

STOXX

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PULSE

SMART BETA

ASSET MANAGEMENT IN ISRAEL

EURO STOXX SMALL

VSTOXX

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Konrad Sippel, global head of Product Development and executive director, speaks at the Global Investment Strategy Forum.



HARTMUT GRAF
CEO, STOXX Limited

DEAR READERS,

As the investment industry continues to debate the importance of smart-beta indices and products, STOXX Pulse brings you an interview with an official at iShares, which is owned by BlackRock, the world's largest asset manager. Ursula Marchioni, head of iShares EMEA Equity Strategy & ETP Research, explains what smart beta really means.

As interest in volatility as an asset class grows, STOXX hosted an event in Israel this June to discuss volatility and showcase our VSTOXX index family. STOXX Pulse caught up with Zvi Wiener, head of the finance department at the School of Business Administration at The Hebrew University of Jerusalem, at the event to ask him about the asset management landscape in Israel.

This issue also features a column by Giulio Castelli, senior product development manager at STOXX, on the concept of

volatility and what the VSTOXX index family offers investors who want to benefit from volatility as an asset class.

State Street in June launched an ETF based on the EURO STOXX Small Index in the United States. This index provides access to small-cap companies in the Eurozone. STOXX Pulse interviewed David Mazza, vice president of State Street Global Advisors and the head of ETF Investment Strategy for the Americas, to ask him about the growing interest amongst US investors, not only in Europe, but also in European small caps.

I hope you enjoy this issue. For comments and/or suggestions, please contact the editor Rajiv Sekhri at rajiv.sekhri@stoxx.com.

Regards,

Hartmut Graf
CEO, STOXX Limited



SMART-BETA INVESTING GROWS ON ESCALATING INVESTOR INTEREST



URSULA MARCHIONI
iShares EMEA

AS THE DEBATE CONTINUES ABOUT HOW SMART, HOW DIFFERENT AND HOW BENEFICIAL SMART-BETA INVESTING REALLY IS, STOXX PULSE INTERVIEWED URSULA MARCHIONI, HEAD OF ISHARES EMEA EQUITY STRATEGY & ETP RESEARCH.

Marchioni, who is also a director at iShares, is responsible for providing clients with in-depth ETF product and portfolio analyses on the iShares European-domiciled equity range as well as for delivering ETP research across asset classes. Marchioni joined BlackRock in 2012 from Credit Suisse, where she spent five years in a variety of roles, including head of CS ETF Sales Strategy and institutional sales for financial institutions.

Marchioni has also worked at Société Générale within the equity and fund-linked structured product sales team and spent four years at KPMG Advisory as a senior consultant in the derivatives financial engineering team. She holds a Laurea cum laude in Physics from Università degli Studi di Trento in Italy.

IN YOUR OPINION, WHAT REALLY CONSTITUTES SMART BETA AND IS THAT AN APPROPRIATE NAME FOR WHAT IS BEING ACCOMPLISHED WITH SUCH STRATEGIES? DO YOU ALSO CALL IT SMART BETA OR DO YOU USE ANOTHER MONIKER?

The growth of index investing has been one of the key trends in finance over recent decades. This stellar growth has been driven by the significant benefits index investing affords investors, the

growing range of uses indices have found in today's financial markets and, most importantly, the capacity of these strategies to evolve and adapt to market conditions and investor needs.

A myriad of new indices have emerged over the past years across different asset classes and segments, which are often collectively termed by the financial press and community as 'smart beta'. This term tends to refer to index strategies that are different from the more 'traditional' market-cap weighted strategies, most commonly used in equity and fixed income index investing.

The connotations of 'traditional' and 'smart' are based on two premises:

1. That market cap is the dominant, and therefore, 'traditional' weighting metric upon which index rules are based;
2. That non market-cap weighted strategies deliver superior returns, and hence are smarter and represent an improvement over traditional strategies.

While the first statement is broadly correct – as market-cap weighted strategies are by far the dominant choice in indexing in terms of current assets

ADVANCED

ADDITIONAL BETA

SUPER BETA

SMART BETA

SUPER BETA

PRE BETA

under management (AUM) allocation – we caution investors in considering these strategies 'smarter'. Betas that implement 'non-traditional' weighting strategies represent a deviation toward specific risk factors or exposure. While these deviations may deliver outperformance in certain market scenarios, they can underperform traditional betas in others.

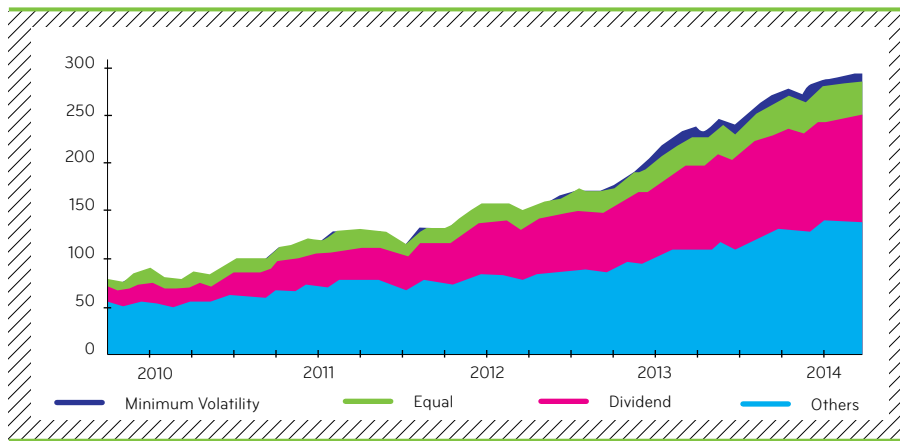
We therefore suggest that investors change the definitions and avoid calling non market-cap weighted strategies 'smart'. Instead, think about non market-cap strategies as those that provide the following:

- a. An indexed exposure to non-traditional asset classes, such as private equity or hedge funds;
- b. Access to traditional asset classes, such as equities and fixed income, but with weighting schemes alternative to the traditional market-cap weighted scheme;
- c. Access to traditional asset classes based on a risk-factor approach.

In addition to changing definitions, investors need to focus on the outcome they want. We believe the key to investors successfully selecting beta across all forms is to base it on their main objective (either an enhancement of returns or a mitigation of specific risks) and their future expectations (how they believe markets will evolve so as to select the index strategy that meets their needs in that specific economic scenario).

Investors should also not assume that one type of beta will always deliver outperformance at all times for all scenarios. Investors need to understand their betas and comprehend which beta is likely to best succeed. This requires due diligence on how the index is constructed – on the data inputs, the transaction costs, the liquidity profile, the consistency

STRATEGIC BETA EQUITY ETP AUM GROWTH BY WEIGHTING SCHEME



RETURNS OF STOXX SMART-BETA INDICES

	Return (annualized) ¹	Volatility (annualized)	Maximum drawdown	Sharpe ratio ²
STOXX® Global 1800	3.5%	19.7%	58.2%	0.24
STOXX® Global 1800 Minimum Variance	6.8%	14.1%	43.5%	0.49
STOXX® Global 1800 Minimum Variance Unconstrained	7.0%	11.7%	31.9%	0.58
STOXX® Global Strong Balance Sheet	7.6%	17.4%	47.7%	0.47
STOXX® Global Strong Quality 50	6.9%	23.0%	51.0%	0.38

1) Source: STOXX daily data from Sep. 24, 2007 to Jul. 1, 2014 for USD Gross Return indices
 2) Libor used as riskless asset to calculate Sharpe ratio

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WE THEREFORE SUGGEST THAT INVESTORS CHANGE THE DEFINITIONS AND AVOID CALLING NON MARKET-CAP WEIGHTED STRATEGIES 'SMART'.

between a strategy's live and backtested track record – and all other dimensions of benchmark selection.

Only when this mapping is fully understood, is a successful investment decision possible.

WHERE DID THE "SMART MONEY" GO IN 2013 AND WHERE IS IT HEADED IN 2014 (IN WHAT TYPES OF SMART-BETA STRATEGIES, IN WHICH REGIONS OF THE WORLD)

During the first half of 2013, Minimum Volatility strategies represented the most popular ETP category, within the alternative weighting space, with inflows of 6.7 billion US dollars. This result pushed the total AUM of the non market-cap category above 10 billion US dollars. Nevertheless, the popularity of Minimum Volatility strategies significantly reduced once the Fed tapering announcement came in May – and risk-on mode returned.

For all of 2013, dividend income ETPs gathered 21.1 billion US dollars, the best year ever. These inflows drove the category AUM above 100 billion US dollars.

Year-to-date in 2014, dividend income ETPs gathered 6 billion US dollars, a significant result when considering that the broader US equity category totalled 10 billion US dollars. The popularity of dividend funds is linked to their potential for income generation – in a similar manner to fixed income funds, while maintaining the equity upside.

Two other trends to highlight for 2014 are:

1. Inflows into Japan price-weighted equity ETPs, which are mostly domiciled in Asia Pacific;
2. Fundamentally weighted ETPs, which are attracting interest with January-May, 2014 inflows of 2 billion US dollars compared to 2.2 billion US dollars for all of 2013.

HOW BIG IS THE SMART-BETA MARKET AND WHAT IS DRIVING INTEREST IN SMART BETA CURRENTLY?

In terms of AUM in non market-cap weighted ETPs, the 300 billion US dollars milestone was reached in March, 2014. Minimum Volatility, Dividend, Equal and Fundamentals weighted ETPs were among the most successful drivers of this growth.

WHAT ARE THE PROS AND CONS OF BEING INVESTED IN SMART-BETA AND MARKET-CAP WEIGHTED INDICES?

Market-cap weighted strategies are the traditional and most widely adopted method of index investing. These strategies are based on a set of index rules whereby index constituent weights are calculated as the product of freely traded shares times the current market price. As a result, the larger companies are assigned a higher weight than the smaller ones.

The main benefits of market-cap weighted strategies are: (i) Automatic rebalancing. As the price of the stock moves, so does its market cap, therefore lowering turnover and transaction costs (ii) The low-cost benefit is also delivered through the emphasis these strategies put on larger names which tend to be highly liquid and cheap to trade (iii) They represent the 'true mean', being the aggregate of all positions taken by active and index managers in the market (iv) Success does not change the characteristics of an index. More or fewer investors neither change the constituent ranking in the strategy nor the respective weights of the constituents. The same cannot be said of non market-cap weighted strategies, whose success may have an effect on the composition.

The cons of market-cap weighted strategies are as follows. They overweight certain risk factors. This leads to their performance benefitting or being impaired by the performance of these factors in the market. The most widely known risk in these strategies is that they are prone to bubbles. Allocating higher weights to securities that have increased in value may not be optimal when investors are behaving irrationally (such as during market bubbles) as it 'leverages' this irrationality.

ETPs include a variety of strategies, such as fundamentally weighted, factor, Minimum Volatility etc.

The pros of smart beta strategies are as follows. Fundamental strategies employ an alternative methodology for selecting companies likely to succeed in the future, linking this expectation to the achievement of certain thresholds in terms of fundamental indicators, as opposed to certain price behaviors. As a result, these strategies might deliver a more solid stock screening mechanism.

For an investor looking for equity exposure but lower volatility, minimum volatility strategies provide the solution.

And the benefit of equally weighted indices is that they avoid concentration in large cap and therefore concentration of risk.

The cons of smart-beta strategies are as follows. For fundamental strategies, the methodology can lead to an index that 'tilts' toward value and small-cap stocks compared to a market-cap weighted index. As fundamental indices de-emphasise price, they overweight smaller companies; furthermore, they tend to gravitate toward securities that are being sold off by the market, hence towards value-oriented names. This means the performance of fundamental strategies is likely to be heavily influenced by the returns of specific sectors or of the value factor.

Regarding Minimum Volatility, in rallying markets, these strategies may underperform in absolute terms compared to other betas, such as market-cap weighted strategies.

Equal-weighted strategies can provide diversification benefits but naturally result in a bias toward small caps. These stocks will generally be less liquid and therefore more expensive to trade. This issue is compounded by the significant turnover within equal-weighted indices, and trading costs detract from performance of the strategy. <<





PASSIVE INVESTING GAINS POPULARITY IN ISRAEL

STOXX LTD. HOSTED AN EVENT ABOUT VOLATILITY PRODUCTS AND INDEXING DEVELOPMENTS IN TEL AVIV IN JUNE.

At the event, STOXX Pulse caught up with Zvi Wiener to ask him about the asset management landscape in Israel. He is head of the finance department at the School of Business Administration at The Hebrew University of Jerusalem.

Professor Wiener is an expert on risk management, financial engineering and valuations of complex financial instruments and has published extensively in major academic and professional journals. He is one of the founders of The Professional Risk Managers' International Association (PRMIA), a non-profit professional association with nearly 90,000 members worldwide.

He also heads a prestigious consulting firm, which serves many prominent clients in Israel, including government institutions, regulators, banks, insurers, high-tech companies, venture capital and hedge funds. His opinions have served a key role in several high profile court cases.



ZVI WIENER

The Hebrew University of Jerusalem

HOW DO YOU THINK PASSIVE INVESTMENT IS PERCEIVED IN ISRAEL? DO YOU THINK PASSIVE INVESTING IS GROWING IN THE COUNTRY OR DO YOU THINK IT IS JUST ANOTHER INVESTMENT STYLE AMONG OTHERS?

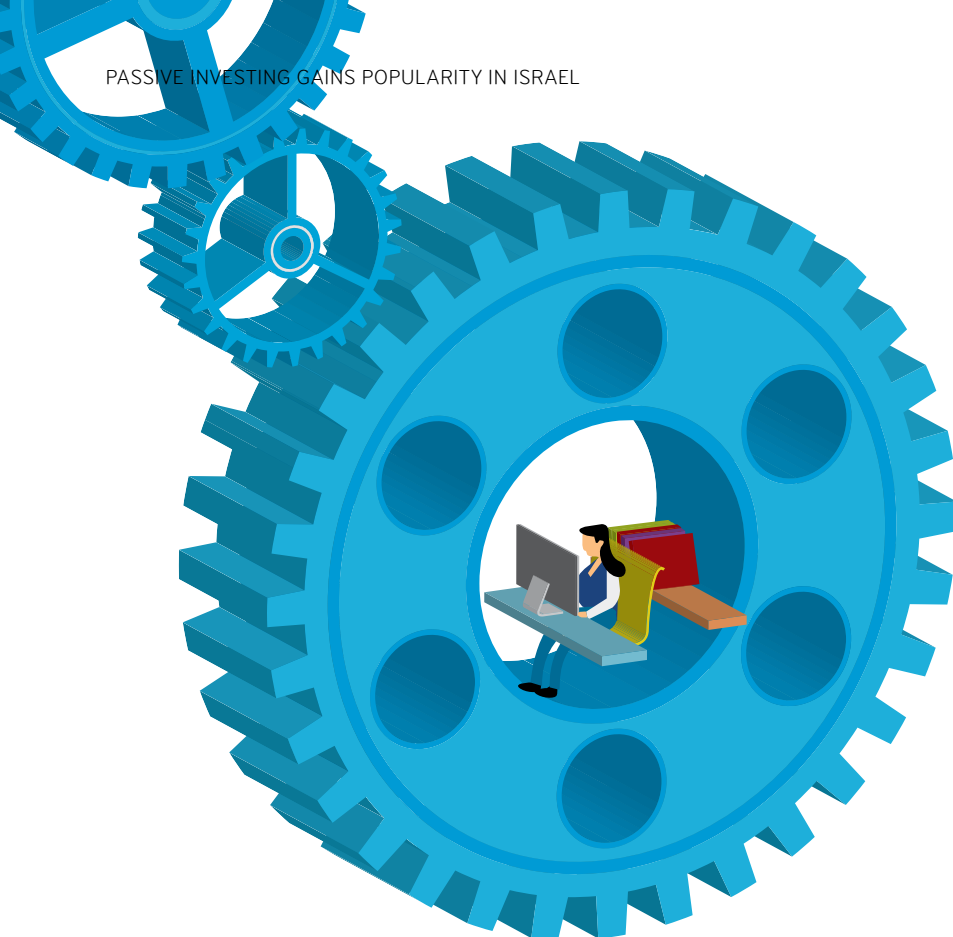
Passive investment has become much more popular in Israel in the last ten years. Today passive investing constitutes a significant part of the investment

portfolio of most pension and provident funds, and, to a lesser extent, of mutual funds. In Israel, due to local regulations, most passive investments take the form of an ETN (exchange traded note – and I emphasize note, not fund). Today, there are several hundred passive ETNs traded on the Tel Aviv Stock Exchange, and they constitute about 25% of daily trade volume.

In a research paper that I published with other researchers in the Journal of Fixed Income last year, we assessed counterparty risk in ETNs, not just in Israel but on a global level. We found that investors in ETNs do not fully understand their product structure and ignore major risks associated with them, a fact that has important implications for regulatory policy. Our research stressed the need for greater transparency in complex financial products and the disclosure of unambiguous measures to gauge embedded risks. Such transparency would better equip investors to understand the complexity of such products and allow them to make better decisions regarding their risks.

CAN YOU GIVE US SOME COLOR ON THE ETN AND MUTUAL FUND MARKET IN ISRAEL? DOES THE ISRAEL SECURITIES AUTHORITY (ISA) ALLOW ETFs TO BE SOLD IN THE DOMESTIC MARKET, OR ARE THERE PLANS TO TRANSFORM ETNS INTO ETFs AND ALLOW ETFs TO BE SOLD? IF THAT HAPPENS, WHAT SORT OF IMPACT WOULD THAT HAVE ON THE ASSET MANAGEMENT UNIVERSE IN ISRAEL?

As I mentioned above, most passive products in Israel are of the ETN type. Since these are notes (bonds), the ISA requires a much stronger risk management process. If ETNs profit more than the underlying index, the profit goes to the manager. And if they profit less than the underlying index, there is a risk of default, which creates what is called the moral hazard problem, which can be treated by strict regulation, advanced risk management and transparency.



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WHAT I SEE LESS OFTEN IS A "DO-IT-YOURSELF" STRATEGY, USING FUTURES OR OPTIONS.

Recently the ISA took steps to allow additional passive products to enter the Israeli market. These include passive funds (not continuously traded). There are also steps toward allowing foreign funds to be traded on the Israeli markets. Also, banks offer various swap-type products which effectively provide a passive index following a strategy. What I see less often is a "do-it-yourself" strategy, using futures or options. For some reason, institutional investors are less used to working with derivatives with a dynamic collateral and often simply prefer buying

ISRAEL ECONOMIC SNAPSHOT

GDP (2013 est.)	USD273.2 bn
GDP growth (2013 est.)	3.3%
GDP per capita (2013 est.)	USD36,200
Unemployment (2013 est.)	5.8%
Inflation (2013 est.)	1.7%
Market value of publicly traded shares (Dec. 2012 est.)	USD148.4 bn

Source: CIA World Factbook.

existing products. There is strong regulatory pressure from the Ministry of Finance to cut management costs for pension funds. This may eventually lead to cheaper investment strategies that require dynamic management of a portfolio and not only buying a ready-to-use product.

WHERE DO YOU SEE ISRAEL'S ECONOMIC GROWTH IN 2014 AND 2015 AND WHAT ARE THE REASONS FOR YOUR ESTIMATE?

The Israeli economy is growing fast (relative to other developed countries). I see GDP growth at 3% to 4% in 2014 and in 2015.

The main factors that have a positive impact on the economy are high-tech (including bio-tech, pharma, energy, communications, software) and gas exploration and a wider use of natural gas as a main source of energy. The main risk factor remains political instability and the military situation in the region, which may have a spillover effect on Israel. In terms of institutional investors, there is a steady growth of pension funds that are mainly managed by five insurance companies and a couple of brokers. There are some signs of government attempts to break some old monopolies and pyramids, but the results of this initiative are still

unclear. If successful, it can give an additional boost to the economy.

INDEX PROVIDERS ARE FACING TOUGHER REGULATIONS AROUND THE WORLD. IN YOUR OPINION, HOW DOES THE ISA VIEW INDEX PROVIDERS AND WHAT SORT OF TRANSPARENCY DOES IT REQUIRE FROM THEM?

The ISA in 2011 conducted a big research project, in which all Israeli ETN managers took an active part. I was a consultant on the side of the ISA. The research suggested that it is important to regulate the ETN market in light of the large volume of activity in this market and the system-wide risk that poses the threat for a possible collapse of the capital market as a whole.

The current changes in regulations (from the side of the ISA) will make ETNs stronger and less vulnerable. Many regulations are in the direction of active risk management and opening of the markets to foreign funds as well.

WHAT WOULD BE YOUR TOP THREE TO FIVE INVESTMENT CHOICES FOR ISRAEL FOR THE NEXT YEAR TO 18 MONTHS AMONG ALL INVESTMENT CLASSES AND WHAT ARE THE REASONS FOR YOUR CHOICES?

I think that insurance companies are an attractive investment in Israel. First, they currently manage the vast majority of long-term funds; second, at least a few of them must be sold by the current owners due to regulations. The insurance companies are very strong and profitable and are for sale.

Two other interesting areas are:

1. Start-ups – young companies, mainly related to technology, which are a strong engine of the Israeli economy.
2. Infrastructure projects – There are many large-scale projects, like building new power stations, sea ports, etc. that require large investments but have government protection, in many cases. For historical reasons, there is no active securitization and as a result mainly banks and pension funds invest in these projects. <<



EUROZONE SMALL CAPS OFFER BIG OPPORTUNITY

THE EURO STOXX SMALL INDEX





DAVID MAZZA
SSgA

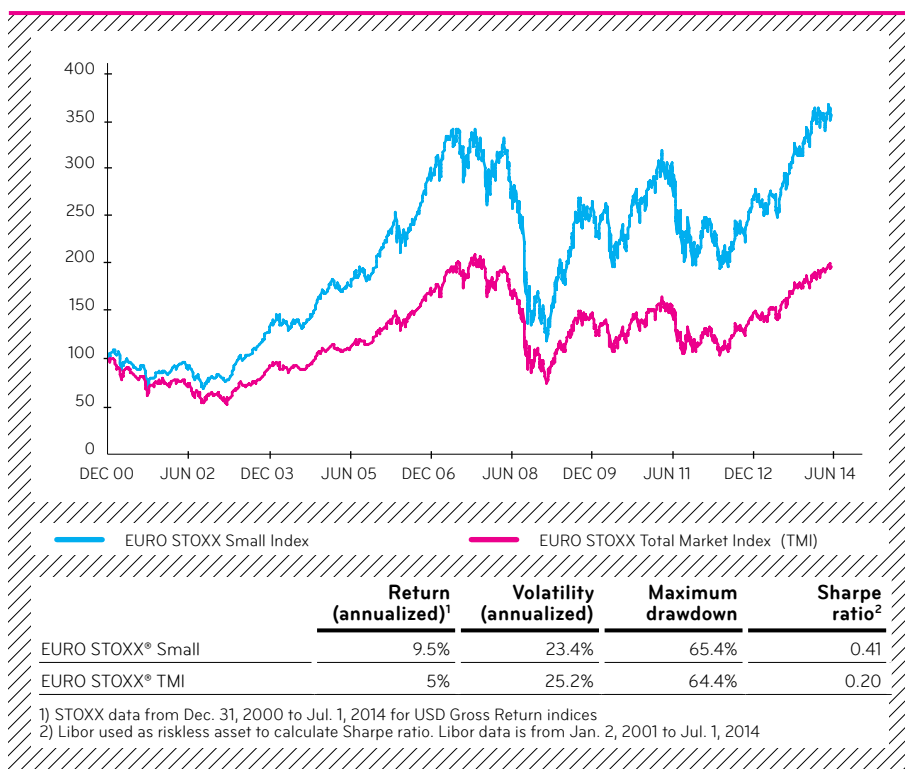
As Europe's economy recovers from a double-dip recession that started in 2008, optimism about European equities continues to grow. In June, STOXX Ltd launched the EURO STOXX Small Index, which offers investors valuable investment exposure to Eurozone small caps, an area that has been overlooked by investors in the past.

State Street Global Advisors (SSgA) launched the SPDR EURO STOXX Small Cap ETF on Jun. 4, 2014. The ETF is traded on NYSE Arca.

STOXX Pulse talked to David Mazza, a vice president at SSgA and head of research for SPDR ETFs and SSgA Funds, to get his outlook on interest from US investors in Eurozone and European small caps.

Mazza manages a team of product and sales strategists and develops market outlooks and investment themes that integrate SSgA's thought leadership across different investment disciplines. David received his BA in political science and philosophy from Boston College.

EURO STOXX SMALL OUTPERFORMS EURO STOXX TMI



WHAT DO YOU THINK ARE THE REASONS WHY US INVESTORS HAVE NOT BEEN KEEN ON EUROPEAN OR EUROZONE SMALL CAPS IN

THE PAST? IS THAT CHANGING?

Like many investors around the globe, US investors exhibit evidence of a home country bias, especially when it comes to small-cap equities. In light of the turmoil that Eurozone markets experienced during the sovereign debt crisis, US investors stayed closer to home as well. In 2013 and into 2014, US investors have now fully embraced Eurozone equities as economies have shown signs of healing and investors look for further opportunities for attractive risk-adjusted returns. As access to Eurozone small caps has expanded, investors may begin to look down the cap spectrum to take advantage of these trends.

WHAT DO YOU THINK EUROZONE SMALL CAPS OFFER US INVESTORS THAT US SMALL CAPS DO NOT?

In today's market, Eurozone small caps offer US investors an attractive entry point as they trade at a significant discount to US small caps. At the same time, they offer exposure to cyclical sectors that may be good as the Eurozone economy accelerates. Over the long term, Eurozone small caps bring improved diversification benefits and the potential for favorable risk-adjusted returns relative to their large-cap peers.

WHAT IS YOUR FORECAST FOR EUROPEAN AND EUROZONE ECONOMIC GROWTH FOR 2014 AND 2015? AND HOW DOES THAT COMPARE TO YOUR US GROWTH FORECAST?

Driven by dovish monetary policy and improved global demand, SSgA expects to see economic growth in the Eurozone pick up after a double-dip recession that drove unemployment to 12.0%. More specifically, we see Eurozone growth accelerating from -0.4% in 2013 to 1.0% in 2014 and 1.5% in 2015. In contrast, we expect the US economy to expand by 2.2% this year and 3.2% next year as fiscal drag is reduced and private sector demand continues to strengthen. <<

VSTOXX

TRADING VOLATILITY IN EUROZONE STOCKS REACHES NEW LEVEL OF INTEREST

STOXX Pulse asked Giulio Castelli, senior product development manager at STOXX, to write about volatility and explain the VSTOXX index family to our readers. Castelli, who manages the VSTOXX family, has worked at the company since 2011. Before joining STOXX, he worked as a quantitative fund manager for Fideuram Asset Management in Ireland. Giulio graduated in economics from Bocconi University, specializing in quantitative methods and derivatives.

To start with, I would like to list a few ways in which investors use implied volatility. They are:

1. MARKET GAUGE

Investors are typically concerned with "what's going to happen next" and "how the market will react" to some future events. Implied volatility – which expresses the market's view on the realization of future volatility – can help investors make up their minds on how the market believes a security will behave in the future.

2. DIRECTIONAL TRADING

Investors can view volatility as an asset class per se – and trade it as such – based on their expectations of its direction and future level.

3. DISPERSION TRADING

The implied volatility of an option on an index provides information not only on the volatility of its constituents, but also on their implied correlation. By selling the implied volatility of an index and buying the implied volatility of the individual underliers, investors try to extract that implied correlation.

4. INDEX VOLATILITY SPREAD TRADING

Investors, with certain expectations of how two indices will behave relative to each other, could trade the implied volatility of one index against the other. For instance, if investors believe that the EURO STOXX 50 will in the future be more volatile than the DAX, they could buy the implied volatility on the EURO STOXX 50 and sell the implied volatility on the DAX.

5. HEDGING

A long position in implied volatility can help mitigate an increase in a passive fund's tracking error, if market conditions deteriorate.

WHAT IS THE VSTOXX INDEX?

In a nutshell, the VSTOXX index provides a measure of the volatility of the EURO STOXX 50 as implied by the market for a certain, fixed term in the future.



GIULIO CASTELLI
STOXX

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A two-step process leads to the determination of the level of a VSTOXX index:

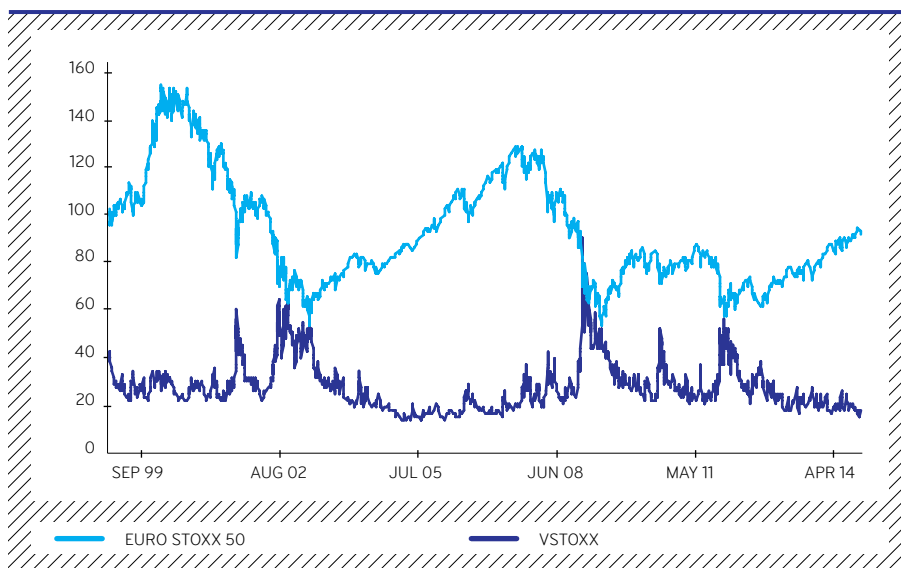
In the first step, the EURO STOXX 50 options traded on Eurex are grouped by maturity. For each of the first eight standard maturities available, a portfolio of options is constructed, with a particular choice of the options' weights. Thanks to that peculiar weighting scheme, the market value of this options portfolio represents the implied volatility of the EURO STOXX 50 for that maturity: this will be referred to as a VSTOXX sub-index of a certain tenor. Since a VSTOXX sub-index refers to a specific term, its time to maturity will clearly decline as time passes by and hence represent the expected volatility on a shorter horizon.

In the second step, a target tenor for volatility is identified: for instance, a constant 30-day volatility. To achieve this constant time to maturity, the average of two sub-indices is calculated. The two elected sub-indices will have the closest (variable) time to maturity to the targeted, fixed term and be weighted in such a way that the resulting combined time to maturity matches the targeted one. In other words, as time passes by, some weight of the sub-index with shorter maturity is shifted to the sub-index with longer maturity. The resulting average is called a VSTOXX main index and represents the implied volatility of the EURO STOXX 50 over the targeted (fixed) term.

Although the main index VSTOXX 30 days is the most popular one – and is usually referred to as the VSTOXX – eleven other main indices are calculated, covering fixed maturities up to 360 days, in increments of 30 days.

The calculation of the indices occurs every five seconds, thus ensuring a timely representation of the developments in the market.

CHART 1



THE VSTOXX IN PRACTICE

A comparison of the EURO STOXX 50 and VSTOXX (30 days) below, shows the relationship between the two indices:

The EURO STOXX 50 shows the typical behavior of equity markets, according to which prices tend to fall much faster than they rise. This means that volatility in

down markets is usually higher than in up markets. This characteristic is evident in the VSTOXX Index: when the EURO STOXX 50 falls and expectations worsen, the VSTOXX picks up, just to taper off toward its mean in an environment that shows better perspectives, is calmer or is trending up.

Realized volatility, as shown in chart 1, is typically lower than implied volatility: a few reasons can explain this behavior.

Buying implied volatility can be seen as purchasing an insurance. Given that realized volatility increases in turmoil, people are willing to pay a premium (represented by the higher level of implied volatility as compared to its future realization) in order to be compensated in the event of deteriorating markets.

Additionally, given its "anti-cyclical" nature, there are fewer natural sellers of implied volatility than buyers.

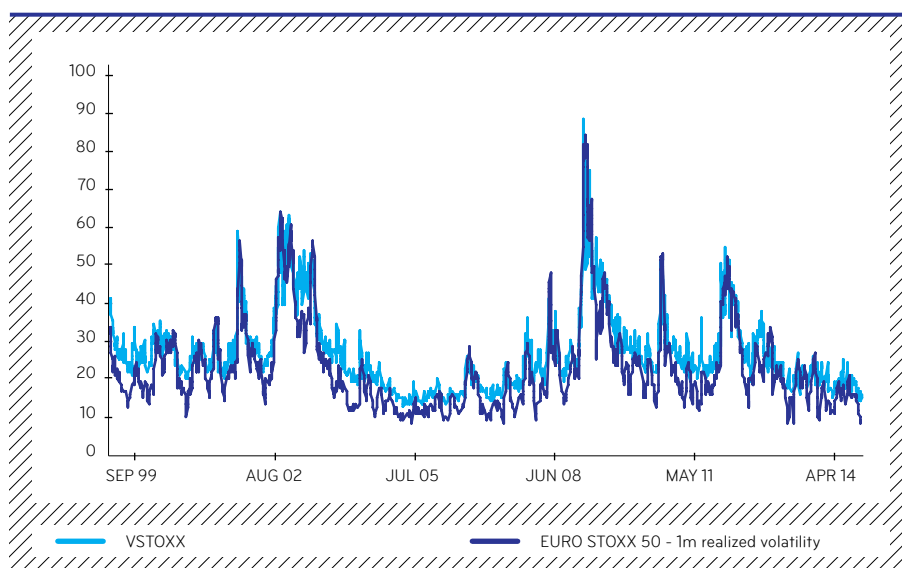
The skew of volatility, besides mirroring the fact that higher speed is associated with down markets, also reflects the higher demand for downside volatility than upside.



WHAT IS IMPLIED VOLATILITY, AFTER ALL?

Historical – or realized – (daily) volatility is measured as the standard deviation of the past (daily) returns of a financial instrument over a certain observation period and is usually expressed in annualized terms. It shows how much the returns of that instrument deviated, on an average day, from their mean. For

CHART 2



instance, a security with an annualized volatility of 32% has moved – on average, and assuming 256 days in a year – by plus or minus 2% every day around its mean daily return.

This is about the past. So what about the future? Although knowing how a security behaved in the past may tell something about how it will do in the future, just relying on past volatility to forecast the future will almost certainly ignore the impact of some events – known or unknown – which are going to happen.

Financial options give their owner the right to buy or sell a security at a future date at a predefined price. The fair value of an option can be thought of, in a risk-neutral world, as the present expected value of the option at maturity. Estimating the future realization of the security's price means making hypotheses about its development between now and the option's maturity: in other words, it means estimating the realization of future volatility.

Under well-defined – albeit not entirely realistic – assumptions and given certain inputs, the Black-Scholes model provides an estimate of a (plain vanilla) option's

fair value. One of the required inputs is the volatility, expected until expiration, of the underlying security.

However, given its "expected" nature, this volatility cannot be directly observed. What can be observed in the marketplace is an option's market price. Knowing the option's price and by "reversing" the Black-Scholes model, it is possible to determine the volatility that, under the model's assumptions, would make the option's fair value equal to its market price: this is the volatility implied by the options market for a security over a certain term.

Finally, if the value of a security can be viewed as its position in time and its return as its speed, the historical/implied volatility can then be seen as its realized/expected acceleration (see chart 2).

WHY THAT COMPLICATED FORMULA?

One may argue that, if implied volatility can simply be backed from an option's price, there is no need to create a complicated portfolio of options to calculate a VSTOXX sub-index. This is, in the end, what the first volatility indices, such as the VDAX-old, used to do.

Unfortunately, volatility is not constant, as postulated by the Black-Scholes model, but varies with both the underlier's price level and time to maturity, and it is thus better represented as a volatility surface, with its smiling/skewed profile and a certain term structure, rather than a unique value.

Also, options react differently to changes in volatility, depending on their strike and the current level of the underlying security.

Looking at a single option would therefore provide, at best, a view of the implied volatility limited to a very specific and limited set of market conditions.

By creating a portfolio of options with accurately chosen weights, de facto mimicking the methodology of a variance swap, a better, more comprehensive representation of implied volatility can be achieved. ◀◀

FEATURED INDICES

STOXX Global 1800	YTD PERFORMANCE	52-WEEK PERFORMANCE	3-YEAR PERFORMANCE
STOXX Global 1800	6.7%	19.3%	43.9%
STOXX Global 1800 Minimum Variance	9.9%	15.4%	44.3%
STOXX Global 1800 Minimum Variance Unconstrained	11.0%	14.9%	41.4%
STOXX Global Select Dividend 100*	12.0%	23.0%	37.4%
STOXX Global Maximum Dividend 40*	9.6%	27.0%	36.5%
STOXX Global Strong Quality 50	11.6%	24.4%	45.4%
STOXX Global Strong Balance Sheet	8.2%	21.4%	52.0%
STOXX Global Strong Balance Sheet Equal Weight	6.3%	19.1%	41.7%
STOXX Europe 600			
STOXX Europe 600	4.9%	23.3%	36.9%
STOXX Europe 600 Minimum Variance	6.9%	20.0%	37.4%
STOXX Europe 600 Minimum Variance Unconstrained	8.7%	23.0%	35.9%
STOXX Europe Select Dividend 30*	11.6%	32.5%	25.4%
STOXX Europe Maximum Dividend 40	8.8%	32.5%	45.1%
STOXX Europe 600 Equal Weight	4.8%	25.6%	38.6%
STOXX Europe Low Risk Weighted 100	11.4%	13.8%	43.2%
STOXX Europe Strong Quality 30	9.8%	29.8%	34.4%
STOXX Europe Strong Balance Sheet	7.9%	19.7%	49.0%
STOXX Europe Strong Balance Sheet Equal Weight	4.0%	20.8%	44.1%
EURO STOXX			
EURO STOXX 50	3.8%	27.7%	30.1%
EURO STOXX Minimum Variance	6.5%	19.8%	33.5%
EURO STOXX Minimum Variance Unconstrained	5.3%	17.3%	40.6%
EURO STOXX Select Dividend 30	13.8%	15.7%	27.1%
EURO STOXX 50 Equal Weight	4.6%	30.6%	31.2%
EURO STOXX 50 Low Risk Weighted	4.7%	28.2%	32.7%
STOXX Asia/Pacific 600			
STOXX Asia/Pacific 600	3.9%	9.6%	22.6%
STOXX Asia/Pacific 600 Minimum Variance	8.8%	10.8%	27.7%
STOXX Asia/Pacific 600 Minimum Variance Unconstrained	12.7%	11.7%	30.6%
STOXX Asia/Pacific Select Dividend 30*	13.2%	16.0%	41.5%
STOXX Asia/Pacific Maximum Dividend 40*	17.4%	26.9%	48.3%
STOXX ASEAN-Five Select Dividend 50	9.3%	4.4%	25.6%
STOXX Asia/Pacific Strong Quality 30	5.9%	8.4%	10.7%

STOXX China A 50	YTD PERFORMANCE	52-WEEK PERFORMANCE	3-YEAR PERFORMANCE
STOXX China A 50	-6.0%	-4.1%	-17.8%
STOXX China a 50 Equal Weight	-7.3%	-3.6%	-22.4%
STOXX North America 600			
STOXX North America 600	8.3%	20.2%	54.9%
STOXX North America 600 Minimum Variance	9.5%	15.5%	52.3%
STOXX North America 600 Minimum Variance Unconstrained	9.5%	13.8%	55.0%
STOXX North America Maximum Dividend 40*	11.4%	16.1%	53.8%
STOXX North America Select Dividend 40*	10.6%	17.7%	40.7%
STOXX USA 900			
STOXX USA 900	18.1%	15.2%	54.8%
STOXX USA 900 Minimum Variance	14.9%	12.5%	56.8%
STOXX USA 900 Minimum Variance Unconstrained	12.1%	9.4%	56.0%
STOXX USA Strong Quality 50	10.1%	25.9%	72.7%
STOXX USA Strong Balance Sheet	8.6%	22.8%	63.5%
STOXX USA Strong Balance Sheet Equal Weight	6.9%	21.7%	59.2%

All indices are in USD Gross Return versions, except the ones marked with *, which are in USD Net Return versions.
Source: STOXX data as of Jul. 15, 2014

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