

# **Exchange Traded Funds** and Index Funds



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## **EDITORIAL**

## **Dear readers**





Markus Fuchs

Markus Götschi

Use of ETFs and the number of products on offer has shot up in recent years. However, the idea of offering index funds dates back to the early 1970s. After the publication of Burton Malkiel's book 'A Random Walk Down Wall Street', Vanguard launched the world's first index fund, which tracked the performance of the S&P 500. This brochure on exchange-traded funds (ETFs) was initially published in 2008, and has now been updated in line with developments since. It focuses on ETFs set up in Switzerland or Europe, and contains the key information on exchange-traded index funds.

Traditional index funds have enjoyed a renaissance in Europe of late. Index funds that were once exclusively for institutionals are now being offered by their providers to private investors as well. Unlike ETFs, traditional index funds are not traded on an exchange. This development shows that the market for indexed products is functioning well, opening up new opportunities for institutional and private investors alike to implement their indexed investment strategies optimally. Certain sections of this brochure will therefore also cover index funds that are not traded on an exchange.

ETFs and traditional index funds have been popular as inexpensive, transparent, and liquid investments for some time. The following trends are likely to play a significant role in the development of the ETF sector going forward: (1) ETFs will continue to serve as building blocks for core exposures, (2) the investor base will expand, and (3) new opportunities for use will become increasingly important. These products are the most popular and cost-effective investment vehicle among smaller investors in the US, and will also continue to establish themselves with European savers.

Those that once voiced criticisms of ETFs have now largely fallen silent. That said, there are numerous challenges in store in the indexing segment, just as there are for active investment products. The discussion regarding alpha and beta returns will continue, and fresh demands will be placed on index products by regulators.

We hope you find our brochure interesting and informative.

Markus Fuchs

SFAMA Managing Director

Markus Götschi
Chairman of the SFAMA Specialist
Committee ETFs & Indexed
Investments

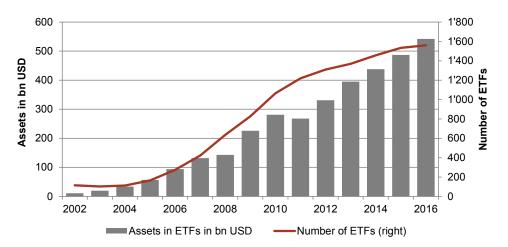
## **FACTS AND FIGURES**

USD 3,396 billion worldwide

## Impressive growth

Scarcely any other investment product in the financial world can boast higher growth rates in recent years than ETFs. At the end of December 2016, the volume of assets invested in ETFs stood at over USD 3,396 billion, with more than 100 fund companies offering a total of some 4,800 ETFs. In Europe, over 50 fund companies offer 1,560 ETFs with a total volume in excess of USD 542 billion. These are currently traded on 24 European exchanges – most of them also on the SIX Swiss Exchange, which offers investors a broad array of 1,200 ETFs covering a wide range of asset classes, regions, sectors and styles. By comparison, at the end of 2016 the volume of non-listed index funds in Europe stood at USD 596 billion .

**Chart 1: Growth of ETFs in Europe** 



Source: ETFGI, data as at end-December 2016.

The rapid growth in volumes and the number of products seen in recent years could continue for the time being. The current assumption is that growth in ETFs, both in Europe and globally, will remain at a similar level over the coming years.

## **ETFS - MULTIFACETED PRODUCTS**

#### **Passive investment**

#### **Definition**

An ETF is an investment fund that is listed on one or more exchanges and permanently traded, and most are passively managed. The vast majority of ETFs are index funds, which track an index as closely as possible. In other words, an index fund is a passively managed portfolio that seeks to replicate the risk and return characteristics of a specific benchmark index as precisely as it can. The characteristics of these portfolios include broad diversification, a low tracking error , and low-cost management. Statistically, over the long-term average they generate the return of the underlying market less costs.

## **Numerous advantages**

#### **Characteristics**

From the legal perspective, ETFs are investment funds. They have a wide range of advantages over other investment products in that they

- offer broad risk diversification,
- are completely transparent,
- offer a high degree of flexibility because they can be traded continuously on-exchange,
- are cost-effective,
- cover virtually all asset classes,
- are segregated pools of assets and thus offer greater security than other forms of investment.

Broad diversification and risk spreading

Unlike direct investments in individual securities, an ETF's basket of securities offers a simple means of ensuring broad diversification. According to portfolio theory, a systematically diversified selection of financial investments will achieve a higher return at the same level of risk than an intuitively diversified selection of investments. Investors can thus reduce the risk that individual investments will be too strongly correlated, i.e. that their performance will be too similar and thus lead to heavy overall losses for the portfolio in a downturn.

Transparency and precision of index tracking

The first objective of a passive ETF is to track an index (benchmark) as exactly as possible. While the success of an active portfolio manager is gauged primarily by their ability to outperform a benchmark, ETFs seek to have the lowest possible tracking error. The tracking error measures the quality of index replication, but does not give any information on whether the fund will perform better or worse than the index. Given that the goal is an optimal balance between tracking error and costs, there are different types of index tracking, as not all markets and all asset classes function according to the same principles. This is covered in more detail in the section on index replication on page 10.

# Well-known index providers

As a rule, the indexes used by ETFs are provided by reputable companies specialized in index calculation. The index universe has undergone massive expansion in recent years. In addition to the well-known blue-chip indexes (SMI, FTSE 100, DAX, S&P 500, EURO STOXX 50, etc.), there are a wide range of other indexes in virtually all asset classes. The most important index providers include:

- S&P Dow Jones Indices LLC
- FTSE Russell (owned by London Stock Exchange Group)
- MSCI Inc.
- STOXX Ltd. (owned by Deutsche B\u00f6rse AG)
- Bloomberg L.P. (Bloomberg and Bloomberg Barclays Indices)
- IHS Markit (Markit Indices)

#### Highly flexible

ETFs are traded during normal exchange hours. Investors thus benefit from efficient intraday price formation, which makes it possible to implement investment decisions at any time. An indicative net asset value (iNAV) is calculated for each ETF during exchange trading hours.

# Costs a convincing argument on a number of counts

As a rule, the management fees of ETFs are lower than those of actively managed investment funds. There are a number of reasons for this. Investors who invest in an actively managed fund expect it to generate excess returns. The fund manager therefore makes active investment decisions, which entails costs for research, as well as transaction costs incurred as the manager makes ongoing tactical shifts in the portfolio.

In the case of ETFs, both the transaction and management costs are comparatively modest. ETFs have low transaction costs because any transactions are usually triggered by changes in the index composition and dividend payments on the stocks held in the portfolio rather than by tactical decisions on the part of the portfolio manager. ETFs are also able to generate additional income through securities lending, which helps further reduce the net costs. When you buy and sell ETFs on an exchange, you pay the usual bank brokerage fees and stamp duty.

# Comprehensive range of products

There are ETFs for both the traditional (stocks, bonds, real estate including REITs, money market) and alternative asset classes (commodities/precious metals, private equity/venture capital). ETFs are mainly used to invest in specific economic sectors, investment strategies, commodities, bonds and also in traditional stock indexes for specific countries. ETFs on indexes in the alternative asset classes and those used to implement investment strategies are becoming increasingly popular, although the main focus is still on the developed and liquid markets.

#### Traditional asset classes

- Equities
- Bonds
- Real estate, REITs
- Money market

Alternative asset classes

- · Commodities/precious metals
- Private equity/venture capital

ETFs for implementing investment strategies

- Fundamental
- Value/growth
- Size
- Dividend yield
- · Inverse/leveraged

**Greater security** 

ETFs offer a greater degree of security than other forms of investment, because legally speaking they are separate pools of assets, just like traditional investment funds. This means that ETF investments are adequately safeguarded if the fund company defaults. This is an important advantage over certificates, which are debt securities and thus often entail an issuer risk that is hard to calculate. (For more details, please see the section on risks on page 12).

## Uses

In asset allocation

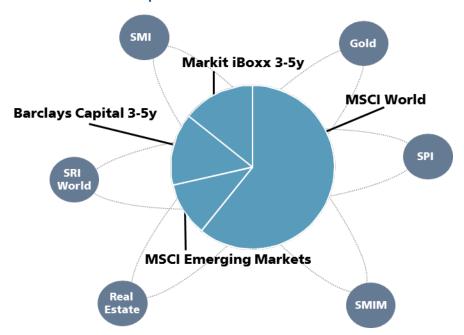
Professional asset management is based on the findings of modern portfolio theory. This means that a portfolio is put together in an overall context, and optimized in terms of its risk/return characteristics. Various empirical studies show that the strategic asset allocation is the determining factor for portfolio returns, given that the correlations between the different asset classes vary. Diversified access to markets and asset classes is crucial for an asset allocation. However, for many investors it was previously simply too difficult and expensive to acquire the large number of individual securities required for an efficient asset allocation. ETFs and index funds make this simpler.

The idea behind strategic asset allocation is to define the long-term investment strategy for a portfolio. This should then be implemented as simply and cheaply as possible, with ETFs or other indexed investment instruments. The primary aim of tactical asset allocation is then to harness short to medium-term trends. The possibility of trading on-exchange enables investors to use different trading strategies that can be implemented immediately thanks to the market makers guaranteeing a liquid market.

In a core-satellite portfolio

In core-satellite strategies, investors separate their core investment – the aim of which is to track the performance of their benchmark – from positions in the portfolio with which they want to generate alpha, i.e. outperform the market. Given their wide range of possible applications, ETFs and index funds can be used in both the core and the satellite portfolio. The core portfolio seeks to achieve the broadest possible diversification across the various asset classes. Here ETFs and index funds on standard indexes can play a particularly important role.

**Chart 2: Core-satellite portfolio** 



Source: SFAMA. For illustrative purposes only.

The broadly diversified investments in the core portfolio provide a basic return in line with the risk/return profile. At the same time, the investor makes focused tactical individual investments independently of the core portfolio. The volume of this satellite portfolio is significantly smaller, but the individual components entail higher risks. ETFs give an investor a simple means of building up diversified satellite positions in emerging markets, specific sectors or alternative asset classes, for example. They don't even need to have the in-depth knowledge of the individual markets that they would need to make the corresponding direct investments.

For hedging

For cash flow and transition management

ETFs can also be used profitably in declining markets. There are two ways of doing this. Firstly, if you have a corresponding agreement with your own bank, you can sell ETFs 'short'. For investors who cannot do this, there are also short ETFs.

ETFs are an ideal means of managing short to medium-term cash holdings. On-exchange trading allows you to flexibly increase and reduce cash positions. This means you can 'park' released assets for the short term, without having to miss out on returns which under certain circumstances may be attractive. ETFs can be used for transition management, enabling a portfolio to be invested in line with the market index without any major outlay during a change in manager.

As an alternative to index futures and index certificates

ETFs and index funds are the main alternative to exchange-traded index futures. Although futures as a rule offer a large degree of intraday liquidity, they do necessitate regular reinvestment, which entails costs. ETFs and index funds, on the other hand, are open-end products and have no fixed term. Unlike ETFs and index funds, futures are also only available for a limited number of indexes. By contrast with an index certificate — which is legally speaking a debt instrument - a key advantage of ETFs and index funds is that they are segregated pools of assets separate from the fund company, and are subject to regulation. All ETFs listed on the SIX Swiss Exchange are approved by the Swiss Financial Market Supervisory Authority (FINMA).

**Chart 3: Index products compared** 

	Liquidity	Legal form	Buying/ selling	Costs of carry	Eligible for len- ding?
Exchan- ge-traded funds	Mostly high	Fund/sepa- rate pool of assets	Brokerage	Total Expense Ratio	yes
Index certifica- tes	Depends on the market	Debt inst- rument	Brokerage	Total Expense Ratio	no
Index futures	Depends on the market and maturity	Derivative	Brokerage	Rolling costs (contango/ backwar- dation)	no
Index funds	Daily	Fund/sepa- rate pool of assets	Dilution levy	Total Expense Ratio	no

Source: D. Niedermayer and M. Wagner: "Exchange Traded Funds und Anlagestrategien" [Exchange-Traded Funds and Investment Strategies] financialmedia AG, 2012

#### **Investors**

Institutionals and private individuals

**Performance** 

How are index funds constructed? Three possibilities

**Full replication** 

Professional investors (pension funds, insurance companies, foundations, companies) use ETFs and index funds because they track selected markets precisely and transparently, making them an ideal instrument for a wide range of strategies. 70% of institutional investors in Europe already use ETFs and index funds in implementing their asset allocation (with 60% of investors using them for longer-term buy-and-hold investments). This was the finding of a study carried out in 2013 by the EDHEC Business School, Lille, which surveyed 207 professional investors in Europe. Private individuals can also use ETFs as an effective means of combining investments in different markets and asset classes.

The performance of an ETF depends on a number of different factors. The first of these is the performance of the index. Other factors include the incurred management costs (total expense ratio or TER), transaction costs (bid/ask spreads), replication technique (physical or synthetic), withholding taxes incurred on dividends (double taxation), and securities lending. Depending on the mix of these factors, the performance of ETFs on the same index can differ from fund company to fund company. It is therefore possible for ETFs on the same index to have slightly different performances. However, any differences are generally minor and not as pronounced as with actively managed funds.

## **Index replication**

Index funds seek to track a benchmark index as exactly as possible. Unlike actively managed funds, which try to achieve a better return than their benchmark through the selection of securities, index funds passively follow an index. As demand for index funds rises, investors are increasingly having to acquaint themselves with the different index replication techniques. The three main techniques are:

- full replication
- optimized sampling
- · synthetic replication

In the case of full replication, the ETF buys all the securities featured in the underlying index. In the past, this approach was predominantly used for indexes with large-cap, readily accessible stocks (e.g. SMI, SLI, DAX, DJIA or EURO STOXX 50). With broadly diversified indexes containing small & mid caps, this approach can be beyond the means of ETFs with only modest assets given the higher transaction costs and restrictions on market access.

#### **Optimized sampling**

Synthetic replication

#### **Potential risks**

Status as separate pools of assets

Certain ETFs use synthetic replication, although this is less widespread among traditional index funds. With this technique, the ETF invests in a representative selection of the securities contained in the index on the basis of mathematical optimization models. The optimized basket of securities is put together to keep the tracking error of the ETF relative to the benchmark as low as possible. Optimized sampling is predominantly used by ETFs with modest volumes of assets under management that have to cover broad indexes, e.g. the MSCI World, MSCI Emerging Markets or other emerging market indexes, as well as indexes for small-cap stocks. As a rule, an ETF that uses this technique will have a higher tracking error than one that uses full or synthetic replication.

With this technique, the ETF invests in a broadly diversified basket of securities equivalent to at least 90% of the fund's assets. This basket may deviate from the index to be tracked. In addition to this, the ETF enters into a swap transaction with a counterparty, in most cases an investment bank. In this transaction, the ETF swaps with the counterparty the return of the basket of securities held by the fund in exchange for the return of the index to be tracked, including dividends. The ETF thus transfers the tracking error risk to the swap partner.

Since this risk is outsourced to an external party, this technique makes it possible to cover both blue chip indexes such as the EURO STOXX 50 and DAX, and very broad indexes such as the MSCI World.

### **Risks**

As with any investment, investors in ETFs have to be aware of the potential risks involved. The most important risks to consider are the market risk, the tracking error risk, the counterparty risk, and liquidity risks. ETFs are transparent products that enable investors to be clear at all times about the risks they are undertaking.

As collective investment schemes, ETFs are separate pools of assets. In the event of the insolvency (bankruptcy) of the provider (e.g. the fund management company or custodian bank), the assets and rights of the ETF can be segregated, and there is no issuer risk in this regard. It is different with certificates, which are legally speaking debt instruments. In addition to the market risk, these are also subject to a counterparty risk that is often difficult to gauge. As a result, in a financial crisis the value of the certificate can deviate significantly from the value of the underlying, with a rising risk of default resulting in a risk discount on the price of the certificate. In extreme cases, there is even the threat of total loss. However, some certificates and exchange-traded commodities are backed with securities, physical commodities, and guarantees to reduce the issuer risk.

#### **Different constructions**

Not all ETFs are set up in the same way. ETFs that track indexes directly via securities (i.e. full replication and optimized sampling) have different tracking error characteristics. As a rule, ETFs that use an optimized sampling technique have a higher tracking error than those that use full replication. With these ETFs, the securities held by the fund can also be lent to generate additional income for the fund.

Meanwhile, the issuers of ETFs that use the synthetic replication technique conclude an agreement with an investment bank to swap the performance of a basket of securities against that of the index in question.

Liquidity is a key advantage, particularly in difficult times. In fraught market phases, it is hammered home to investors just how important it is to be able to adapt your portfolio quickly in line with market developments. ETFs have proven their advantages, especially in times of crisis. Investors appreciate the high level of transparency they offer, and the fact that ETFs clearly separate market and credit risks.

## TRADING AND SETTLEMENT

Primary and secondary market

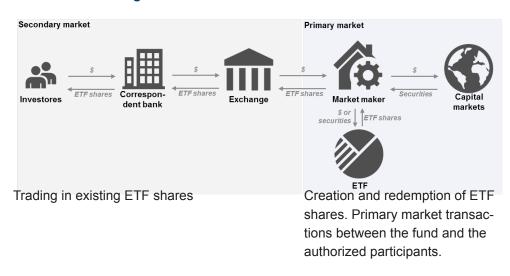
**Smart mechanism** 

## **Two-tier trading**

As shown in chart 4 below, trading in ETF shares takes place on two levels, the primary and the secondary market. On the secondary market, i.e. on the exchange, investors buy and sell ETF shares directly via their brokers and correspondent banks (for more details, see the section on ETFs on the SIX Swiss Exchange on page 14).

ETFs are a clever combination of closed-end and open-end investment funds. Like closed-end funds, the shares of ETFs can be traded on an exchange. Investors therefore buy their shares on the secondary market rather than from the fund company. There is a creation/redemption mechanism that covers costs and prevents the price of ETF shares from deviating from their net asset value, a phenomenon that is often observed with closed-end funds. If an ETF share price is above its NAV, so-called authorized participants can deliver stocks or cash to the fund and sell the newly created ETF shares on the market, forcing the price back down towards the NAV. If an ETF is trading below its NAV, arbitrage kicks in in the other direction. In such instances, the authorized participants buy ETF shares on the secondary market and return them to the fund for redemption against securities or cash, which again brings the price back closer to its NAV. This mechanism prevents the ETF from building up a premium or discount relative to its net asset value. Investors can thus be sure that they are always buying or selling ETF shares at close to their fair value.

**Chart 4: ETF trading and settlement** 



Source: SFAMA. For illustrative purposes only.

#### Liquidity

OTC transactions for institutional investors

The spread between the bid and ask prices of an ETF on the exchange, which is constantly guaranteed by the market makers, depends solely on the liquidity of the securities in the index tracked by the ETF. The rule of thumb is that the more liquid the securities in the index, the narrower the bid-ask spread of the ETF is. ETFs are therefore also highly liquid financial instruments, even if the fund in question does not have a high exchange turnover.

In addition to traditional on-exchange trading, institutional investors also have the option of trading larger orders of ETF shares directly via market makers. As well as working with traditional market makers, ETF providers also work with authorized participants that do not necessarily have a market making obligation on the exchange, but that can engage in primary market transactions in the fund. In the case of over-the-counter (OTC) transactions, there are two distinct types of settlement: traditional OTC trading and OTC trading at the official NAV of the ETF. Traditional OTC trading takes place directly between an authorized participant and the institutional investor or their custodian bank.

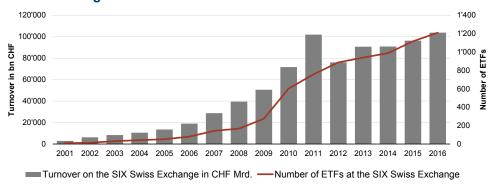
By contrast, in OTC trading at the official NAV of the ETF, an institutional investor can also have new fund shares created or redeemed on the primary market via an authorized participant. In this instance, the investor profits from the absence of the bid-ask spread set on the secondary market, but bears the risk that the performance of the index underlying the ETF might be unfavorable from their perspective by the official close of trading.

## **ETFs on the SIX Swiss Exchange**

Trading turnover and available asset classes

There has been an ETF segment on the SIX Swiss Exchange since 2000. An ETF can only be listed there if it has been approved by FINMA for official distribution in Switzerland. With over 1,200 ETFs (12 of them actively managed) available on the SIX Swiss Exchange, investors can choose from a wide range of products covering different asset classes, regions, sectors and styles. Trading turnover posted a year-on-year increase of more than 7% in 2016, recording a record high of CHF 104 billion. A total of 214 new ETFs from 23 providers were listed on the SIX Swiss Exchange in 2016, with 21 official market makers ensuring liquidity.

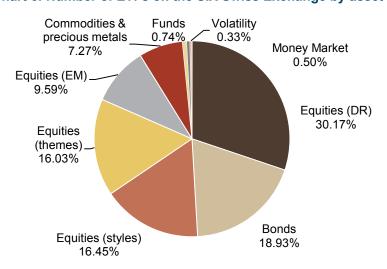
Chart 5: ETF trading turnover and the number of listed ETFs on the SIX Swiss Exchange



Source: SIX Swiss Exchange, data as at end-December 2016

While the majority of ETFs launched in the initial phase were on recognized blue-chip indexes, from 2006 on it has been mainly products on emerging market indexes, themes and investment styles. There have also been more and more products on other asset classes such as commodities, precious metals, real estate, private equity and bonds coming onto the market. The latest additions are alternative beta ETFs on US and EMU shares (factors such as low volatility, value, quality, and yield). Currency hedging is another key area.

Chart 6: Number of ETFs on the SIX Swiss Exchange by asset class



Source: SIX Swiss Exchange, data as at end-December 2016

Many of the products admitted to the SIX Swiss Exchange are traded in the fund currency, which can be a particular advantage for institutional investors. This means, for example, that investors do not need a currency swap in the trading currency, and that the bid/asked spreads on the exchange are narrower since the exchange rate does not need to be taken into account. At present there are products in CHF, EUR, USD, JPY, GBP, SGD, AUD, and CAD.

## **Market Making**

Market makers on the SIX Swiss Exchange sign a contract in which they undertake to provide binding bid and ask prices on an ongoing basis for a defined minimum volume throughout the trading hours from 9:00 a.m. to 5:30 p.m. They must also provide good-quality spreads, as the narrower the spread, the lower the implied transaction costs for investors. To protect investors, FINMA has defined maximum deviations for bid/ask prices (spreads) in Switzerland, and the quotes provided by market makers must remain within these limits. The SIX Swiss Exchange monitors these quality standards.

## TRENDS AND OUTLOOKS

#### **Sustained growth**

All over the world, the range of ETFs on offer is growing in line with their popularity, and investors now have a comprehensive range to choose from. In addition to traditional ETFs on equity indexes, there are also a growing number of ETFs covering other asset classes such as bonds, the money market, private equity, themes with long-term relevance (water, agriculture, and clean energy), commodities and precious metals.

Investors' desire for the greatest possible security has led to a sharp rise in demand for precious metals, and precious metal ETFs in particular. Added to the security of an investment fund, an advantage of precious metal ETFs is that on payment of a premium the investor can also at any time claim delivery of the precious metal (e.g. gold, silver) from the secure safe it is stored in. Precious metal ETFs invest fully in the underlying metal, and thus replicate the price trend. It is with these products in particular that the advantages of ETFs fully come to the fore. Precious metal ETFs are not only extremely cheap and simple to buy compared with direct investments. The fact that they can be traded throughout the day means they are generally also very liquid and therefore enjoy broad acceptance among investors.

Meanwhile, on the investment side, core-satellite and multi-asset strategies are becoming increasingly widespread in asset management, which is leading to a steady rise in the use of passive investment instruments, and ETFs in particular. The professionalization of the offering for private investors, the use of ETFs in discretionary mandates, and the trend towards regulated investment products will also contribute to the growth in ETF volumes going forward.

Broader spectrum of indexes

Among equity indexes there is a discernible trend towards more active indexes, i.e. indexes implementing a defined investment strategy rather than tracking a market. The weightings of the most popular traditional equity indexes are based on market capitalization, and only take account of the free float. The better a stock's valuation, the more heavily it will be weighted in the index. The result is that in booming market phases, stocks that are rising sharply have increasingly heavier weightings, and cheaper shares fall further behind. Unlike traditional indexes, fundamentally weighted indexes are structured by determining the fair value of the company and are designed to avoid cluster risks. Here weightings are based on corporate data such as sales, cash flow, dividends, and book value, and are not dependent on fluctuating market valuations.

Dividend strategy indexes focus on stocks with strong dividends, and generally have the word "dividend" in their names. Companies are only admitted to these indexes if they pay out the bulk of their profits, paid a dividend in the previous year, and post dividend growth.

In the case of ETFs on leveraged indexes, or bull indexes as they are also known, the index – and thus by extension the value of the ETF – increases disproportionately to the performance of the underlying market. ETFs on short or inverse

## **Transparency of investment products**

indexes allow investors to also profit from falling share prices. There are also ETFs on the market that specialize in value or growth companies.

Market turbulence has prompted a rethink on the part of investors, above all with regard to the transparency, counterparty risk, structure and liquidity of the investments they choose.

Counterparty risks are being examined much more keenly, and people are placing much greater emphasis on the liquidity of the products in which they invest.

Investors are increasingly focusing on the cost transparency, risks, and earnings of alternative forms of investment. This is an environment in which ETFs can play to their strengths. ETF volumes are also expected to increase rapidly over the coming years, with the highest growth rates coming in Europe and Asia. Transparency remains one of the core issues for investors on a number of different fronts: transparency on costs, on the securities contained in an ETF, on pricing, and on the construction of the products themselves.

Traditional index funds that were once exclusively available to institutional investors have recently been opened up by their providers to private investors. Although traditional index funds cannot be traded during exchange hours, they nonetheless offer certain cost advantages compared with ETFs when it comes to trading. For example, subscriptions and redemptions of Swiss-domiciled index funds are exempt from stamp duty. The extended selection of index funds has enriched the range of indexed products on offer to private investors. Depending on the benchmark and the investment period, an ETF or traditional index fund can be more advantageous for the investor.

## **Further information online**

There is a wealth of information on ETFs available on the Internet:

- Swiss Fund Data: http://www.swissfunddata.ch/index.html
- SIX Swiss Exchange: <a href="http://www.six-swiss-exchange.com/participants/tra-ding/etf">http://www.six-swiss-exchange.com/participants/tra-ding/etf</a> funds en.html

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## **Publishing information**

**Publisher** 

Swiss Funds & Asset Management Association SFAMA Dufourstrasse 49 Postfach CH-4002 Basel Phone +41 (0)61 278 98 00 Fax +41 (0)61 278 98 08 www.SFAMA.ch office@SFAMA.ch

Layout

**SFAMA** 

**Authors** 

SFAMA Specialist Committee ETFs & Indexed Investments

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