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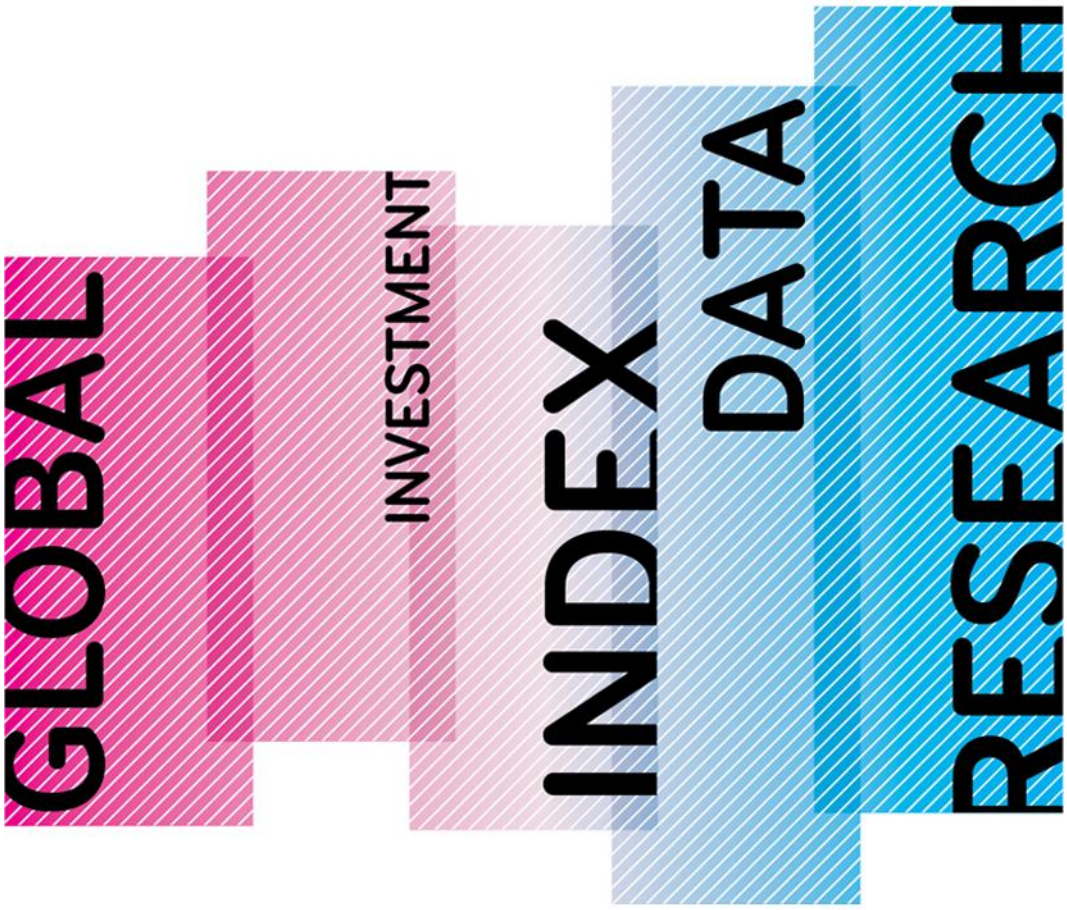
STOXX ESG IMPACT INDICES – A SMARTER WAY TO INCREASE SUSTAINABILITY

Dr. Jan-Carl Plagge, Head of Applied Research and Christoph Gackstatter, Product Development Manager, STOXX Ltd.



STOXX

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Abstract

The STOXX ESG Impact Indices offer investors an innovative way to increase the exposure to ESG-related key performance indicators (KPIs) relative to their benchmarks.

While existing approaches mostly focus on increasing ESG exposure, often with the secondary aim of staying close to the risk and return characteristics of those of a benchmark, STOXX ESG Impact Indices go one step further and focus on a pre-defined set of KPIs that are found to reduce volatility on a single stock level.

Thus, STOXX ESG Impact Indices are designed to have an "impact" on three dimensions:

- they *impact*, i.e. increase, the exposure to ESG-related indicators of the resulting index relative to that of the benchmark,
- they change the risk-characteristics of the index by focusing on those KPIs that tend to have a risk-reducing *impact* on a single stock level,
- as part of the entirety of ESG-related investments, they aim at incentivizing companies to improve their business practices in order to comply with international standards and to be considered for index inclusion.

The empirical analysis shows that increasing the exposure to the selected ESG-related KPIs causes the indices to have a significant negative exposure to the volatility factor. This exposure explains the indices' historical outperformance compared to that of their benchmarks.

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Introduction

The share of sustainable investing increased substantially over the last years. According to the Global Sustainable Investment Association (GSIA), the market of ESG-related investment concepts has continued to grow both in absolute and relative terms, rising from USD 13.3 trillion[1] at the outset of 2012 to USD 21.4 trillion at the start of 2014, and from 21.5 percent to 30.2 percent of the professionally managed assets in the regions covered.

Within the space of sustainable investing, various approaches can be distinguished:[1]

1. Negative/exclusionary screening: the exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria;
2. Positive/best-in-class screening: investment in sectors, companies or projects selected for positive ESG performance relative to industry peers;
3. Norms-based screening: screening of investments against minimum standards of business practice based on international norms;
4. Integration of ESG factors: the systematic and explicit inclusion by investment managers of environmental, social and governance factors into traditional financial analysis;
5. Sustainability themed investing: investment in themes or assets specifically related to sustainability (for example clean energy, green technology or sustainable agriculture);
6. Impact/Community investing: targeted investments, typically made in private markets, aimed at solving social or environmental problems, and including community investing, where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to businesses with a clear social or environmental purpose; and
7. Corporate engagement and shareholder action: the use of shareholder power to influence corporate behavior, including through direct corporate engagement (i.e., communicating with senior management and/or boards of companies), filing or co-filing shareholder proposals, and proxy voting that is guided by comprehensive ESG guidelines.

All of those seven approaches aim at increasing the sustainability of a portfolio. However, they differ substantially with regard to (secondary) intentions. While negative and positive screening as well as norm-based investing *only* aim at increasing sustainability, community investing and corporate engagement approaches *additionally* aim at improving the status quo.

The integration of ESG factors into the financial analysis, as a third category, further aims at linking ESG-related KPIs to financial performance.

This paper positions the STOXX ESG Impact Indices within the landscape of existing approaches before discussing the index methodology in more detail. The empirical section focuses on the investigation of risk and return characteristics of the STOXX ESG Impact Indices on a standalone as well as on a relative basis. The empirical analysis shows that increasing the exposure to the selected ESG-related KPIs causes

[1] Please see Global Sustainable Investment Review 2014.

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the indices to have a significant exposure to the low volatility factor. This exposure explains the indices' historical outperformance compared to that of their benchmarks.

STOXX ESG Impact Indices

The STOXX ESG Impact Indices draw upon some of the existing concepts while additionally taking into account a newly developed 8th dimension.

- In order to guarantee that companies are compliant with business practices based on international norms, a **norm based screening** is conducted by selecting only those companies that are compliant with UN Global Compact Principles.
- An **exclusionary screening** is conducted by excluding companies from the coal miners industry, aiming at reducing the negative environmental impact from coal mining itself as well as a subsequent negative impact stemming from the processing of coal on carbon emissions.
- A **positive screening** based on a set of carefully selected ESG-related KPIs is conducted for a broad universe of companies domiciled in developed markets.

  Hereby, the way these KPIs have been selected from a broad range of ESG-related KPIs leads to the **8th dimension** covered by STOXX ESG Impact Indices:

Most of the previously mentioned seven approaches, are, to a certain extent, agnostic to return and risk characteristics of the resulting portfolio. Thus, return and risk is typically an uncontrolled "by-product" of the chosen selection-procedure. STOXX ESG Impact Indices, on the other hand, are constructed with a secondary objective in mind. The objective is to focus on those KPIs that have a risk-reducing influence on the stock level. In order to identify those KPIs, a comprehensive empirical analysis has been conducted.

The KPIs, for which a significant influence of risk was identified are the following: 1) CDP emissions/energy reduction target, 2) percentage of independent board members, 3) percentage of women on the board, 4) policy against child labor and 5) golden parachute agreement.

The binary variable "CDP emission/energy reduction target" indicates whether a company has a specific emissions and/or energy reduction target in place. The variable "percentage of independent board members" measures the share of independent directors of total board members. The information "percentage of women on the board of directors" is taken as reported by the company.[2] The variable "policy against child labor" indicates whether the company has implemented any initiatives to ensure the prevention of child labor across all parts of its business. Lastly, the binary variable "golden parachute agreement" indicates whether a company has any change of control benefits/severance benefits or golden parachute agreements in place for any of its executives.

[2] For Europe: In case a company has a Supervisory Board and a Management Board, the variable measures the percentage of women on the supervisory board.

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While the indicators "CDP emission/energy reduction target", "percentage of independent board members", "percentage of women on the board" and "policy against child labor" were found to have a risk reducing influence on stock prices, the existence of a "golden parachute agreement" was found to have a risk increasing effect. Thus, the aim of the index methodology is to increase exposure the first four KPIs while reducing the exposure to the latter KPI.

Especially with regard to the percentage of women on the board, the percentage of independent board members as well as for the existence of a golden parachute agreement, the effect on risk is quite intuitive. The related literature suggest that women have less risk appetite than men (Hinz et al. (1997), Byrnes et al. (1999), Barber and Odean (2001), and Jianakoplos and Bernasek (2007)). This observation may translate into less risky decision making and, in turn, lower stock price volatility. A higher number of independent directors on the board, with independent directors defined as those that are neither employed by the company nor have a pecuniary relationship with the company other than obtaining sitting fees for board meetings, may result in more objective assessment projects and risks. Lastly, golden parachute agreements, specifying that the employee will receive certain significant benefits if employment is terminated, e.g. as a result of a merger or takeover, may incentivize managers to engage in M&A activities more aggressively which, in turn, may lead to an increase in overall firm risk.

Given the set of selection criteria, STOXX ESG Impact Indices have "impact" on three dimensions:

- they *impact*, i.e. increase, the exposure to ESG-related indicators of the resulting index relative to that of the benchmark,
- they change the risk-characteristics of the index by focusing on those KPIs that tend to have a risk-reducing *impact* on a single stock level,
- Additionally, and as part of the entirety of ESG-related investments, they aim at incentivizing companies to improve their business practices in order to comply with international standards and to be considered for index inclusion.

Index Methodology

The STOXX ESG Impact Indices are designed to provide investors with a broad exposure to global developed markets as well as to the US equity market separately. Starting with a universe defined by the STOXX Global 1800, and US companies within the STOXX Global 1800 respectively (around 550), companies are selected according to their exposure to a predefined set of ESG-related KPIs. In order to determine the index composition, each KPI is standardized across sections. As KPIs may be industry dependent, averages and volatilities are calculated per industry, i.e. the standardization takes into account level deviations among industries. The five standardized KPIs per company-year observation are then aggregated to a single score. Hereby, the scores are weighted according to the outcome of a regression

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analysis.[3] The higher the risk-reducing (risk increasing) influence of KPIs, the higher (lower) the weight of the KPI in the computation of the aggregated score (see weighting coefficients in Table 1).

Table 1: ESG KPIs used for component selection and weighting.

KPI	Coefficient
CDP emissions/energy reduction target (binary)	0.40
% of independent board members	0.05
% women on the board	0.30
Policy against child labor (binary)	0.40
Golden parachute agreement (binary)	-0.30

In a third step, companies are then ranked according to the aggregated score and the top 50% are selected. Prior to this selection, companies which do not adhere to the UN Global Compact Principles, are involved in the manufacturing and/or selling of controversial weapons, or belong to the ICB sub-sector coal miners are excluded.

In order to further exploit the risk-reducing influence of the selected ESG KPIs, they also enter into the derivation of company weights: each company's free-float market capitalization is increased or decreased based on its aggregated ESG score. Again, the higher (lower) the score, the higher (lower) the respective tilt. Tilt-factors hereby range from a minimum of 0.5 to a maximum of 1.5 in 0.25 increments.

Thus, and relative to their benchmarks, STOXX ESG Impact Indices are more tilted towards companies that have 1) an emissions reduction target in place, 2) a higher share of independent board members, 3) a higher share of women on the board, 4) a policy against child labor in place, and 5) tilted away from companies with golden parachute agreements.

Lastly, caps are introduced in order to prevent the indices from being dominated by single countries and companies. Country weights cannot deviate by more than 1 percentage point from those of the underlying benchmark. Further, a cap on constituent level of 5% is applied. Active industry exposures are controlled to a certain degree in the KPI standardization procedure mentioned above.

Index Characteristics

Given the range of selection criteria specified above, the STOXX Global ESG Impact Index currently includes 881 companies while the STOXX USA ESG Impact Index includes 266 companies.[4] Next to excluding the bottom 50% of the underlying universe, 19 companies have been excluded either due to non-compliance with the UN Global Compact Principles, an involvement in manufacturing and/or selling of controversial weapons or their classification as coal miners.

[3] The regression analyses hereby used each company' standard deviation as dependent variable and a broad selection of ESG-related KPIs as independent variables, while controlling for size, industry, country and time fixed effects. Please note that this paper focuses on the characteristics of the derived indices. The pre-conducted empirical analyses will be discussed in another research paper.
[4] Cut-off date: Jun. 16, 2016.

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Of significant interest for investors is, of course, the impact of the selection and weighting concept on the derived indices' sustainability. In order to assess this impact, Table 2 provides a comparison of weighted averages of KPIs of the STOXX ESG Impact Indices with their respective benchmarks.[5]

Table 2: Weighted averages of selected ESG KPIs for STOXX ESG Impact Indices and standard benchmarks [Q1 2016].

	STX USA ESG Impact	US companies in STX GI. 1800	*% change*	STX GI. ESG Impact	STX GI. 1800	*% change*
weighted average						
CDP em./en. reduction target	0.90	0.83	9%	0.93	0.85	10%
% of independent directors	86.34	85.14	1%	77.29	74.80	3%
% of women of the board	24.86	21.73	14%	24.47	21.10	16%
Policy against child labor	0.78	0.55	42%	0.83	0.56	50%
Golden parachute agreement	0.54	0.70	-23%	0.40	0.53	-24%

We find that, in every case, the weighted averages are tilted into the desired direction. The highest impact has been achieved with regard to the existence of a policy against child labor. The score is increased by 42% for the case of the STOXX USA ESG Impact Index and by as much as 50% for the STOXX Global ESG Impact Index relative to that of the benchmark. Thus, the share and/or weights of companies that have a policy against child labor in place is substantially increased.

On the other hand, the score assessing the existence of a golden parachute agreement, which was found to have a risk-increasing impact on volatility in pre-conducted analyses, has been reduced by 23% for the STOXX USA ESG Impact Index and by 24% for the STOXX Global ESG Impact Index.

Next to the impact on sustainability, the selection procedure is found to also influence industry and for the case of the STOXX Global ESG Impact Index, to a very limited extent, country allocations.

[5] If no KPI value is available, the overall cross-sectional average is used as a conservative estimate.

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FIGURE 1: INDUSTRY ALLOCATION OF STOXX USA ESG IMPACT INDEX AND STOXX USA 900 [Q1 2016]

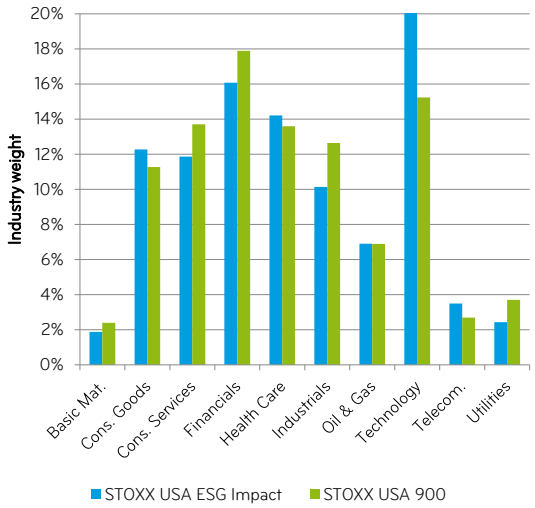
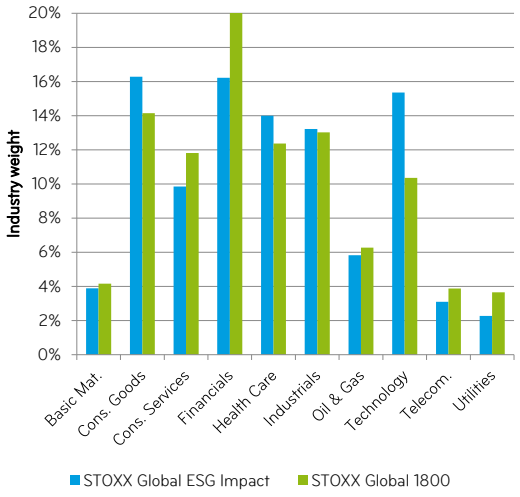


FIGURE 2: INDUSTRY ALLOCATION OF STOXX GLOBAL ESG IMPACT INDEX AND STOXX GLOBAL 1800 [Q1 2016]



Figures 1 and 2 provide a comparison of industry allocations for the two STOXX ESG Impact Indices with those of their respective benchmarks. We find deviations to be quite similar for the two regions. The Consumer Goods sector as well as the Technology sector are slightly over-weighted. The Technology sector hereby displaying the highest positive deviation with about 5 percentage points. Most of the remaining industries, above all Consumer Services, are slightly underweighted.

Figures 3 and 4 additionally provide the historical development of industry level deviations. It can be observed that differences between the STOXX ESG Impact Indices and their benchmarks have been quite stable over time.

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FIGURE 3: DEVIATIONS OF INDUSTRY ALLOCATIONS [STOXX USA ESG IMPACT INDEX - STOXX USA 900] [OCT. 2010-MAR. 2016]

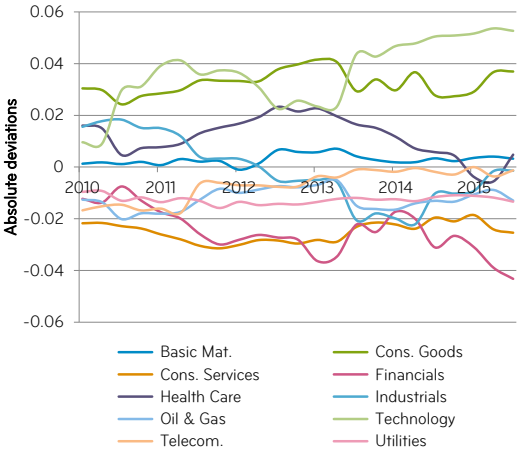
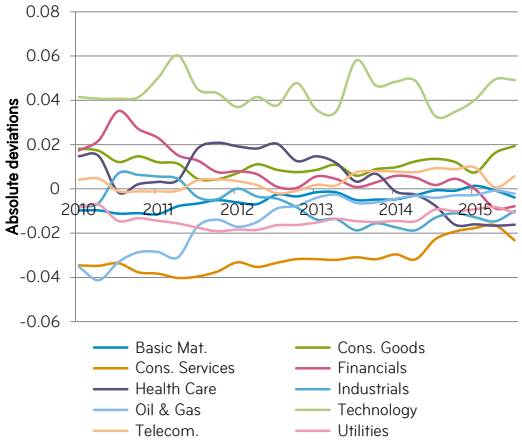
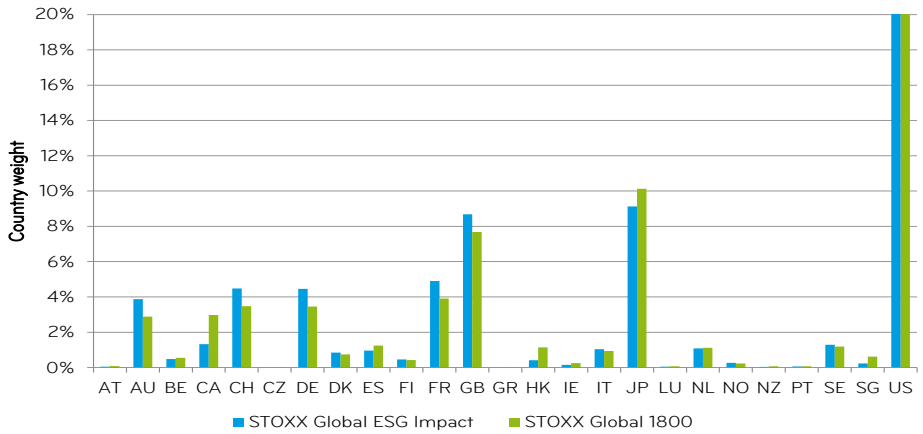


FIGURE 4: DEVIATIONS OF INDUSTRY ALLOCATIONS [STOXX GLOBAL ESG IMPACT INDEX - STOXX GLOBAL 1800] [OCT. 2010-MAR. 2016]



The country allocation of the STOXX Global ESG Impact Index is, due to the definition of a maximum allowed deviation of just one percentage point, very close to that of the benchmark. The USA accounts for approx. 56% of the overall allocation, followed by Japan and the UK with 9.1% and 8.6% respectively (see Figure 5).

FIGURE 5: COUNTRY ALLOCATION OF STOXX ESG GLOBAL IMPACT INDEX AND STOXX GLOBAL 1800 [Q1 2016].



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Risk and Return Analysis

In spite of the increase in sustainability, the risk and return characteristics of both indices are very similar to those of the respective benchmark which is mainly driven by the constraints specified above. As displayed graphically in Figure 6, and numerically in Table 2, the STOXX ESG Impact Indices slightly outperformed their benchmarks over the entire time period observed. Total risk on portfolio level has been persistently lower for the STOXX USA ESG Impact Index but slightly higher for the STOXX Global ESG Impact Index. Maximum drawdowns are slightly lower for both ESG Impact Indices.

Tracking errors have been mostly below 3% for the STOXX USA ESG Impact Index and below 2% for the STOXX Global ESG Impact Index (see Figure 6).

FIGURE 6: HISTORICAL PERFORMANCE IN USD NET RETURN. TIME PERIOD: SEP. 17, 2010 TO MAY 31, 2016.

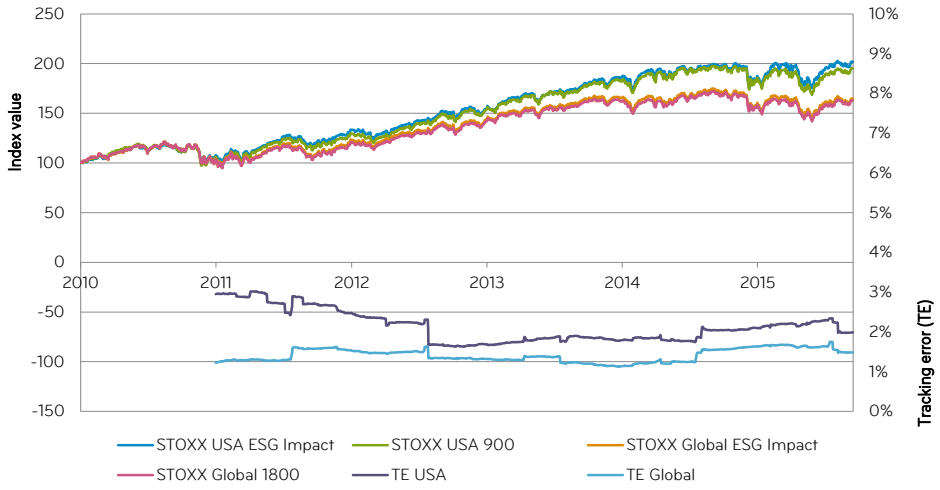

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Table 3: Risk and return characteristics measured in USD Net Return. Volatility measures are based on weekly logarithmic returns. Base date: Sep. 17, 2010, cut-off date: May 31, 2016.

	STOXX USA ESG Impact	STOXX USA 900	STOXX Global ESG Impact	STOXX Global 1800
Return (Overall)	13.07%	12.44%	9.13%	8.91%
Return 1y (ann.)	1.90%	-0.19%	-4.39%	-3.98%
Return 3y (ann.)	10.46%	10.08%	6.22%	6.52%
Return 5y (ann.)	11.41%	10.60%	6.76%	6.51%
Volatility (Overall)	15.92%	16.49%	16.17%	16.11%
Volatility 1y (ann.)	18.58%	18.63%	18.16%	18.15%
Volatility 3y (ann.)	13.97%	14.04%	14.03%	13.94%
Volatility 5y (ann.)	16.56%	17.17%	16.62%	16.59%
Sharpe Ratio (Overall)	0.81	0.74	0.55	0.54
Sharpe Ratio 1y	0.09	(-)	(-)	(-)
Sharpe Ratio 3y	0.74	0.71	0.43	0.46
Sharpe Ratio 5y	67.97%	60.81%	39.76%	38.29%
Max. Drawdown	17.73%	21.28%	21.66%	22.02%

Next to a high level depiction of risk and return characteristics, the following section focuses on decomposing relative returns, i.e. return differentials between the STOXX ESG Impact Indices and their benchmarks, into factor contributions.[6] Tables 4 and 5 provide the results based on a time period ranging from Oct. 2010 to Mar. 2016.

[6] The factor based performance attribution is done based on Axioma Portfolio Analytics.

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Table 4: Factor attribution of performance difference between STOXX USA ESG Impact Index and US companies within STOXX Global 1800. Time period: Oct. 2010 to Mar. 2016.

Source of Return	Contribution	Risk	IR	T-Stat
Portfolio	104.21%	12.03%		
Benchmark	101.26%	12.03%		
Active	2.96%	1.64%	0.18	0.43
Specific Return	-1.98%	1.31%	-0.15	-0.36
Factor Contribution	4.94%	0.78%	0.65	1.52
Style	*4.63%*	*0.62%*	*0.77*	*1.80*
Exchange Rate Sensitivity	*0.10%*	*0.05%*	*0.22*	*0.51*
Growth	*-0.45%*	*0.05%*	*-0.87*	*-2.04*
Leverage	*0.15%*	*0.04%*	*0.43*	*1.01*
Liquidity	*0.11%*	*0.17%*	*0.06*	*0.15*
Medium-Term Momentum	*-1.67%*	*0.16%*	*-1.10*	*-2.57*
Short-Term Momentum	*-0.11%*	*0.21%*	*-0.05*	*-0.12*
Size	*-0.51%*	*0.49%*	*-0.11*	*-0.25*
Value	*0.58%*	*0.09%*	*0.64*	*1.50*
Volatility	***6.43%***	***0.35%***	***1.89***	***4.44***
Country	0.02%	0.01%	0.19	0.45
Industry	0.40%	0.41%	0.10	0.23
Currency	-0.01%	0.01%	-0.09	-0.21
Market	-0.10%	0.01%	-0.78	-1.83
Sectors	0.40%	0.41%	0.10	0.23

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Table 5: Factor attribution of performance difference between STOXX Global ESG Impact Index and STOXX Global 1800. Time period: Oct. 2010 to Mar. 2016.

Source of Return	Contribution	Risk	IR	T-Stat
Portfolio	66.03%	13.35%		
Benchmark	61.84%	13.13%		
Active	4.19%	1.09%	0.47	1.09
Specific Return	-1.54%	0.82%	-0.23	-0.54
Factor Contribution	5.73%	0.74%	0.94	2.21
Style	*3.30%*	*0.54%*	*0.75*	*1.75*
Exchange Rate Sensitivity	*-0.01%*	*0.02%*	*-0.08*	*-0.18*
Growth	*-0.23%*	*0.06%*	*-0.51*	*-1.19*
Leverage	*0.13%*	*0.03%*	*0.61*	*1.43*
Liquidity	*-0.06%*	*0.11%*	*-0.06*	*-0.15*
Medium-Term Momentum	*-0.21%*	*0.09%*	*-0.28*	*-0.65*
Short-Term Momentum	*-0.56%*	*0.17%*	*-0.41*	*-0.95*
Size	*-0.42%*	*0.45%*	*-0.11*	*-0.27*
Value	*-0.02%*	*0.04%*	*-0.06*	*-0.15*
Volatility	***4.68%***	***0.30%***	***1.91***	***4.48***
Country	0.55%	0.28%	0.24	0.56
Industry	2.13%	0.35%	0.75	1.75
Currency	-0.21%	0.30%	-0.08	-0.20
Market	-0.04%	0.01%	-0.62	-1.45
Sectors	2.13%	0.35%	0.75	1.75

For the case of the STOXX USA ESG Impact Index, we find that the most significant contributor to excess return has been the volatility factor which added 6.43% over the entire time period observed. The factors medium term momentum and growth are found to have had a slightly negative effect on performance, however, with -0.45% and -1.67%, respectively, their negative contribution had been more than compensated by the positive influence coming from the volatility factor. The remaining style factors were not found to be statistically significant at reasonable levels.[7]

The positive influence of the volatility factor on performance is also found for the STOXX Global ESG Impact Index. Its statistical significance is even higher, however, its performance contribution was with 4.68% slightly less compared to its influence on the US version. None of the other style factors was found to exert a statistically significant influence on performance for the case of the global index.[8]

[7] We assume that a statistical significance is given at a t-statistic of about 1.75 which corresponds with a 10% likelihood to falsely accept the null-hypothesis (based on a two-tailed t-distribution with 15 degrees of freedom).
[8] For informational purposes, the portfolios' exposure to all style factors as well as the resulting cumulative excess return is provided in the Appendix.

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As initially stated, the ESG KPIs described above were selected with the aim to reduce risk. As the high level analysis of portfolio risk indicates, the standard deviation of the STOXX USA ESG Impact Index has been reduced compared to that of the benchmark. However, the total risk of the STOXX Global ESG Impact Index is found to have been slightly higher compared to its benchmark. This counterintuitive observation is caused by the influence of other factors, such as correlations among stocks, that cannot be controlled for in constituent-level regressions.

In order to assess whether the initially assumed risk-reducing influence of the selected ESG KPIs hold true for the two constructed indices, we therefore need to look at the constituent level while controlling the influence of other factors. In this context, Figures 7 and 8 provide, next to the impact of the volatility factor on return, also the portfolio components' exposure to this volatility factor.

FIGURE 7: EXPOSURE TO VOLATILITY FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION FOR STOXX USA ESG IMPACT INDEX [OCT. 2010 – MAR. 2016] IN USD.

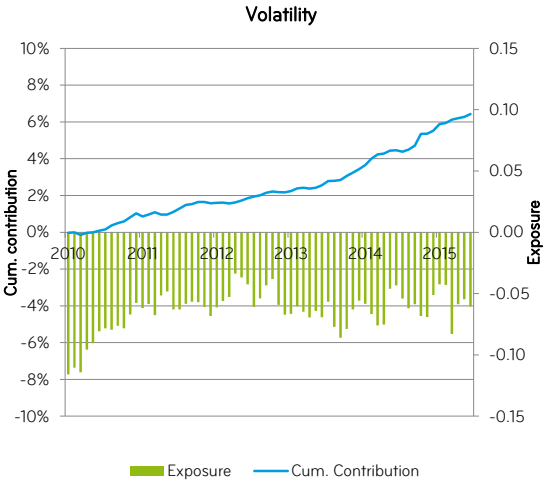
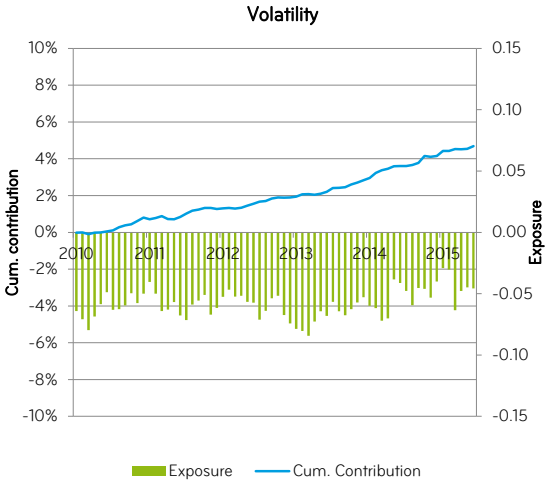


FIGURE 8: EXPOSURE TO VOLATILITY FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION FOR STOXX GLOBAL ESG IMPACT INDEX [OCT. 2010 – MAR. 2016] IN USD.



We find that both indices are, on a relative basis, negatively exposed to the volatility factor. This negative exposure then translated into the positive influence on relative returns as discussed above.

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Summary

The STOXX ESG Impact Indices offer investors an innovative way to increase the exposure to ESG-related key performance indicators (KPIs) relative to their benchmarks.

While existing approaches mostly focus on increasing ESG exposure, often with the secondary aim of staying close to the risk and return characteristics of those of a benchmark, STOXX ESG Impact Indices go one step further and focus on a pre-defined set of KPIs that are found to reduce volatility on a single stock level.

Thus, STOXX ESG Impact Indices are designed to have "impact" on three dimensions:

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Appendix

Style factor analysis of STOXX USA ESG Impact indices

FIGURE A1: EXPOSURE TO EXCHANGE RATE FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

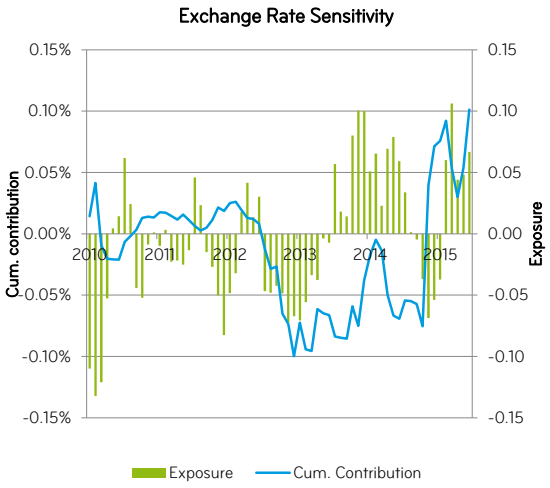

FIGURE A2: EXPOSURE TO GROWTH FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

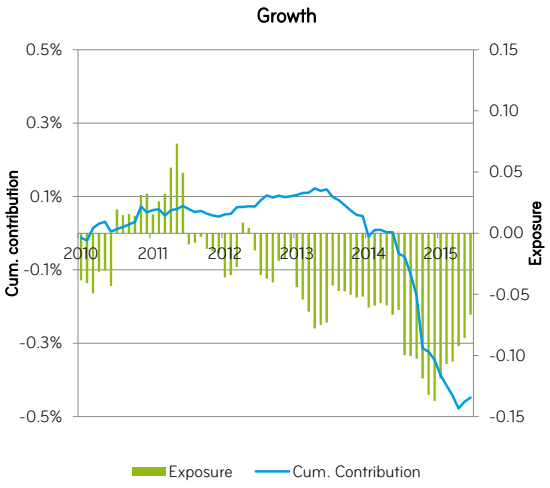

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FIGURE A3: EXPOSURE TO LEVERAGE FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD

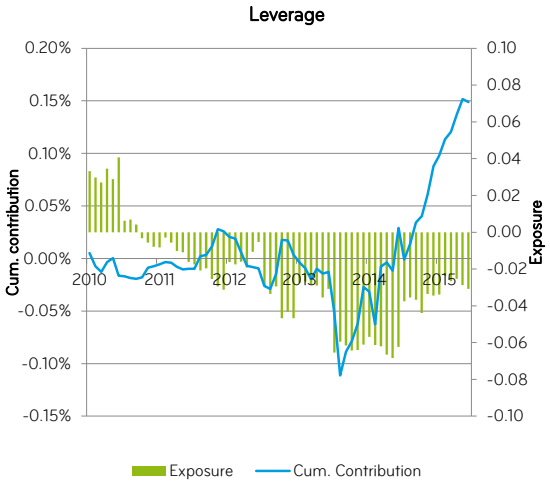

FIGURE A4: EXPOSURE TO LIQUIDITY FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

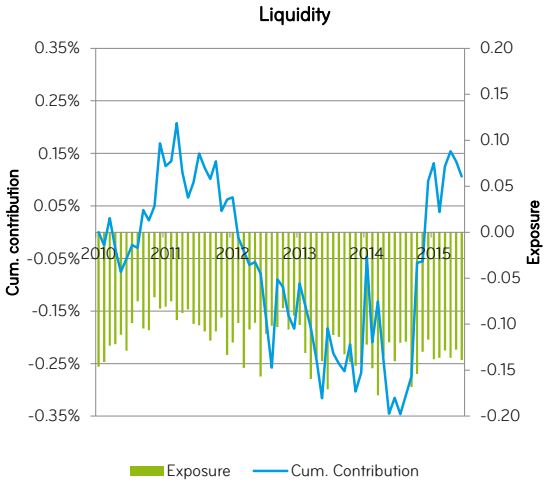

FIGURE A5: EXPOSURE TO MEDIAN TERM MOMENTUM FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT.

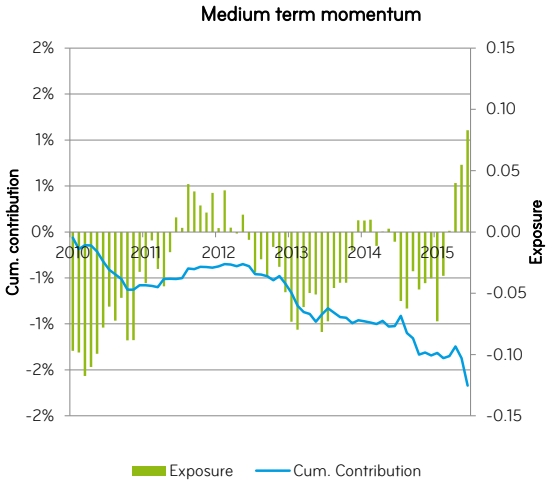

FIGURE A6: EXPOSURE TO SHORT TERM MOMENTUM FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

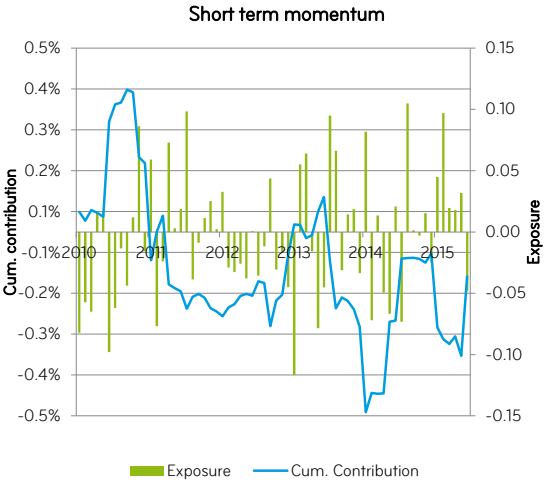

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FIGURE 7: EXPOSURE TO SIZE FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

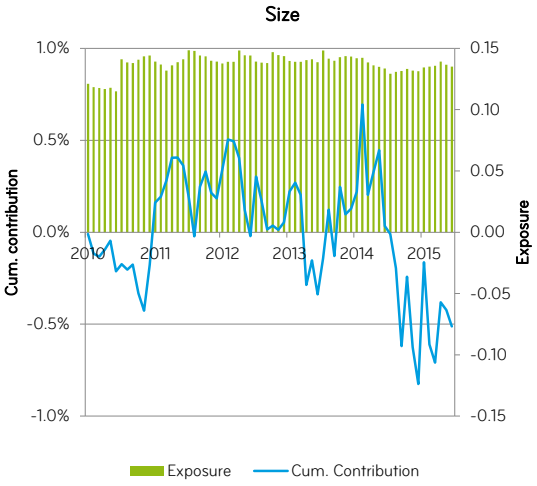

FIGURE 8: EXPOSURE TO VALUE FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

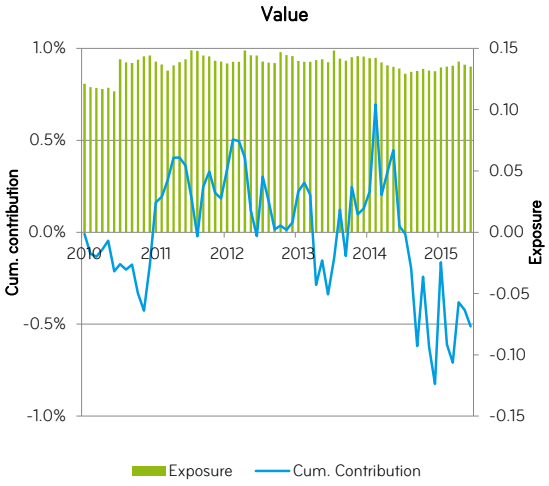

FIGURE 9: EXPOSURE TO EXCHANGE RATE FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

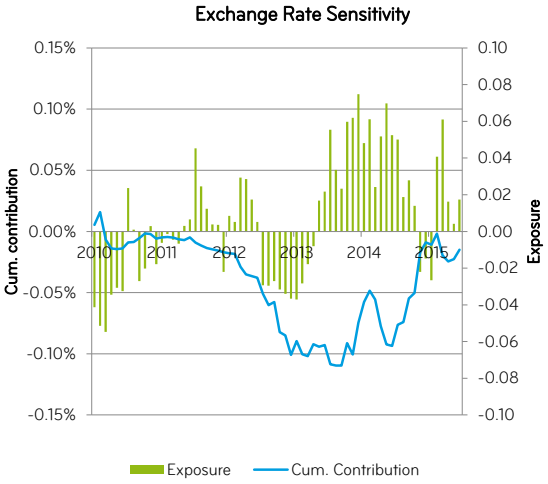

FIGURE 10: EXPOSURE TO GROWTH FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

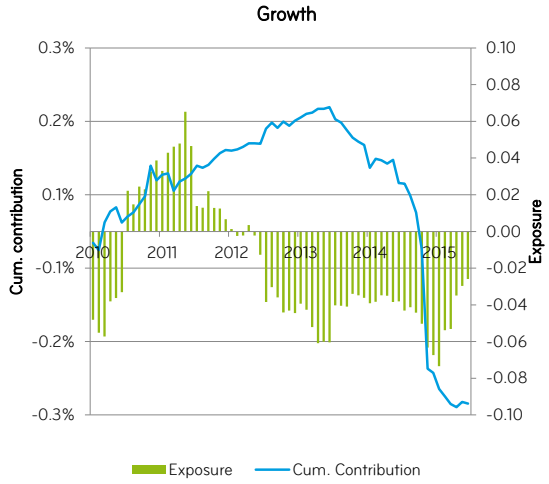

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FIGURE 11: EXPOSURE TO LEVERAGE FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

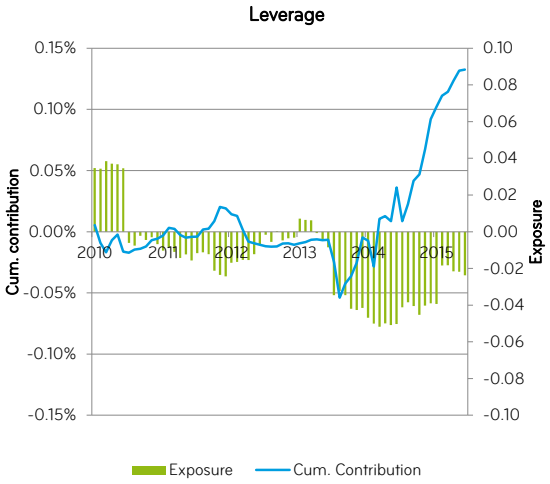

FIGURE 12: EXPOSURE TO LIQUIDITY FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

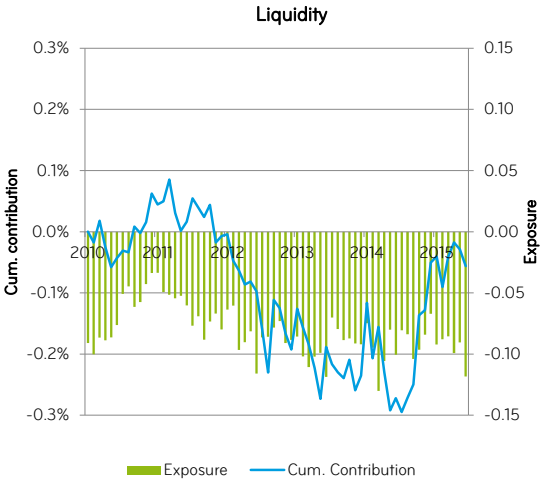

FIGURE 13: EXPOSURE TO MEDIUM TERM MOMENTUM FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

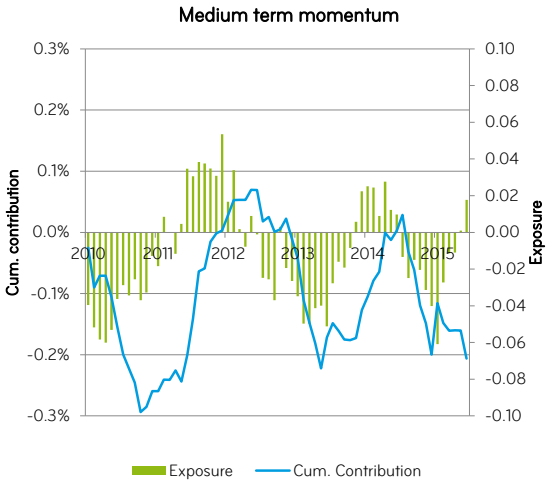

FIGURE 14: EXPOSURE TO SHORT TERM MOMENTUM AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD

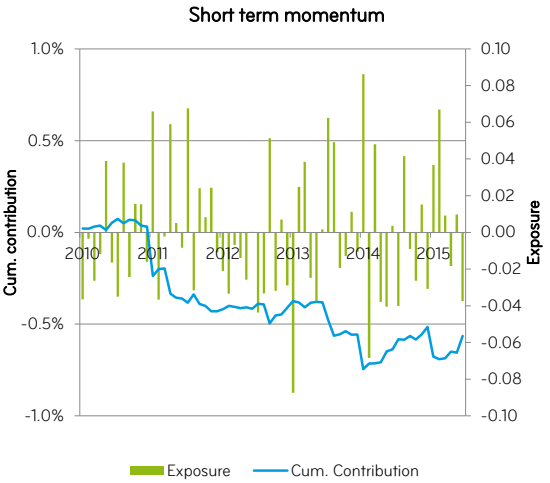

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FIGURE 15: EXPOSURE TO SIZE FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.

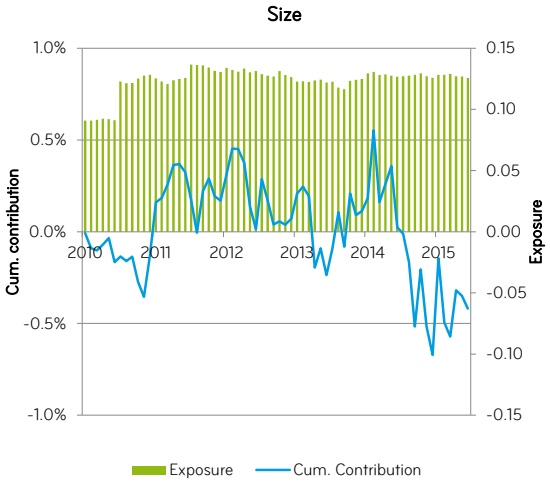
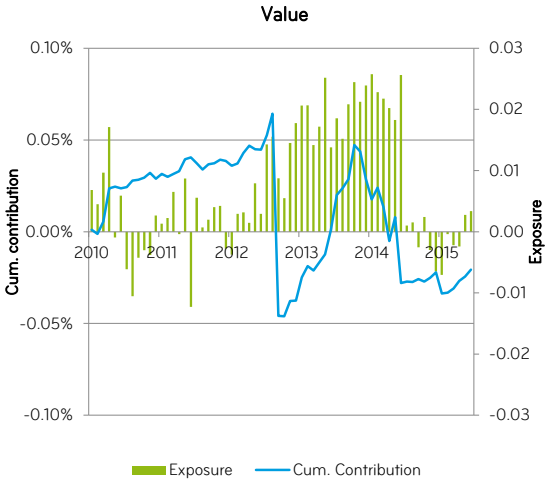


FIGURE 16: EXPOSURE TO VALUE FACTOR AND RESULTING CUMULATIVE PERFORMANCE CONTRIBUTION [OCT. 2010 – MAR. 2016] IN USD.



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CONTACTS

Selnaustrasse 30
CH-8021 Zurich
P +41 (0)58 399 5300
stoxx@stoxx.com
www.stoxx.com

Frankfurt: +49 (0)69 211 13243
London: +44 (0)20 7862 7680
New York: +1 212 669 6426
Tokyo: +81-3-4578-6688
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