product’s performance.

With only a small number of ETP providers disclosing swap fees in their marketing documentation, investors often need to scan prospectuses or call the firm directly in order to find out about these fees.

**Index Licensing Fee**

Index-tracking products typically incur index licensing fees, which represent the payments made to index providers for use of their intellectual property (the benchmark index) in constructing the products. The majority of ETPs and traditional index funds will have index licensing fees included in their TER. However, in some cases, these will be charged to the investor separately. More so, this extra cost may not even explicitly appear in the product’s marketing documentation or prospectus. This lack of proper disclosure call for direct action on the side of the investor (e.g. call the provider directly).

**Commodity Costs**

Many exchange-traded commodities (ETCs) will charge a range of fees that may either be included in or in addition to their headline expense ratios. These might include custody and storage fees (unique to physical precious and industrial metals products), collateral costs, and index licensing costs (see above).

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**Footnotes**

9. Examples include the MSCI Emerging Markets Source ETF with a TER of 0.45% and swap fee of 0.60%, the iShares CSI 300 UCITS ETF (ex-Credit Suisse’s CSI 300 ETF) with a TER of 0.50% and swap fee of 1.22%, and the db x-trackers MSCI Pakistan FM TRN Index ETF which charges a TER of 0.85% and swap fee of 1.45%. Note—Fees applicable as of this writing.
Entry/exit Charge

The entry/exit charge is the maximum amount that fund companies may take out of an investor’s money before they invest it (entry charge, also known as initial charge) and before the proceeds of their investment are paid out (exit charge). These charges cover administrative and marketing costs, as well as commissions paid to intermediaries such as financial advisers or brokers (though RDR now precludes this in the UK).

Where applicable, entry and exit charges may vary but generally range from 2% to 5% of the investment value. They may also be levied in the form of spreads, in which case they would normally be included within the price at which investors buy (or sell) units.

Entry and exit charges usually only apply when fund units are subscribed or redeemed directly from the fund. In this case, fund providers may, at their discretion, either discount or waive these charges. That said, a large number of investors do not transact directly with fund companies and instead use intermediaries such as fund platforms and/or brokers. According to our research, it is very common for investments made via these intermediaries in most European countries to have these charges waived.

Index fund providers may also collect an entry/exit fee for the sole purpose of paying it back to the fund instead of retaining it. This fee, commonly known as “dilution levy”, “purchase/re redemption fee” or “swing pricing” aims at protecting existing investors in the fund from the costs associated with the dealing of new investors’ money.

Dilution issues generally do not arise in ETFs since all the dealing with new money is taken care of by the market makers, or the swap counterparties (in the case of synthetic ETFs), who often do it in a much more cost-effective manner. Investors can also buy and sell their ETF units directly from the stock exchange.

Entry and exit charges for a UCITS fund are disclosed in the KIID as a separate cost to the ongoing charge.

Additional Costs for ETPs—Trading Costs

When investing in ETPs, it is important to distinguish between two types of costs—holding costs and trading costs. Holding costs, which encapsulate the total expense ratio, rebalancing costs (for physical ETFs) and swap costs (for synthetic ETFs) have been discussed in previous sections of this report. In this section, we shall discuss the costs associated with trading an ETP on the secondary market. These costs typically include bid-offer spreads, brokerage commission, and market impact.

Bid-Offer Spread

The bid-offer spread is the difference between the highest price someone is willing to pay for a given security (the bid) and the lowest price someone is willing to sell that same security for (the offer). The difference between these two prices is pocketed by a market maker or broker.
Bid-offer spreads are commonly quoted as a percentage of the relevant security’s market price and, in the case of ETPs, can typically be found on provider websites, exchanges or via a broker. For example, let’s assume the bid price for an ETF is 99 and the offer price is quoted at 101. In this case, the bid-offer spread would be: \( \frac{(101-99)}{\frac{(101+99)}{2}} = 2\% \).

Market spreads may vary greatly across ETPs, although the common rule is that the wider the spread, the higher the overall cost of trading the ETP for the investor. The main factor affecting the spread of an ETP is the liquidity of its underlying index. The less liquid the underlying components, the more difficult and costly for market makers to hedge their exposure and thus the wider the bid-offer spread. For ETPs tracking very liquid indices, spreads tend to be very narrow. And in some cases, ETP spreads can actually be tighter than those of the underlying securities.

Differences in on-screen ETP spreads across asset classes are accurately reflected in our analysis (see exhibit below). For European and US large cap equity ETFs, we calculated spreads of 0.11% and 0.15% respectively on asset-weighted average terms over a trailing 6-month period\(^{10} \). This compared to 0.34% for Emerging Markets ETFs. Similarly in the fixed income space, European sovereign bond ETFs exhibited spreads that were three times lower on average than those quoted for Emerging Markets bond ETFs.

However, we observe great disparities between funds within each asset class. For example, in the European large-cap equity category, for the iShares DAX ETF (DE) the trailing 6-month average daily spread was 0.03% at XETRA, whereas it was 1.22% for the Lyxor ETF FTSE ATHEX 20 on the Borsa Italiana. In most cases, these disparities will be due to the varying degrees of liquidity amongst different underlying benchmarks (e.g. the DAX is one of the most liquid equity indices in Europe) within the same asset class. However, in some instances, variations in spread calculations may be related to the methodology employed in our study. European ETPs tend to be listed in multiple exchanges and, for the purposes of our study and for the sake of uniformity, we have filtered the ETP universe by primary share listing.

In fact, bid-offer spreads may vary quite significantly between ETPs tracking the same benchmark, across different listings of the same ETP and depending on the time of day. For example, we found that the Lyxor ETF MSCI World D-EUR had a trailing 6-month average daily spread of 0.07% on NYSE Euronext Paris. This compared to 0.17% and 0.21% for the Amundi ETF MSCI World EUR A/I listed on Borsa Italiana and NYSE Euronext Paris respectively. Factors likely to influence all these different spreads include market volatility, fund size, local and cross-listing trading volume, depth of order book, and number of market makers in each exchange.

We recommend investors discuss all these aspects with their brokers before placing ETF trades in order to achieve best price execution.

Footnotes
10. From 1 January to 30 June 2013
It is worth noting that because of the fragmented nature of the European listings and its apparent lack of on-exchange liquidity, institutional investors often prefer to trade over the counter where the spread dynamics are slightly different. They may also choose to transact at the ETP's daily closing net asset value rather than incurring a bid-offer spread when trading intraday. They may also be subject to creation/redemption fees if they want to buy (or sell) a large block of ETPs.

**Market Impact**

On top of bid-offer spreads, investors also have to contend with the price impact of their ETP trades. Often overlooked, price (or market) impact measures how trading activity on a given security affects its price for subsequent trades. In other words, it is the degree to which a trade causes the market price of an ETP to move “against” the investor placing the trade, i.e. upward when a purchase is made and downward when a sale is executed. Market impact is closely and negatively related to market liquidity. That is, the more liquid an ETP’s shares, the less likely an investor’s transaction will have an impact on its price.

Estimates of market impact are notoriously difficult to quantify, and the issue is even more complex for ETPs where the liquidity of both the ETP and its underlying assets matter. The larger, more heavily traded the product and the more liquid the underlying securities, the lower the market impact cost is likely to be. The magnitude of market impact also depends on the amount invested, and as such it is a key consideration for large investors.

<table>
<thead>
<tr>
<th>Morningstar Category</th>
<th>Asset-Weighted Average Spread %</th>
<th>Simple Average Spread %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Equity</td>
<td>0.16</td>
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<td><strong>Fixed Income</strong></td>
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<tr>
<td>Industrial Metals</td>
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</table>

Source: Morningstar Direct. Calculations on primary share class exchange data run from 1 January to 30 June 2013, based on the entire trading day, including pre and post trading activity.
**Brokerage Commission**

In addition to the aforementioned costs, investors typically incur brokerage commissions at the times of purchase and sale of an ETP on the secondary market. Brokerage fees will vary from investor to investor and according to a number of considerations including, but not limited to: the brokerage of choice; the trading frequency; the size of the order; whether the order is executed through an adviser, over the phone, or on the internet; and the market where the security in question is traded (e.g. some brokers charge higher commissions to execute trades on foreign markets).

Based on a Morningstar survey of commonly-used online brokers in the UK, Germany, France and Italy, the typical non-frequent trade fee is between 10–20 euros in Germany, France and Italy, and around 10–15 pounds in the UK. Frequent trade fees may be substantially lower.

Investors who buy through platforms may also have to pay an administration fee, charged as a percentage of the amount invested on the platform and/or on a per-trade basis.

**Premiums and Discounts to NAV**

Unlike traditional open ended funds, ETPs trade throughout normal market hours. During the course of a trading day ETPs’ market prices will generally not track their net asset value (NAV) in lockstep for a whole host of reasons. If a product’s market price is higher than its NAV, it is said to be trading at a premium, which is good for sellers and bad for buyers. Paying a 1% markup will inherently harm investors’ expected returns. When the market price is lower than the NAV, the ETP is said to be trading at a discount, which helps buyers and harms sellers. Getting a 1% discount can only improve investors’ expected returns.

Luckily, ETPs typically trade at prices that are very close to NAV. Even the hypothetical examples above, of a 1% premium or discount, would be a gross exaggeration for nearly all ETPs. This is because any premium or discount that arises presents an arbitrage opportunity for market makers. If an ETP’s market price strays too far from its NAV, market makers will move to profit from the relative mispricing between the fund’s market price and the aggregate price of its underlying securities. Market makers will pocket a small profit for their efforts. As market makers compete for these opportunities to make a quick low-risk profit they serve to minimise the size and persistence of premiums and discounts for these products’ shares.

There is not much that investors can do to manage the inevitable premiums and discounts to NAV that exist in the ETF market. Fortunately, the discrepancies tend to be fairly small, thanks to the hard work of arbitraging market makers, so this should not be a major concern for most long-term investors. That said, it is crucial to ensure that investors’ buying or selling prices are as near NAV as possible. Indeed, attaining best execution has proven to be one of the more challenging aspects of ETP adoption for many investors accustomed to dealing in traditional funds, which tend to price at NAV once a day (or some other regular interval).
Other Factors to Consider

Revenues and Costs from Securities Lending and Tax Optimisation

Our exclusive examination of investment costs means that we have not discussed potential revenues arising from enhancement activities such as securities lending and tax optimisation. That’s not to say that they do not matter. Revenues from enhancement activities carried out within a physically-replicated fund can help to partially, or in some cases completely, offset the TER and other costs incurred by a fund, and as such, they should be taken into consideration. However, it is important to bear in mind that these enhancement activities do not come without risk, or cost.

Securities lending introduces counterparty risk which needs to be properly managed. Besides, a fee, albeit indirect, is charged to the investor in the form of a percentage of the gross revenues generated. Securities lending fees can vary from 10% to 55% of the gross revenues generated.

For a more detailed examination of securities lending practices, see our report Securities Lending in Physical Replication ETFs: A Review of Providers’ Practices.

Tracking Error

Finally, both for ETPs and traditional index funds, we recommend investors go beyond the costs covered in this study, and consider the issue of tracking error. Index trackers are designed to track the performance of an index, and tracking error assesses how well they do that job. The lower a fund’s tracking error, the more consistently it will track its benchmark. Tracking error can be viewed as an additional cost as much as a risk for investors, and as such should be closely monitored.

For a more detailed examination of the issue of tracking error, see our report On the Right Track: Measuring Tracking Efficiency in ETFs

Appendix I—Methodology

The purpose of this study is to provide a comprehensive comparative analysis of the costs of investing in ETPs and index funds across different asset classes and sub-asset classes.

We consider all European-domiciled ETPs and index funds, irrespective of size, classified under the equity, fixed income and commodity broad asset classes as defined in the Morningstar database. We have opted to narrow the focus of this study to funds providing plain vanilla mainstream market exposures across 19 commonly looked-at categories within the broader equity, fixed income and commodity investment universe.

The first and second parts of the report focus on the most visible cost, namely the total expense ratio (TER). While we recognise that the TER has been replaced by the “ongoing charge” under the UCITS IV regulations enforced in July 2012, it is fair to say that at this early stage after the change the TER continues to be the most easily-identified measure of cost incurred by investors in Europe. We have also chosen to run our analysis on TER despite the lack of standard definition and calculation of this measure. We fully acknowledge the fact that different TERs could cover different costs for different funds in different European countries.
For all calculations, we use expense ratios found in each fund’s annual report, as collected by Morningstar Direct’s database. Where no information is readily available in Morningstar Direct and when possible, we have obtained it directly from the investment fund providers.

In part 1 of the study we carry out a comparative analysis of current TERs. We use asset-weighted averages, rather than simple arithmetical averages, as our key benchmark for comparison across investment categories and investment vehicles. We consider this approach to offer a more accurate picture of the actual costs incurred by investors, as the calculation is statistically biased to the most popular funds, as measured in AUM terms. All tables included in the statistical appendix feature the two sets of average TER calculations (i.e. asset-weighted and simple) per investment category and asset class.

For the calculation of asset-weighted average TERs, each fund is assigned a statistical weight based on the year-end net assets of the fund in the case of ETFs, and on the year-end net assets of the fund’s share class in the case of index funds, relative to the total assets for the relevant investment category. We multiply each fund’s TER by its corresponding statistical weight and then aggregate to an asset-weighted TER per each investment category.

In the case of index funds, we calculate two sets of asset-weighted TER averages for each investment category. These are representative of retail and institutional share class pricing respectively. The division between retail and institutional share classes cannot be applied to ETPs, which, barring an exception (i.e. UBS), are marketed on a single pricing structure irrespective of customer base.

The classification of index funds’ share classes as retail or institutional relies in first instance on the information found in the Morningstar database. Data gaps in the Morningstar database have been manually filled with information directly obtained from available legal documentation for the relevant funds. We exclude from calculations all institutional share classes whose TER is defined in the fund’s legal documentation as “negotiable” between the index fund provider and the investor.

For every defined investment category in the study, we preliminarily split index funds’ share classes into retail and institutional categories on the basis of the available information. We then apply a discretionary filter to identify retail share classes requiring a minimum investment high enough to be considered institutional. We believe applying this discretionary minimum investment threshold helps deliver fund universes which are more accurately representative of the retail and institutional market pricing structure in Europe. We, however, remain fully cognisant of the fact that retail investors would be able to access institutional pricing through intermediaries such as advisers and platforms.

These minimum investments vary for different base currencies. For share classes with a base currency of EUR, CHF, GBP, USD, HKD, TWD, SGD, AUD, or NZD, the minimum investment threshold is set at > 50,000. For share classes with a base currency of SEK, NOK or DKK, the minimum investment threshold is set at > 500,000. For share classes with a base currency of JPY, the minimum investment threshold is set at > 5,000,000.
In part 2 of the study we carry out a historical analysis of TERs. We compare the evolution of the two calculated TER metrics, namely asset-weighted and simple average, over a five-year period (2008–2012) for a selected group of the most popular investment categories, as measured in AUM terms. In keeping this study's methodology, the historical analysis of TERs for index funds is done both for the retail and institutional share classes per each of the selected investment category. The purpose of this historical comparative analysis is two-fold. In first instance it provides a straightforward quantitative analysis of TER trends over the chosen period. Secondly, comparisons between the asset-weighted and single average TER metrics allow us to conduct a qualitative analysis of market supply/demand dynamics.

In part 3 of the study we identify costs beyond the TER that investors in both index funds and ETPs need to consider. In the specific case of ETPs, we identify bid-offer spreads and brokerage commissions.

For ETP bid-offer market spreads, we use Morningstar’s daily average spread/price ratios\textsuperscript{11} collected from the exchange where each ETP's primary share is listed. The data sample spans a six-month period from 1 January to 30 June 2013. We have calculated asset-weighted and simple average bid-offer spreads for each of the 19 investment categories considered in the study.

For ETP brokerage commissions applied to ETP retail trades, Morningstar has run a survey of commonly-used online brokers in the UK, Germany, France and Italy.

\footnotesize{Footnotes}
\textsuperscript{11} Daily average spread/price ratios are calculated based on the entire trading day, which includes pre and post trading activity.
### Exhibit 8: Classifications

#### Equity Categories

**Global**
- Global Equity—Currency-Hedged
- Global Large-Cap Blend
- Global Large-Cap Growth
- Global Large-Cap Value
- Global Small-Cap
- Global Equity Income

**Europe Large Cap**
- Austria
- Belgium
- Denmark
- Europe Large-Cap Blend
- Europe Large-Cap Growth
- Europe Large-Cap Value
- Europe ex-UK Large-Cap
- Eurozone Large-Cap
- Finland
- France Large-Cap
- Germany Large-Cap
- Greece
- Italy
- Netherlands
- Nordic
- Norway
- Portugal
- Spain
- Sweden
- Switzerland
- UK Equity Income
- UK Large-Cap Blend
- UK Large-Cap Growth
- UK Large-Cap Value

**Europe Mid-Small Cap**
- Europe Mid-Cap
- Europe Small-Cap
- Europe ex-UK Small/Mid-Cap
- Eurozone Mid-Cap
- Eurozone Small-Cap
- France Small/Mid-Cap
- Germany Small/Mid-Cap
- Switzerland Small/Mid-Cap
- UK Small/Mid-Cap

**US Large Cap**
- US Large-Cap Blend
- US Large-Cap Growth
- US Large-Cap Value
- US Large-Cap—Currency Hedged

**US Mid-Small Cap**
- US Mid-Cap
- US Small-Cap

**Emerging Markets**
- Africa
- Africa & Middle East
- Asia ex-Japan
- BRIC
- Brazil
- China
- EMEA
- Emerging Europe
- Emerging Europe ex-Russia
- Global Emerging Markets
- Global Frontier Markets
- Greater China
- India
- Indonesia
- Islamic
- Latin America
- Malaysia
- Other Americas
- Other Europe
- Poland
- Russia
- South Africa & Namibia
- Thailand
- Turkey
- Vietnam

**Developed Asia-Pacific**
- Asia-Pacific ex-Japan
- Asia-Pacific inc. Japan
- Australia & New Zealand
- Hong Kong
- Japan Large-Cap
- Japan Small/Mid-Cap
- Korea
- Other Asia-Pacific
- Singapore
- Taiwan

**Sector**
- Agriculture
- Alternative Energy
- Biotechnology
- Communications
- Consumer Goods
- Ecology
- Energy
- Financial Services
- Healthcare
- Industrial Materials
- Natural Resources
- Other Sectors
- Precious Metals
- Private Equity
- Property—Asia
- Property—Europe
- Property—Eurozone
- Property—Global
- Property—North America
- Property—Other
- Technology
- Utilities
- Water
Exhibit 8: Classifications continued

Fixed Income Categories

| Global Bond | CHF Bond |
| Global Bond—CHF Biased | CHF Bond—Short-Term |
| Global Bond—EUR Biased | EUR Bond—Long Term |
| Global Bond—CHF Hedged | EUR Government Bond |
| Global Bond—EUR Hedged | EUR Government—Short-Term |
| Global Bond—GBP Hedged | EUR Inflation-Linked Bond |
| Global Bond—Other Hedged | EUR Ultra Short-Term |
| Global Bond—USD Hedged | GBP Government Bond |
| Global Inflation-Linked Bond | GBP Inflation-Linked Bond |
| Global IL Bond—EUR Hedged | NOK Bond |

Europe Sovereign

| Europe Sovereign | Europe Corporate |
| EUR Corporate Bond | EUR Diversified Bond |
| EUR Diversified Short-Term | EUR Flexible Bond |
| EUR High Yield Bond | Europe High Yield Bond |
| GBP Corporate Bond | GBP Diversified Bond |
| GBP High Yield Bond | Other Bond |

US Sovereign

| US Sovereign | US Corporate |
| USD Government Bond | USD Corporate Bond |
| USD Inflation Linked Bond | USD Diversified Bond |
| USD High Yield Bond |

Emerging Markets

| Emerging Markets | Asia Bond |
| Emerging Europe Bond | Global EM Bond |
| Global EM Bond—EUR Hedged | Global EM Bond—Local Currency |
| Global EM Corporate Bond | TRY Bond |

Commodity Categories

| Broad Basket | Agriculture |
| Broad Basket | Broad Agriculture |
| | Grains |
| | Livestock |
| | Softs |
| Precious Metals | Energy |
| | Precious Metals |
| | Energy |
| Industrial Metals | Industrial & Broad Metals |
| | Industrial & Broad Metals |
## Appendix II—Additional Tables

### Equity Categories: Full set of TER calculations

<table>
<thead>
<tr>
<th>INDEX FUNDS</th>
<th>ETFs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retail</strong></td>
<td><strong>Institutional</strong></td>
</tr>
<tr>
<td><strong>Share AUM AW Avg</strong></td>
<td><strong>Share AUM AW Avg</strong></td>
</tr>
<tr>
<td><strong>Equity Categories</strong></td>
<td><strong>Funds Classes (EUR bn) TER % TER %</strong></td>
</tr>
<tr>
<td>Global</td>
<td>31 61 4.3</td>
</tr>
<tr>
<td>Europe Large Cap</td>
<td>183 295 39.9</td>
</tr>
<tr>
<td>Europe Mid-Small Cap</td>
<td>4 5 0.3</td>
</tr>
<tr>
<td>US Large Cap</td>
<td>47 76 7.5</td>
</tr>
<tr>
<td>US Mid-Small Cap</td>
<td>N/A N/A</td>
</tr>
<tr>
<td>Emerging Markets</td>
<td>21 49 8.7</td>
</tr>
<tr>
<td>Developed Asia-Pac</td>
<td>41 72 3.1</td>
</tr>
<tr>
<td>Sector</td>
<td>30 36 0.7</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>357 594 64.6</td>
</tr>
</tbody>
</table>

Source: Morningstar Direct. Asset-weighted average calculations of TER at March 2013. N/A where the fund sample was too small to be considered representative.

### Fixed Income Categories: Full set of TER calculations

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<tr>
<th>INDEX FUNDS</th>
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<tbody>
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<tr>
<td><strong>Share AUM AW Avg</strong></td>
<td><strong>Share AUM AW Avg</strong></td>
</tr>
<tr>
<td><strong>Equity Categories</strong></td>
<td><strong>Funds Classes (EUR bn) TER % TER %</strong></td>
</tr>
<tr>
<td>Global</td>
<td>10 19 0.6</td>
</tr>
<tr>
<td>Europe Sovereign</td>
<td>30 42 2.1</td>
</tr>
<tr>
<td>Europe Corporate</td>
<td>7 12 0.5</td>
</tr>
<tr>
<td>US Sovereign</td>
<td>N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A</td>
</tr>
<tr>
<td>US Corporate</td>
<td>N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A</td>
</tr>
<tr>
<td>Emerging Markets</td>
<td>41 72 3.1</td>
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<td>Sector</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
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</tr>
</tbody>
</table>

Source: Morningstar Direct. Asset-weighted average calculations of TER at March 2013. N/A where the fund sample was too small to be considered representative.

### Commodity Categories: Full set of TER calculations

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<th>INDEX FUNDS</th>
<th>ETFs/ETCs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retail</strong></td>
<td><strong>Institutional</strong></td>
</tr>
<tr>
<td><strong>Share AUM AW Avg</strong></td>
<td><strong>Share AUM AW Avg</strong></td>
</tr>
<tr>
<td><strong>Commodity Categories</strong></td>
<td><strong>Funds Classes (EUR bn) TER % TER %</strong></td>
</tr>
<tr>
<td>Broad Basket</td>
<td>13 34 0.9</td>
</tr>
<tr>
<td>Agriculture</td>
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</tr>
<tr>
<td>Precious Metals</td>
<td>N/A N/A N/A N/A N/A N/A N/A N/A</td>
</tr>
<tr>
<td>Energy</td>
<td>N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A</td>
</tr>
<tr>
<td>Industrial metals</td>
<td>N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>13 34 0.9</td>
</tr>
</tbody>
</table>

Source: Morningstar Direct. Asset-weighted average calculations of TER at March 2013. N/A where the fund sample was too small to be considered representative.