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Smart Beta ETFs: Adding Value for the ETF Investors?

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Bachelor of Business Administration

European Management

Thesis

15.4.2014

Author(s) Title	Joonas Haakana Smart Beta ETFs: Adding Value for the ETF Investors?
Number of Pages Date	57 pages 15 April 2014
Degree	Bachelor of Business Administration
Degree Programme	European Management
Specialisation option	Finance & Banking
Instructor(s)	Kevin McIntire (Lecturer)
<p>This paper has been written in order to provide an understanding of a financial product concept called smart beta exchange traded funds (ETF). As this particular financial product is a rather recent development, it is crucial to reveal certain factors, which are affecting on the ETF markets globally.</p> <p>The thesis provides a comparison between the smart beta ETFs and traditional market capitalisation (market value) ETFs. The paper discusses whether the new innovation is worth investing in or if a traditional ETF outperforms the smart beta strategies. Firstly, the comparison starts by introducing several indexes applying the smart beta strategies. When the ETFs are tracking indexes, it is vital to have an idea how the system works at a basic level. In addition to introducing the indexes, the paper continuously compares the smart beta concept with the traditional market capitalisation approach. Secondly, the actual smart beta ETFs applying the strategies are considered. Each ETF is evaluated according to the overall performance with a comparison to the underlying index and to the traditional ETF.</p> <p>The actual research question of the paper is: "Do the smart beta ETFs add value for the ETF investor?" Due to the short track records of the funds applying the strategies and the lack of academic papers, it is motivating to dig into the subject and reveal points, which make the difference in between the two product types. The paper is not trying to convince an investor to invest in the smart beta strategies, but trying to raise a point why or why not it would be profitable to take advantage of smart beta ETFs. By critical data selection and analysis, the thesis offers an opportunity for the reader to make their own conclusions when answering the research question.</p> <p>The preliminary results indicated by the analysis are not unambiguous. Generally, indexes following the smart beta strategies are outperforming the market capitalisation indexes to which they were compared, but smart beta ETFs are not as clearly beating the traditional ETFs. Each strategic approach of the smart beta ETF has their own strengths. One approach may reduce the volatility of the fund, whereas the other accepts more risk to generate above average returns. The paper turns ever stone to answer for the question if the smart beta ETFs add value. At least, the paper 's analysis indicates strong characteristics of smart beta ETFs ability to generate alpha.</p>	
Keywords	ETF, smart beta, index, fund, fundamental, strategy

Contents

Glossary of terms	1
Table of Abbreviations	7
List of tables and figures	8
1 Introduction	9
1.1 Aims and objectives	9
1.2 Methodology	10
1.3 Limitations	10
2 Literature review	12
2.1 Efficient Market Hypothesis	12
2.2 Portfolio Theory	14
2.3 Capital Asset Pricing Model	15
2.4 Theory framework	16
3 Product concept	17
3.1 Beta	17
3.2 Smart beta	17
3.3 Exchange Traded Fund	20
3.4 Background for the product innovation	21
3.4.1 Market characteristics	22
3.4.2 Regulatory impact	23
3.4.3 Demand for smart beta	23
4 Analysis – Strategies and Indexes	26
4.1 Equal weight approach	26
4.1.1 Equal weight index	28
4.2 Low volatility approach	30
4.2.1 Low volatility index	32
4.3 Fundamental weight approach	35
4.3.1 Fundamental index	36

5	Analysis – ETFs	39
5.1	Equal weight ETF	39
5.2	Low volatility ETF	40
5.3	Fundamental ETF	41
5.4	Expenses ratio and fund size	43
5.5	Results	45
6	Conclusion	48
	References	50

Glossary of terms

Active fund management*

Fund manager making investment decisions outside of the benchmark to improve the performance of a fund according to own judgements

Alternative investment fund managers´ directive

Regulatory framework introduced by European Commission to monitor risks around the alternative investment products, such as hedge funds. The target is not the products itself but the investment / fund managers (Financial Times Lexicon, 2013)

Asset backed security*

Similar to mortgage backed security, instead of mortgage the security is backed by a loan, lease, royalty or company receivable

Asymmetric information*¹

Setting of a transaction when other party has more related information as the other party

Back-tested*

Technical simulation of a trading strategy to use historical data to examine the successfulness of a strategy

Bandwagon effect

Market situation when investors are making investment decisions purely according to the others.

Basel III

Accord to improve the risk management in banking sector globally. Regulating banks to maintain sufficient level of capital requirements and reasonable level of leverage

¹ * Investopedia source

Basis point²

1/100 of 1%

Bear market*

Down sloping market situation where the prices of the securities are decreasing and many market participants are selling the investments. Minimum of two months period

Benchmark*

In this paper referred to as an index. Index fund or an ETF tracking an index and measuring the performance against an index

Book value*

The value that an asset possess on the balance sheet

Bull market*

Positive market condition when the prices of the securities are rising. Opposite of bear market

Collateralised debt obligation*

Fixed income structured financial product pooling bonds, loans and mortgages together to be sold for the investors

Corporate lending fund*

Group of lenders collecting certain funds to distribute a loan for a borrower

Cost of capital*

The cost of funds used for financing a business

Derivative*

Financial security representing a contract. The value is determined by the changes in underlying assets such as, shares, indexes, interest rates and bonds

² * Investopedia source

Economic value*

The maximum amount an investor is ready to pay for a security in a free market. In contrast, market value represents the minimum value an investor would pay

Fundamental analysis*

Studying economic, qualitative and quantitative factors to evaluate a security's intrinsic value. The goal is to have a comparison with security's market value and whether it is underpriced, at par or overpriced

Growth stocks*³

A company's stock, which is forecasted to score earnings higher than the market average

Initial public offerings*

First time sale of the stocks for the public or an offering of the stocks by a firm to become listed in stock exchange

Institutional investor*

An institution such as a pension fund or an insurance company, which is trading large volumes to be treated with lower fees and commissions

Large capitalisation*

Large market capitalisation. A firm belongs to the category when the market value exceeds USD 10 billion

Leveraging*

Using several financial instruments, such as options and futures, to boost the return of an investment. Leveraging increases remarkably the risk of an investment

Liquidity*

Capability to convert an asset into cash within a short period. Measured by using liquidity ratios, such as current ratio and quick ratio

³ * Investopedia source

Market capitalisation*

Price of a share multiplied by the number of shares outstanding represents the market capitalisation, or value, of a company. Commonly used to measure the size of a firm

Market premium*

= Return expected from the market – risk free rate

Markets in financial instruments directive*

European Union's directive to improve transparency and financial companies' capital requirements

Mergers and acquisitions*

Merger stands for a consolidation of two separate entities, whereas acquisition represents a purchase of a firm by other company

Mortgage backed security*

Security paying monthly payments, which is secured by a mortgage or a pool of mortgages denominated by a financial institution

Overvalued stock*

When an investment or a security has assumed to be sold over its intrinsic value and expected to fall in price. Investors are trying to avoid

Passive fund management*⁴

Fund management based only on benchmark tracking

Packaged retail investment products

European Commission's directive to protect retail investors and ensure markets working efficiently (European Commission, 2014)

⁴ * Investopedia source

Quantitative investment strategy*

Investment strategy relying on mathematical calculations to identify investment opportunities

Renminbi qualified foreign institutional investor*⁵

A licence nominated by China Securities Regulatory Commission, which enables foreign investors to invest in Chinese securities market

Retained cash flow*

Excess cash after company's cash expenses and dividend payments

Risk free rate*

Expected rate of return for an investment with theoretically no risk. Generally considered example would be three-month US Treasury Bill.

Risk premium*

Risk premium on a security compensates an investor of the extra risk taken, compared to the risk free rate

Sharpe ratio*

A ratio measuring the risk-adjusted performance, telling for an investor if the returns on a portfolio are result of good investments or result of excess risk

Short selling*

Investment method to sale a security, which is borrowed from another party in order to earn profit when the price of a security is expected to decline

Small capitalisation*

Small market capitalisation. A company having the market value between USD 300 million and USD 2 billion. Though, the definition may vary between the operators

⁵ *Investopedia source

S&P 500

World's most used and followed index

Stock splits*

When a firm splits its existing stocks into multiple ones, usually into two or three

Systematic risk*⁶

Also called market risk. Systematic risk cannot be fully eliminated from a security or a portfolio by diversification

Technical analysis*

Method to forecast future performance, for example of a security, by analysing historical data

Time value of money

Money today is worth more than money tomorrow

Undervalued stock*

When an investment or a security has assumed to be sold under its intrinsic value. May be determined by analysing fundamental factors. Attractive for investors

Undertaking for collective investment in transferable securities*

Form of a company, which manage and distribute investment funds inside the Europe

Unsystematic risk*

Also called specific risk. By diversification of a portfolio overall risk can be mitigated

Value stock*

Stock that has considered to be traded with a lower price as it would be according to the fundamental factors, such as sales, dividend or retained earnings. Value investors refer to value stocks as 'under-priced'

⁶ * Investopedia source

Table of Abbreviations

ABS - Asset backed security

AIFMD - Alternative investment managers' directive

AUM - Assets under management

CAPM - Capital asset pricing model

CDO - Collateralised debt obligation

EMH - Efficient market hypothesis

ETF - Exchange traded fund

EWE - Equal weighted ETF

FNDX - Schwab fundamental U.S. large company ETF

FTSE - Financial Times Stock Exchange

FULC - Fundamental U.S. Large Company

Large cap - Large capitalisation

Market cap - Market capitalisation

MBS - Mortgage backed security

MiFID II - Markets in financial instruments directive

NAV - Net asset value

PRIP - Packaged retail investment products

RQFII - Renminbi qualified foreign institutional investor

S&P 500 - Standard & Poor's 500

S&P 500 EWI - Standard & Poor's 500 Equal Weighted Index

Small cap - Small capitalisation

SPDR - Standard & Poor's Depository Receipts

UCITS - Undertaking for collective investment in transferable securities

YTD - Year to date

List of tables and figures

Figure 1. - Growth of smart beta funds 2009-2014

Figure 2. - The most popular stock exchanges for ETF listing

Figure 3. - Evolution of indexing

Figure 4. - Average monthly returns for portfolios formed on the basis of size in 1963-1990

Figure 5. - Historical performance of S&P 500 EWI and S&P 500 indexes

Figure 6. - Annualized volatility indication of FTSE 100 Minimum Variance Index and FTSE 100 benchmark index

Figure 7. - Historical performance of FTSE Minimum Variance and FTSE 100 indexes

Figure 8. - Performance of Russell Fundamental U.S. Large Company, Russell 1000 and Russell 1000 Value indexes between 1996-2013

Figure 9. - Performance of iShares FTSE 100 and Ossiama FTSE 100 Min Variance ETFs

Figure 10. - Performance of FNDX fund, index and large value category

Figure 11. - Performance comparison between SPDR Russell 1000 ETF and Schwab Fundamental U.S. Large Company Index ETF

Table 1. - Indicating how low volatile stock have scored better risk/return ratio compared to more volatile stocks in S&P 500 index between 1980 and 2011

Table 2. - Ten largest ETFs globally listed

Table 3. - Ten largest smart beta ETFs globally listed

1 Introduction

While working as a market research analyst for the asset management and banking sectors, the interest in financial product development and innovations was aroused. Working on a daily basis with a variety of databases and information related to the financial products, such as ETFs, ultimately led to the point when the subject of the paper was decided.

Smart beta as a product concept is today's relevant subject area, which is not yet very well known among the general public, investors. The lack of previous research conducted on the concept made it more fascinating to accept the challenge and to investigate the entirety of the smart beta world. As the ETFs are having major markets globally, the relevance of the comparison with the particular product category is well supported. Very recent inception of many smart beta funds force the paper to use data from a short period of time, but enables the analysis to give a perspective of the direction and the trends where the development is heading to. The paper is digging into several sub-categories to prime the reader with no earlier experience of the investment products. This allows each reader to create an individual opinion towards the subject area and to criticise the results of the paper.

1.1 Aims and objectives

The generic goal of the paper is to answer to the research question: "Do the smart beta ETFs add value for the ETF investors?" Several aspects and objectivity in the conclusion enable the reader to build own opinion in the end of the paper. Specific information and questions are presented to lead the reader on the right track closer to the final results. Measurable data is provided throughout the paper and analysed, to point out the principal idea behind certain asset-related values. The goal is not to tell the reader how to earn a fortune with smart beta ETFs, but to give a realistic idea of the capabilities and current state of the concept compared with the traditional ETFs. Time constrain is rather early for the subject area, when the smart beta products have often rather short records of performance. Due to the fast evolution of smart beta, it is essential to follow up the performance records to maintain realistic view of concept.

1.2 Methodology

The paper has been built by using a variety of sources. Literary sources are based on the academic journals, which are concentrating on a more in-depth view of financial theories and several approaches applied to the smart beta concept. Academic journals are introducing more advanced knowledge and research, which have been carefully selected to reflect to this paper's analysis. The academic references might date back decades, but are still highly relevant in the area of the paper's subject. Electronic resources represent the majority of the references. Due to the recent development of the topic area, there has not yet been written any applicable bibliographic publications accessible for the writer. Most of the information used is based on the articles, surveys and financial news. To support the text analytics, figures are created to yield further understanding of the text.

Quantitative data has been collected to present descriptive statistics. Electronic sources, such as databases and data available in various publications are the base for the quantitative information introduced in the paper. Due to the varying methods of calculations, such as the size of European ETF industry, data has been criticised. Because of the risk of data manipulation in various sources, the data applied in the paper has been compared with trustful sources and analysed further by the writer of this paper. The basic analysis calculations have been used for the data collected. Performance, volatility and several ratios are analysed by the changes in percentages, average values, growth rates, correlations and other ways of text analytics. Mostly, the data analysis has been conducted by Excel. Historical data provided has been used to analyse the current state of the subject and to predict the future trends.

1.3 Limitations

Data presented throughout the paper is relying on the carefully selected sources, if not analysed by the writer. Partially, the data applied in the paper has been collected from product providers, which need to be approached with scepticism towards the reliability. To mitigate the lack of objectivity regarding the data, the data used in the paper has been compared with the other sources or analysed by the writer if necessary. Financial news providers, such as Bloomberg and Morningstar, are treated as objective sources of

information. Article references used are often representing an opinion of an author of the certain text and used in this paper to offer differing aspects related to the matter of subject. The opinions are further analysed to compare the varying arguments of the sources.

2 Literature review

To be able to apply theoretical views and opinions related to the paper's subject, it is highly relevant to introduce few of the financial theories, which are commonly recognised and used. To answer for the paper's research question: whether the smart beta ETFs are adding value for the ETF investors or not, the following theories are supporting the structural differences between the ETFs and the new smart beta ETFs. The theories introduced will help the reader to understand more thoroughly the basis for the financial product development and how accepting or ignoring the generic theories effect on the performance or the volatility of a fund.

2.1 Efficient Market Hypothesis

Eugene Fama introduced efficient market hypothesis (EMH) in 1965, which revolutionised the thinking of financial markets. Later on the theory has been generally referred to be the base for most of modern financial theories. Burton Malkiel (2003:59-82) explains Fama's theory to define the financial markets to be a hub for the investors who are fully rational and risk averse. The investors are actively trading to reach the maximal profits with as little risk as possible. Trading is based on the market information, which is available for all the investors simultaneously.

Fama (1970:383-417) strongly argues that the securities market is extremely efficient in reflecting information to individual stock prices and to a market as a whole. The information that gets announced reflects on the stock prices without a delay and this is one of the elements that make the markets efficient. Burton Malkiel is supporting the efficient idea of information in 'Random Walk Down Wall Street' (1973). Malkiel states that today's stock price is reflected to the information of the same day and the next day's price is not linked to the information from the past day. When the news is unpredictable, the movements in stocks' prices are random and unpredictable as well. So forth, uninformed day traders purchasing diversified portfolios should get the same returns as the expert traders, according to theory.

Neither technical analysis nor fundamental analysis would help the investors to achieve any greater returns than randomly selected portfolio with the same risk accepted (Fama,

1970:383-417). However, in the beginning of 21st century economists started to counter argue that the stock prices are to some extent predictable by technical and fundamental analysis. The rising school of behavioural economics and finance emphasised the psychological and behavioural factors in future stock price determination (Malkiel, 2003:59-82). Efficient market hypothesis describes markets to be efficient even if all the investors are not rational and prices of the stocks experience stronger volatility than fundamental analysis may explain. Fama argues as well that the stock prices do not have a memory, which eliminates the ability to predict the market behaviour based on the past performance.

Eugene Fama (1998:283-306) conducted an event study where he was doing additional research whether the stock prices respond efficiently to the information on the market or not. Based on the study, result indicated that the under reaction for the information (e.g. merges and acquisitions, initial public offerings and stock splits) is as normal as over reaction. The study result can be supported by actual events on the market. In 1990s US stock market rise was fuelled by bandwagon effect, which means that individual investors started to follow up warding market trend and simply followed the mass regarding the trades. The event resulted in tremendous rise of the markets and proven how psychological behavioural may lead to irrational market situation. (Malkiel, 2003:59-82). Kahneman and Tversky (1979:91-263) state that: "Investors are systematically overconfident in their ability to forecast either stock prices or future corporate earnings". In contrast, investors have a tendency to underreact the market information, which leads to only a grasp of information adopted and to a series of positive stock prices (why not negative impact on stock prices as well). These events are called as short-term momentums. DeBondt and Thaler (1985:793-805) support the idea of irrational market momentums by arguing that: "Investors have 'waves' of optimism and pessimism. This causes stock prices to deviate systematically from the fundamental value and later on return to the normal level". Efficient market hypothesis admits that at the market there exist irrational participants, which cause short-term momentums and anomalies in stock prices.

2.2 Portfolio Theory

The father of the modern portfolio theory is Harry Markowitz, who launched the idea of efficient portfolio creation in his book 'Portfolio Selection' (1952). The main hypothesis of the portfolio theory is that expected portfolio return on a certain portfolio should be maximised or alternatively, the risk on the portfolio should be made as small as possible.

Markowitz is describing the basis of the theory to be divided into two stages:

The process of selecting a portfolio may be divided into two stages. The first stage starts with observation and experience and ends with beliefs about the future performance of available securities. The second stage starts with the relevant beliefs about future performances and ends with the choice of portfolio. This paper [Portfolio Selection] is concerned with the second stage. We first consider the rule that the investor does (or should) maximize discounted expected, or anticipated, returns. This rule is rejected both as a hypothesis to explain, and as a maximum to guide investment behaviour. We next consider the rule that the investor does (or should) consider expected return a desirable thing and variance of return an undesirable thing. (Markowitz, 1952:77-91)

In practice, the theory supports a method to choose securities to a portfolio which price variations are correlating negatively each other. This idea creates the basis for the saying 'do not put all the eggs in the same basket', in other words, efficient portfolio diversification. Portfolio securities should not be chosen individually but using mathematical formulas to compare securities' covariance to achieve portfolio diversification. All the securities have their individual risk level, which can be mitigated by the diversification. When compared to a portfolio of single securities, there does not exist diversification at all. The risk indicator of the theory is standard deviation (not beta as in Efficient Market Hypothesis) of the expected return.

Markowitz is also emphasising the importance of diversification between different industries and geographical regions. This makes it possible to deduct the causes of negative events happening on a single industry or a region and to minimise the negative impacts on a portfolio. The main goal of the theory is to find lower risk weight of a certain portfolio than the average risk weight of all the portfolio securities itself. By optimal portfolio diversification, this is very likely to happen.

Portfolio theory has its own assumptions, which are in some extent, criticised after the introduction of the theory. Related to the Efficient Market Hypothesis, Markowitz is considering all the market participants rational and risk averse, as well as the market is lacking asymmetric information. Other assumptions are that: investors do not need to pay fees (such as transaction and tax costs), variance between portfolio's securities is fixed and returns are normally distributed (Choy, 2011).

Markowitz describes a portfolio to be: "A good portfolio is more than a long list of good stocks and bonds. It is a balanced whole, providing the investor with protections and opportunities with respect to a wide range of contingencies." (1959:3).

2.3 Capital Asset Pricing Model

William Sharpe was the first one to introduce the capital asset pricing model in 1964 (Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk). John Lintner followed Sharpe's example in 1965, and created the ideas further (Fama and French, 2004:25-46). Capital asset pricing model (CAPM) is used to estimate the cost of capital for companies but widely used to monitor portfolio performance as well.

CAPM is providing an effective way to measure the relation between risk and expected return of a portfolio (Fama and French, 2004:25). The model is pointing out two primary risks of a portfolio: systematic and unsystematic risk. The first one is commonly called as a market risk and it represents the risk, which cannot be eliminated by portfolio diversification. Systematic risk can be interest rate changes, economic changes, natural disasters or any other risk that is unforeseen and unable to mitigate. However unsystematic risk, or a specific risk, has a characteristic that can be controlled by efficient portfolio diversification. The risk is concerning individual securities within a portfolio (Burton, 1998). Sharpe uses beta as a risk measurement for a portfolio's expected return.

Generic idea of CAPM is that investors need to be compensated due to the time value of money and risk they take when purchasing an asset, such as a stock or a bond. Time value of money compensates an investor due to investor places money for a security over a certain time period. Also an investor needs to earn additional compensation as well because of taking a risk when purchasing an asset. Beta, as a risk measurement, is

compared to the market return of a security and to a market premium (Investopedia, 2014). In brief, CAPM indicates the expected return for a security or a portfolio, which is risk free rate plus risk premium. CAPM formula presented, where r_f = risk free rate, β_a = beta, \bar{r}_m = expected market return (Investopedia, 2014):

$$\bar{r}_a = r_f + \beta_a (\bar{r}_m - r_f)$$

2.4 Theory framework

Eugene Fama's efficient market hypothesis creates the basis for the most of the financial theories, as it does for the ideology and the way of managing funds. This paper will discuss how the efficient market hypothesis impacts on the smart beta strategies and the creation of indexes and ETFs. However, as the information flow on the market impacts directly on the stock market (as it should according to the theory) and indirectly to the ETFs, it is challenging to measure how perfectly the reactions are adopted by the funds, as the assumption is remarkably. Under the radar are as well the rationality of the investors and the impact of market anomalies on the markets.

Portfolio theory educates the readers to diversify the portfolios with negatively correlating securities to minimise the risk and to maximise the portfolio return. The theory is extremely interesting regarding the alternative beta strategies, especially when compared to the traditional market capitalisation weighted approach. Later on this paper will reveal whether the same stocks with the different weighting can have a major impact on the risk and/or return of a portfolio, and if the risk can be minimised in an alternative methods.

Referring to the CAPM, the strategy of handling the risk is interesting to compare as well as the varying weighting of the certain approaches leading to the market outperformance or to the underperformance compared to the market cap benchmarks. The paper will point out how the elimination of the risks is managed between the ETFs and smart beta ETFs. Alternative strategies are having different approaches for the risk mitigation and later on the analysis will reveal how well the smart beta strategies are succeeding in risk reduction.

3 Product concept

To be able to provide a comprehensive idea of the smart beta exchange traded fund concept, it is crucial to divide it into the following sub-sections: beta, smart beta and traditional Exchange Traded Funds. These three concepts are supporting each other and finally creating the basis for the new innovative investment product. As well, the reasons behind the development of the product concept are pointed out. The whole concept will be closely monitored and criticised during the paper to answer to the research problem of the paper "Do smart beta ETFs add value for the ETF investors".

3.1 Beta

Beta is generally used as a risk measurement to measure how a security or a portfolio is reacting to the changes of the overall market. It does not measure the volatility but only the security's value correlation to the market movements. Beta represents a systematic risk that cannot be eliminated with efficient portfolio diversification, according to capital asset pricing model (NASDAQ 2011). In practise a stock's beta value of 2 means that the stock value changes twice as much as the market, either up or down. Negative beta value exists but is less common. Beta plays a major role in the concept of smart beta, as the name implies.

3.2 Smart beta

Smart beta can be referred to as an umbrella term for several strategies to manage ETFs, which are collectively called smart beta. In the financial world, an investor might hear several different terms for smart beta, such as advanced beta, intelligent beta, alternative indices or strategic indices. All of these terms are referring to the strategic idea of allocating the risk of a fund. It is not always an easy task to identify a fund with smart beta strategy. Due to its rather short time of existence, portfolio and fund managers are continuously finding ways to apply smart beta ideology to new strategic models to manage a fund and naming the funds in a complex manner. To be sure, if a fund is applying a smart beta strategy, the fund's portfolio allocation might give an idea for the investor, but the most useful source is the management description of the fund.

As smart beta concept is only now pushing more heavily into the main markets, institutional investors (pension funds, banks, insurers, governments) are holding easily the largest share of total investments in products applying the smart beta strategies. Traditionally, institutional investors are acting as product innovators. This is justified by high level of expertise and large size of fund portfolios, which make it possible to adopt new investment products, such as advanced beta funds. Boudt and Wauters are pointing out that: "Over the past few years such alternative investment strategies attracted an increasing number of investors. In 2011, more than 40% of North American professional investors already adopted an alternative weighting scheme to their portfolio." (2013:46). If the strategy has proven to be able to beat the benchmark and offer attractive risk-return ratios, general awareness increases and new group of investors, retail investors, start investing in new product innovations.

Intelligent beta investment strategies have started to be applied with ETFs, mutual funds and separate accounts (Forbes, 2014). In addition, a few pension funds have started to invest in advanced beta strategies. Bloomberg's article 'Smart Beta ETFs Beating S&P500 Index Capture Record Cash' explains that: "Today, enthusiasts for the strategies include pensions such as Sweden's AP2, the California Public Employees' Retirement System, or Calpers, and Telefonica SA's Fonditel. BlackRock Inc. (BLK)'s." (2014). Investors are using smart beta products to balance their portfolios and investing in less risky assets. Smart beta idea can be applied in many different products, but the most used product platform is ETF.

How does the concept actually work? Due to the number of different strategies and ways how to and where to apply the concept, smart beta is an investment trend and something that can provide an option for market capitalisation investing as described in the following:

An increasing number of investors are moving away from traditional market capitalisation-based indices to alternative strategies, known as smart beta, in search of better returns and lower costs amid volatile markets and an uncertain economic climate. (Financial Times, 2012)

Simply put, smart beta is a new way to search for better return with lower risk, if that exists. Basically, smart beta strategy is approaching the returns, for example, with fundamental characteristics. Instead of market capitalisation (market cap) weighting (as traditional exchange traded funds are investing), the strategy is to allocate securities

equally or according to sales, volatility, dividend or even according to the number of employees in a company. Advanced beta is a quantitative investment strategy that tracks and re-applies indexes to be profitable in the long term.

Smart beta scheme is something between active and passive managed fund. It tries to combine goods from the both management styles; such as to have lower trading costs than actively managed scheme, but better reaction for the market momentums than passively managed scheme. As smart beta pioneer Rob Arnott says: "Smart beta is a rules-based, systematic, transparent, low-cost way of accessing the market." (CNBC, 2013). These factors make smart beta attractive for the investors especially in a bear market when low volatility, low cost solutions are providing stable returns and peaceful minds.

It cannot be said there is an ongoing "smart beta revolution", but the approach is certainly gaining popularity. In addition of 'traditional' intelligent beta strategies, fund managers and professional investors are creating new alternative strategies to apply the smart beta ideology. As mentioned earlier, advanced beta funds are currently in the favour of institutional investors, but the retail investor in the US and Europe are starting to get more curious, mostly thanks to good historical performance of the funds applying the strategies. The following Figure 1 depicts the upward trend of smart beta funds measured in assets.

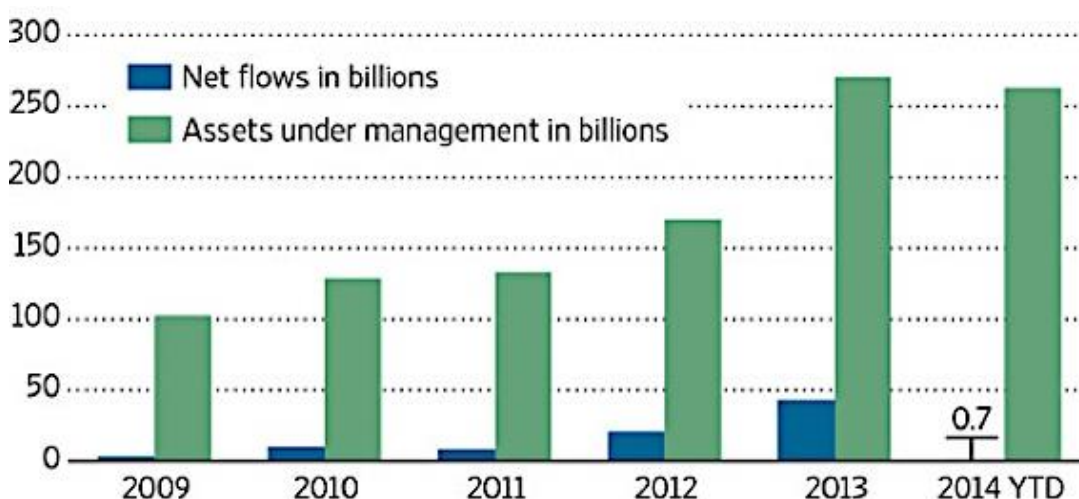


Figure1. Growth of Smart Beta Funds 2009-2014 YTD. Measured in USD (The Wall Street Journal, 2014).

A growing number of smart beta funds reflect to the increasing demand for alternative investment strategies. Between the years 2009 and 2013 average number of new smart beta fund launches totalled 13, where 21 funds were launched in 2013 (ETF.com cited in The Wall Street Journal 2014). Due to the fact that smart beta fund providers are marketing the product concept, retail investors are becoming more aware of the product type and most likely the demand for smart beta funds among this certain group will rise notably in the near future. This would lead to the continuously growing number of fund launches and assets invested in smart beta funds.

3.3 Exchange Traded Fund

Exchange traded fund is a financial security, which is listed in a stock exchange. Traditional ETF is tracking an index such as S&P 500 (which is the most used index, listing 500 largest companies according to their market value in the US) and weighting portfolio's securities according to the market capitalisation of the firms. The majority of the ETFs are passively managed. In February 2014 ETFs represented USD 1.74 trillion worth of assets, when the active ETFs had a share of USD 14.5 billion (ETF, 2014). Passive management means that the trades are executed by automatic trading systems and this causes less cost distributed to the investor (Market Watch, 2012).

ETFs can be traded as stocks, which makes it attractive for both institutional and retail investors. When purchasing an exchange traded fund, an investor gets already diversified bunch of securities. In addition, another positive factor for investors is the fact that ETFs are very liquid and can be traded at any time of a day. This flexible, stock-like, characteristic makes ETFs popular in any size of a portfolio, whether in bull or bear market.

Figure 2 shows the world's largest stock exchanges for ETFs according to the number of funds listed.

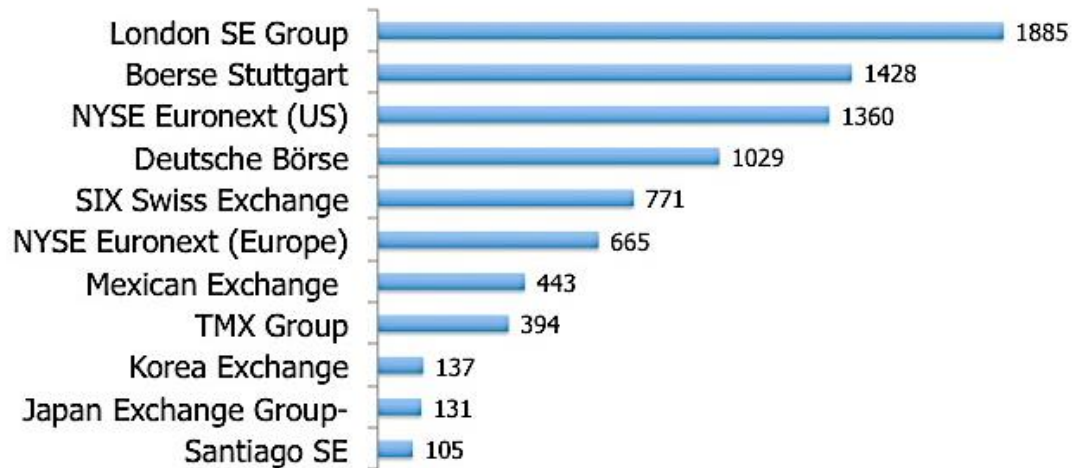


Figure 2. The most popular stock exchanges for ETF listing in March 2013 (PwC, 2013).

The first ETF was launched in 1993, called SPDR, which still remains the largest ETF measured in assets under management (ETF Channel, 2014). Since the introduction, ETF market has grown up revolutionarily. According to European ETF report 2013 published by EY: "European ETFs recorded net inflows of US\$7b during the first half of 2012, an annualized growth rate of 5.1%... In Europe, ETF assets are worth 3.5% of the total for funds. In the US, the equivalent figure is 8%." (EY, 2013:2). As European investment fund industry totals EUR 8.94 trillion (EFAMA statistics Q4 2012), meaning that European ETF market, according to the assets under management (AUM), equals EUR 312,9 billion in the end of 2012.

This type of asset in its original form creates the platform for smart beta strategy application. ETFs are the most common security platforms for the advanced beta concept. ETF suits well for a smart beta application, due to the modifiable and index-linked characteristics.

3.4 Background for the product innovation

"Everything that can be invented has been invented" Charles H. Duell, US Commissioner of Patents, 1899. Today's audience can prove that especially within the financial sector Mr. Duell can be said to be wrong. The change of the financial sector has been accelerated from each market anomaly in the history. 1990s Internet bubble's burst and recent

financial crisis are only two of the latest anomalies when the markets have been shaped into a new form.

3.4.1 Market characteristics

Financial markets are repeating the same mistakes all over again. Rather quickly recovering from the economic downturns, financial sector tends to overtake the bear market mode rapidly compared to the other sectors. Transforming into long lasting bull market ends up to be over heated and finally crash the markets. This can be called as simplified version of the economic cycle in financial sector.

How have the markets have been reacting to the most recent crisis and working to prevent the next one to happen? There are three factors which are interrelated; investors, financial service providers and regulators. Why? Investors can be described as a demand, when financial service providers (such as insurance companies, banks and pension funds) play a role of the supply. If demand changes or the characteristics of the demand changes, suppliers need to react. After the 2007 financial crisis demand declined when the investors turned to be more cautious and partially lost the faith for the markets. This led to the situation when suppliers started to come up with new offerings, which would satisfy the requirements of the investors.

Before the 2007 market crash, financial institutions provided rather complicated products such as mortgage-backed securities (MBS), asset backed securities (ABS) and collateralized debt obligations (CDO), which were far too complicated to understand for an average investor. At least in part, these products have been blamed for the start of the financial crisis (The Economist, 2013). Due to the fact that the investors are demanding products that can be understood, are more transparent and less costly, suppliers are following this trend in product development. According to Investment Innovations report, pension plans and asset managers are ranking the three particular factors to the highest when asking the fund product features which need to be improved the most in near future (Create Research et al. 2011). By suitable product offerings and stable returns, investors are gradually starting to believe in the markets again.

3.4.2 Regulatory impact

When banks and other financial institutions are seen as an evil, governmental regulators have been putting a lot of effort in the last few years to come up with new regulations for already the world's most regulated industry, financial services. According to EY's survey, 72% of European asset managers are spending between five and 10 hours every week dealing with new regulations (EY, 2013:14). Even though finance firms are seeing the regulatory changes as the main threat in the near future, investors are generally in agreement with the need for new rules and regulations.

New directives such as alternative investment fund managers' directive (AIFMD), packaged retail investment products (PRIIP) and markets in financial instruments directive (MiFID II) are new European level regulations to improve transparency and investor protection (European Commission, 2014). These two examples are not having a direct impact (in some extent operators they are) on the market as a whole, whereas the latest BASEL III accord has been updated to monitor financial institutions' capital requirements, risk taking and to improve the banking sector's ability to absorb shocks arising from financial and economic stress (European Banking Authority, 2010).

Governmental regulators are creating previously mentioned regulations due to two main reasons: to prevent the markets from the next crisis in the long term, and to earn back the investors trust for the markets in the short-term.

3.4.3 Demand for smart beta

Index funds have created the innovation platform for the alternative weighting strategies. As ETFs are the most used financial products to which the smart beta approaches are applied Figure 3 explains a brief historical development for the creation of smart beta.

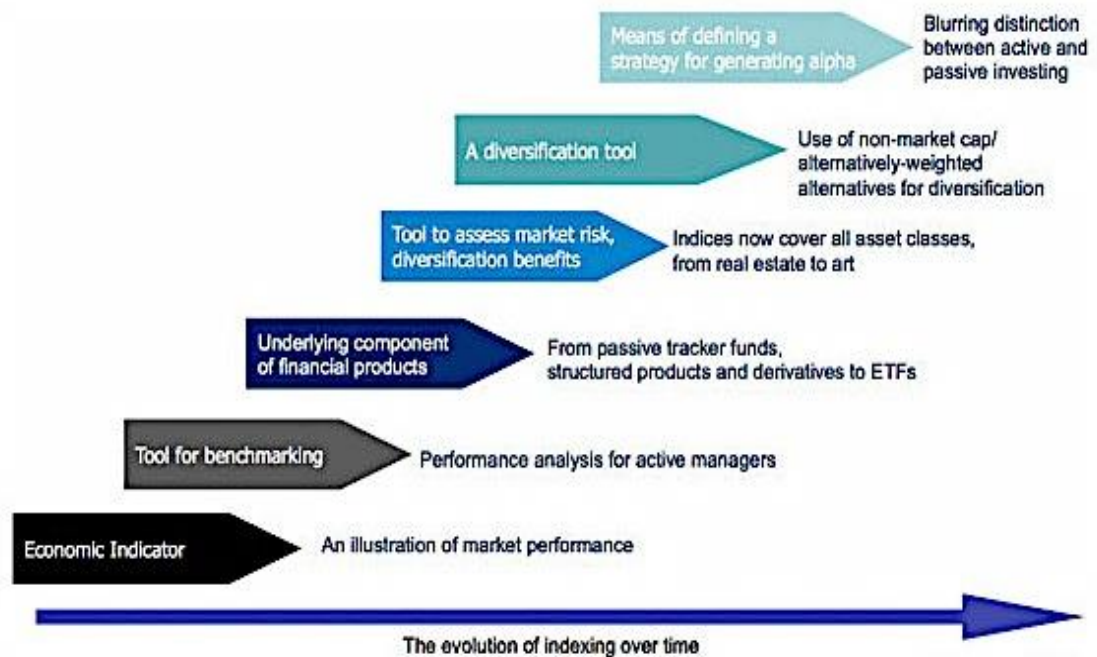


Figure 3. Evolution of Indexing (FTSE cited in Wall Street Journal Market Watch, 2014).

Referring to the Figure 3, it can be said that the three highest milestones are the ones when the smart beta started to have an impact. 'Tool to assess market risk, diversification benefits' could be described as the entrance stage for the innovation and the two highest steps are already the maturing phases. Difficult market situation has pushed the smart beta creation further and made it possible to challenge the traditional market cap indexing.

Regardless of the challenging market situation, financial markets are never giving up. Recently, in addition to smart beta ETFs, new financial products have been launched, such as renminbi qualified foreign institutional investor (RQFII) funds applied with undertaking for collective investment in transferable securities (UCITS) and corporate lending funds. Despite of the meaning of these products, it is crucial to understand the bigger picture. New innovations have been created and there will be more of them in the close future. As Greg McFarlane states in the article 'Strategic Beta ETFs':

As the financial markets get more sophisticated and arcane with time, the number of different types of investment schemes proliferates. It was only a few decades ago when someone first pooled together various individual stocks to create the first mutual fund, which was seen at the time as novel and perhaps unduly complicated... Today, strategic beta ETFs represent some of the most dynamic and potentially lucrative investments available to the ordinary investor. (2014)

However, there is no guarantee that smart beta ETFs would never grow to reach the same scale as mutual funds. It is very unlikely, but there might be a chance to overtake the traditional ETFs if the performance remains as good as it has been so far. Growing demand for alternative indices ETFs may be supported also by the fact that traditional ETFs have partially lost the investors' belief in the ability to provide the expected return in an efficient way.

Benchmark beating smart beta ETFs are attracting more investors investing in these funds, but what makes these products attractive as well is the low fees. Within alternatives, interest has arisen partly from a realisation that some of the things that hedge funds do at great expense can be reproduced with simple, easily accessible strategies at a lower cost. Consequently, access to alternative betas with fundamentally different return drivers to traditional asset classes can potentially be achieved without hedge fund like fees. (Tower Watson, 2013:2)

As referred to in Figure 1, assets under management in smart beta funds have been increasing continuously last few years, which lead to new fund openings and visibility of the product expands. When innovators, mainly institutional investors, have been tested the product and proofed its ability to generate positive returns with relatively low risk, the other investors' interest arises and investments in smart beta funds keep growing further.

4 Analysis – Strategies and Indexes

The most common and best describing smart beta strategies are explained in the following sections. After each strategy explanation, an index following the particular strategy will be introduced. The smart beta approaches are compared with the traditional market capitalisation approach, which regular ETFs are representing. The comparison is taking the reader closer to the conclusion if the alternative strategies add value for the ETF investors. It is highly relevant to introduce an index linked to the each strategy, which gives further understanding how the smart beta ETFs are working as a bottom line and how the strategies are linked to the financial theories. In practice, ETFs are tracking a benchmark index, which is incorporating the performance of a fund. This is why indexes are playing a crucial role when regarding the ETFs.

Smart beta's strategic application in exchange traded funds is broad. The term 'smart beta' holds in several different strategies and cannot be determined to be only a single way to run an ETF. Of course, advanced beta strategies have some similar characteristics in common. First of all, every alternative indices strategy is trying to achieve greater diversification in a portfolio and reveal existing risk premium, which could be buried in an actively managed exchange traded funds. Secondly, smart beta approach is mostly long term orientated, even though some strategies are investing in market momentums and short-term changes on the market. In addition to the main characteristics in common, all the smart beta strategies are trying to improve the implementation against traditional market capitalisation exchange traded funds by providing low cost, rules based and transparent way of managing a fund (Tower Watson, 2013a). As Financial Times journalist David Stevenson states: "It's still early days for the smart beta revolution, so it's hard to say any one strategy is the best" (2013).

4.1 Equal weight approach

Introduction of several smart beta strategies available is good to start with equal weighted approach. This is the most simplified way to manage a smart beta ETF. Equal weighted approach is extremely easy to understand and this is why it fits well for the retail investors as well. Transparent and simply way of fund management adds value for

an investor. By straightforward style, the strategy provides an easy access to the markets.

When speaking of the traditional market capitalisation weighted ETF, the portfolio allocation is weighted according to the market value of the constituents, equal weighted approach, as it is named, allocates the portfolio securities equally in a portfolio. This strategy is aiming to eliminate large capitalisation bias, which means that the fund is relying on the largest players on the index (such as in S&P 500). According to David Blitzler, Managing Director and Chairman of the Index Committee at S&P Dow Jones Indices: "Equal weighting over-weights small cap and value stocks to take advantage of the most successful anomalies in stock selection. The best demonstration of this is the weighted performance margin was 161 basis points annually." (ETF Strategy, 2013). In an equal weight indices in its original form, it can be argued that the strategy is not over weighting small capitalisation (small cap) stocks, but the number of firms (referred to S&P 500 index) in this category is larger when the small cap weight gets bigger than in market cap weighting indices.

When equal weighting tends to have a greater proportion of small cap stocks, Eugene Fama and Kenneth French (1992) have studied the correlation between portfolio return and the size of the stocks. Figure 4 illustrates the positive link between small stocks and growing portfolio returns.

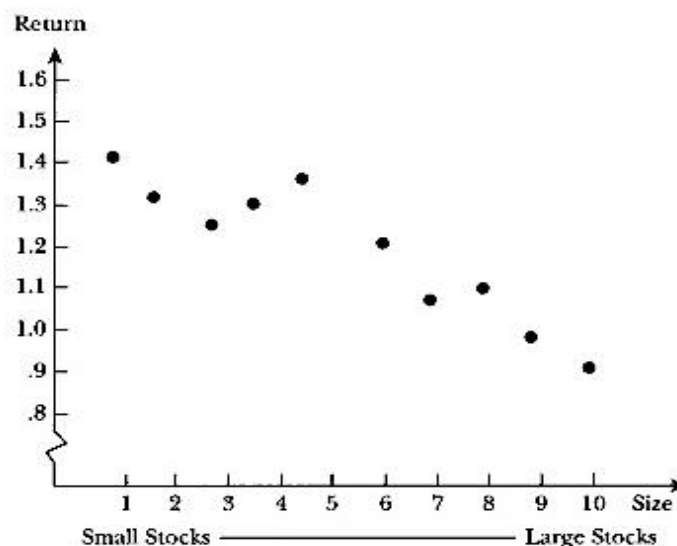


Figure 4. Average monthly returns for portfolios formed on the basis of size in 1963-1990 (Fama and French, 1992).

What it comes to equal weight approach, the equal weight of the stock gets blurred at the same moment when the stock exchange opens. The strategy requires rebalancing the stock allocation in time-to-time, which leads to greater stock turnover, ending up to the greater fund fees distributed to the investors. Most of the equal weight indexes and index tracking ETFs are rebalancing the stock allocation in quarter basis. Investors, especially institutional investors, might see higher expenses ratios very unattractive when they are purchasing large quantities of shares. On the other hand, market-outperforming strategy (if it do so) is able to generate high returns, which obviously overtake the issue with higher fund management fees.

4.1.1 Equal weight index

Among the rising attractiveness of equal weighted indexes, pioneering S&P 500 Equal Weight Index (S&P 500 EWI) was launched in 2003 (ETF Strategy, 2013a). It is tracking the same stocks as S&P 500 Index (which is representing the traditional market cap weighting index) but with the characteristics of equal weight approach. To give an idea of the difference between these two indexes, S&P 500 has majority weight in large cap companies, whereas S&P 500 EWI has the small cap tilt (higher weight on the small caps). For example, Apple Inc., which has the largest market value in the world (Forbes, 2014), has a weight of 2.9% out of the market cap index as a whole. In contrast, equally weighted index gives a weight of 0.2% for Apple Inc., which represents the same weight as the smallest firm in S&P 500 index To give an additional idea of allocation between these two indexes, top 10 largest constituents have a weight of 17.9% in market cap index, when equal weight index top 10 holdings have only 2.2% (S&P Dow Jones Indices, 2014). Portfolio Theory suggests greater diversification.

Weighting spread according to the sectors is another variable that differs between S&P 500 Index and S&P 500 EWI. Market cap weighted index is simply summing up the weights of the firms in the same sector, whereas the equal weighting index the number of firms in the sector is divided by the total number of the firms in the index, for example, $(29/500) \cdot 100$ (S&P Dow Jones Indices, 2014a). According to S&P Dow Jones Indices data in the end of March 2014, S&P 500 Index had the largest sector weights in the information technology (18.6%), financials (16.4%) and health care (13.4%). In com-

parison with S&P 500 EWI had the following sector breakdown: financials (16.5%), consumer discretionary (16.5%) and information technology (13.1%). To understand the differences between the sector weightings: in the market cap index, information technology companies (such as Apple, Google, IBM and Microsoft) are totalling together the biggest market value, whereas in the equally weighted index the largest allocation is in financials, which is based on the greatest number of financial firms in the whole index. Simply put, the market cap index weights the largest sector with the largest market value possessing firms within the index. In other words, these firms have the greatest share prices and the negative or positive fluctuation in share prices has a major impact on the movement of the index.

For an investor it is crucial to be aware of the allocation of the index. Referring to Markowitz's Portfolio Theory, to achieve an efficient portfolio diversification, it is vital not to rely on a single or just a few industries. As CAPM states, to be able to mitigate unsystematic risk, portfolio's securities must be negatively correlating each other, which means that the sector breakdown of a portfolio must be well diversified. Equal weight index and market cap index are both spreading the weight differently, but still ending up having large weights only in few sectors. Should equal weight approach pay more attention to diversify the sector breakdown as well?

Equal weight index has a greater tilt towards the small cap firms compared to the market cap index. Related to the riskiness and volatility, this means that in a short-term S&P 500 EWI tends to be more volatile. S&P Dow Jones Indices data shows that in the past five years the average volatility (measured in standard deviation) was: 17.12% for S&P 500 EWI and 13.99% for the benchmark, S&P 500 index (2014b). Short-term volatility is obviously mitigated by holding an investment for a longer period. As Figure 4 indicated, small stocks are generating better return in the long term, but in the short-term experience more fluctuations. Equal weight index tends to add value for an investor who has a longer investment period view.

Even though equal weighted index has experienced more volatility it has outperformed the benchmark in returns. Investing in small cap stocks is a trade off between risk and return. As market efficiency hypothesis argues, market-outperforming returns can be achieved only by accepting more risk. Morningstar data indicates that in the last five

years small cap index has scored average return of 26.52%, when large cap index 20.29% (2014). The same trend can be identified between equal weight and market cap weight indices. Figure 5 supports the good historical performance of small stocks, and especially the equal weighted approach.



Figure 5. Historical performance of S&P 500 EWI and S&P 500 indexes (S&P Dow Jones Indices, 2014).

These two indices are a good example of smart beta strategy outperforming the benchmark. With the same stocks, but with the different strategy to allocate the weights, make the difference in returns. For sure both indexes have their own strengths depending, for example, on the market situation. 'When accepting more risk, the expected return rises' could be briefly summarising the result of equal weight approach. Equal weight approach seems to be able to generate high returns to the investors who are accepting slightly higher risk level. Value added of this particular approach is clearly the market outperforming returns.

4.2 Low volatility approach

Low volatility, low beta or minimum variance strategy is another popular form of smart beta ETF strategy in addition to equal weight approach. The strategy provides more stable and smart security allocation for the investors. Low beta strategy refers directly

to the beta as a risk measurement, which should be considerably low in the securities chosen to the fund, but as well in the fund's portfolio as a whole.

Minimum variance funds are relying on the technical analysis, which is the basis for the stock selection, or the weighting of the stocks. General idea of the fund structure is to choose securities with low volatility. Financial Times' journalist David Stevenson describes low volatility strategy as following: "It entails ranking all the stocks in an index such as the FTSE 100 based on their recent share price volatility and then either exclude the most volatile, or give the biggest weightings to the least volatile shares." (2013). Criterion of a fund securities' selection could be past performance from the last 12 months, however each fund manages the selection of the assets in an individual basis. Low beta funds can be modified by leveraging, short selling or by using derivative solutions, which makes the strategy more complex to understand.

According to Morningstar analysis, low volatile stocks have performed historically better than more volatile stocks (2013). This clearly raises a question against the EMH. Though, most of the minimum variance ETFs are rather recently established and are lacking long-term records, which makes the investors unaware how the strategy performs in a longer time line.

Based on the historical performance and the stock selection of the strategy, low volatility fund strategy is obviously clashing with the efficient market hypothesis. As the theory states, above average returns can be achieved only by taking more risk. Low beta funds have revealed that the same returns can be generated as with the funds possessing higher level of risk. Sceptics have pointed out that the minimum variance funds do not have track records long enough to prove the actual over performance compared to more volatile stocks. The positive performance is blamed to be a market anomaly caused by irrational market behavioural. Low beta strategy has also received critique towards how it is paying attention only on the past performance of the stocks and not taking into account the fundamental characteristics of the companies, such as balance sheet indicators (NASDAQ, 2013).

Following Table 1 illustrates strong counter argument against the low volatility stock outperforming only in a short-term. Table 1 exhibits good performance of less volatile

stocks compared to more volatile stocks in S&P 500 index between the years 1980 and 2011.

Table 1. Indicating how low volatile stock have scored better risk/return ratio compared to more volatile stocks in S&P 500 index between 1980 and 2011 (Standard & Poor's, 2011).

Based on the trailing std. deviations	Q1 least volatile	Q2	Q3	Q4	Q5 most volatile
Annualized average return	13.69%	13.70%	13.91%	14.22%	13.67%
Annualized standard deviation	12.54%	15.51%	17.62%	20.04%	26.68%
Average return/standard deviation	1,09	0,88	0,79	0,71	0,51

As the Table 1 indicates, the least volatile group of securities have scored the highest rate of average return-standard deviation ratio. The more volatile the securities get, the lower the ratio occurs. Annualised average return tends to be greater as well comparing to the most volatile stocks' return. This obviously raises a question against competency of CAPM, when higher returns cannot be accepted with lower risk.

4.2.1 Low volatility index

To introduce an index following the low volatility smart beta strategy, FTSE 100 Minimum Variance Index suits well for this purpose. Increasing demand for low beta strategy has made FTSE to open an index in 2003 to serve the ETFs with the strategy. FTSE 100 Minimum Variance is benchmarking itself to the famous market capitalisation index FTSE 100, which represents the 100 largest firms⁷ in London Stock Exchange according to the market value. Minimum variance index has been founded to minimise the volatility of FTSE 100 index. It is purely representing an example of low volatility smart beta approach, which means that the stocks have been selected according to the historical performance of volatility. The index has been designed for index tracking funds such as ETFs, derivatives and for a performance benchmark (FTSE, 2014a).

When FTSE 100 Minimum Variance index is tracking the same stocks (but not all of them) as in FTSE 100 benchmark index, the weighting makes the difference. Typically for low

⁷ FTSE 100 Index has 101 constituents as Royal Dutch Shell has A and B shares listed (FTSE, 2014)

beta approach, Minimum Variance index is selecting low volatile stocks (66 constituents in total) and giving greater weight for the least volatile constituents. Three firms with the largest weight in the index are: Imperial Tobacco Group (3.1%), SSE (3.0%) and National Grid (3.0%). To compare with the benchmark index, the same constituents are weighted as following: Imperial Tobacco Group (1.41%), SSE (0.85%) and National Grid (1.85%). Regarding the total weight of top five constituents makes a great distinction between the two indexes. FTSE 100 Minimum Variance has 15.05% weight, whereas FTSE 100 market cap index only 5.44% (FTSE, 2014b). These percentages indicate clearly how low beta approach is giving more weight for less risky (when measured according to standard deviation) stocks when linked to the traditional market cap index.

Sector breakdown in Minimum Variance index is backing the Portfolio Theory. Well-diversified stocks are not alone creating an efficient portfolio diversification. When FTSE 100 is putting a lot of weight for the sectors with large market cap (Oil & Gas, 16.85% and Banks 13.24%), FTSE 100 Minimum Variance is allocating the largest weight on the less volatile sectors (Industrial Goods & Services 16.21% and Utilities 14.60%) (FTSE, 2014c). Difference can be easily pointed out when taking the 10 largest constituents' index weight together. Minimum Variance has 28.34% whereas FTSE 100 has 41.09% (FTSE, 2014d). Neither of these indexes is well enough diversified from the single industry reliance?

Regarding the volatility of the FTSE 100 Minimum Variance index, it is beating the benchmark index by lower volatility. Figure 6 indicates the volatility of the indexes.



Figure 6. Indicating the annualized volatility of FTSE 100 Minimum Variance Index and FTSE 100 benchmark index (FTSE, 2014).

Referring to the graph, Minimum Variance index has better track records and so on has outperformed the index benchmark measured in volatility. During the up warding market trend the difference in volatility between FTSE 100 Minimum Variance and FTSE 100 has been relatively lower than during the market anomaly, which is the 2007 started financial market crisis. Figure 6 illustrates well how volatility in the markets aroused rapidly between 2008 and 2009. During this time period low volatility index managed to minimise the volatility tremendously. Again, when the markets started to recover from the crash, volatility of the Minimum Variance index declined with a faster rate as the benchmark. The closer the timeline approaches the current date, the difference in the volatility between the indexes shrink. It can be said that the low volatility index works well during the stable market situation but notably adds value for the investors during the market anomalies.

Low beta strategy seems to work well regarding the volatility, but how is it with the performance? Generally speaking, the hypothesis is that the less risky securities should provide smaller expected return (reflection from Portfolio Theory). When monitoring the performance between the two indices, one may notice that the hypothesis is not correct. Figure 7 exhibits the past five years performance of FTSE 100 Minimum Variance and FTSE 100.

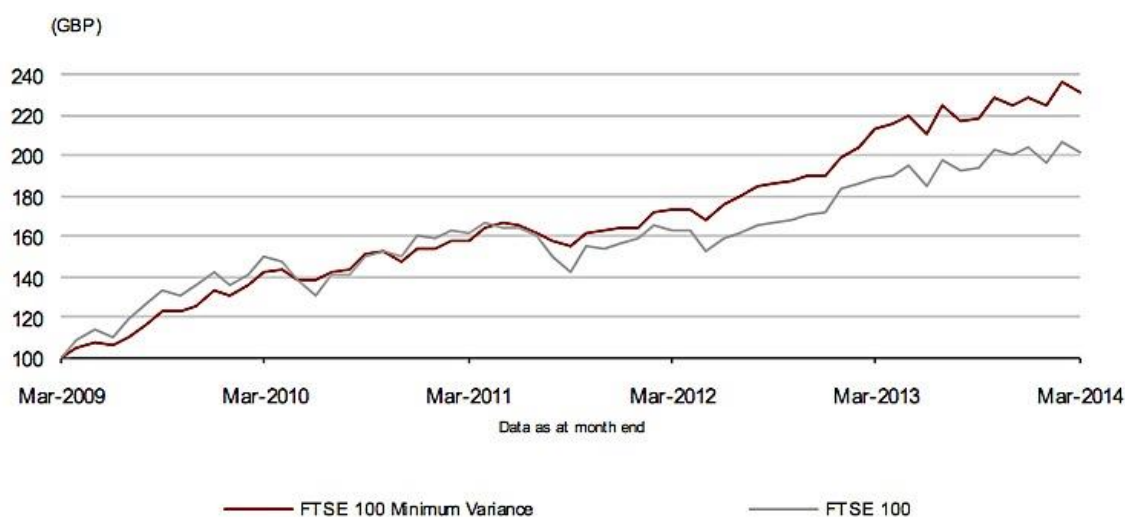


Figure 7. Historical performance from the last five years of FTSE Minimum Variance and FTSE 100 indexes (FTSE, 2014).

In the past five years low volatility index has offered return of 130.8% when market cap index 101.5% (FTSE, 2014e). During the period, low volatility has performed better in

every milestone compared to market cap index. For the investors, an approach delivering higher returns with lower volatility is highly attractive.

4.3 Fundamental weight approach

Among the other rising strategies within the smart beta concept, fundamental weighting approach is becoming to be a part of investors' portfolios more often. Fundamental weighting strategy managing an ETF or an index is another way trying to outperform the market. The approach has been widely researched by the academia as a method to challenge the traditional market cap weighted indexation and to invest in value stocks.

The idea behind the fundamental weighting is explained by Arnott, Hsu and Moore (2005), who are defining it to be a way of indexation where an index is weighted according to the criteria such as company sales, earnings, dividends or book value, and lacking the traditional market cap weighting. The main objective is to eliminate the link between the price of a stock and weighting of a stock within a portfolio. In other words, shifting the link to the economic size weighted approach (Tower Watson, 2013a).

Fundamental weighting is an approach to criticise the true value of a stock. As Hans Wagner states: "...price of a stock is not always the best estimate of the company's true underlying value. Prices can be influenced by speculators, momentum traders, hedge funds and institutions that buy and sell stocks for reasons that may not be related to the underlying fundamentals, such as for tax purposes" (Investopedia, 2013). This is why economic value is argued to be more precise measure than the size of a firm. For example, one of the reasons why fundamental weighting indexes were born was the concern of market cap weighting not being accurate enough to measure the true value or size of a company. However, efficient market hypothesis defines that the market value is the fair value, which can be disagreed accordingly. Cap weighted approach is forecasting future stock prices which have a tendency to give more weight for overvalued stocks and under weight the stocks which are traded under their true value (in case the price estimations are wrong). Blitz and Swinkels state that: "Compared to a market capitalization weighted index a fundamental index simply overweights value stocks and underweights growth stocks..." (2008). Even though fundamental weighting approach wants to eliminate the market cap kind of reliance on the large firms, the company size

measures (revenue, sales etc.) that the fundamental indexing is using are correlated with the liquidity and capitalisation. This leads to the fact that fundamental indexes are mainly focusing on the large cap firms to maintain the capacity and liquidity advantages similarly as market cap weighted indexes (Arnott et al. 2005:84).

Fundamental weighting is a value strategy with no basis on any finance theory. The strategy clearly ignores the Markowitz's Portfolio Theory to diversify the securities and replace it by fundamental criteria, which are non-market price related. However, Jason Hsu (2006) conducted a study to support fundamental indexation over traditional cap indexing. The study raised a point of 'market noise⁸', which means that the market capitalisation and the pricing errors are positively correlated. This leads to under performance compared to non-cap linked approaches. Arnott et al. (2005) proofed that the fundamental indexes outperformed S&P 500 index by 2% annual rate. Fundamental weighting can be agreed to be a more accurate approach when determining the true value and reflecting it to the positive future performance of an index or an ETF.

4.3.1 Fundamental index

Russell Fundamental U.S. Large Company Index (Russell FULC) is a widely used index to follow the alternative beta strategy of fundamental weighting. In 2005 introduced index has been opened for fundamental weighting ETFs to track the index, which benchmarks the performance for Russell 1000 and S&P 500 market capitalisation indexes (Davidow, 2013).

As majority of the smart beta strategies, Russell FULC is using back-tested, rule-based approach to weight the securities within the index (Russell Investments, 2013). Russell FULC is not an actively managed index, but not purely a passive index either. The creation and managing of the index requires discipline to follow the rules stated for the index, such as the selection of the economic factors. As it is typical for the fundamental indexes and ETFs, Russell FULC has a concentration on the value stocks.

The economic factors, which have been chosen for the criteria for the index, are: adjusted sales, retained cash flow and dividends plus buybacks (Russell Investments,

⁸ Later referred as "noisy market hypothesis"

2013a). The factors are applying past five years average value. These three factors are summed together and divided by three to get the company's composite fundamental score, which makes it possible to calculate the weight of a company in the index (Russell Indexes, 2013). To compare the weighting of the Russell FULC and Russell 1000 indexes: FULC has Exxon (4.89%), Bank of America (1.36%) and Apple (0.72%), whereas Russell 1000 has Exxon (2.42%), Apple (2.32%) and Bank of America (0.84%), which are example holdings (Russell Investments, 2013). For the explanation, Exxon has bigger weight in the fundamental index because of the high rank when measured according to the chosen economic factors (adjusted sales, retained cash flow and dividend plus buy-back). In contrast, Apple has higher weight in market cap index (Russell 1000) thanks to the greater market capitalisation. In case of these two indexes, the holdings are rather same but the weighting makes the difference, which either boosts the performance of the index or not.

When measuring the volatility and the riskiness of these two indexes, it is surprising how well fundamental weighting works against its market cap benchmark index. Following Figure 8 exhibits a wide range of data, which will be analysed in the following.

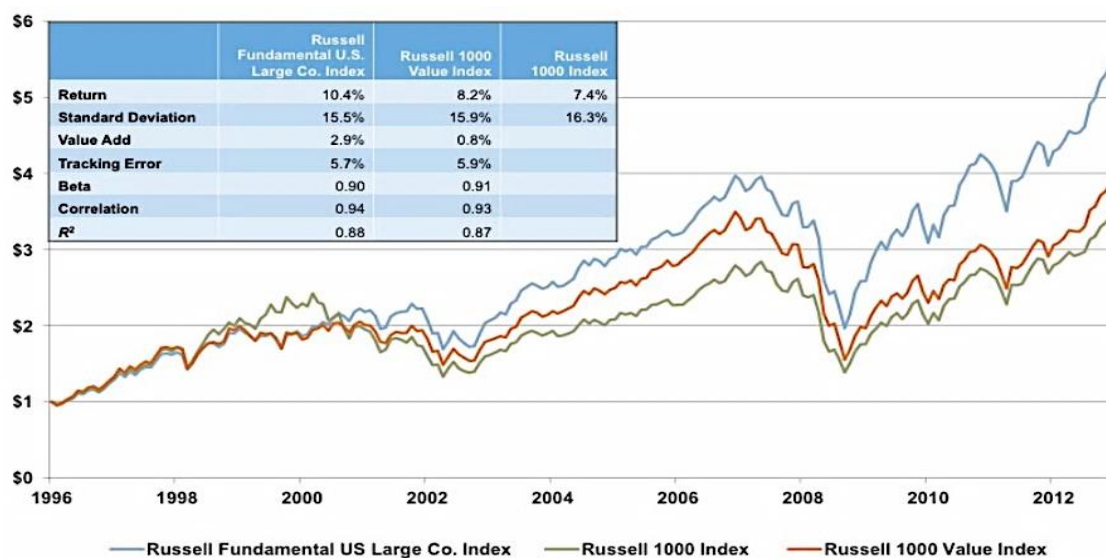


Figure 8. Performance of Russell Fundamental U.S. Large Company, Russell 1000 and Russell 1000 Value indexes between 1996-2013 (Russell Investments, 2013).

Referring to the Figure 8, fundamental index has lower volatility in returns (standard deviation) compared to the benchmark index and to a traditional value index. Fundamental index has 80 basis points lower volatility as market cap weighting index between the time lines, and could be easily agreed to be less volatile as the benchmark.

Regarding the performance and the value added, fundamental index clearly outperforms the market capitalisation weighting approach. According to the data provided by Russell Indexes, fundamental index has the total return in five-year time of 25.97% and market cap index 23.63% (Russell Indexes, 2014). As Figure 8 depicts, the indices are positively correlating each other rather accurately in all market situations. In addition of higher returns, Russell FULC has a value added rate of 2.9%.

Fundamental weighting style of value investing seems to be profitable when the issues with the traditional market capitalisation weighting such as pricing errors, can be eliminated. After this the true value of the stocks is more easily to determine. For the investors fundamental approach is obviously highly attractive due to three reasons when compared to the market cap benchmark: higher returns, less volatile and almost 3% value added rate. In addition, fundamental index exhibits lower beta value and tracking error rates as the value index. Generally speaking, this particular index definitely adds value for an investor's portfolio.

5 Analysis – ETFs

The following chapter digs into the core of the question whether the smart beta ETFs are adding value for the ETF investors or not. Selected ETFs representing each earlier introduced strategy are compared with the underlying index of the fund and with a market capitalisation approach ETF. The value added is measured in: ability to generate return, reduce volatility, effective size of the funds and low expense ratio.

5.1 Equal weight ETF

Guggenheim S&P 500 Equal Weight ETF (S&P 500 EWE) represents one of the first smart beta strategies applying ETF. In 2003 launched fund has earned recognition among the alternative beta investors thanks to the outperforming records. As the name of the fund signifies it is applying the equal weighting approach. The fund is tracking the S&P 500 Equal Weight Index (Guggenheim Investments, 2014).

To provide an idea of the attractiveness of investing in the equal weight ETF, it is crucial to start with the comparison between the fund and the underlying index. Over the past five years, S&P 500 EWI has produced 19.93% total returns (S&P Dow Jones Indices, 2014), when S&P 500 EWE has scored 25.94% (Guggenheim Investments, 2014a). Between the index and the ETF, one may recognise a remarkable difference in return generation, especially when the ETF's portfolio is tracking identical constituents. Good management of the fund may explain the better return generation, but more likely the reason is the bullish market situation. As ETFs are stock exchange traded securities and when the investors are buying the funds, the price goes up. Growing demand for the ETF has been a bandwagon effect, and when the investors are selling the ETF at the open market, investors are receiving higher returns.

To examine more precisely whether the equal weight smart beta ETF adds value for an investor, it is essential to have a comparison with a traditional market cap ETF, which will be in this case SPDR S&P 500 ETF⁹. Equal weight ETF's quarterly based return scored 25.94%, and the same rate for the market cap ETF was 20.96% in five-year time

⁹ The first ETF on the US market. Commonly known as `Spyder`

(SPDR, 2014). When the Guggenheim S&P 500 EWE has a greater tilt towards the small cap companies (which have historically performed better than large cap companies), equal weight approach ETF outperforms a traditional market capitalisation ETF.

5.2 Low volatility ETF

Ossiam has launched Ossiam FTSE 100 Minimum Variance ETF to track, already in this paper introduced, FTSE 100 Minimum Variance Index. The fund has been recently opened and so on providing still short track records to give a comprehensive understanding of long-term performance and volatility. Since the minimum variance, or low beta, strategy is rather new, there are relatively few ETFs with long track records. This leads to the short-term orientated analysis of the performance and volatility of Ossiam ETF FTSE 100 Minimum Variance.

When comparing the performance of the fund and its benchmark index in a year period, data provided by Ossiam indicates that the fund has performance of 14.40%, whereas the index has 15.15% (2012). During the rather bearish market the ETF shows slightly lower volatility, again only measured in a short-term. Minimum variance ETF experienced 10.63% annualised volatility and the index 10.64% (Ossiam, 2012a). Relatively higher performance of the index spurs the Sharpe ratio to 1.74 (ETF: 1.67), which indicates better risk-adjusted performance (Investopedia, 2014). Beta value was perfectly equal with the both schemes, 0.71. However, performance and riskiness measured in a short-term do not give a proper idea of the actual behaviour of the Ossiam ETF FTSE 100 Minimum Variance in the all market situations.

To have a comparison with a market capitalisation ETF, it is relevant to choose an ETF, which is tracking the same base index (FTSE 100 index) as Ossiam ETF FTSE 100 Minimum Variance. iShares manages a market cap ETF, iShares FTSE 100, which suits well for this purpose. Assessing the returns of these two funds, Figure 9 exhibits the performance of the particular ETFs.



Figure 9. Short-term performance of iShares FTSE 100 and Ossiam FTSE 100 Min Variance ETFs. (Morningstar, 2014)

Reflecting from the Figure 9, minimum variance ETF has reached higher returns by 46 basis points. Though, in short-term the volatility is rather high. As the graph shows, market cap ETF's performance reacts sharper to the up warding market situations, but do exactly the same when the market is sloping down. Minimum variance ETF does as it is named, it minimise the variance. Beta value of minimum variance ETF stands for 0.71, when the market cap ETF has beta value of 0.97 (Morningstar, 2014). This supports the fact that low volatility approach manages to sustain fund's market reactions more restrained.

5.3 Fundamental ETF

Schwab Fundamental U.S. Large Company Index ETF is another very recently launched demonstration of smart beta strategies' expansion. Since August 2013 the fund has been operating and tracking the underlying index of Russell Fundamental U.S. Large Company Index (Schwab ETFs, 2014). The fund is weighting large market cap companies according to the fundamental factors, which are: adjusted sales, retained cash flow and dividend plus buyback. Fundamental U.S. Large Company Index ETF is the first and the only fund tracking the particular index at the moment.

Due to the recent inception the performance analysis is short-term orientated. Backing up the analysis, Figure 9 exhibits the comparison between: short-term returns for the FNDX fund ¹⁰ measured in the change of market price and net asset value (NAV), Russell Fundamental Index and Morningstar large value category¹¹.

Description	Annualized Trend 1, 5, 10 Year	Cumulative Returns (%)				Annualized Returns (%)				
		YTD 03/2014	1 Month 02/2014	3 Month 12/2013	6 Month 09/2013	1 Year 03/2013	3 Year 03/2011	5 Year 03/2009	10 Year 03/2004	Inception 08/2013
FNDX Market Price		+2.17	+2.09	+2.17	+12.88	--	--	--	--	+13.66
FNDX NAV		+2.06	+1.95	+2.06	+12.81	--	--	--	--	+13.87
Russell Fundamental US LC TR USD Index		+2.15	+2.00	+2.15	+13.03	+22.04	+15.55	--	--	--
Large Value Morningstar Category		+2.57	+2.11	+2.57	+11.94	+18.39	+14.46	+21.97	+7.25	--

Figure 10. Performance of the fund, index and large value category. FNDX represents the fund (Schwab ETFs, 2014).

Figure 10 illustrates a positive trend in cumulative returns for the ETF's market price as well as in NAV. Even though the returns are relatively upright and growing, Russell Fundamental Index has over performed the fund by 15 basis points. However, ETF has beaten the large value category in six months period. Short-term analysis does not expose the fund's performance through an economic cycle (market ups and downs), which makes the investors more cautious to invest in recently launched investment product. Even if fundamental indexation has been thoroughly discussed by Arnott et al. since 2005, the fundamental weighted ETFs are still rather recent offerings. A good indicator is that the fundamental weighted ETF has only USD 90 million worth of total assets (Schwab ETFs, 2014), where previously introduced Guggenheim S&P 500 Equal Weight ETF has more than USD 7.14 billion (Guggenheim Investments, 2014).

¹⁰ FNDX represents a quote for Schwab Fundamental U.S. Large Company Index ETF, which is used in stock exchange

¹¹ Funds seeking capital appreciation by investing in large, value orientated stocks. Large stocks possess market cap > USD 5 billion. Defined value is linked to the low price to book and price to cash flow ratios (Morningstar, 2014).

To have a contrast between fundamental weighted ETF and traditional market capitalisation weighted ETF, Vanguard Large-Cap ETF represents the lastly mentioned participant. Figure 11 illustrates the performance between the fundamental ETF and market cap ETF.



Figure 11. Performance comparison between SPDR Russell 1000 ETF (ONEK) and Schwab Fundamental U.S. Large Company Index ETF (FNDX) in one-year time (Morningstar Quotes, 2014).

As the Figure 11 indicates, fundamental ETF has a historical performance records less than a year. It has under performed the market cap ETF, but still has a positive trend with 12.71% growth since the inception. Worth of attention is fundamental ETF's slightly more stable market reactions compared to the market cap ETF. One reason might be the lower trading volumes when the reactions are less reflected to the fund.

5.4 Expenses ratio and fund size

To have an additional assessment for the operations and the attractiveness of the ETFs, ten largest globally listed ETFs and smart beta ETFs are listed in this section. The key numbers for assets under management (AUM) and expenses ratio are provided to have a comparison between the size of the funds and how much an investor needs to pay to hold a fund. Table 2 exhibits the ten largest ETFs according to AUM, whereas Table 3 the largest smart beta ETFs.

Table 2. Ten largest ETFs globally according to AUM (Morningstar ETF data, 2014).

	ETF Fund name	Category	AUM (USD bn)	Expense ratio
1.	SPDR S&P 500 ETF	Growth	161,62	0.11%
2.	iShares Core S&P 500 ETF	Growth	55,04	0.07%
3.	iShares MSCI EAFE ETF	Global	54,06	0.34%
4.	Vanguard FTSE Emerging Markets ETF	Emerging markets	44,11	0.15%
5.	Vanguard Total Stock Market ETF	Growth	42,24	0.05%
6.	PowerShares QQQ	Technology	42,03	0.20%
7.	Vanguard REIT ETF	Real Estate	38,71	0.10%
8.	iShares MSCI Emerging Markets ETF	Emerging markets	35,15	0.67%
9.	SPDR Gold Shares	Metals	33,84	0.40%
10.	Vanguard FTSE Developed Markets ETF	Global	30,93	0.09%

Table 3. Ten largest smart beta ETFs globally according to AUM (Morningstar ETF data, 2014).

	Smart beta ETF name	Category	AUM (USD bn)	Expense ratio
1.	iShares Russell 1000 Growth	Growth	22,87	0.20%
2.	iShares Russell 1000 Value	Value	20,83	0.21%
3.	Vanguard Dividend Apprec. Index ETF	Blend	18,71	0.10%
4.	iShares Select Dividend	Value	12,83	0.40%
5.	Vanguard Value ETF	Value	12,69	0.10%
6.	SPDR S&P Dividend ETF	Value	12,53	0.35%
7.	WisdomTree Japan Hedged Equity	Japan stock	12,08	0.48%
8.	iShares S&P 500 Growth	Growth	9,84	0.18%
9.	Vanguard High Dividend Yield Index ETF	Value	7,41	0.10%
10.	Guggenheim S&P 500 Equal Weight	Blend	6,79	0.40%

ETF markets are more mature and expanded since 1993 to reach large fund sizes. When analysing the ten largest ETFs (see Table 2), the average size of the fund is USD 41.79 billion, when the same value for the largest smart beta ETFs scored USD 13.66 billion (see Table 3). Is the large size of a fund beneficiary? S&P Dow Jones' strategist Craig Lazzard points out that smaller funds are having an advantage on the performance over the large size funds (Lazzard cited in ETF Trends, 2014). The argument can be reasoned by the fact that when the size expands, a fund weights more large cap constituents, which might have negative effects on the overall performance (speaking of market cap approach). As Fama and French (1992) have studied, small cap companies are outper-

forming large caps in the long term and generating higher alpha (excess return). However, large cap companies are having the advantage on the research coverage. Large size companies-focused research is more comprehensive as the research conducted on the small cap firms. This leads to the situation when the probability of valuation errors gets higher over the small cap firms (Lazzard cited in ETF Trends, 2014).

For an investor it is crucial to take into account the expenses related to holding a fund, especially when purchasing large quantities. Even though EMH and Portfolio Theory ignore the fees, expenses ratio is carefully analysed by an investor before making an investment decision. General hypothesis is that the passively managed ETFs have an advantage of ultra low fund fees. Smart beta ETFs as a fund type in between a passive and an active fund management is criticised to have higher expense ratio. From Table 2 and Table 3 reflected data provides on average expense ratio for ETFs 0.218% and for smart beta ETFs 0.252%. Indeed, expenses ratio is higher for smart beta funds, but the gap is rather small. Of course it is a decisions of every individual investor whether they are accepting slightly higher expenses for a non-fully passive fund management style or relying on the traditional type of ETF management. It has to be kept in mind that the expenses are having a notable impact on fund returns in the long run, but would it be still more profitable to invest in further sophisticated fund management style?

5.5 Results

This section collects the performance results from the ETFs (see sections: 5.1, 5.2, 5.3) representing the three previously introduced smart beta strategies. Performance is a key indicator for the investors whether they see a product attractive for an investment decision or not. Reflection to the underlying index and chosen market cap ETF performances, provide a thorough view over the smart beta ETFs ability to generate positive returns with acceptable risk level.

Top performer of the strategies is the equal weighting approach. With remarkable out-performance of the index and overall high returns, the characteristics of the strategy yield good reputation on the market. Greater allocation to the small cap companies has made equal weighting strategy to beat the market cap ETF by 4.98 percentage points. However, equal weight ETF accepts higher volatility as well. Conventional large company

tilted ETF scored good returns but due to the limitations of the market cap approach, it lacks the ability to generate excess return as smart beta. For an investor searching market outperforming results and excess returns by accepting relative volatility, equal weight ETF is a definitely value adding investment product.

Minimum variance approach has still short track records but demonstrates good outlook for the future. Even though the underlying index outperformed the ETF, it is not said that the same trend will go on in the long run. Regarding the volatility, the index and the ETF registered more or less the same values, which were positive in the manner of mitigating the market volatility. Comparison with market cap ETF, minimum variance ETF generated 5.4% higher return in a year period and scored 0.26 smaller beta value as the market cap ETF. For an investor minimum variance ETF unquestionably add value over the traditional ETF.

Fundamental approach is maybe one of the most discussed strategies to find a way to generate alpha among the smart beta concept. An example of fundamental ETF, however, has generated little less return as the underlying index. A worth of notice is less than a year operations of the fund. Positive indicator is the superior performance over large value category. As fundamental smart beta approach is on a mission to find value stocks to generate alpha, it is a relevant to have a comparison with the particular category. Concerning the market cap ETF; it performed better as smart beta ETF. For an investor fundamental weighted ETF is a question mark. Highly promising future performance is still unsure, which of course make the possible investors suspicious whether to invest in this strategy or not.

What it comes to the largest AUM possessing funds, traditional ETFs are still clearly dominating the market. The difference in AUM between the largest ETF and the largest smart beta ETF stands for USD 138.75 billion, which well indicates the difference in the sizes of the funds. Market cap ETFs are passively managed funds, which are considered as a low cost for the investors. ETFs are proven to be low cost indeed, but the smart beta ETFs are having just slightly higher average expense ratio (among the top ten). It is up to each investor if they are ready to accept slightly higher expenses ratio to possess a smart beta ETF in their portfolio. The decision cannot be made in a general level, but only when reviewing individual ETFs and comparing certain market cap ETF and smart

beta ETF. For example equal weight approach has higher fund management fees than low volatility approach.

6 Conclusion

The paper has pointed out various factors to back up the understanding of the actual smart beta concept. Due to the rather complicated nature of the topic, it is crucial to start the paper with the introduction of the elements around the concept. After creating the understanding of the elements such as beta and ETF, the reader is able to have further considerations regarding the smart beta ETFs. For reader's clarity, traditional market capitalisation ETFs are tracking a market capitalisation orientated index. The same applies with the smart beta ETFs, which are tracking an index that is practising a certain smart beta strategy. The three main smart beta strategies introduced in the paper are not the only ones within the concept, but seen as the most valuable to be compared with the market capitalisation ETFs.

The paper has been aimed to answer for the core research question: "are the smart beta ETFs adding value for the ETF investors?" The question has been approached by two separate stages. The first stage explains the ideology of the selected strategies and an index applying the particular strategy. These are compared with market capitalisation index. Second stage goes further and closer to the analytical results by introducing the ETFs following the smart beta strategies and assessing their performance in contrast with traditional ETFs.

Are the smart beta ETFs adding value? The question cannot be answered without dividing the strategies into own sections. Due to the fact that the smart beta concept is an umbrella term for the several strategies it is challenging, and irrelevant, to make conclusions of the overall capabilities of smart beta as a whole. Despite that, overall results of the paper's analysis indicate the market outperforming characteristics with relatively low volatility by the smart beta indices and funds. Every smart beta index beat the competing market capitalisation index, whereas the smart beta indexes scored lower volatility in two out of three cases. Regarding the ETFs, smart beta funds generated higher return in two out of three strategy categories.

Smart beta investment trend is indeed gaining more popularity among institutional and retail investors. There are two reasons why. Active managed funds are failing to generate returns above benchmark and are too costly due to high expenses ratios. For the record,

65% of active large cap managers under performed S&P 500 index benchmark (Forbes, 2012). Passive funds otherwise are remaining low cost, but the attractiveness of smart beta approaches and their good performance to generate return are taking over. As smart beta ETFs are positioned between active and passive management, they are more flexible and combining the benefits from both management styles. Strategic usage of the smart beta ETFs is definitely an advantage for investors. Whether the investor is eager to reduce the volatility of a portfolio or to generate higher returns, smart beta ETFs are providing the whole package. Especially for the institutional investors, transparency and clear fund objectives are crucial, which make the smart beta ETFs again easier to access.

Smart beta ETFs are still on the way to take off. Even though the amounts of smart beta funds and assets under management have been growing rapidly very recently, the alternative beta is facing scepticism. Due to the difficulty to define a smart beta fund, some sceptics are blaming the concept to be a marketing trick to attract large amounts of investment inflows. The issue is partially based on the recent inception of the product concept. Majority of the alternative beta ETFs (and indexes) are lacking long-term records. Investors are not yet convinced of the smart beta strategies' performance. Only the future records may reveal the performance of the smart beta ETFs in the long run. It is crucial to keep on monitoring the movements of the smart beta markets in the future to have a comprehensive awareness of the performance in the longer time period.

Smart beta ETFs add value. A variety of smart beta strategies available on the market improve the selection of the investment products. Investors have more investment possibilities in transparent, simple and low cost manner. Alternative beta ETFs have been created to adapt to the latest regulatory requirements and there will not be sudden surprises in fund management fees or investment approaches of the funds. The paper has introduced a few alternative beta ETFs, which have indicated positive capabilities to generate above average returns, in other words, outperform the market. In the end, investors are making investment decisions to increase a certain amount of capital; this is what smart beta ETFs are doing.

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