

**STOXX**

# MONTHLY INDEX NEWS

April 2019

**INDEX**

**RESEARCH**

**GLOBAL**

**INSIGHT**

**MARKETS**

## Benchmark Indices

### Key points

Global stocks extended their positive streak in April, rising for the fourth month, as optimism about the health of the economy improved, and US and European companies' first-quarter earnings topped estimates.

The STOXX® Global 1800 Index added 3.5% in dollar terms during the month. The gauge has recouped nearly all of the losses from the fourth quarter of 2018 and is now just 1.1% below the all-time high reached in January 2018.

The pan-European STOXX® Europe 600 Index advanced 3.8% in euros to a record high and the Eurozone's EURO STOXX 50® Index increased 5.3%. It was the fourth continuous monthly gain for both indices, their longest positive run since May 2017.

The STOXX® North America 600 Index added 4.0% in dollars to top its previous record high from September 2018. The STOXX® Asia/Pacific 600 Index climbed 1.4%, also in dollar terms.

Volatility dropped across all regions in April, with the reading for the EURO STOXX 50 nearing a record low.

### Risk and return characteristics

	Return (%)						Annualized volatility (%)						P/B
	EUR			USD			EUR			USD			
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	
1. EURO STOXX 50	5.3	18.1	2.1	5.1	15.8	-5.3	6.4	11.7	13.0	8.1	13.1	15.0	1.8
2. STOXX Europe 600	3.8	17.3	4.5	3.6	15.0	-3.1	6.1	10.2	11.9	7.6	11.3	13.6	1.8
3. STOXX North America 600	4.2	20.7	21.0	4.0	18.3	12.3	7.8	12.1	15.6	6.5	12.0	15.1	3.0
4. STOXX Asia/Pacific 600	1.6	12.0	3.0	1.4	9.8	-4.5	7.8	11.5	12.8	6.9	11.5	12.6	1.0
5. STOXX Global 1800	3.7	18.6	14.1	3.5	16.3	5.9	6.4	9.7	11.7	5.6	9.9	11.7	2.0

Risk and return performance figures for STOXX Benchmark Indices, Net Return. Data as of Apr. 30, 2019.  
Source: STOXX Ltd.

### Price and volatility performance

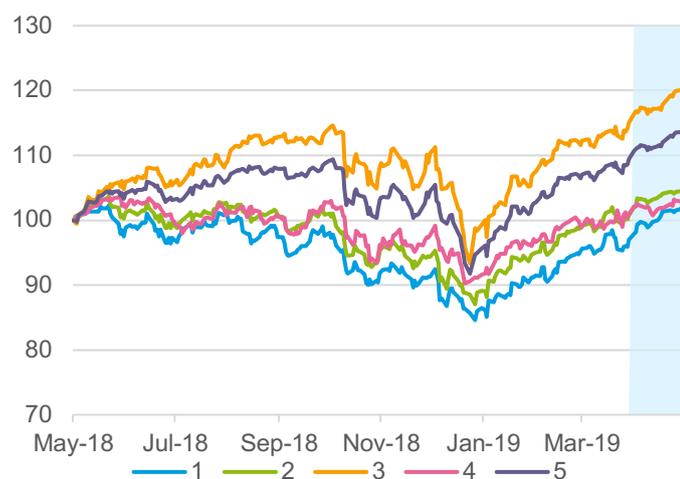


Figure 1: Annual price performance, EUR Net Return.  
May. 2018 – Apr. 2019. Shaded area: Apr. 2019.  
Source: STOXX Ltd.

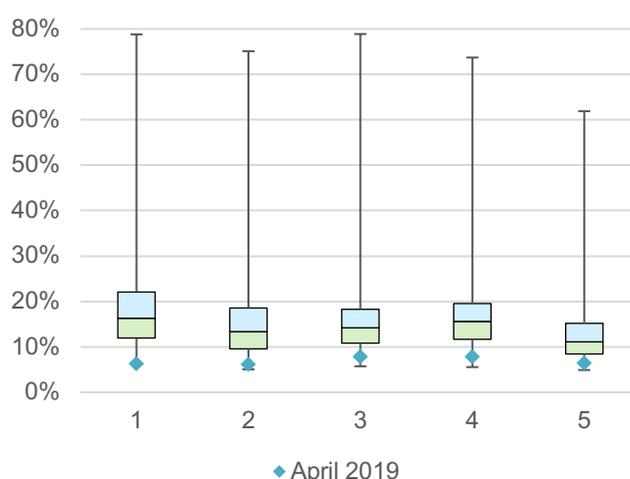


Figure 2: Monthly annualized volatility analysis, EUR Net Return.  
Jan. 2004 – Apr. 2019.  
Source: STOXX Ltd.

## Thematic Indices – Revenue-Based

### Key points

The STOXX Thematic Indices seek exposure to the economic upside of disruptive global megatrends. The indices follow two approaches: a revenue-based one and an artificial-intelligence-driven one. On Feb. 20, STOXX introduced seven new revenue-based thematic indices (see page 4), which look at companies' sales exposure to sectors closely related to specific trends.

Ten of 15 STOXX revenue-based thematic indices outperformed the STOXX Global 1800 Index during April, led by a 10.6% advance in the STOXX® Global Smart Factory Index, which offers exposure to companies benefitting the most from the advancement of digitalization and new technologies in factories.

The revenue-based thematic indices family is off to a strong start in 2019, with all but three indices in the group outperforming their benchmark so far this year.

### Risk and return characteristics

	Return (%)						Annualized volatility (%)						P/B
	EUR			USD			EUR			USD			
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	
1. STOXX Global Artificial Intelligence	4.5	32.8	15.4	4.3	30.2	7.0	14.0	21.0	24.4	13.6	21.2	23.9	4.6
2. STOXX Global Digital Security	4.8	22.6	12.6	4.6	20.2	4.4	7.8	11.0	13.3	8.4	11.3	13.2	4.9
3. STOXX Global Fintech	5.8	27.0	32.2	5.6	24.5	22.7	6.6	12.9	17.6	6.4	13.0	17.0	4.8
4. iSTOXX Developed Markets B.R.AI.N	0.6	19.5	15.7	0.4	17.2	7.3	11.9	16.4	19.4	10.3	16.4	19.0	4.7
5. iSTOXX FactSet Ageing Population	1.7	12.6	2.4	1.5	10.4	-5.0	7.5	9.2	10.6	6.8	9.7	11.0	1.8
6. iSTOXX FactSet Automation & Robotics	7.1	30.9	12.2	6.9	28.3	4.1	10.1	13.5	16.5	9.9	13.8	16.6	4.9
7. iSTOXX FactSet Breakthrough Healthcare	-4.0	7.5	3.6	-4.2	5.4	-3.9	13.2	14.6	16.1	12.5	14.9	16.5	4.4
8. iSTOXX FactSet Digitalisation	4.6	25.5	17.4	4.4	23.0	8.9	7.1	11.8	15.4	7.4	12.4	15.1	6.0

Risk and return performance figures for STOXX Thematic Indices, Net Return. Data as of Apr. 30, 2019.  
Source: STOXX Ltd.

### Price and volatility performance

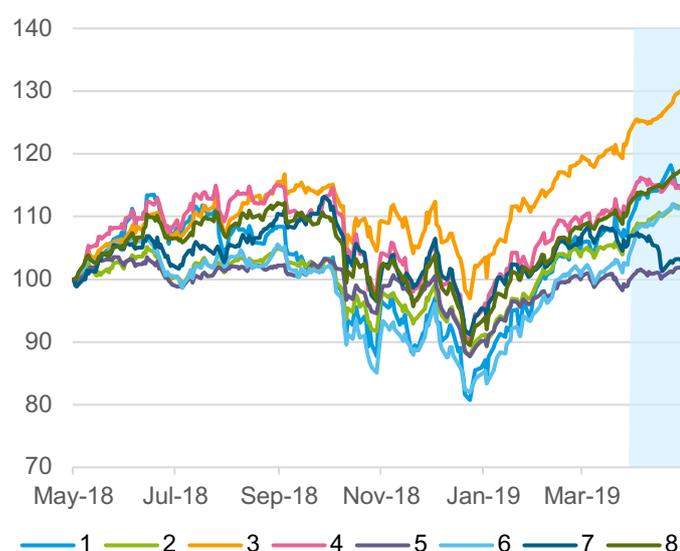


Figure 3: Annual price performance, EUR Net Return. May. 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

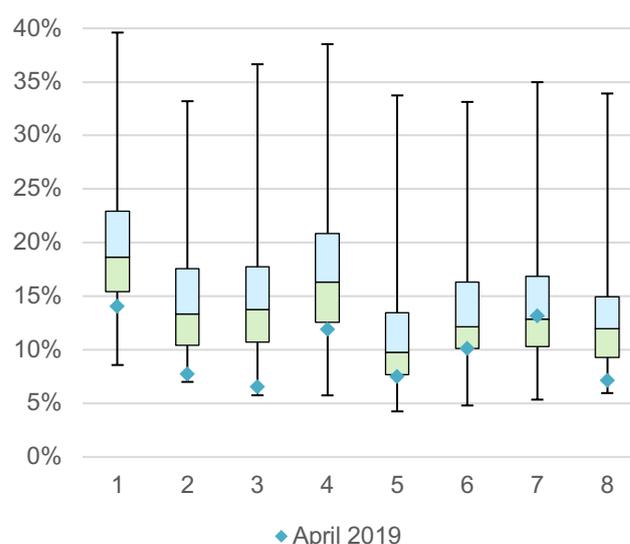


Figure 4: Monthly annualized volatility analysis, EUR Net Return. Jul. 2012 – Apr. 2019. Source: STOXX Ltd.

## Thematic Indices – Revenue-Based (continued)

### Risk and return characteristics

	Return (%)						Annualized volatility (%)						P/B
	EUR			USD			EUR			USD			
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	
1. STOXX Global Housing Construction	7.3	25.6	11.8	7.1	23.1	3.7	12.5	14.0	14.7	12.6	14.2	14.8	2.1
2. STOXX Global Industry 4.0	6.4	29.5	18.2	6.2	26.9	9.6	11.1	15.4	16.9	11.1	15.5	16.7	3.9
3. STOXX Global Millennials	5.7	25.7	13.4	5.5	23.3	5.2	11.9	15.7	18.6	9.6	15.9	18.2	6.9
4. STOXX Global Sharing Economy	7.1	32.1	20.9	6.9	29.5	12.2	10.7	15.6	20.8	9.3	15.7	20.2	7.1
5. STOXX Global Silver Economy	2.7	17.2	9.4	2.5	14.9	1.5	9.5	13.1	15.2	8.3	13.2	15.1	2.2
6. STOXX Global Smart Cities	3.0	21.0	16.1	2.8	18.6	7.7	13.1	15.9	17.7	14.1	16.6	17.4	3.0
7. STOXX Global Smart Factory	10.8	34.8	20.6	10.6	32.2	11.8	17.1	21.9	21.7	17.4	22.1	21.7	3.1

Risk and return performance figures for STOXX Thematic Indices, Net Return. Data as of Apr. 30, 2019.  
Source: STOXX Ltd.

### Price and volatility performance

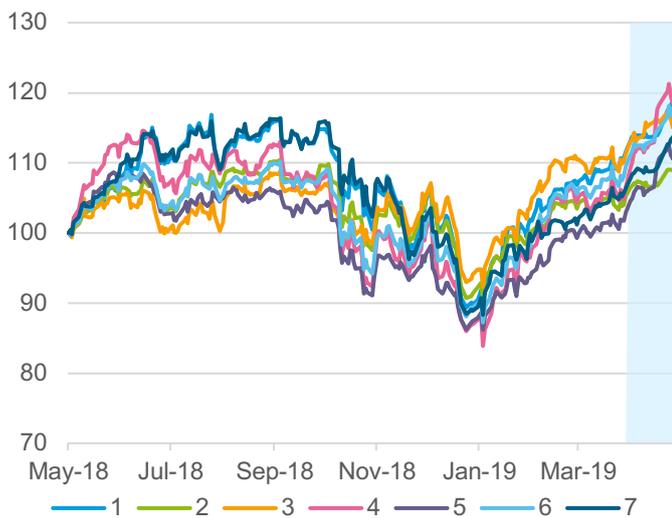


Figure 5: Annual price performance, EUR Net Return. May. 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

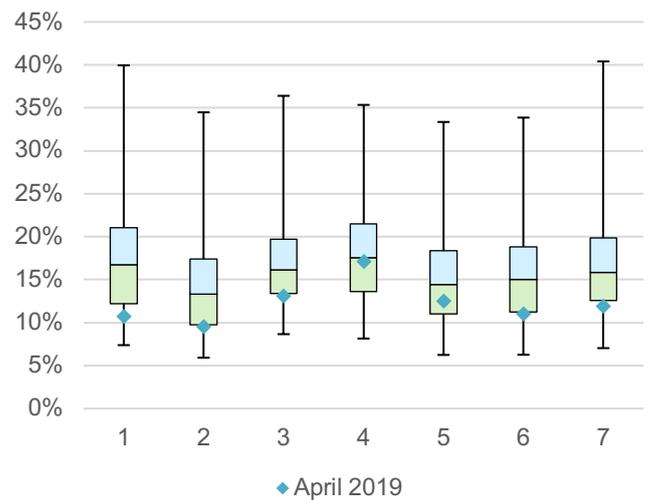


Figure 6: Monthly annualized volatility analysis, EUR Net Return. Jul. 2012 – Apr. 2019. Source: STOXX Ltd.

## Thematic Indices – AI-Driven

### Key points

STOXX’s artificial-intelligence-driven thematic indices had an equally positive month, with all three indices outperforming the STOXX Global 1800 Index.

The indices employ computational systems to select businesses investing in the adoption of intellectual property underpinning the respective theme. All three AI-driven indices were ahead of the benchmark so far this year up until April-end.

### Risk and return characteristics

	Return (%)						Annualized volatility (%)						P/B
	EUR			USD			EUR			USD			
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	
1. STOXX AI Global Artificial Intelligence	5.2	22.1	14.3	5.0	19.7	6.0	7.3	11.0	13.0	7.4	11.5	12.9	2.8
2. STOXX AI Global Artificial Intelligence ADTV5	5.2	22.2	14.8	5.0	19.8	6.5	7.5	11.3	13.2	7.6	11.7	13.1	2.8
3. iSTOXX Yewno Developed Markets Blockchain	5.3	20.4	15.4	5.1	18.0	7.1	8.2	11.7	14.2	8.2	11.6	14.0	2.8

Risk and return performance figures for STOXX Thematic Indices, Net Return. Data as of Apr. 30, 2019. Source: STOXX Ltd.

### Price and volatility performance



Figure 7: Annual price performance, EUR Net Return. May. 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

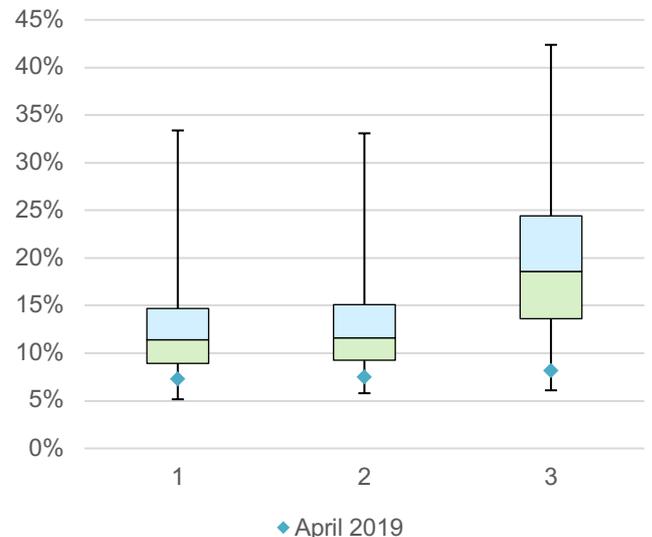


Figure 8: Monthly annualized volatility analysis, EUR Net Return. Apr. 2013 – Apr. 2019. Source : STOXX Ltd.

## Europe Factor Market Neutral Indices

### Key points

The iSTOXX® Europe Factor Market Neutral Indices, which hold a short position in futures on the STOXX Europe 600 to help investors neutralize systematic risk, struggled in April.

Six of the seven indices posted a loss for the month. The iSTOXX® Europe Momentum Factor Market Neutral Index was the exception, posting a 0.7% advance.

The indices are designed to give investors exposure to pure factor investing.

### Risk and return characteristics

	(EUR) Return (%)			(EUR) Annualized volatility (%)		
	1M	YTD	1Y	1M	YTD	1Y
1. iSTOXX Europe Carry Factor Market Neutral	-0.4	-1.5	0.3	2.7	2.8	3.5
2. iSTOXX Europe Low Risk Factor Market Neutral	-0.1	-3.3	-2.1	3.3	3.0	3.3
3. iSTOXX Europe Momentum Factor Market Neutral	0.7	-2.3	-6.0	2.5	2.8	3.4
4. iSTOXX Europe Quality Factor Market Neutral	-0.7	0.6	-1.6	2.7	2.8	3.2
5. iSTOXX Europe Size Factor Market Neutral	-0.1	-2.7	-7.3	3.4	4.5	4.5
6. iSTOXX Europe Value Factor Market Neutral	-0.7	-1.7	-9.3	3.5	3.6	4.3
7. iSTOXX Europe Multi-Factor Market Neutral	-0.5	-1.1	-5.7	2.9	2.7	3.5

Risk and return performance figures for iSTOXX Europe Factor Market Neutral Indices, Net Return. Data as of Apr. 30, 2019.  
Source: STOXX Ltd.

### Price and volatility performance

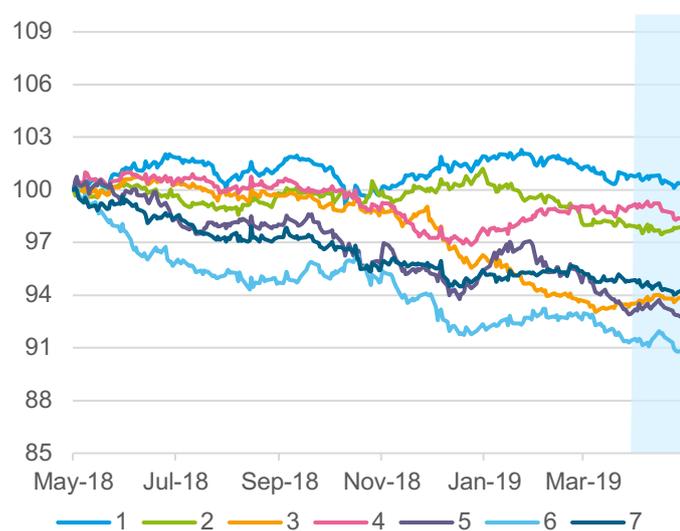


Figure 9: Annual price performance, EUR Net Return. May. 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

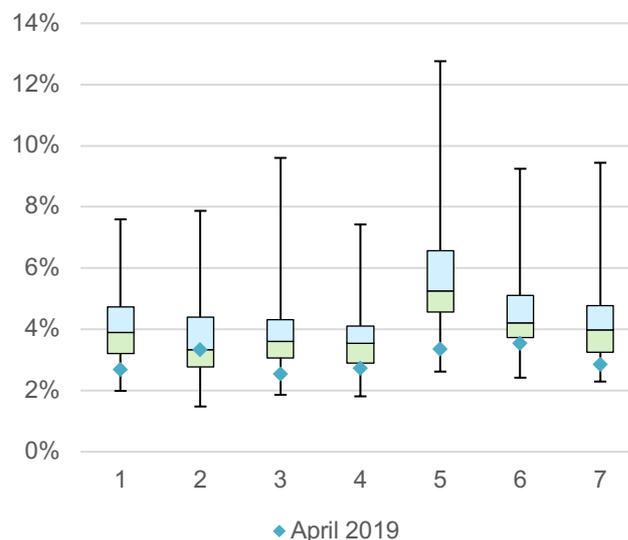


Figure 10: Monthly annualized volatility analysis, EUR Net Return. Aug. 2010 – Apr. 2019. Source: STOXX Ltd.

## EURO STOXX® Multi Premia® Indices

### Key points

The EURO STOXX Multi Premia and Single Premium Indices, which integrate the academic-research-based Multi Premia methodology developed by STOXX's partner Finreon, failed to match their benchmark's returns during April.

The indices track seven distinctive sources of equity risk and returns on a broad and liquid universe of about 300 Eurozone stocks. Their benchmark, the EURO STOXX® Index, rose 5% during April.

Only the EURO STOXX® Value Premium Index, which selects shares that appear undervalued, outperformed — adding 6.3% during the month. The value style, however, hasn't been a winning proposition in the past year: the Value Premium Index has lost 1% during the last 12 months, compared with a 17.7% jump for the benchmark.

### Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. EURO STOXX Low Risk Premium	2.2	14.3	2.0	2.0	12.0	-5.4	5.5	8.6	10.2	6.5	9.6	12.0
2. EURO STOXX Momentum Premium	1.7	15.9	2.6	1.5	13.6	-4.8	6.3	9.0	13.1	7.6	10.1	14.7
3. EURO STOXX Quality Premium	4.2	17.6	7.4	4.0	15.3	-0.4	7.1	10.8	12.0	8.6	11.9	13.8
4. EURO STOXX Residual Momentum Premium	1.6	13.6	1.9	1.4	11.4	-5.5	5.4	8.4	12.0	6.7	9.7	13.8
5. EURO STOXX Reversal Premium	3.4	9.9	-4.9	3.2	7.7	-11.7	7.9	11.3	11.6	9.8	13.0	13.9
6. EURO STOXX Size Premium	4.5	17.7	0.8	4.3	15.4	-6.5	8.7	12.1	12.6	10.2	13.5	14.6
7. EURO STOXX Value Premium	6.3	16.4	-1.0	6.1	14.1	-8.1	10.9	13.9	13.4	12.6	15.5	15.7
8. EURO STOXX Multi Premia	3.3	14.9	0.9	3.1	12.6	-6.4	6.7	10.0	11.6	8.3	11.5	13.6

Risk and return performance figures for EURO STOXX Multi Premia Indices, Net Return. Data as of Apr. 30, 2019.  
Source: STOXX Ltd.

### Price and volatility performance



Figure 11: Annual price performance, EUR Net Return. May. 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

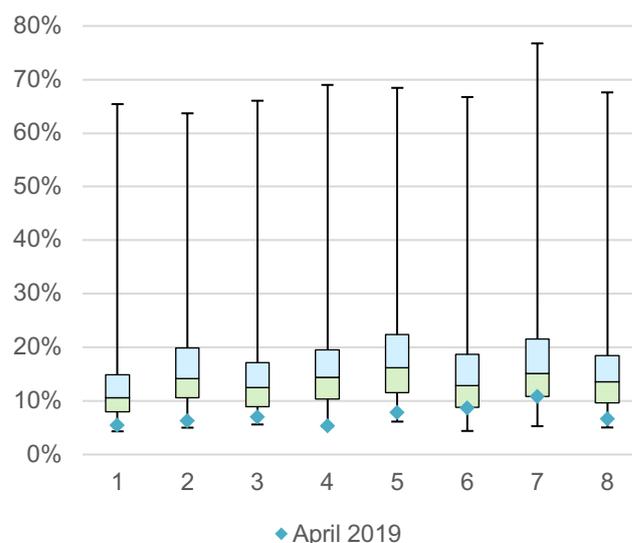


Figure 12: Monthly annualized volatility analysis, EUR Net Return. Jan. 2004 – Apr. 2019. Source: STOXX Ltd.

## ESG and Sustainability Indices

### Key points

Environmental, social and governance (ESG) strategies had a strong month though not all of them outperformed their benchmarks.

The STOXX® Global ESG Impact Index outperformed the STOXX Global 1800 Index during April. The STOXX® Europe 600 ESG-X Index, which follows norm- and products-based stock exclusion criteria, beat the STOXX Europe 600 Index.

On the other hand, the STOXX® North America Industry Neutral ESG Index came behind its benchmark.

STOXX has advanced sustainable investing since 2001, innovating in ESG, low-carbon and climate-impact strategies with over 150 indices that incorporate best-in-class, exclusionary screens and other strategies.

### Risk and return characteristics

	Return (%)						Annualized volatility (%)						P/B
	EUR			USD			EUR			USD			
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	
1. STOXX Europe 600 ESG-X	4.1	17.1	4.0	3.9	14.8	-3.5	6.5	10.2	11.9	7.8	11.4	13.6	1.8
2. STOXX Europe Industry Neutral ESG	3.8	17.0	4.5	3.6	14.7	-3.1	6.1	10.1	11.7	7.5	11.2	13.4	1.8
3. STOXX North America Industry Neutral ESG	3.9	19.7	21.8	3.7	17.3	13.0	7.3	11.7	15.1	6.6	11.7	14.6	3.0
4. STOXX USA ESG Impact	4.6	20.1	21.4	4.4	17.8	12.6	7.6	12.6	15.9	6.1	12.5	15.4	3.1
5. STOXX Global ESG Impact	4.4	19.0	15.1	4.2	16.7	6.7	6.4	10.0	12.1	5.6	10.2	12.1	2.3
6. STOXX Europe ESG Leaders Select 30	1.0	9.4	-1.5				5.9	9.7	11.2				1.4

Risk and return performance figures for STOXX ESG and Sustainability Indices, Net Return. Data as of Apr. 30, 2019.  
Source: STOXX Ltd.

### Price and volatility performance



Figure 13: Annual price performance, EUR Net Return. May. 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

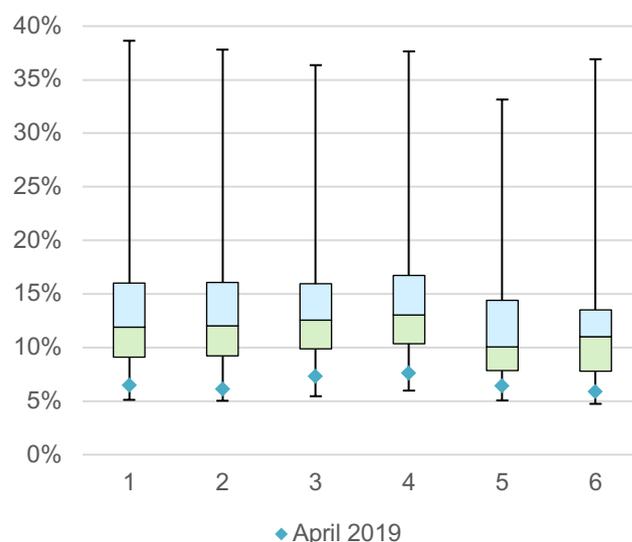


Figure 14: Monthly annualized volatility analysis, EUR Net Return. Oct. 2012 – Apr. 2019. Source: STOXX Ltd.

## Climate Indices

### Key points

Climate strategies tracking a global universe of shares also had a positive month. The STOXX® Global Climate Change Leaders Index and the STOXX® Global Climate Impact Ex Global Compact Controversial Weapons & Tobacco Index both came ahead of the STOXX Global 1800 Index. The latter allows investors to track companies that are at the forefront in the battle against climate change, while excluding those involved in controversial activities.

STOXX has partnered with CDP, a leading climate data provider, to track companies taking action on, managing and understanding the effects of climate change.

### Risk and return characteristics

	Return (%)						Annualized volatility (%)						P/B
	EUR			USD			EUR			USD			
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	
1. STOXX Europe Climate Impact*	3.8	16.2	4.9	3.6	13.9	-2.7	5.8	9.6	11.4	7.1	10.7	13.1	1.8
2. STOXX North America Climate Impact*	4.3	20.1	22.5	4.1	17.7	13.6	7.9	12.2	15.6	6.7	12.0	15.0	3.1
3. STOXX Asia/Pacific Climate Impact*	2.2	10.5	1.4	2.0	8.3	-5.9	8.7	12.7	13.5	7.9	12.8	13.2	1.3
4. STOXX Global Climate Impact*	4.1	18.0	14.3	3.9	15.7	6.0	6.3	9.5	11.1	5.5	9.7	11.2	2.2
5. STOXX Global Climate Change Leaders	4.4	20.8	15.7	4.2	18.5	7.3	6.8	9.7	11.4	6.0	10.0	11.5	2.9
6. iSTOXX Europe ESG Climate Awareness Select 50	2.3	11.0	1.4	2.1	8.8	-6.0	6.6	8.7	10.4	7.5	9.9	12.3	1.7

Risk and return performance figures for STOXX Climate Indices, Net Return. Data as of Apr. 30, 2019.

\* Indices are the Ex Global Compact Controversial Weapons & Tobacco versions.

Source: STOXX Ltd.

### Price and volatility performance

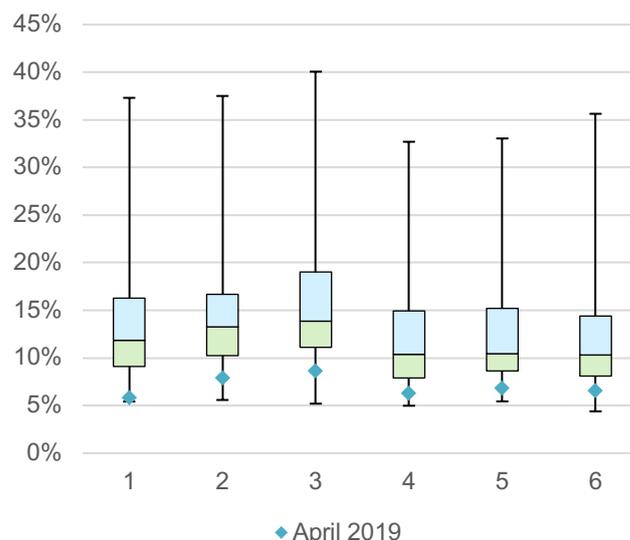
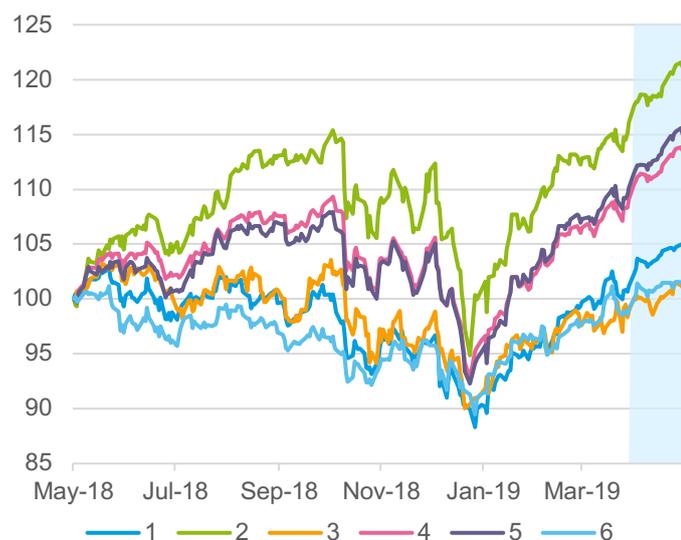


Figure 15: Annual price performance, EUR Net Return. May, 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

Figure 16: Monthly annualized volatility analysis, EUR Net Return. Jan. 2013 – Apr. 2019. Source: STOXX Ltd.

## Low Carbon Indices

### Key points

Low-carbon equity strategies outperformed on a global basis during April. The EURO STOXX<sup>®</sup> 50 Low Carbon Index had a strong showing, as it topped its benchmark by 48 basis points.

Elsewhere, the STOXX<sup>®</sup> Japan Low Carbon Index outperformed the STOXX<sup>®</sup> Japan 600 Index by 45 basis points, while the STOXX<sup>®</sup> USA Low Carbon Index edged the STOXX<sup>®</sup> USA 900 Index's return by 33 points.

The STOXX Low Carbon Indices use data from CDP and ISS ESG.

### Risk and return characteristics

	Return (%)						Annualized volatility (%)						P/B
	EUR			USD			EUR			USD			
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	
1. EURO STOXX 50 Low Carbon	5.8	18.9	1.7	5.6	16.5	-5.7	6.5	12.2	13.3	8.2	13.5	15.3	1.8
2. STOXX Europe 600 Low Carbon	3.6	17.3	4.7	3.4	15.0	-2.9	6.1	10.2	11.9	7.5	11.3	13.6	1.8
3. STOXX USA Low Carbon	4.6	21.4	21.1	4.4	19.0	12.4	8.3	12.6	16.2	6.8	12.5	15.7	3.1
4. STOXX Japan Low Carbon	1.8	11.4	0.7	1.6	9.2	-6.6	9.5	14.8	15.2	8.5	14.8	14.7	1.3
5. STOXX Global 1800 Low Carbon	3.8	18.9	13.8	3.6	16.5	5.6	6.6	9.8	11.9	5.7	10.1	11.9	2.1
6. STOXX Global 1800 ex Europe Low Carbon	3.9	19.5	17.1	3.7	17.1	8.6	7.5	10.4	13.7	6.0	10.3	13.1	2.2

Risk and return performance figures for STOXX Low Carbon Indices, Net Return. Data as of Apr. 30, 2019. Source: STOXX Ltd.

### Price and volatility performance

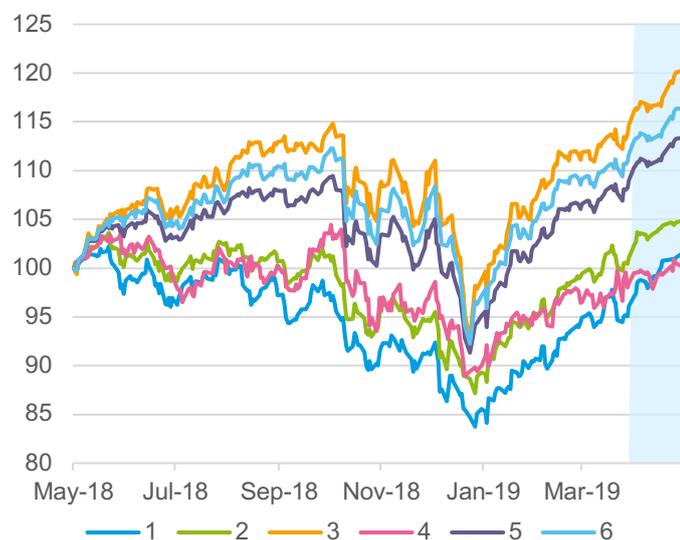


Figure 17: Annual price performance, EUR Net Return. May. 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

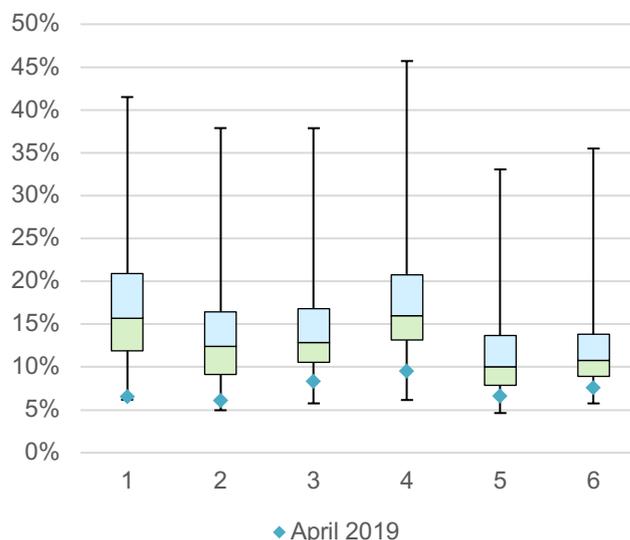


Figure 18: Monthly annualized volatility analysis, EUR Net Return. Jan. 2012 – Apr. 2019. Source: STOXX Ltd.

## Minimum Variance Indices

### Key points

Minimum-variance strategies underperformed during April as broader markets advanced.

The STOXX® Minimum Variance Indices come in two versions: constrained and unconstrained. The former has a similar exposure to a market-capitalization-weighted index but with lower risk. The unconstrained version, on the other hand, has more freedom to fulfill its minimum-variance mandate within the same universe of stocks.

The STOXX® Global 1800 Minimum Variance Index rose 1.2%, and its unconstrained version climbed 0.7%. That compares with the 3.5% advance for the STOXX Global 1800 Index. Both low-variance measures have lagged their benchmarks year-to-date as investors have taken on more risk.

### Risk and return characteristics

	Return (%)						Annualized volatility (%)						P/B
	EUR			USD			EUR			USD			
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	
1. STOXX Europe 600 MV	1.8	12.9	6.2	1.6	10.6	-1.5	5.8	7.4	9.3	6.9	8.1	10.8	2.1
2. STOXX Europe 600 MV Unconstrained	1.7	12.5	6.8	1.5	10.3	-1.0	5.5	7.0	9.2	6.6	7.9	10.8	2.2
3. STOXX USA 900 MV	2.7	18.3	24.2	2.5	15.9	15.2	7.3	8.8	12.2	6.5	8.3	11.2	3.2
4. STOXX USA 900 MV Unconstrained	3.0	14.9	19.4	2.9	12.7	10.7	6.1	7.7	11.2	5.7	7.0	9.9	2.8
5. STOXX Global 1800 MV	1.4	13.2	16.1	1.2	10.9	7.7	5.2	6.4	8.6	4.2	6.0	7.6	2.1
6. STOXX Global 1800 MV Unconstrained	0.9	12.7	15.6	0.7	10.5	7.2	4.3	6.1	8.0	3.4	5.7	7.0	1.6

Risk and return performance figures for STOXX Minimum Variance Indices, Net Return. Data as of Apr. 30, 2019.  
Source: STOXX Ltd.

### Price and volatility performance

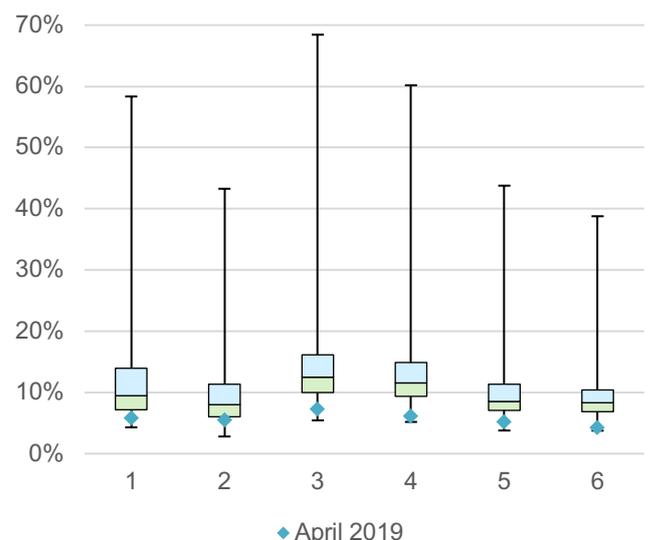
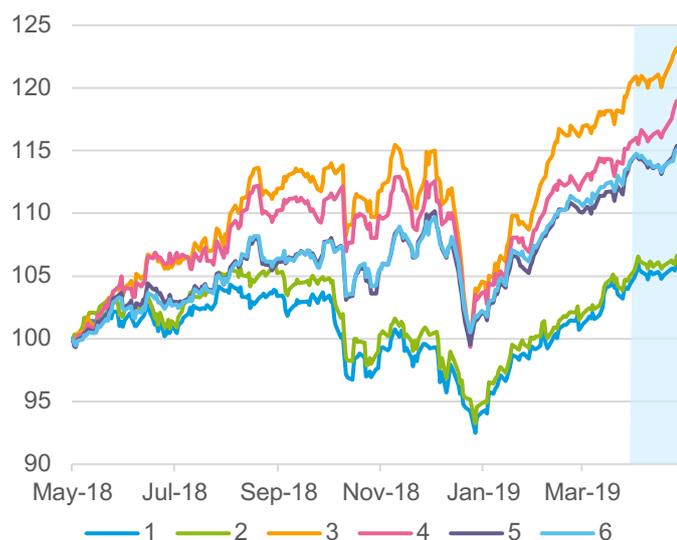


Figure 19: Annual price performance, EUR Net Return. May. 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

Figure 20: Monthly annualized volatility analysis, EUR Net Return Jan. 2004 – Apr. 2019. Source: STOXX Ltd.

## Dividend Indices

### Key points

Among dividend strategies, the STOXX® Global Maximum Dividend 40 Index posted its strongest outperformance to the STOXX Global 1800 Index since December 2016. The index selects the highest-dividend-yielding stocks.

The Global Maximum Dividend 40 Index last year had its worst-ever annual performance relative to the benchmark, as a pick-up in bond yields made dividends comparatively less attractive to investors. The index is performing better this year as the Federal Reserve has indicated it may pause its interest-rate increases, pulling bond yields lower.

The STOXX® Global Select Dividend 100 Index, which tracks companies with sizeable dividends but also applies a quality filter such as a history of stable payments, rose 2% during April. The STOXX® Global Select 100 EUR Index, which blends increasing dividend yields with low volatility, added 1.5% in euros.

### Risk and return characteristics

	Return (%)						Annualized volatility (%)						P/B
	EUR			USD			EUR			USD			
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	
1. STOXX Global Maximum Dividend 40	6.9	19.3	6.5	6.7	16.9	-1.2	12.7	10.8	10.8	14.1	12.1	12.2	0.9
2. STOXX Global Select Dividend 100	2.2	14.7	8.5	2.0	12.5	0.6	5.6	7.1	7.7	6.1	7.6	8.4	1.7
3. STOXX Global Select 100 EUR	1.5	13.2	8.1				4.1	6.5	7.6				1.5

Risk and return performance figures for STOXX Dividend Indices, Net Return. Data as of Apr. 30, 2019.  
Source: STOXX Ltd.

### Price and volatility performance



Figure 21: Annual price performance, EUR Net Return. May. 2018 – Apr. 2019. Shaded area: Apr. 2019. Source: STOXX Ltd.

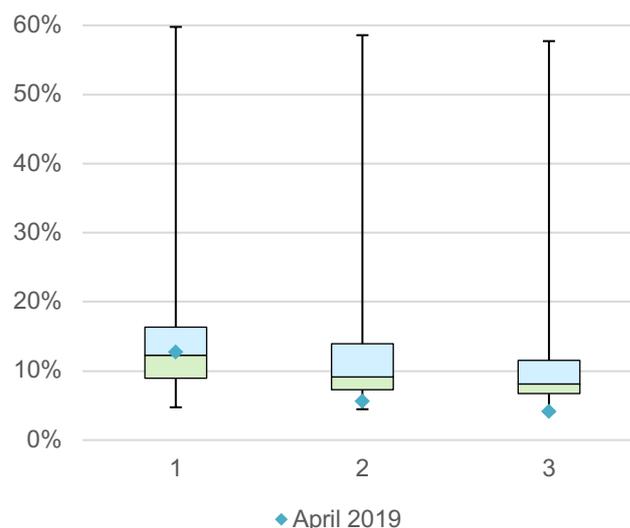


Figure 22: Monthly annualized volatility analysis, EUR Net Return. Jul. 2004 – Apr. 2019. Source: STOXX Ltd.

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#### About STOXX

STOXX Ltd. is an established and leading index specialist, which started in Europe. The launch of the first STOXX® indices in 1998, including the EURO STOXX 50® Index, marked the beginning of a unique success story, based on the company's neutrality and independence. Since then, STOXX has been at the forefront of market developments and has continuously expanded its portfolio of innovative indices. STOXX now operates globally across all asset classes.

STOXX indices are licensed to more than 500 companies, which include the world's largest financial products issuers, capital owners and asset managers. STOXX indices are used not only as underlyings for financial products, such as ETFs, futures and options and structured products but also for risk and performance measurement. In addition, STOXX Ltd. is the marketing agent for DAX® indices.