Insights into Evaluating Exchange Traded Funds (ETFs)

The impact ETFs have had in reshaping the way investors build and manage portfolios is a testament to the appeal of their core benefits, which include diversification, lower fees and expenses, liquidity and transparency. As the industry expands, institutions, investment professionals and retail investors have demanded a greater variety of ETFs to meet a broader range of objectives and risk tolerances. ETF providers have responded by expanding product lines to encompass a wider range of asset classes, including fixed income, emerging market equities and bonds, commodities among others.

However, the proliferation of ETFs is clearly responsible for some confusion among investors and industry observers, as it has made the ETF screening process more challenging. Knowing what you own is an important investment principle regardless of whether you are buying a security, mutual fund, or ETF. To this end, investors should understand that not all ETFs are created equally. Variables such as product structure, benchmark selection, costs, liquidity, and the manager’s track record and risk management processes should be carefully considered before investing in an ETF.

The rapid increase in the number of ETFs across the globe in recent years has made the task of navigating the landscape progressively more onerous. Consider the fact that there were 648 product launches in 2010 alone helping to bring the number of industry offerings to over 2,600 with assets of US$1.6 trillion worldwide today. This growth has been fuelled by products that offer exposure to more diverse asset classes, including fixed income, emerging market equities and bonds, currencies, commodities and other alternatively weighted and strategic indices. These ETFs also offer various ways to access this exposure, as determined by product structure and selected benchmark.

These developments have made the task of evaluating ETFs more complex, as products that appear similar at first glance may be quite different upon closer inspection. The increased scrutiny of ETFs is evidence of the industry’s greatest opportunity and challenge – promoting a better understanding of the structures and safeguards that span a rapidly growing industry. An evaluation of an ETF’s underlying index is no longer sufficient, as optimised structures via swaps and derivatives have brought complexity and opacity to the ETF industry. The concerns echoed in recent reports by regulators underscore the need for all ETF providers to work toward ensuring that all investors fully understand the structure of their products. This paper provides a brief framework for evaluating ETFs globally by providing insight into the following issues:

I. Product structure: physical ETFs vs. synthetic ETFs
II. Index composition: Weighting methodologies
III. Securities lending: Purpose and process
IV. Total costs: Liquidity, role of the bid/offer spread and premium/discount to NAV
V. Tracking error: What the fund NAV and total return of the index indicate
VI. ETF provider: How to evaluate

I. PRODUCT STRUCTURE
There are several different investment techniques used by ETFs around the world. The three most common are: full replication through the purchase of physical securities; optimisation-based tracking through the purchase of physical securities; and synthetic replication through the implementation of total return swaps or other derivatives.

PURE ETFS (PHYSICAL HOLDINGS)
Full Replication
- The full replication approach using physical securities involves the manager purchasing all securities in the same weight as the underlying index. Over time, the manager then tracks changes in the index and manages cash flow from dividends. This strategy may therefore likely provide very close tracking with the underlying index. All assets are held in a custody account in the name of the shareholders of the fund.
Optimisation (or Representative Sampling)  
• The optimisation-based approach, or representative sampling, involves the manager using a sampling or ‘optimisation’ process to create a portfolio of physical securities that closely resembles that of the underlying index. The rationale for doing this is to control trading costs and promote liquidity, but such a structure might introduce a higher level of tracking error since it only covers a selection of the underlying benchmark. This could potentially miss some movements of the market of securities that are not included in the portfolio. All assets are held in a custody account in the name of the shareholders of the fund.

To date, all State Street Global Advisors’ (SSgA) SPDR® ETFs across the globe are supported by the physical replication model using either full or optimised replication and have an established track record spanning nearly two decades. During this period of time, which encompasses several prominent market disruptions, SPDR ETFs efficiently handled significant inflows and outflows and consistently delivered index-tracking performance. The skill and experience of the asset manager are key factors to providing a fund with low tracking error to its index.

Synthetic ETFs  
• The synthetic replication method is in the majority implemented through the purchase of total return swaps (there are fund structures in Hong Kong using notes to obtain index performance) where the provider enters into an agreement with one or more investment banks or counterparty. The counterparty agrees to deliver the return of the underlying index, typically minus a spread, in exchange for the performance of a pool of securities that is held in the name of ETF. Should the counterparty default, this collateral pool, or assets held, provides safety for investors in the ETF. To minimise the risks, some synthetic providers over-collateralise the swap and/or use multiple swap counterparties but rules vary by jurisdiction. A synthetic ETF should track the underlying index closely, but may also incur added hedging costs which may result in tracking error. In general, this type of ETF does not physically hold the index’s component shares and may further lend the collateral onwards, increasing the leverage of the underlying assets. The synthetic fund structure has been criticised for introducing opacity, complexity and credit risk to ETF products and offer potential systemic risks if misused. Figure 1 outlines the important differences between physical and synthetic ETFs while Figure 2 provides an overview on the key risks of investing in synthetic products that investors should consider.

### FIGURE 1: CHARACTERISTICS OF PHYSICAL VS. SYNTHETIC ETFS

<table>
<thead>
<tr>
<th>Features</th>
<th>PHYSICALS</th>
<th>SYNTHETIC ETFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange Traded</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Counterparty Risk</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Typically invests in securities included in the underlying benchmark</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Significant use of derivatives, swaps and/or futures on which ETF Performance is substantially dependent to achieve returns</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Transparency in underlying holdings in form of daily portfolio holdings</td>
<td>Yes</td>
<td>Depends on provider practice</td>
</tr>
<tr>
<td>May need to maintain unsustainable subsidies to counter performance in form of daily portfolio holdings</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Source: State Street Global Advisors, as of 31 May 2011.
Note: This is a general description of the ETF product landscape. Individual products may vary by local jurisdictions and provider policies.
SPDR ETFs do not presently offer any synthetic ETFs, but recognise that this structure may offer benefits to investors who are comfortable with the risk-return profile of these products - particularly as it relates to gaining access to asset classes that are not accessible through the physical replication model.

While there are benefits and risks to each approach SSgA does not believe that, in general, ETFs pose a unique systemic risk. However it is true that increased disclosure, greater transparency and improved investor education are vital to helping investors decide which financial products are most appropriate for their investment needs. Figure 3 outlines the differences between exchange traded products (ETPs), including ETNs and ETCs, and unlisted derivatives, outlining the features and benefits for each product structure.

**FIGURE 3: UNDERSTANDING HOW THE UNDERLYING STRUCTURE OF VARYING EXCHANGE TRADED AND UNLISTED PRODUCTS AFFECT ITS FEATURES AND BENEFITS**

<table>
<thead>
<tr>
<th>FULL REPLICATION</th>
<th>REPRESENTATIVE SAMPLING</th>
<th>SYNTHETIC REPLICATION</th>
<th>COMMODITY TRUSTS</th>
<th>FUTURES BASED COMMODITY ETCs</th>
<th>EXCHANGE TRADED NOTES (ETNs) AND CURRENCY ETFs (ETCS)</th>
<th>UNLISTED RETAIL DERIVATIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>All of the index’s securities are purchased in their respective weights.</td>
<td>A subset of physical securities that closely resembles the index.</td>
<td>Represent a derivative contract with a bank or other counterparty.</td>
<td>Physical commodities held by most Trusts.</td>
<td>Track commodity indices of futures contracts on physical commodities.</td>
<td>Standardised contract to deliver leveraged returns of shares (spread betting, contracts for difference (CFDs), covered warrants).</td>
</tr>
<tr>
<td>OWNERSHIP</td>
<td>Shares represent fractional ownership of assets held.</td>
<td>Shares represent fractional ownership of assets held.</td>
<td>Shares represent fractional ownership of assets held.</td>
<td>Asset backed bonds, fully collateralised.</td>
<td></td>
<td>Senior, unsecured, unsubordinated debt, issued by an underlying bank.</td>
</tr>
<tr>
<td>REGULATORY STRUCTURE</td>
<td>Open Ended Fund under Investment Company Act of 1940, UCITS Structure or other local regulated structure.</td>
<td>Generally a trust structure (e.g. Grantor Trusts under Securities Exchange Act of 1933).</td>
<td>Generally Open Ended Commodity Funds under Securities Exchange Act of 1934 or offshore legal structure.</td>
<td>Generally debt obligations registered under the Securities Act of 1933 or offshore legal structure.</td>
<td></td>
<td>OTC Derivatives.</td>
</tr>
<tr>
<td>BENEFITS</td>
<td>Closely tracks the return of the index.</td>
<td>Reduces operating cost and capital necessary from not owning every security in the index.</td>
<td>Provide lower cost of operation.</td>
<td>Typically backed by physical commodity in the name of the Trust.</td>
<td>ETCs track commodities - not commodity companies - and enable investors to gain exposure to commodities without trading futures or taking physical delivery.</td>
<td>Off er easy access to hard-to-reach assets such as currencies and countries that impose limits on foreign investment.</td>
</tr>
<tr>
<td></td>
<td>Transparent</td>
<td>Transparent</td>
<td>May offer access to assets that cannot be fully replicated.</td>
<td>Avoids the risk and cost of holding physical commodities for the investor.</td>
<td></td>
<td>Allows investor to speculate on rising or falling shares.</td>
</tr>
<tr>
<td></td>
<td>Clarity of ownership</td>
<td>Clarity of ownership</td>
<td></td>
<td></td>
<td></td>
<td>Avoids stamp duty.</td>
</tr>
<tr>
<td>LIMITATIONS</td>
<td>Can have higher costs due to trading costs.</td>
<td>Securities may fail to track the index resulting in tracking error.</td>
<td>Risk of re-hypothecation of collateralised assets</td>
<td>Normally cannot directly redeem shares for underlying bullion or precious metals.</td>
<td>Typical high tracking error to spot price due to contango and backwardation related to futures, leading to losses from rolling futures contracts in contango markets and gains in backwardated markets.</td>
<td>Not secured debt; there is no principal protection.</td>
</tr>
<tr>
<td></td>
<td>Not all asset classes can be covered.</td>
<td>Not all asset classes can be covered.</td>
<td>Credit risk</td>
<td>Counterparty risk</td>
<td>ETPs do not pay interest and the issuer is subject to default risk.</td>
<td>Retail derivatives are mostly unregulated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The use of derivatives results in credit risk.</td>
</tr>
</tbody>
</table>

Source: State Street Global Advisors, as of 31 May 2011.

Note: This is a general description of the ETF product landscape. Individual products may vary by local jurisdictions and provider policies.
II. INDEX METHODOLOGY

Investors should be sure the securities that comprise the benchmark match the exposure they seek. There may be several indices that cover the same market segment, for example one might track only a small segment of the market while the other may provide broader exposure and therefore hold a greater number of securities. This can result in differences in exposure and will almost certainly result in variations in performance between seemingly identical indices.

It is important to consider not only what the index is comprised of, but the methodology behind its construction. Historically, indices have used market capitalisation weighting, meaning that the constituent’s weight in the index is determined by their respective market capitalisation. More recently, proprietary indices have emerged using an assortment of different weighting techniques. Fundamentally-weighted indices that weight respective companies based on characteristics such as dividends, revenue or earnings have also been introduced.

WHY DOES THE INDEX WEIGHTING MATTER?

An index’s weighting methodology can lead to inconsistencies in performance and risk/return characteristics among seemingly similar indices. These inconsistencies may be driven in part by the sector weights that define each product. For example, financial companies are generally among the highest paying dividend components of an index. As a result dividend weighted indices tend to overweight financials, which is then reflected in the ETFs that are benchmarked to these indices. This type of ETF focuses on providing high dividends and historically has done so; however these differences in sector weights are important when considering performance from an attribution standpoint as well as for planning for a balanced portfolio.

Another consideration to be mindful of when evaluating an index is the breakdown between growth and value securities. An index or ETF that is fundamentally weighted by dividends may have an inherent bias toward value companies that pay a higher dividend. As a result, the performance between a fundamentally-weighted index and a market capitalisation weighted index tracking the same market segment could vary during a time when growth and value stock performance has deviated.

The same logic used to derive differences in growth, value and sector exposure can be used to help explain why an index’s market capitalisation distribution may vary depending on how the index is constructed. For example, in 2008 small cap stocks across the globe were crippled, only to rebound sharply in 2009 as credit and global equity markets stabilised. In markets where the small cap segment is outperforming, it can be expected that an equally weighted index and corresponding ETF may display parallel movements. However, in years when small cap names are out of favor, an index or ETF with a large cap tilt will better withstand downward pressure.

This is not to say that any one index or weighting methodology is superior to another, but it is critical that investors ensure that the exposure a given index provides aligns with the exposure they seek and the views they are trying to express. Figure 4 provides a number of mainstream index methodologies but in fact new ways of benchmarking, such as risk weighted and GDP weighted, have forayed into the marketplace.

FIGURE 4: UNDERSTANDING HOW INDEX METHODOLOGIES AFFECT FUND EXPOSURE

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARKET CAPITALISATION</td>
<td>Stocks are weighted by their representative market capitalisation</td>
</tr>
<tr>
<td>PRICE WEIGHTED</td>
<td>Stocks are weighted by their respective price per share</td>
</tr>
<tr>
<td>FUNDAMENTALLY WEIGHTED</td>
<td>Respective companies weighted by fundamental characteristics or factors such as dividends, revenue or earnings</td>
</tr>
<tr>
<td>EQUAL-WEIGHTED</td>
<td>All component stocks receive the same weighting</td>
</tr>
</tbody>
</table>

Source: State Street Global Advisors, as of 31 May 2011.
III. SECURITIES LENDING

Securities lending plays a major role in the efficient functioning of the securities markets worldwide. It can be an important and significant business practice whereby securities are temporarily transferred by one party (the lender) to another (the borrower). Most “physical” ETFs, such as SPDR ETFs in some regions, engage in securities lending programs, typically using a lending agent to lend a portion of securities in the ETF portfolio to brokers, dealers, and other financial institutions. Securities lending within the SSgA family of SPDR ETFs (where applicable) directly benefits shareholders, as the income it generates reduces fund expenses and improves index tracking after expenses.

Security lending programs are not new nor are they unique to ETFs. They are in fact a common practice for many traditional commingled and mutual fund offerings. Important measures are taken to ensure the safety of these programs associated with SPDR ETFs. For instance, SPDR ETFs participate in an indemnified securities lending program, which means that State Street Bank & Trust, the securities lending agent for SPDR ETFs, will indemnify the ETFs in the event of a borrower default. In addition, the operational procedures for share creation and redemption are designed to protect the interest of the fund’s shareholders by contractually requiring the fund’s Authorised Participants (i.e., approved institutional trader or market maker known as an “AP”) to represent that shares being tendered for redemption are settled shares in the possession of the AP or the client they represent. As such, a SPDR ETF is not directly impacted by the amount of lending in the secondary market (“short interest”) and cannot be redeemed for more than its actual shares outstanding.

Though they are widely available in many countries securities lending programs are still in their early stages in much of the Asia Pacific region, where SPDR ETFs do not currently engage in this practice. Details and risks of securities lending programs are disclosed in qualifying SPDR ETF Prospectuses/Product Disclosure Statements.

IV. TOTAL COSTS

The expense ratio is not the only cost associated with ETFs. Commissions and transaction costs apply when buying ETF shares on the secondary market. ETF shares trade throughout the day like any other stock on major exchanges. As a result, any commissions would be absorbed by the investor purchasing or selling shares.

The fund’s expense ratio and expected commission payments are costs that can be accurately forecast and, in some countries, are capped. However, as the next few paragraphs indicate, there are a number of less transparent costs that may arise from ETF transactions.

**BID/OFFER SPREAD AND LIQUIDITY**

The nature of ETFs can lead to implicit costs of investing. The primary implicit costs are trading costs and tracking error. Aside from commissions, the most obvious trading cost is the bid/offer spread. While some ETFs trade at spreads within a few basis points, other thinly traded ETFs may widen out. ETF bid/offer spreads are readily available through a variety of third party data sources or exchange websites. Since ETFs are open ended vehicles in which new shares can be created and old shares redeemed, it is also important to look at the underlying liquidity of an ETF’s constituents when evaluating execution cost. It is from these underlying securities that ETFs derive much of their natural liquidity. ETF sponsors should have an accessible capital markets team to help institutional investors navigate through the intricacies of trading their ETFs.

**PREMIUM/DISCOUNT TO NAV**

An ETF’s premium or discount is another element that should be considered in a thorough evaluation. The market price for an ETF reflects market supply and demand for an underlying product while the Intraday Indicative Value (IIV) or Intraday Optimised Portfolio Value (IOPV) is a signal of the underlying value of the securities in the fund. The creation/redemption mechanism is responsible for keeping the market price of the fund in line with the IOPV. For example, if an ETF’s market price was trading at a significant premium to the indicative value, an arbitrage opportunity may exist for the Authorised Participant (AP). The AP might be enticed to create more shares and capitalise on the difference. The existence of more shares in the market should cause the market price to come back into formation with the IOPV. However, in markets where pricing of the underlying securities in an ETF are dislocated, or illiquidity limits an AP’s ability to hedge their position, it can be expected that the ETF’s market price may drift further from the IOPV.
V. TRACKING ERROR

Tracking error is another important indicator of a fund’s overall quality. Investors using ETFs are looking for cost effective beta exposure to a desired market segment. Excessive tracking error can negate this fundamental purpose of ETF investing. Tracking error has many definitions, although the simplest is defined as the difference between a fund’s NAV performance and the total return of the underlying index. It is important to note that it is the fund’s NAV performance that should be considered, as opposed to the market price performance of the ETF. An investor’s cost basis for a share purchase is driven by supply and demand and cannot be used as an accurate assessment of how well a fund tracks its index. Depending on an investor’s time horizon, tracking error can be measured daily, monthly, quarterly or annually. For example, an investor actively trading ETFs would be more concerned with how an ETF tracks on a daily basis, whereas a long-term investor might only monitor a fund’s tracking on a yearly basis. In either case, funds with tighter tracking should have a competitive advantage.

ETFs that are fully replicated, such as some SPDR ETFs, can tend to exhibit low tracking error. However, ETF expansion has been propelled by growth in products offering access to more non-traditional markets that tend to exhibit greater market inefficiencies. ETFs that invest in these markets or asset classes may have a greater likelihood of exhibiting wider tracking error regardless of being invested in physical securities or in derivative contracts. In order to efficiently optimise a fund, the fund provider’s portfolio management history and skill play an important role as will any investment bank’s ability to provide synthetic exposure with low hedging costs. In general, an investment manager with a history of indexing strategies and the foundations in place to support ETF growth should have success transferring those skills to ETF management.

VI. THE ETF PROVIDER

With over 100 ETF sponsors globally, the evaluation of the provider is a necessary part of the process. There are a variety of characteristics to look for in an ETF provider:

- Company history
- Size and scale
- Commitment to the ETF industry
- Resources and distribution
- Portfolio management expertise
- Product support capabilities

A company with significant size and scale will more often have the product management capabilities already in place to support the development, management and distribution of an ETF. Sound product development, skillful portfolio management and widespread distribution capabilities provide a strong foundation for a successful ETF provider.

Sophisticated index portfolio management expertise has become increasingly important, as more ETFs are introduced that track indices which are more difficult to replicate. Replicating the risk/return characteristics of an index with thousands of issues takes extraordinary portfolio management skill, particularly in some of the more opaque and illiquid markets.

As the product landscape expands and products become more complex, so too can the investor’s due diligence responsibilities. To accommodate the investor, progressive ETF sponsors have dedicated resources to respond to client inquiries and requests for analyses. These resources can be helpful to the investor not only in helping to decipher the difference between similar ETFs, but also by offering a point of contact for potential questions that may arise.
CONCLUSION
As the industry expands, institutions, investment professionals, and retail investors have demanded and received a greater variety of ETFs to meet a broader range of objectives and risk tolerances. However, along with this evolution comes the growing complexity of ETF analysis, as ETFs that appear to represent the same market segment can sometimes look markedly different beneath the veil in terms of index methodology and product construction.

Ultimately, investors need to look beyond just the exposure of the underlying index when evaluating an ETF. Assessing critical factors such as tracking method, index methodology and overall cost are important in order to best determine whether the ETF fits the desired risk/return profile and investment objective of the investor. And perhaps most important is considering an ETF provider with a strong indexing history, deep portfolio management expertise and dedicated client service and support to help investors evaluate their options.

ABOUT SPDR® ETFS
Offered by State Street Global Advisors, SPDR ETFs are a family of exchange traded funds that provide investors with the flexibility to select investments that are precisely aligned to their investment strategy. Recognized as an industry pioneer, State Street Global Advisors created the first ever ETF in 1993 - the SPDR S&P 500®, which is currently the world’s largest ETF. SSgA introduced Singapore’s first local ETF when it launched the SPDR Straits Times Index ETF in 2002. Currently, State Street Global Advisors manages approximately US$260 billion of ETF assets worldwide.

For comprehensive information on our ETFs, visit us at spdrs.com.sg.
1 Bloomberg, as at 31 March 2011.


3 State Street Global Advisors, as of 31 May 2011.

4 Current lending policies for SPDR ETFs: Lending allowed in European UCITS funds and U.S. 1940 Act funds. SPDR ETFs do not engage in securities lending practices in Asia (Australia, Japan, Hong Kong and Singapore).

5 Bloomberg, as of 31 May 2011.

6 As of 31 March 2011. This AUM includes the assets of the SPDR Gold Trust (approx. US$56 billion as of March 31, 2011), for which State Street Global Markets, LLC, an affiliate of State Street Global Advisors serves as the marketing agent.

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ETFs trade like stocks, are subject to investment risk, fluctuate in market value and may trade at prices above or below the ETFs net asset value. Brokerage commissions and ETF expenses will reduce returns. Frequent trading of ETFs could significantly increase commissions and other costs such that they may offset any savings from low fees or costs. Diversification does not ensure a profit or guarantee against loss. Asset Allocation may be used in an effort to manage risk and enhance returns. It does not, however, guarantee a profit or protect against loss.

In general, ETFs can be expected to move up or down in value with the value of the applicable index. Although ETFs may be bought and sold on the exchange through any brokerage account, ETFs are not individually redeemable from the fund. Investors may acquire ETFs and tender them for redemption through the fund in creation unit aggregations only, please see the prospectus for more details.

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