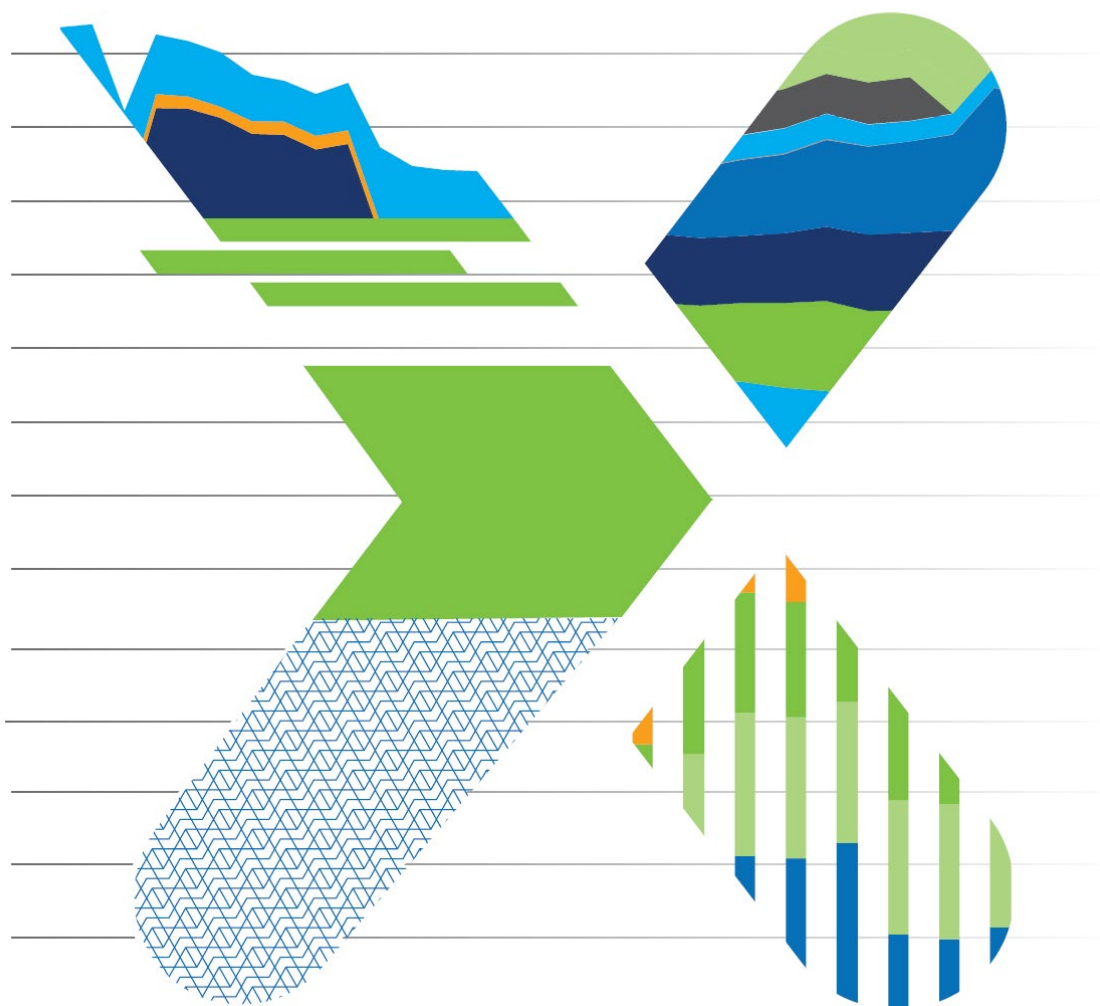


MONTHLY INDEX NEWS



Newsletter updates

We regularly update this newsletter to include additional indices and consider layout modifications to the various sections. The 'Thematics – AI Driven' section has been removed from this edition onwards. The STOXX® Global Metaverse index has been added to the Thematics section.

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Featured index

Qontigo last month introduced the [STOXX® Global Metaverse](#), a thematic index that follows a unique patents-based stock selection methodology and that underlies an iShares ETF from BlackRock.

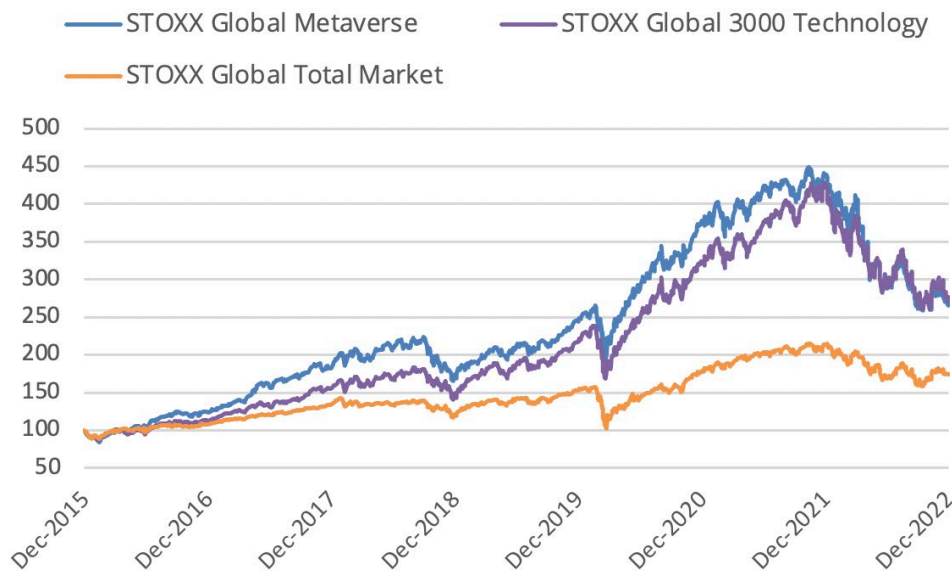
The index selects companies developing technologies related to the deployment and adoption of the Metaverse, including interactive virtual platforms, wearables, immersive applications, computer processing capabilities and digital twin. The new index expands Qontigo’s suite of solutions targeting the [upside of a digital future](#).

The STOXX Global Metaverse index uses EconSight’s patents database. The specialist analytics provider employs a sophisticated patent classification system and indicators that help [identify companies with intellectual property](#) in cutting-edge technologies associated with the Metaverse. The selection methodology combines two criteria: the number of high-quality patents (defined by a patent’s citation frequency and market coverage it has been applied for) and a company’s patents specialization (or the number of a company’s Metaverse-related patents divided by its entire patent portfolio). This dual selection process ensures a good balance of established players and emerging innovators.

The index also takes ESG considerations into account: companies that are non-compliant with Sustainalytics’ Global Standards Screening (GSS) or are involved in controversial weapons activities are excluded. Additional exclusion filters screen out companies for product involvement in weapons, energy and tobacco.

Despite a weak 2022, the STOXX Global Metaverse has significantly outperformed the [STOXX® Global TMI](#) benchmark in the past seven years. The Metaverse index also showed an edge over a traditional sector-based technology index until the end of 2021 (Chart 1).

Chart 1: 7-year performance



Source: Qontigo. Total returns in USD, Dec. 31, 2015 – Dec. 31, 2022.

Benchmark indices

Key points

Stocks fell in December, wrapping the [STOXX® Global 1800 index](#)'s worst year since 2008, as investor concerns lingered about the impact of inflation and higher interest rates on economic and earnings growth.

The global benchmark retreated 3.9% last month when measured in dollars and including dividends, taking its 2022 loss to 17.9%. The benchmark fell 7.3% in euros in the month after the greenback slid 3.7% against the common currency.

The pan-European [STOXX® Europe 600](#) decreased 3.4% in euros in December for a 10.1% drop in 2022, and the Eurozone's [EURO STOXX 50®](#) fell 4.3% in the month. The [STOXX® North America 600](#) dropped 5.8% in dollars in December, as did the [STOXX® USA 500](#). The [STOXX® Asia/Pacific 600](#) gained 0.7% in dollars.

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 50	-4.3	-8.8	-8.8	-0.8	-14.4	-14.4	17.8	23.6	23.6	22.0	29.7	29.7
2. STOXX Europe 600	-3.4	-10.1	-10.1	0.2	-15.7	-15.7	15.6	19.1	19.1	20.1	25.3	25.3
3. STOXX Global 1800	-7.3	-12.5	-12.5	-3.9	-17.9	-17.9	14.2	18.3	18.3	15.8	20.7	20.7
4. STOXX Global 1800 ex USA	-3.7	-8.4	-8.4	-0.1	-14.0	-14.0	12.3	13.7	13.7	17.3	19.8	19.8
5. STOXX USA 500	-9.1	-14.5	-14.5	-5.8	-19.8	-19.8	18.1	24.0	24.0	18.1	24.8	24.8
6. STOXX USA 900	-9.1	-14.3	-14.3	-5.8	-19.6	-19.6	18.2	24.1	24.1	18.2	24.9	24.9
7. STOXX North America 600	-9.1	-13.9	-13.9	-5.8	-19.2	-19.2	17.8	23.5	23.5	17.9	24.4	24.4
8. STOXX Asia/Pacific 600	-2.9	-7.4	-7.4	0.7	-13.1	-13.1	12.5	15.9	15.9	17.3	19.1	19.1

Risk and return performance figures for STOXX Benchmark indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

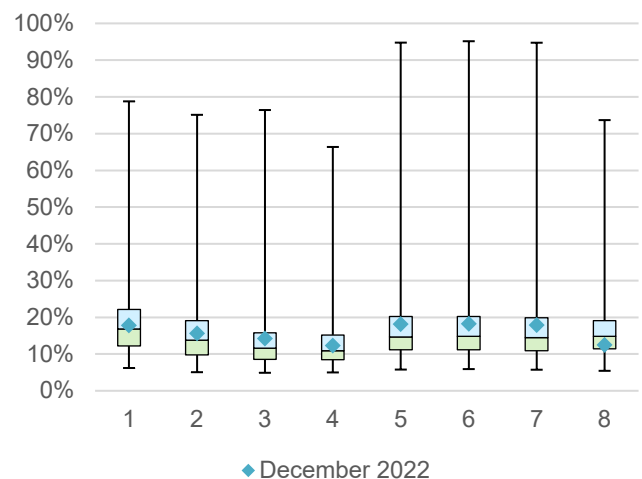
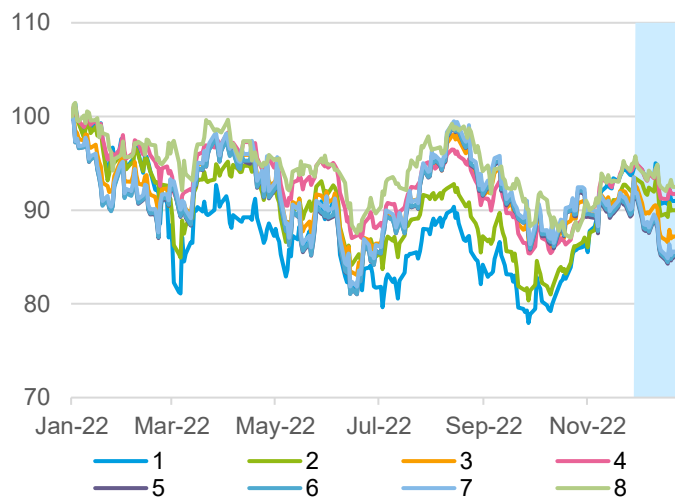


Figure 1: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 2: Monthly annualized volatility analysis, EUR gross return. Jan. 2004 – Dec. 2022. Source: Qontigo.

DAX indices

Key points

Germany's DAX family is led by [DAX®](#), the blue-chip benchmark. [MDAX®](#) and [SDAX®](#), respectively, gauge the performance of the country's mid- and small-caps. [TecDAX®](#) tracks German technology companies. [HDAX®](#) groups all equities that belong to either DAX, MDAX or TecDAX.

All indices had negative returns in December and for the whole year.

Risk and return characteristics

	(EUR) Return (%)			(EUR) Annualized volatility (%)		
	1M	YTD	1Y	1M	YTD	1Y
1. DAX	-3.3	-12.3	-12.3	16.6	23.7	23.7
2. MDAX	-1.9	-28.5	-28.5	19.3	26.6	26.6
3. SDAX	-3.7	-27.3	-27.3	19.9	27.0	27.0
4. TecDAX	-4.8	-25.5	-25.5	21.5	26.0	26.0
5. HDAX	-3.1	-14.4	-14.4	16.7	23.8	23.8

Risk and return performance figures for DAX indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

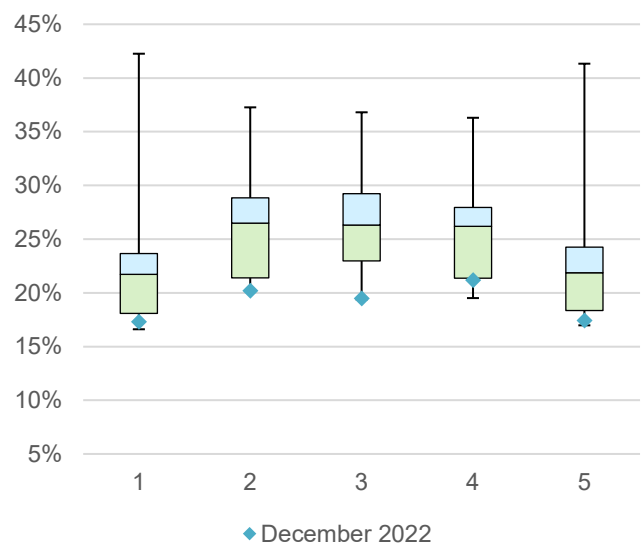


Figure 3: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 4: Monthly annualized volatility analysis, EUR gross return. Jan. 2022 – Dec. 2022. Source: Qontigo.

DAX ESG indices

Key points

Qontigo offers four sustainable options as indices for German equities: [DAX® 50 ESG](#), [DAX® ESG Target](#), [DAX® ESG Screened](#) and [MDAX® ESG Screened](#). All four had negative returns last month and in 2022.

Risk and return characteristics

	(EUR) Return (%)			(EUR) Annualized volatility (%)		
	1M	YTD	1Y	1M	YTD	1Y
1. DAX 50 ESG	-3.6	-14.6	-14.6	17.0	23.7	23.7
2. DAX ESG Target	-3.6	-14.1	-14.1	17.1	23.7	23.7
3. DAX ESG Screened	-3.7	-13.9	-13.9	17.1	23.7	23.7
4. MDAX ESG Screened	-1.9	-28.9	-28.9	20.4	26.9	26.9

Risk and return performance figures for DAX indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance



Figure 5: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

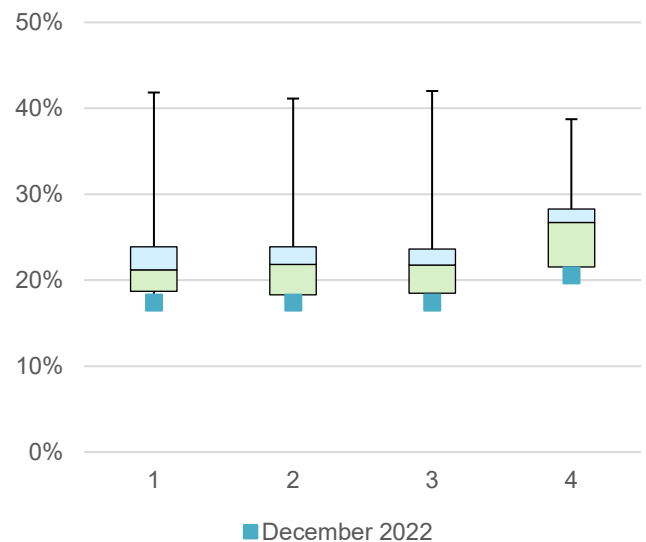


Figure 6: Monthly annualized volatility analysis, EUR gross return. Jan. 2022 – Dec. 2022. Source: Qontigo.

ESG Broad Market indices

Key points

The [STOXX® ESG Broad Market](#) indices apply a set of compliance, product involvement and ESG performance exclusionary screens on a starting benchmark universe until only the 80% top ESG-rated constituents remain. Companies that are non-compliant based on the Sustainalytics Global Standards Screening assessment or are involved in controversial weapons are not eligible for selection. Additional filters exclude companies involved in tobacco production, thermal coal and military contracting.

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 ESG Broad Market	-3.5	-11.9	-11.9	0.0	-17.4	-17.4	16.6	22.3	22.3	21.0	28.6	28.6
2. STOXX Europe 600 ESG Broad Market	-3.6	-10.6	-10.6	0.0	-16.1	-16.1	15.8	19.1	19.1	20.3	25.3	25.3
3. STOXX Global 1800 ESG Broad Market	-7.6	-13.6	-13.6	-4.2	-18.9	-18.9	14.3	18.5	18.5	16.1	21.0	21.0
4. STOXX North America 600 ESG Broad Market	-9.5	-15.4	-15.4	-6.2	-20.6	-20.6	18.1	23.9	23.9	18.2	24.9	24.9
5. STOXX USA 500 ESG Broad Market	-9.6	-16.3	-16.3	-6.3	-21.4	-21.4	18.3	24.6	24.6	18.4	25.4	25.4
6. STOXX USA 900 ESG Broad Market	-9.4	-15.3	-15.3	-6.1	-20.5	-20.5	18.4	24.5	24.5	18.5	25.4	25.4
7. STOXX Asia/Pacific 600 ESG Broad Market	-3.0	-8.0	-8.0	0.5	-13.6	-13.6	12.6	16.1	16.1	17.5	19.3	19.3
8. STOXX Japan 600 ESG Broad Market	-3.0	-11.0	-11.0	0.5	-16.5	-16.5	15.6	18.4	18.4	20.2	21.0	21.0

Risk and return performance figures for STOXX ESG Broad Market indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

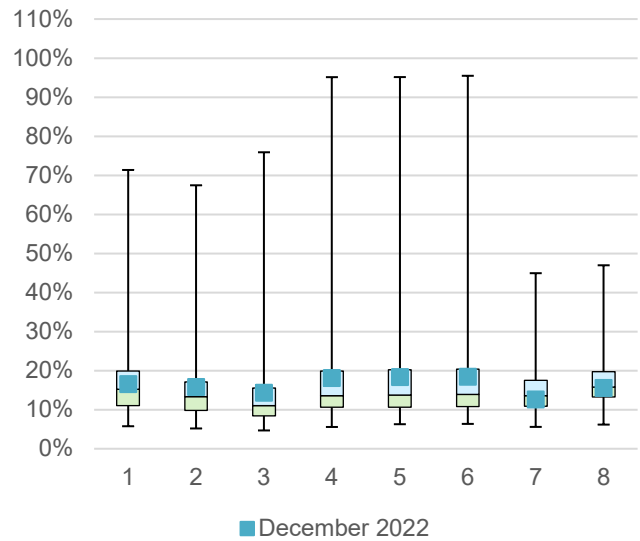
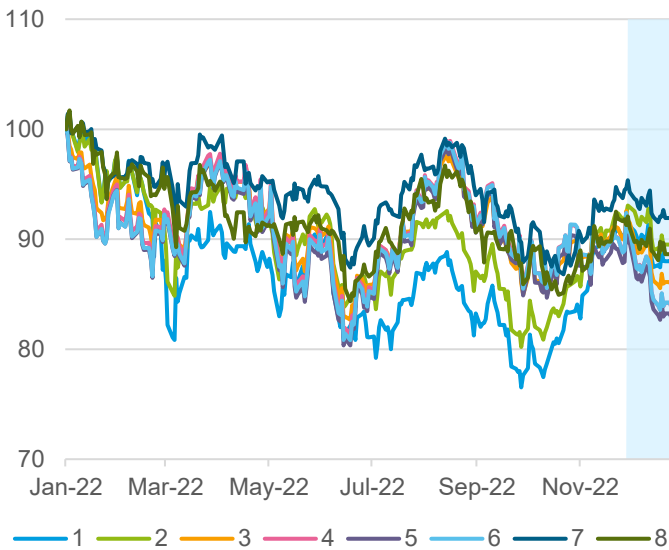


Figure 7: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 8: Monthly annualized volatility analysis, EUR gross return. Apr. 2012 – Dec. 2022. Source: Qontigo.

ESG Target indices

Key points

The [STOXX® ESG Target indices](#) seek to significantly improve the benchmark portfolio's ESG profile, while mirroring its returns as closely as possible.

The indices follow a similar initial selection methodology as the STOXX ESG Broad Market Indices. From that selection pool they implement, through a series of constraints, an optimization process to maximize the overall ESG score of the portfolio while constraining the tracking error to 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 ESG Target	-3.8	-13.0	-13.0	-0.3	-18.4	-18.4	17.1	22.4	22.4	21.6	28.7	28.7
2. STOXX Europe 600 ESG Target	-3.7	-11.5	-11.5	-0.2	-17.0	-17.0	16.2	19.4	19.4	20.7	25.6	25.6
3. STOXX Global 1800 ESG Target	-7.5	-13.7	-13.7	-4.1	-19.0	-19.0	14.4	18.4	18.4	16.4	21.0	21.0
4. STOXX North America 600 ESG Target	-9.5	-14.9	-14.9	-6.2	-20.2	-20.2	18.0	23.7	23.7	18.3	24.7	24.7
5. STOXX USA 500 ESG Target	-9.6	-14.6	-14.6	-6.3	-19.9	-19.9	18.3	24.2	24.2	18.4	25.1	25.1
6. STOXX USA 900 ESG Target	-9.5	-14.7	-14.7	-6.2	-20.0	-20.0	18.4	24.3	24.3	18.6	25.2	25.2
7. STOXX Asia/Pacific 600 ESG Target	-2.9	-8.4	-8.4	0.7	-14.1	-14.1	12.7	16.1	16.1	17.6	19.3	19.3
8. STOXX Japan 600 ESG Target	-3.1	-11.5	-11.5	0.5	-16.9	-16.9	15.3	18.3	18.3	19.9	20.9	20.9

Risk and return performance figures for STOXX ESG Target indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

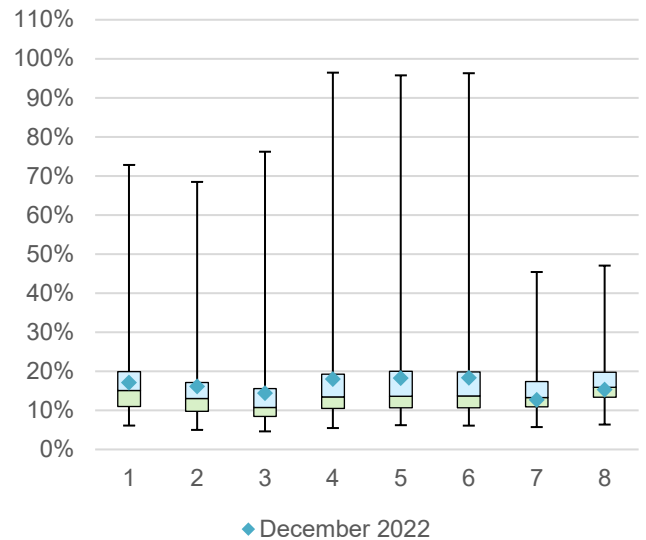
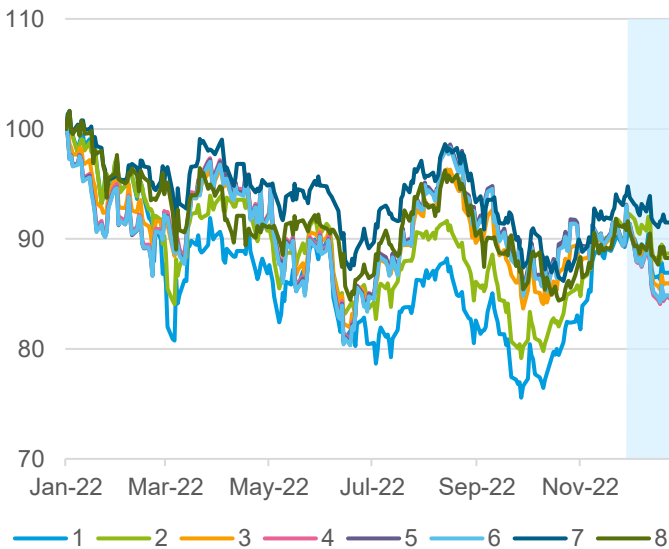


Figure 9: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 10: Monthly annualized volatility analysis, EUR gross return. Apr. 2012 – Dec. 2022. Source: Qontigo.

ESG Target TE indices

Key points

The [STOXX® ESG Target TE indices](#) follow a similar methodology to the ESG Target indices, but the optimization imposes a tracking error minimization, subject to a constraint of improving the ESG score of the resulting portfolio.

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 ESG Target TE	-3.6	-12.4	-12.4	-0.1	-17.8	-17.8	16.9	22.5	22.5	21.3	28.8	28.8
2. STOXX Europe 600 ESG Target TE	-3.6	-11.3	-11.3	-0.1	-16.7	-16.7	16.1	19.4	19.4	20.6	25.6	25.6
3. STOXX Global 1800 ESG Target TE	-7.5	-13.0	-13.0	-4.2	-18.3	-18.3	14.3	18.3	18.3	16.1	20.9	20.9
4. STOXX North America 600 ESG Target TE	-9.3	-14.5	-14.5	-6.0	-19.7	-19.7	17.8	23.6	23.6	18.0	24.5	24.5
5. STOXX USA 500 ESG Target TE	-9.4	-14.7	-14.7	-6.0	-19.9	-19.9	18.2	24.1	24.1	18.2	24.9	24.9
6. STOXX USA 900 ESG Target TE	-9.4	-14.5	-14.5	-6.0	-19.8	-19.8	18.2	24.1	24.1	18.3	25.0	25.0
7. STOXX Asia/Pacific 600 ESG Target TE	-2.9	-8.1	-8.1	0.6	-13.7	-13.7	12.6	16.1	16.1	17.5	19.2	19.2
8. STOXX Japan 600 ESG Target TE	-3.0	-10.9	-10.9	0.6	-16.4	-16.4	15.4	18.3	18.3	20.0	20.9	20.9

Risk and return performance figures for STOXX ESG Target TE indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

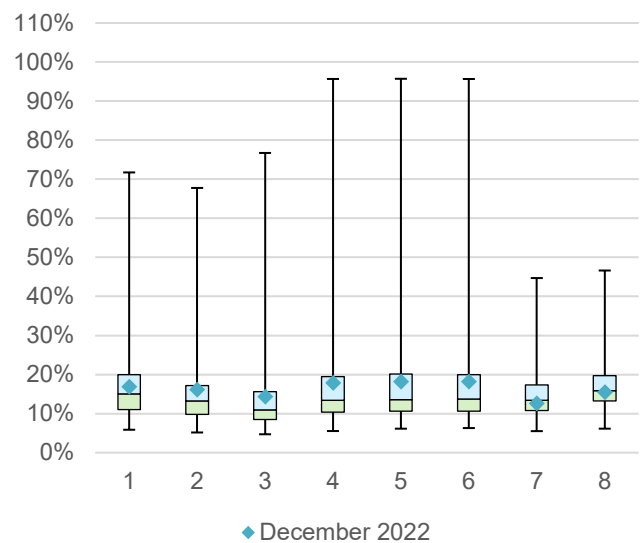
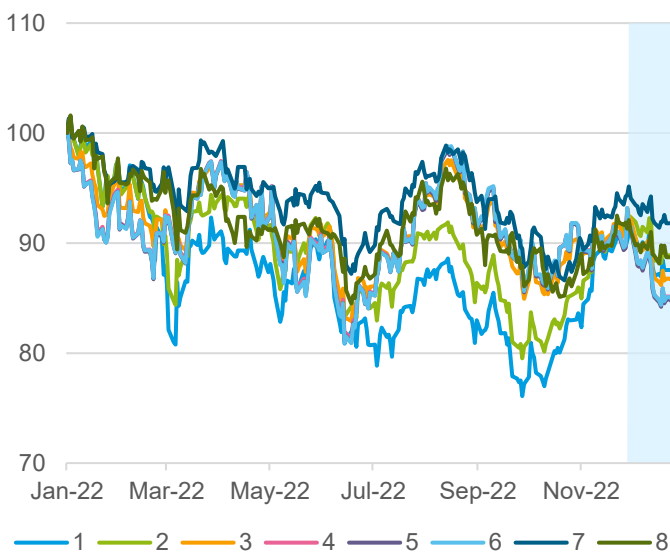


Figure 11: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 12: Monthly annualized volatility analysis, EUR gross return. Apr. 2012 – Dec. 2022. Source: Qontigo.

SRI indices

Key points

The [STOXX® SRI \(Socially Responsible Investing\) indices](#) apply a set of involvement, carbon emission intensity and compliance screens, and additionally track the best ESG performers in each industry group within a selection of STOXX benchmarks.

The [STOXX® Global 1800 SRI](#) index outperformed its benchmark by 81 basis points last month but ended up with similar returns for the whole year.

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 SRI	-4.1	-17.0	-17.0	-0.6	-22.1	-22.1	18.0	22.9	22.9	22.4	29.2	29.2
2. STOXX Europe 600 SRI	-3.3	-11.2	-11.2	0.2	-16.7	-16.7	16.0	18.1	18.1	20.6	24.2	24.2
3. STOXX Global 1800 SRI	-6.5	-12.5	-12.5	-3.1	-17.9	-17.9	13.2	17.5	17.5	15.8	20.6	20.6
4. STOXX North America 600 SRI	-9.9	-15.7	-15.7	-6.6	-20.8	-20.8	17.4	23.6	23.6	17.5	24.7	24.7
5. STOXX USA 500 SRI	-10.0	-16.1	-16.1	-6.7	-21.3	-21.3	17.7	24.2	24.2	17.7	25.1	25.1
6. STOXX Asia/Pacific 600 SRI	-3.0	-8.8	-8.8	0.5	-14.4	-14.4	13.1	16.7	16.7	18.2	19.9	19.9
7. STOXX Japan 600 SRI	-2.6	-11.6	-11.6	0.9	-17.0	-17.0	16.2	18.9	18.9	20.7	21.6	21.6

Risk and return performance figures for STOXX ESG SRI indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

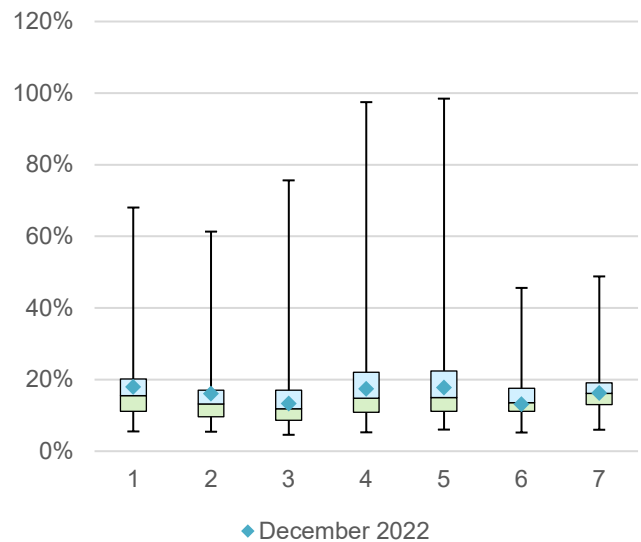
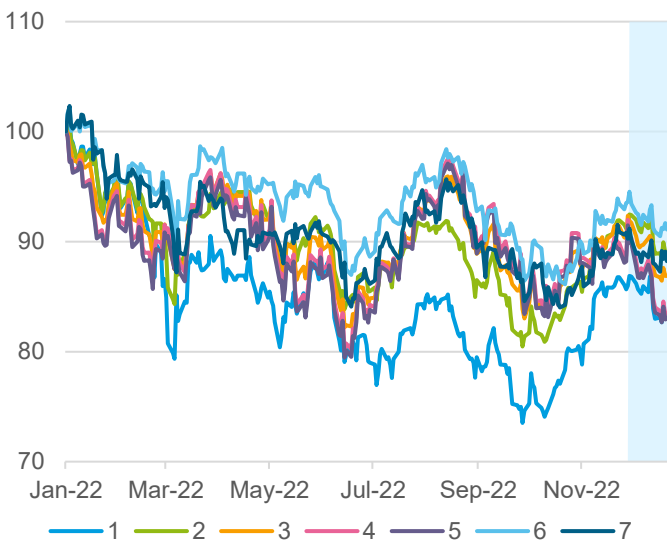


Figure 13: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 14: Monthly annualized volatility analysis, EUR gross return. Apr. 2012 – Dec. 2022. Source: Qontigo.

ESG-X indices

Key points

The [STOXX ESG-X indices](#) are versions of traditional, market-capitalization-weighted benchmarks that observe [standard responsible exclusions](#). They incorporate basic norm- and product-based exclusion criteria to comply with ESG principles. Companies are excluded based on data provider Sustainalytics' determination of non-compliance with their Global Standards Screening assessment, involvement in controversial weapons, tobacco production, thermal coal extraction or exploration, or use of thermal coal to generate at least a quarter of power output.

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 50 ESG-X	-4.4	-9.3	-9.3	-1.0	-14.8	-14.8	18.0	23.4	23.4	22.2	29.6	29.6
2. STOXX Europe 600 ESG-X	-3.5	-10.8	-10.8	0.1	-16.3	-16.3	15.8	19.3	19.3	20.4	25.4	25.4
3. STOXX Global 1800 ESG-X	-7.4	-13.3	-13.3	-4.0	-18.6	-18.6	14.4	18.5	18.5	16.1	21.0	21.0
4. STOXX USA 500 ESG-X	-9.3	-15.6	-15.6	-6.0	-20.8	-20.8	18.4	24.5	24.5	18.4	25.3	25.3
5. STOXX North America 600 ESG-X	-9.3	-14.9	-14.9	-5.9	-20.2	-20.2	18.1	23.9	23.9	18.2	24.8	24.8
6. STOXX Asia/Pacific 600 ESG-X	-2.9	-7.7	-7.7	0.6	-13.4	-13.4	12.5	16.0	16.0	17.3	19.2	19.2

Risk and return performance figures for STOXX ESG-X indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

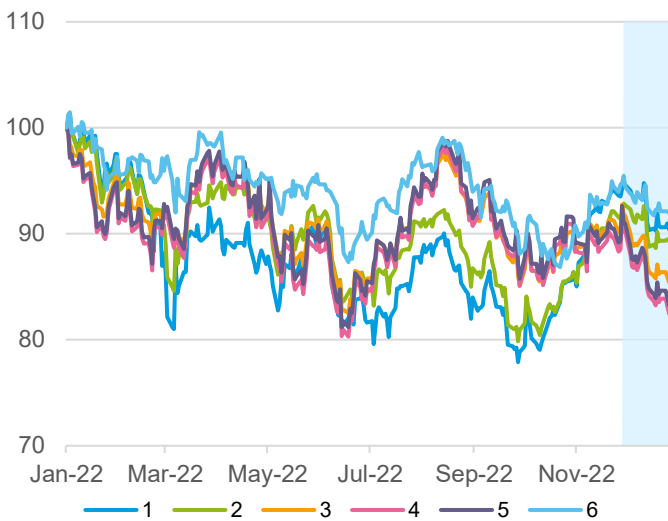


Figure 15: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

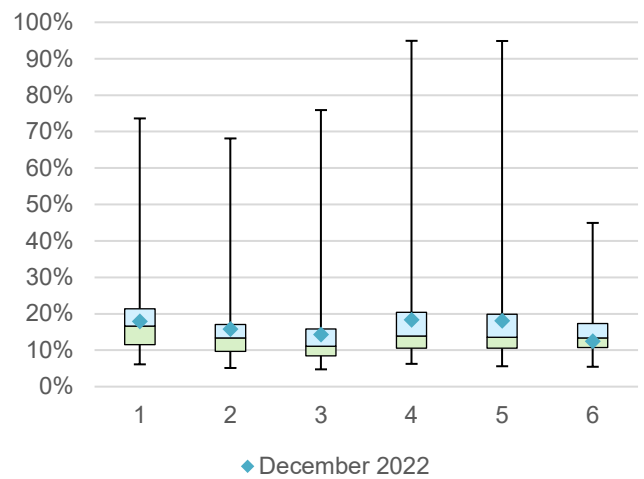


Figure 16: Monthly annualized volatility analysis, EUR gross return. Apr. 2012 – Dec. 2022. Source: Qontigo.

ESG and Sustainability indices

Key points

Among the STOXX ESG and Sustainability indices, the [EURO STOXX 50® ESG](#) index performed broadly in line with its benchmark in December.

The [STOXX® Global ESG Select KPIs index](#) outperformed the STOXX Global 1800 by 28 basis points. The STOXX ESG Select KPIs Indices offer a broad market exposure that is tilted towards companies that score better with respect to a small set of environmental, social, and governance key performance indicators.

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 50 ESG	-4.3	-9.2	-9.2	-0.8	-14.8	-14.8	18.0	23.2	23.2	22.3	29.4	29.4
2. STOXX Europe Industry Neutral ESG	-3.4	-9.9	-9.9	0.2	-15.4	-15.4	15.7	19.0	19.0	20.2	25.2	25.2
3. STOXX North America Industry Neutral ESG	-8.6	-10.8	-10.8	-5.2	-16.3	-16.3	17.3	22.1	22.1	17.5	23.0	23.0
4. STOXX Global ESG Select KPIs	-7.0	-12.5	-12.5	-3.6	-17.9	-17.9	14.1	17.9	17.9	16.3	20.7	20.7
5. STOXX USA ESG Select KPIs	-9.3	-14.3	-14.3	-6.0	-19.6	-19.6	18.3	24.0	24.0	18.4	25.0	25.0
6. STOXX Europe ESG Leaders Select 30	-3.1	-12.4	-12.4				13.8	17.0	17.0			

Risk and return performance figures for STOXX ESG and Sustainability indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

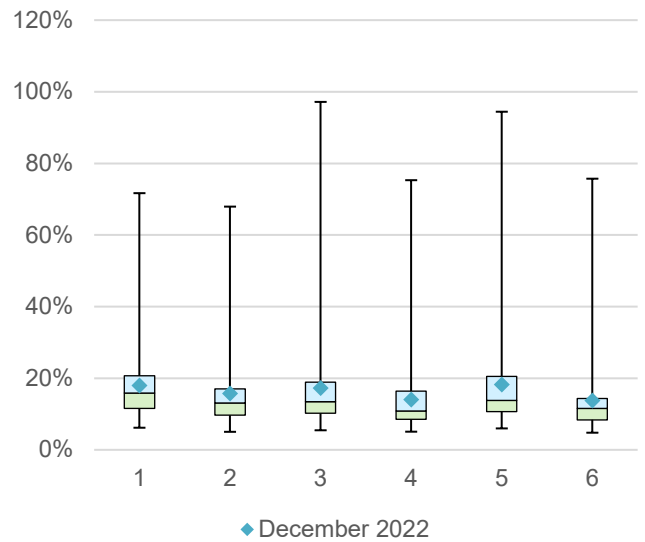
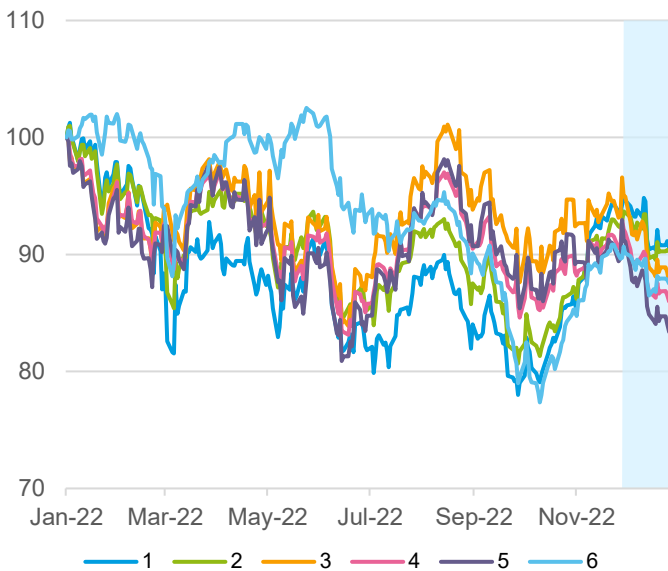


Figure 17: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 18: Monthly annualized volatility analysis, EUR gross return. Oct. 2012 – Dec. 2022. Source: Qontigo.

Climate Indices – Paris-Aligned Benchmark indices

Key points

The [STOXX Paris-Aligned Benchmark indices \(PABs\)](#) are based on liquid securities from a selection of STOXX Benchmark Indices and follow the [EU Paris-aligned Benchmark \(EU PAB\) requirements](#) outlined by the European Commission’s Regulation (EU) 2020/1818, supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council on climate benchmarks.

Those requirements are designed such that the resulting PAB portfolio’s greenhouse gas (GHG) emissions are aligned with the long-term global warming target of the Paris Climate Agreement. The indices incorporate stringent carbon limitations in the selection of holdings, in line with global commitments to work towards keeping global warming between 1.5°C and 2°C above pre-industrial levels.

We have partnered with Sustainalytics for datasets relating to their Global Standards Screening and controversial weapons, and with ISS ESG for climate-related data such as Scope 1 to Scope 3 emissions, science-based climate targets, and others.

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 PAB	-4.3	-13.6	-13.6	-0.8	-18.9	-18.9	17.4	22.1	22.1	21.9	28.3	28.3
2. EURO STOXX TMI PAB	-4.2	-13.4	-13.4	-0.7	-18.7	-18.7	17.3	22.0	22.0	21.8	28.2	28.2
3. STOXX Europe 600 PAB	-3.7	-11.0	-11.0	-0.2	-16.4	-16.4	16.4	19.2	19.2	20.9	25.2	25.2
4. STOXX Global 1800 PAB	-7.7	-15.9	-15.9	-4.3	-21.1	-21.1	14.7	19.2	19.2	16.7	21.7	21.7
5. STOXX USA 500 PAB	-9.6	-18.5	-18.5	-6.3	-23.6	-23.6	18.0	24.9	24.9	18.2	25.7	25.7
6. STOXX USA 900 PAB	-9.5	-18.0	-18.0	-6.2	-23.1	-23.1	17.9	24.9	24.9	18.1	25.6	25.6

Risk and return performance figures for STOXX Paris-Aligned Benchmark indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

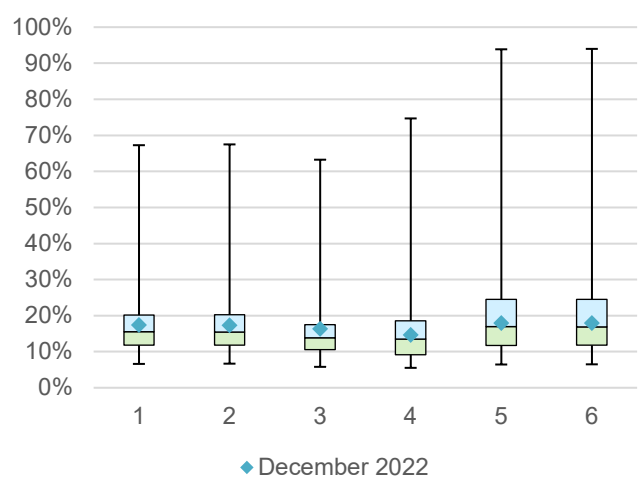
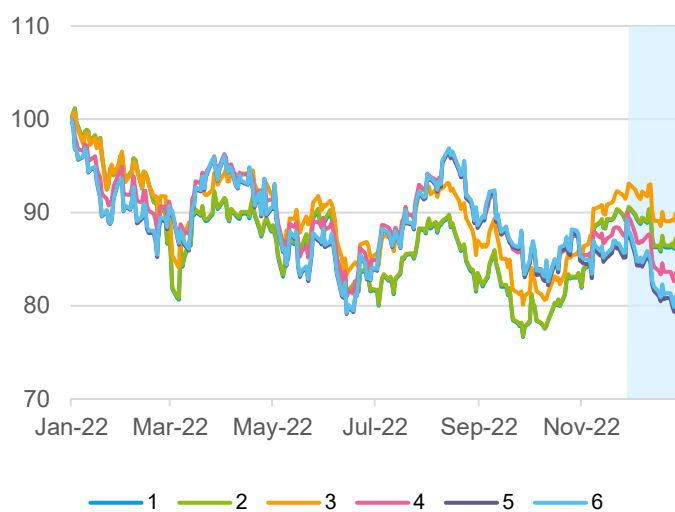


Figure 19: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 20: Monthly annualized volatility analysis, EUR gross return. Apr. 2018 – Dec. 2022. Source: Qontigo.

Climate indices – Climate Transition Benchmark indices

Key points

The [STOXX Climate Transition Benchmark indices \(CTBs\)](#) are based on liquid securities from a selection of STOXX Benchmark Indices and follow the [EU Climate Transition Benchmark \(EU CTB\) requirements](#) outlined by the European Commission’s Regulation (EU) 2020/1818, supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council on climate benchmarks.

Those requirements are designed such that the resulting CTB portfolio is on a decarbonization trajectory.

As with the Paris-Aligned Benchmarks, we have partnered with Sustainalytics for exclusions datasets, and with ISS ESG for climate-related data, science-based climate targets and others.

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 CTB	-4.2	-13.0	-13.0	-0.6	-18.4	-18.4	17.1	21.8	21.8	21.6	28.1	28.1
2. EURO STOXX TMI CTB	-4.1	-13.0	-13.0	-0.6	-18.3	-18.3	17.0	21.8	21.8	21.5	28.1	28.1
3. STOXX Europe 600 CTB	-3.6	-10.8	-10.8	-0.1	-16.3	-16.3	16.1	18.9	18.9	20.7	25.0	25.0
4. STOXX Global 1800 CTB	-7.6	-14.8	-14.8	-4.2	-20.0	-20.0	14.5	18.7	18.7	16.5	21.3	21.3
5. STOXX USA 500 CTB	-9.4	-17.4	-17.4	-6.1	-22.4	-22.4	17.9	24.4	24.4	18.0	25.2	25.2
6. STOXX USA 900 CTB	-9.4	-16.9	-16.9	-6.1	-22.0	-22.0	17.9	24.4	24.4	18.0	25.1	25.1

Risk and return performance figures for STOXX Climate Transition Benchmark indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

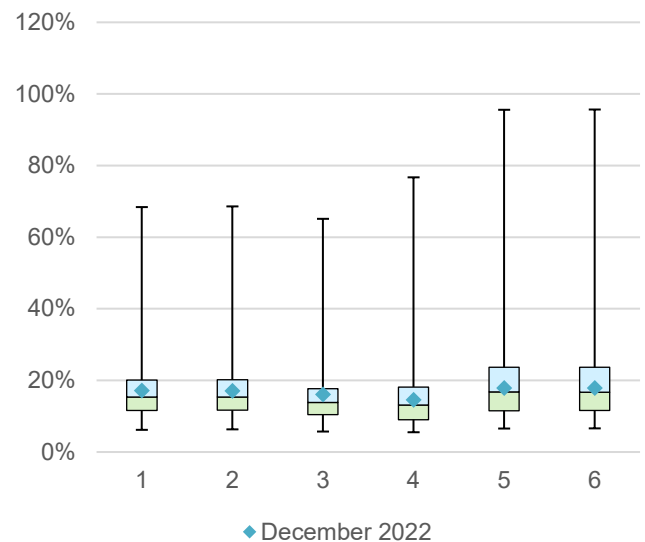
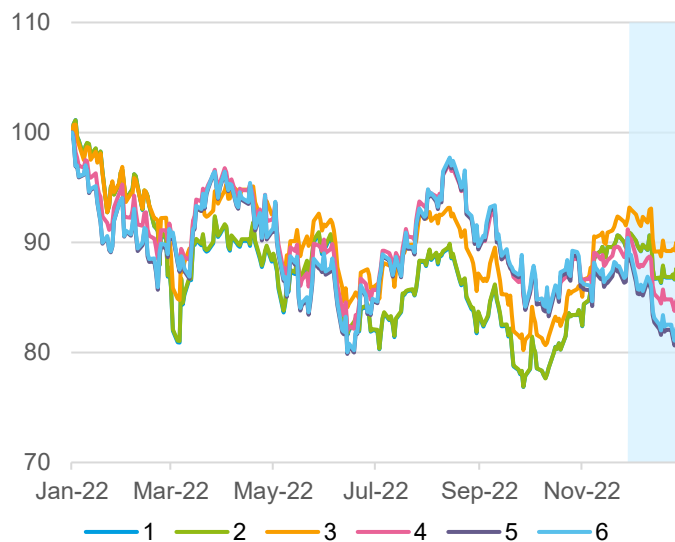


Figure 21: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 22: Monthly annualized volatility analysis, EUR gross return. Apr. 2018 – Dec. 2022. Source: Qontigo.

Climate Indices – Impact, Change Leaders and Awareness indices

Key points

Among other STOXX Climate Indices, the [STOXX® Global Climate Change Leaders index](#) beat the STOXX Global 1800 index by 151 basis points last month. The Climate Change Leaders index selects corporate pioneers that are publicly committed to reducing their carbon footprint.

The [STOXX® Global Climate Impact Ex Global Compact Controversial Weapons & Tobacco index](#), meanwhile, outperformed the STOXX Global 1800 Index by 48 basis points. The STOXX Climate Impact Ex Global Compact Controversial Weapons & Tobacco Indices include companies that are leading in terms of climate change as well as those that are managing the effect of climate-related issues. They additionally exclude companies in contravention of global norms, and those involved with coal, tobacco or controversial weapons.

We have 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 (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Europe Climate Impact*	-3.2	-8.8	-8.8	0.3	-14.4	-14.4	15.8	18.8	18.8	20.2	24.9	24.9
2. STOXX Global Climate Impact*	-6.8	-10.4	-10.4	-3.4	-15.9	-15.9	13.6	16.7	16.7	15.7	19.5	19.5
3. STOXX North America Climate Impact*	-8.7	-12.1	-12.1	-5.4	-17.5	-17.5	17.6	22.2	22.2	17.8	23.1	23.1
4. STOXX Asia/Pacific Climate Impact*	-2.9	-6.2	-6.2	0.7	-11.9	-11.9	13.2	16.4	16.4	18.3	19.5	19.5
5. STOXX Global Climate Change Leaders	-5.8	-11.3	-11.3	-2.4	-16.8	-16.8	12.2	13.9	13.9	15.8	18.0	18.0
6. iSTOXX Europe ESG Climate Awareness Select	-2.0	-9.4	-9.4	1.5	-15.0	-15.0	14.2	14.9	14.9	19.0	20.9	20.9

Risk and return performance figures for STOXX Climate indices, gross return. Data as of Dec. 30, 2022. *Indices are the Ex Global Compact Controversial Weapons & Tobacco versions. Source: Qontigo.

Index and volatility performance

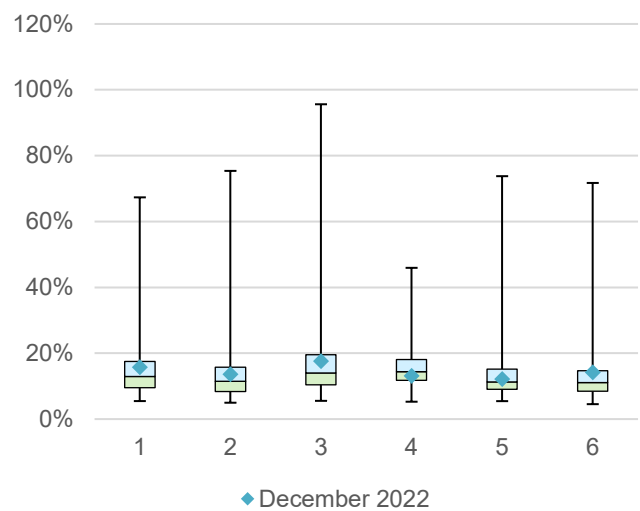
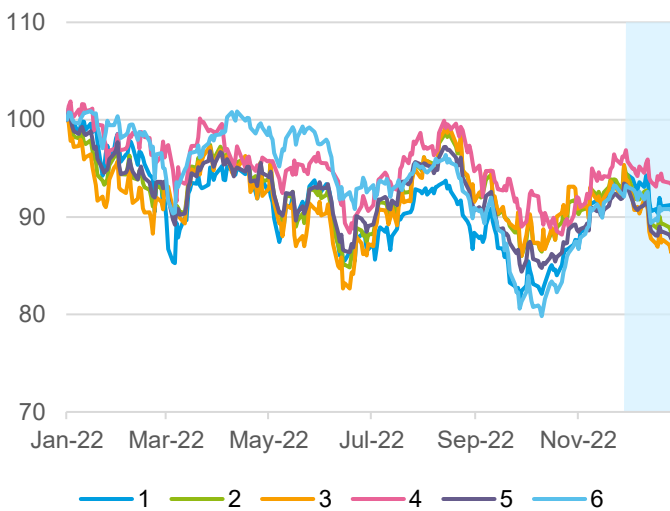


Figure 23: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 24: Monthly annualized volatility analysis, EUR gross return. Jan. 2013 – Dec. 2022. Source: Qontigo.

Climate Indices - Willis Towers Watson Climate Transition Indices

Key points

The [STOXX Willis Towers Watson Climate Transition Indices \(CTI\)](#) employ a unique Climate Transition Value at Risk (CTVaR) methodology that quantifies the anticipated impact of an economic transition on equity valuations. The CTIs enable a more sophisticated way of managing climate transition risk, one that looks beyond carbon emissions and makes a forward-looking, bottom-up evaluation of asset repricing risks in a decarbonization pathway.

By using the CTVaR projections, the indices tilt towards companies that are expected to fare well and away from companies that are expected to experience meaningful losses in value as the economy moves to a global-temperature scenario of ‘well below’ 2°C.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Willis Towers Watson Europe 600 Climate Transition	-3.4	-13.0	-13.0	0.1	-18.3	-18.3	16.2	19.8	19.8	20.9	25.9	25.9
2. STOXX Willis Towers Watson World Climate Transition	-7.7	-16.3	-16.3	-4.3	-21.4	-21.4	14.7	19.7	19.7	16.4	22.0	22.0
3. STOXX Willis Towers Watson USA 500 Climate Transition	-9.3	-18.2	-18.2	-6.0	-23.3	-23.3	18.2	25.2	25.2	18.3	26.0	26.0

Risk and return performance figures for STOXX Willis Towers Watson Climate Transition Indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

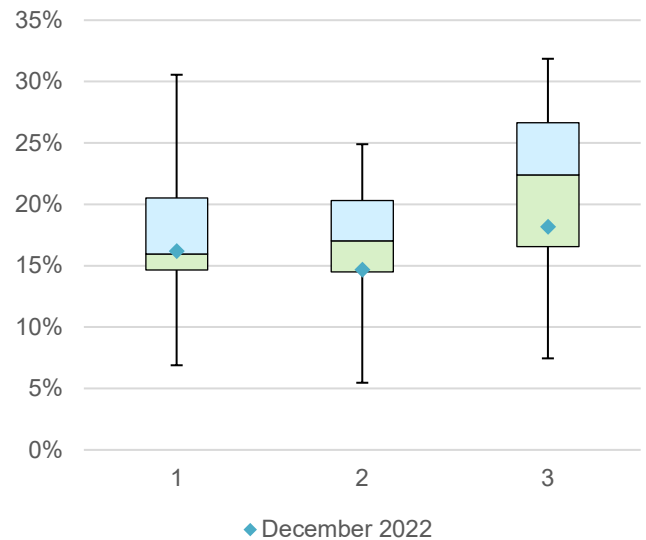


Figure 25: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 26: Monthly annualized volatility analysis, EUR gross return. Jul. 2021 – Dec. 2022. Source: Qontigo.

Low Carbon indices

Key points

Among the [STOXX Low Carbon indices](#), the [EURO STOXX® 50 Low Carbon index](#) outperformed the EURO STOXX 50 by 24 basis points in December.

The STOXX Low Carbon indices were designed to help reduce the carbon footprint of portfolios and limit their exposure to climate-related risks. They use data from CDP and ISS ESG.

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 50 Low Carbon	-4.0	-9.4	-9.4	-0.5	-15.0	-15.0	17.9	24.0	24.0	22.2	30.1	30.1
2. STOXX Europe 600 Low Carbon	-3.3	-10.2	-10.2	0.2	-15.7	-15.7	15.9	19.1	19.1	20.6	25.2	25.2
3. STOXX Global 1800 Low Carbon	-7.3	-12.4	-12.4	-3.9	-17.8	-17.8	14.4	18.3	18.3	16.1	20.8	20.8
4. STOXX Global 1800 ex Europe Low Carbon	-8.3	-12.8	-12.8	-4.9	-18.2	-18.2	15.6	20.5	20.5	16.3	21.8	21.8
5. STOXX USA Low Carbon	-9.0	-14.2	-14.2	-5.7	-19.5	-19.5	18.2	23.8	23.8	18.1	24.7	24.7
6. STOXX Japan Low Carbon	-2.8	-10.5	-10.5	0.7	-16.0	-16.0	15.9	18.7	18.7	20.6	21.4	21.4

Risk and return performance figures for STOXX Low Carbon indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

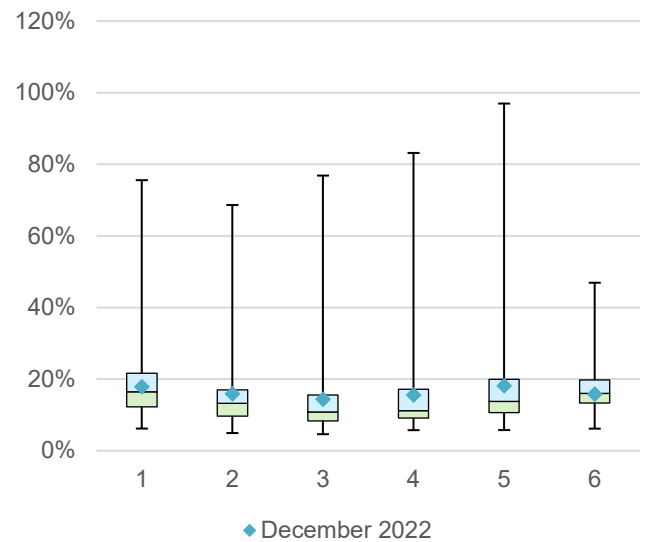
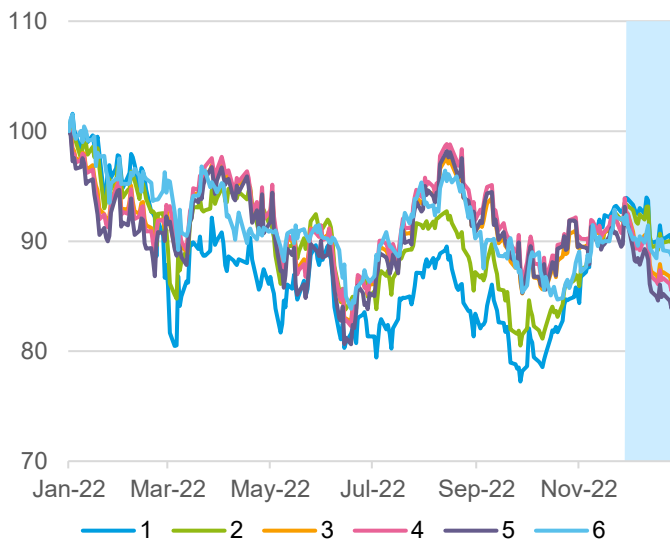


Figure 27: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 28: Monthly annualized volatility analysis, EUR gross return. Jan. 2012 – Dec. 2022. Source: Qontigo.

Thematic indices

Key points

The [STOXX Thematic indices](#) seek exposure to the economic upside of disruptive global megatrends.

It was a difficult year for the strategies, as was December. Among the 25 STOXX thematic indices featured in this newsletter, 17 underperformed the benchmark STOXX Global 1800 last month, while 21 trailed for the entire year.

The [STOXX® Global Health & Weight Loss](#) index was the only one in the suite to post a positive return last month.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Global Ageing Population	-5.6	-7.7	-7.7	-2.1	-13.4	-13.4	13.3	17.3	17.3	14.6	20.1	20.1
2. STOXX Global Artificial Intelligence	-10.5	-35.9	-35.9	-7.2	-39.9	-39.9	27.1	37.0	37.0	29.8	38.5	38.5
3. STOXX Global Automation & Robotics	-7.0	-29.8	-29.8	-3.6	-34.1	-34.1	19.7	26.9	26.9	23.4	29.7	29.7
4. STOXX Global Breakthrough Healthcare	-7.3	-18.2	-18.2	-3.9	-23.2	-23.2	18.1	25.3	25.3	20.0	26.8	26.8
5. STOXX Global Broad Infrastructure	-5.7	-3.5	-3.5	-2.3	-9.5	-9.5	11.0	12.8	12.8	13.4	15.6	15.6
6. STOXX Global Digital Entertainment and Education	-8.9	-31.7	-31.7	-5.6	-35.9	-35.9	21.1	29.0	29.0	23.7	30.9	30.9
7. STOXX Global Digital Security	-7.3	-23.6	-23.6	-3.9	-28.3	-28.3	19.6	24.1	24.1	23.1	26.2	26.2
8. STOXX Global Digitalisation	-9.1	-31.5	-31.5	-5.8	-35.7	-35.7	21.2	28.9	28.9	23.9	31.1	31.1
9. STOXX Global Electric Vehicles & Driving	-11.4	-22.5	-22.5	-8.2	-27.2	-27.2	14.3	22.6	22.6	17.5	26.1	26.1
10. STOXX Global Fintech	-8.2	-25.9	-25.9	-4.9	-30.4	-30.4	19.1	26.8	26.8	21.3	28.8	28.8
11. STOXX Global Health & Weight Loss	-3.0	-21.5	-21.5	0.5	-26.4	-26.4	15.1	21.2	21.2	16.9	23.9	23.9
12. STOXX Global Housing Construction	-9.1	-21.7	-21.7	-5.8	-26.5	-26.5	16.4	23.4	23.4	18.4	25.6	25.6

Risk and return performance figures for STOXX Thematic indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

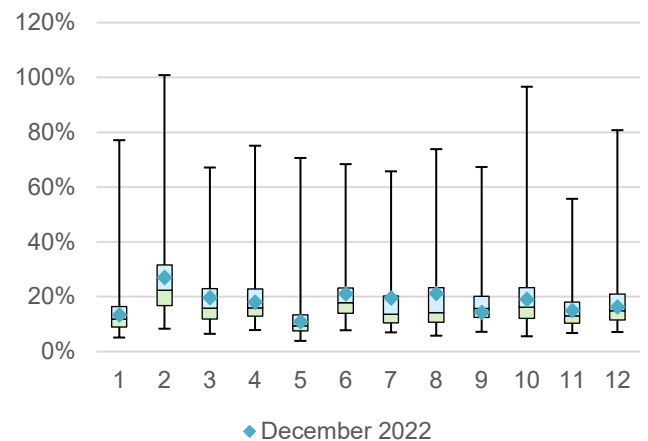
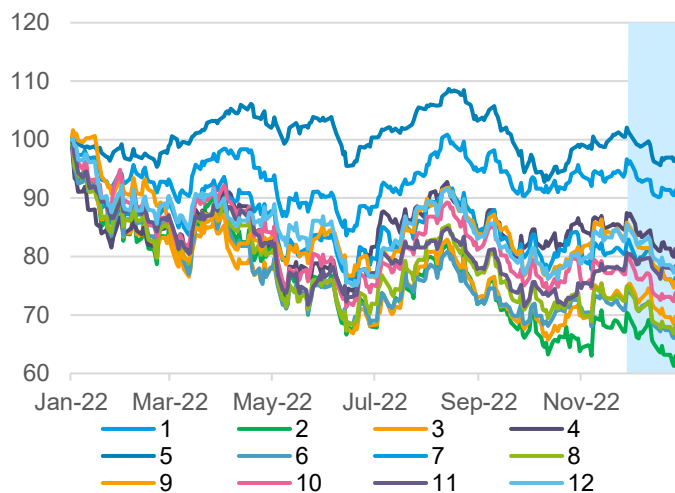


Figure 29: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 30: Monthly annualized volatility analysis, EUR gross return. Jul. 2015 – Dec. 2022. Source: Qontigo.

Thematic indices (cont.)

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
13. STOXX Global Industry 4.0	-9.6	-26.0	-26.0	-6.3	-30.6	-30.6	20.1	26.9	26.9	22.9	28.9	28.9
14. STOXX Global Metaverse	-9.3	-33.6	-33.6	-6.0	-37.7	-37.7	21.0	29.2	29.2	23.1	30.9	30.9
15. STOXX Global Millennials	-8.3	-32.9	-32.9	-4.9	-37.0	-37.0	21.4	31.3	31.3	23.1	33.0	33.0
16. STOXX Global Next Generation Telecoms	-8.8	-19.5	-19.5	-5.4	-24.5	-24.5	14.9	18.7	18.7	16.4	20.2	20.2
17. STOXX Global Pet Care	-5.3	-12.4	-12.4	-1.8	-17.8	-17.8	14.6	17.1	17.1	15.9	18.3	18.3
18. STOXX Global Sharing Economy	-9.1	-30.5	-30.5	-5.8	-34.8	-34.8	22.6	33.8	33.8	24.4	35.7	35.7
19. STOXX Global Silver Economy	-9.1	-17.6	-17.6	-5.8	-22.7	-22.7	16.8	24.6	24.6	18.3	26.5	26.5
20. STOXX Global Smart Cities	-15.6	-29.5	-29.5	-12.5	-33.8	-33.8	23.2	33.9	33.9	25.4	35.1	35.1
21. STOXX Global Smart City Infrastructure	-6.7	-16.9	-16.9	-3.3	-22.0	-22.0	15.3	17.8	17.8	19.2	21.0	21.0
22. STOXX Global Smart Factory	-10.2	-25.6	-25.6	-7.0	-30.2	-30.2	21.5	29.7	29.7	23.3	31.5	31.5
23. STOXX Global Video Gaming & eSports	-9.3	-27.5	-27.5	-6.0	-31.9	-31.9	19.6	25.3	25.3	21.7	27.3	27.3
24. STOXX USA ETF Industry				-4.6	-20.5	-20.5				18.7	26.7	26.7
25. iSTOXX Developed Markets B.R.AI.N.	-7.4	-11.3	-11.3	-4.0	-16.7	-16.7	15.5	22.8	22.8	18.5	24.3	24.3

Risk and return performance figures for STOXX Thematic indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

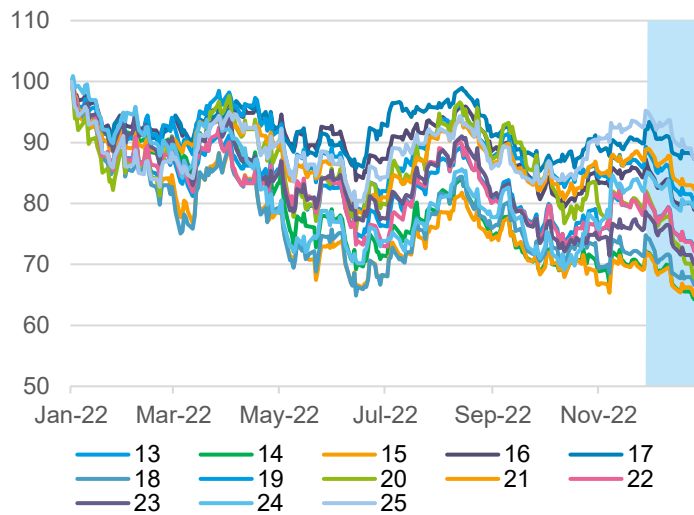


Figure 31: 13-22, 25 show EUR gross return index performance, 23 shows USD performance; Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

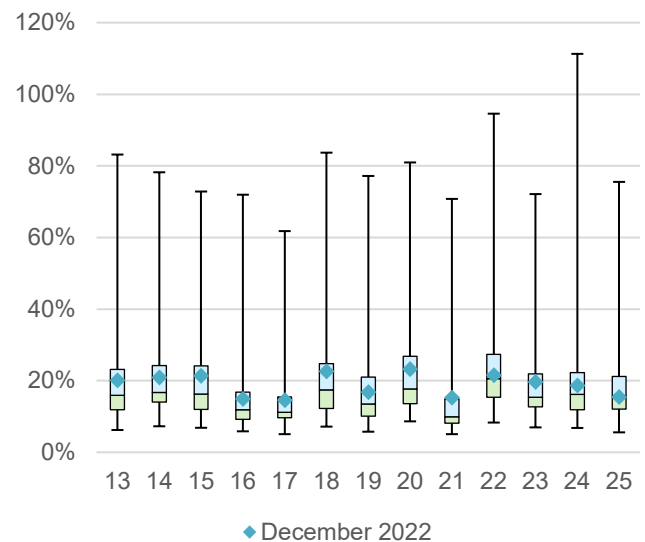


Figure 32: Monthly annualized volatility analysis, EUR gross return. Jul. 2016 – Dec. 2022. Source: Qontigo.

Factor indices – Global

Key points

The [STOXX Factor indices](#) offer robust factor definitions and targeted factor exposures, and ensure the tradability of component stocks. They employ the institutionally tested analytics of Axioma Factor Risk Models.

On a global basis, Momentum was the worst-performing style in the month that ended, finishing one of its worst years in recent times.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Global 1800 Ax Low Risk	-6.4	-4.0	-4.0	-3.0	-9.9	-9.9	12.2	14.0	14.0	13.1	15.4	15.4
2. STOXX Global 1800 Ax Momentum	-8.0	-15.8	-15.8	-4.7	-20.9	-20.9	14.2	22.3	22.3	15.0	24.5	24.5
3. STOXX Global 1800 Ax Multi-Factor	-6.3	-8.9	-8.9	-2.9	-14.5	-14.5	12.9	16.4	16.4	13.6	18.5	18.5
4. STOXX Global 1800 Ax Quality	-6.9	-11.4	-11.4	-3.5	-16.8	-16.8	13.9	18.5	18.5	16.6	21.1	21.1
5. STOXX Global 1800 Ax Size	-5.5	-12.0	-12.0	-2.0	-17.5	-17.5	13.6	17.7	17.7	16.3	20.9	20.9
6. STOXX Global 1800 Ax Value	-6.1	-5.7	-5.7	-2.7	-11.5	-11.5	13.4	17.0	17.0	14.6	20.1	20.1
7. STOXX Global 1800 ex USA Ax Low Risk	-3.9	-6.9	-6.9	-0.4	-12.7	-12.7	9.6	9.7	9.7	14.2	15.0	15.0
8. STOXX Global 1800 ex USA Ax Momentum	-3.1	-14.1	-14.1	0.4	-19.4	-19.4	12.6	17.6	17.6	17.5	23.2	23.2
9. STOXX Global 1800 ex USA Ax Multi-Factor	-2.0	-10.6	-10.6	1.6	-16.1	-16.1	10.2	12.7	12.7	14.8	18.1	18.1
10. STOXX Global 1800 ex USA Ax Quality	-2.9	-16.5	-16.5	0.7	-21.7	-21.7	15.4	17.0	17.0	20.5	22.8	22.8
11. STOXX Global 1800 ex USA Ax Size	-2.9	-12.8	-12.8	0.6	-18.1	-18.1	13.4	15.5	15.5	18.4	21.7	21.7
12. STOXX Global 1800 ex USA Ax Value	-2.0	-5.5	-5.5	1.6	-11.3	-11.3	11.0	14.7	14.7	15.5	20.8	20.8

Risk and return performance figures for STOXX Factor (Global) indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

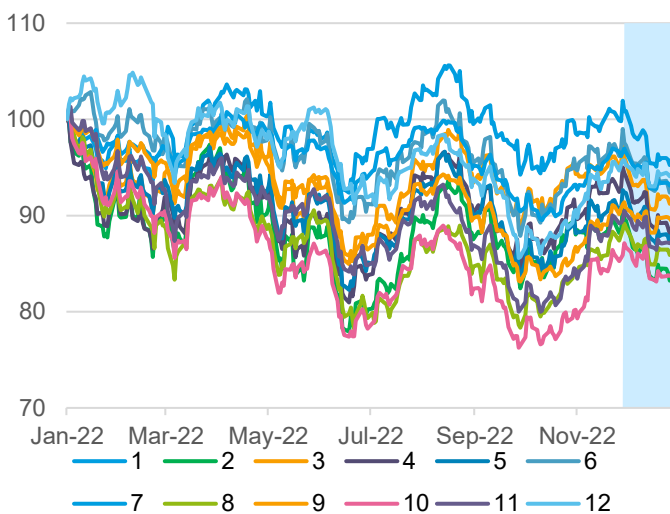


Figure 33: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

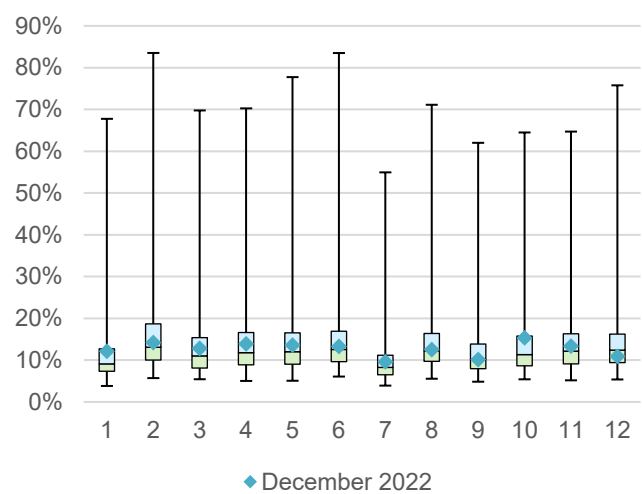


Figure 34: Monthly annualized volatility analysis, EUR gross return. Jan. 2004 – Dec. 2022. Source: Qontigo.

Factor indices – Regional: Europe

Key points

Quality was the worst-performing signal in December and in 2022 among style factors in Europe, according to the STOXX Factor regional indices. Low Risk showed the smallest loss for the entire year.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Europe 600 Ax Low Risk	-3.7	-10.6	-10.6	-0.2	-16.1	-16.1	13.7	14.4	14.4	18.3	20.3	20.3
2. STOXX Europe 600 Ax Momentum	-3.1	-18.0	-18.0	0.4	-23.1	-23.1	14.0	22.5	22.5	18.9	28.3	28.3
3. STOXX Europe 600 Ax Multi-Factor	-3.0	-21.0	-21.0	0.5	-25.8	-25.8	14.2	19.6	19.6	19.0	25.7	25.7
4. STOXX Europe 600 Ax Quality	-3.9	-22.2	-22.2	-0.3	-27.0	-27.0	18.9	22.6	22.6	24.2	28.6	28.6
5. STOXX Europe 600 Ax Size	-2.8	-20.3	-20.3	0.7	-25.2	-25.2	17.4	22.1	22.1	22.4	28.3	28.3
6. STOXX Europe 600 Ax Value	-3.1	-13.6	-13.6	0.4	-18.9	-18.9	15.2	20.4	20.4	19.5	26.5	26.5

Risk and return performance figures for STOXX Factor (Regional) indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

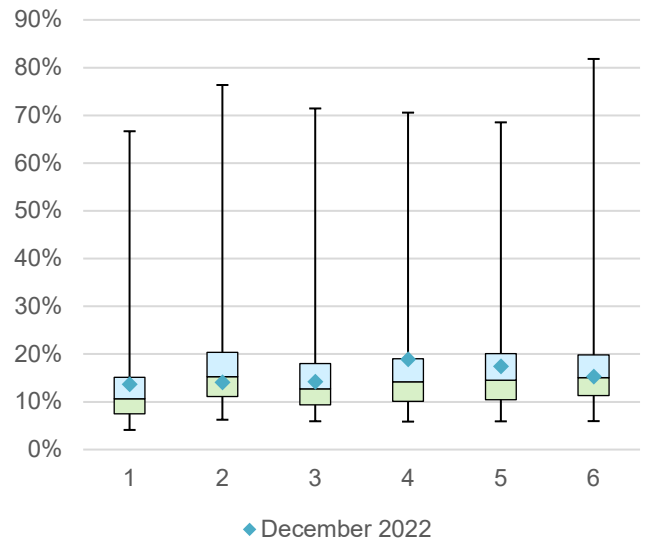


Figure 35: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 36: Monthly annualized volatility analysis, EUR gross return. Jan. 2004 – Dec. 2022. Source: Qontigo.

Factor indices – Regional: US

Key points

Within US markets, the Momentum style led losses in December and for the whole year.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX USA 500 Ax Low Risk	-7.8	-7.5	-7.5	-4.4	-13.2	-13.2	16.2	20.1	20.1	15.7	20.3	20.3
2. STOXX USA 500 Ax Momentum	-10.9	-15.2	-15.2	-7.6	-20.4	-20.4	18.6	25.4	25.4	17.6	26.4	26.4
3. STOXX USA 500 Ax Multi-Factor	-9.1	-9.8	-9.8	-5.8	-15.3	-15.3	17.5	23.6	23.6	16.8	24.4	24.4
4. STOXX USA 500 Ax Quality	-9.7	-11.2	-11.2	-6.4	-16.6	-16.6	19.0	25.5	25.5	20.0	26.2	26.2
5. STOXX USA 500 Ax Size	-8.2	-12.5	-12.5	-4.9	-17.9	-17.9	17.2	24.3	24.3	17.9	25.3	25.3
6. STOXX USA 500 Ax Value	-9.3	-10.2	-10.2	-6.0	-15.7	-15.7	17.9	23.3	23.3	17.7	24.6	24.6
7. STOXX USA 900 Ax Low Risk	-7.7	-7.9	-7.9	-4.4	-13.5	-13.5	16.2	20.1	20.1	15.7	20.2	20.2
8. STOXX USA 900 Ax Momentum	-11.0	-14.8	-14.8	-7.8	-20.0	-20.0	18.7	25.3	25.3	17.6	26.2	26.2
9. STOXX USA 900 Ax Multi-Factor	-10.2	-11.9	-11.9	-6.9	-17.3	-17.3	18.2	24.1	24.1	17.7	25.1	25.1
10. STOXX USA 900 Ax Quality	-9.8	-14.3	-14.3	-6.5	-19.6	-19.6	18.9	26.0	26.0	19.8	26.8	26.8
11. STOXX USA 900 Ax Size	-7.4	-9.0	-9.0	-4.0	-14.6	-14.6	18.1	23.9	23.9	18.6	24.8	24.8
12. STOXX USA 900 Ax Value	-9.3	-8.8	-8.8	-6.0	-14.4	-14.4	18.3	23.4	23.4	18.1	24.7	24.7

Risk and return performance figures for STOXX Factor (Regional) indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo

Index and volatility performance

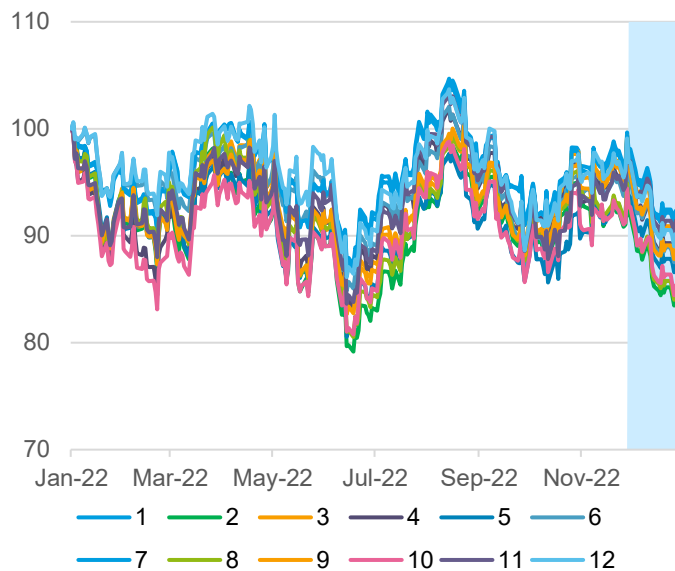


Figure 37: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

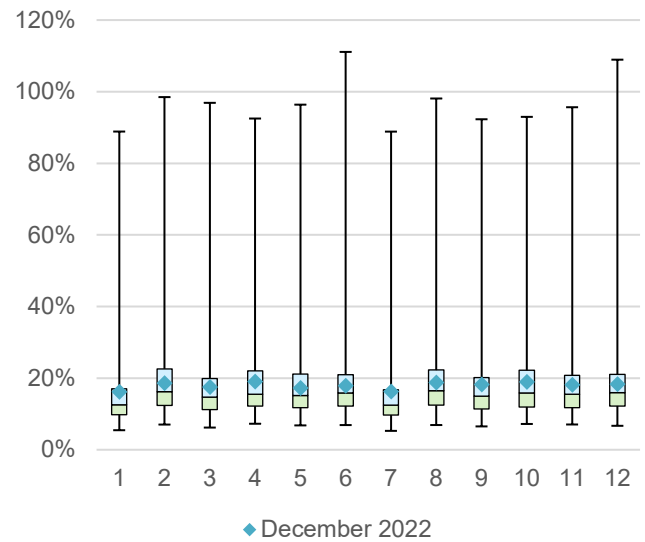


Figure 38: Monthly annualized volatility analysis, EUR gross return. Jan. 2004 – Dec. 2022. Source: Qontigo.

Factor indices – Regional: Asia/Pacific

Key points

In Asia/Pacific, Multi-Factor showed the best returns for December, paring the index's loss for 2022 to only -3.2%. In Japan, all but one of the factors — Quality — beat the benchmark [STOXX® Japan 600 index](#)'s 0.7% advance in dollars last month.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Asia/Pacific 600 Ax Low Risk	-2.3	-3.3	-3.3	1.3	-9.3	-9.3	11.2	11.7	11.7	14.9	14.4	14.4
2. STOXX Asia/Pacific 600 Ax Momentum	-3.9	-9.3	-9.3	-0.4	-14.9	-14.9	14.0	18.6	18.6	18.2	21.6	21.6
3. STOXX Asia/Pacific 600 Ax Multi-Factor	-0.1	3.1	3.1	3.5	-3.2	-3.2	13.1	14.8	14.8	16.4	17.1	17.1
4. STOXX Asia/Pacific 600 Ax Quality	-1.9	-9.8	-9.8	1.7	-15.3	-15.3	14.9	18.4	18.4	19.6	21.6	21.6
5. STOXX Asia/Pacific 600 Ax Size	-2.6	-4.9	-4.9	0.9	-10.8	-10.8	12.8	16.5	16.5	16.8	19.5	19.5
6. STOXX Asia/Pacific 600 Ax Value	-0.5	1.7	1.7	3.1	-4.5	-4.5	13.5	15.8	15.8	16.3	18.5	18.5
7. STOXX Japan 600 Ax Low Risk	-2.2	-7.4	-7.4	1.4	-13.1	-13.1	14.6	14.9	14.9	18.2	17.0	17.0
8. STOXX Japan 600 Ax Momentum	-2.2	-10.4	-10.4	1.3	-15.9	-15.9	16.8	20.0	20.0	21.4	22.5	22.5
9. STOXX Japan 600 Ax Multi-Factor	-2.5	0.7	0.7	1.0	-5.5	-5.5	16.6	16.9	16.9	20.3	19.0	19.0
10. STOXX Japan 600 Ax Quality	-3.5	-12.5	-12.5	0.0	-17.9	-17.9	16.6	18.7	18.7	21.3	21.3	21.3
11. STOXX Japan 600 Ax Size	-1.5	-3.2	-3.2	2.1	-9.1	-9.1	15.0	17.3	17.3	19.0	19.5	19.5
12. STOXX Japan 600 Ax Value	-1.7	0.8	0.8	1.9	-5.4	-5.4	16.4	18.5	18.5	20.0	21.0	21.0

Risk and return performance figures for STOXX Factor (Regional) indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

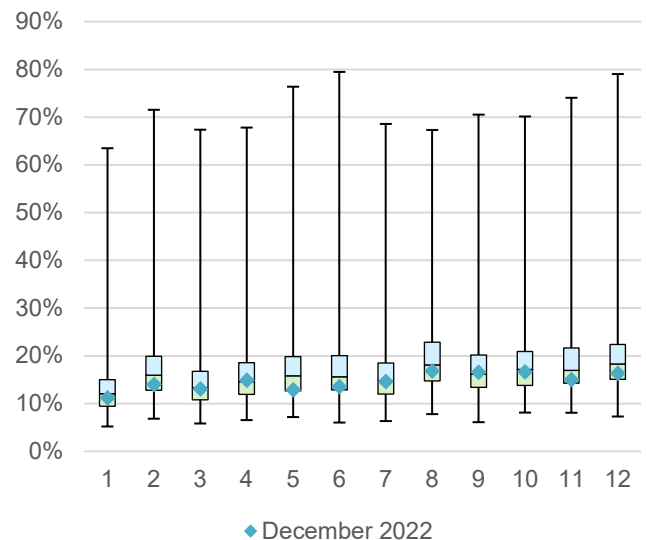
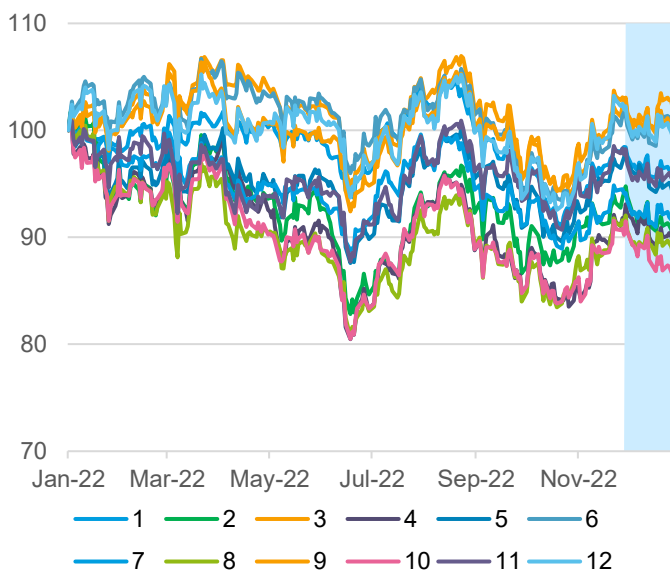


Figure 39: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 40: Monthly annualized volatility analysis, EUR gross return. Jan. 2004 – Dec. 2022. Source: Qontigo.

ESG-X Factor indices – Global

Key points

The [STOXX® ESG-X Factor indices](#) implement the same factor-based methodology of the STOXX Factor Indices, seeking exposure to five style signals, but do so on slightly smaller universes that exclude stocks based on the responsible policies of leading asset owners.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Global 1800 ESG-X Ax Low Risk	-6.7	-6.9	-6.9	-3.3	-12.6	-12.6	12.2	14.3	14.3	13.3	15.9	15.9
2. STOXX Global 1800 ESG-X Ax Momentum	-8.4	-16.9	-16.9	-5.0	-22.0	-22.0	14.6	22.9	22.9	15.5	25.1	25.1
3. STOXX Global 1800 ESG-X Ax Multi-Factor	-6.6	-11.4	-11.4	-3.2	-16.8	-16.8	12.8	17.0	17.0	14.0	19.2	19.2
4. STOXX Global 1800 ESG-X Ax Quality	-7.1	-12.9	-12.9	-3.7	-18.3	-18.3	14.1	19.0	19.0	16.8	21.6	21.6
5. STOXX Global 1800 ESG-X Ax Size	-5.9	-14.3	-14.3	-2.5	-19.6	-19.6	13.7	18.5	18.5	16.3	21.5	21.5
6. STOXX Global 1800 ESG-X Ax Value	-6.4	-6.6	-6.6	-3.0	-12.4	-12.4	13.5	17.1	17.1	14.8	20.1	20.1

Risk and return performance figures for STOXX ESG-X Factor (Global) indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

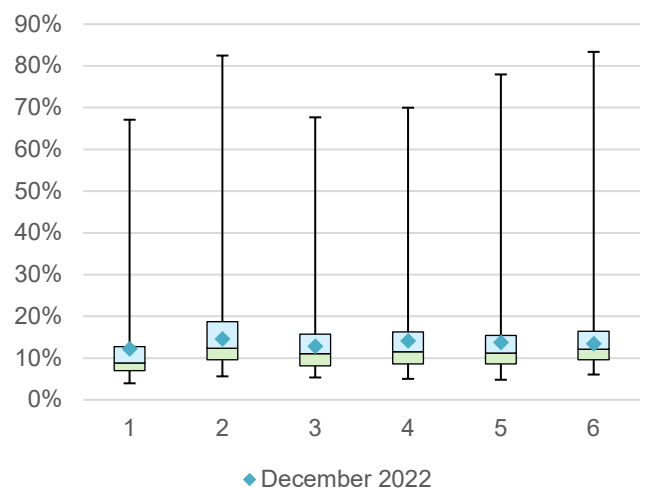
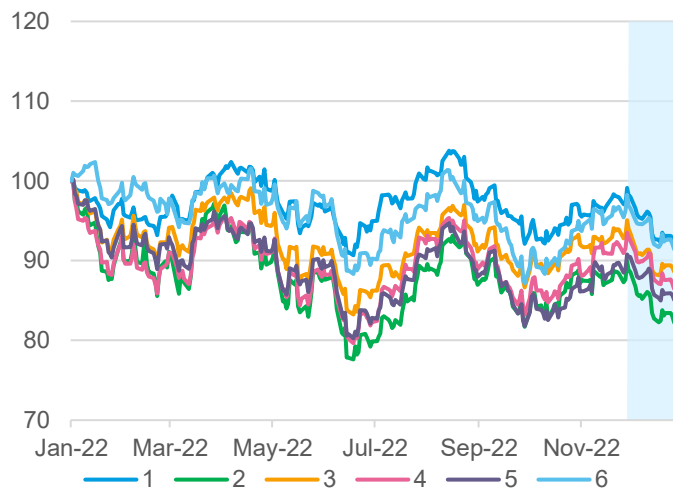


Figure 41: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 42: Monthly annualized volatility analysis, EUR gross return Apr. 2012 – Dec. 2022. Source: Qontigo.

ESG-X Factor Indices – Regional: Europe

Key points

In Europe, the [STOXX® Europe 600 ESG-X Ax Quality](#) index led losses during December.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Europe 600 ESG-X Ax Low Risk	-3.8	-12.6	-12.6	-0.3	-18.0	-18.0	14.0	15.0	15.0	18.8	20.9	20.9
2. STOXX Europe 600 ESG-X Ax Momentum	-3.6	-17.5	-17.5	0.0	-22.5	-22.5	14.8	22.3	22.3	19.5	28.2	28.2
3. STOXX Europe 600 ESG-X Ax Multi-Factor	-3.1	-23.0	-23.0	0.5	-27.7	-27.7	14.8	19.8	19.8	19.8	25.8	25.8
4. STOXX Europe 600 ESG-X Ax Quality	-3.9	-22.3	-22.3	-0.4	-27.1	-27.1	18.9	22.7	22.7	24.2	28.7	28.7
5. STOXX Europe 600 ESG-X Ax Size	-3.2	-22.7	-22.7	0.3	-27.4	-27.4	18.4	23.8	23.8	23.3	30.1	30.1
6. STOXX Europe 600 ESG-X Ax Value	-3.3	-15.6	-15.6	0.3	-20.8	-20.8	15.4	20.5	20.5	19.6	26.6	26.6

Risk and return performance figures for STOXX ESG-X Factor (Regional) indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

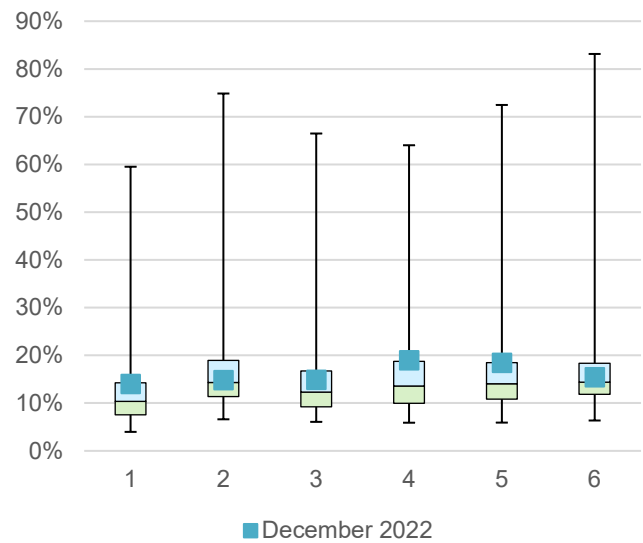


Figure 43: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 44: Monthly annualized volatility analysis, EUR gross return. Apr. 2012 – Dec. 2022. Source: Qontigo.

ESG-X Factor indices – Regional: US

Key points

Within the [STOXX® USA 500 ESG-X index](#) and [STOXX® USA 900 ESG-X index](#) universes, the Momentum factor also showed the weakest returns in the month.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX USA 500 ESG-X Ax Low Risk	-7.9	-8.9	-8.9	-4.5	-14.5	-14.5	16.3	20.6	20.6	16.0	20.8	20.8
2. STOXX USA 500 ESG-X Ax Momentum	-10.9	-15.7	-15.7	-7.6	-20.9	-20.9	18.8	25.7	25.7	18.0	26.7	26.7
3. STOXX USA 500 ESG-X Ax Multi-Factor	-9.7	-11.9	-11.9	-6.4	-17.3	-17.3	18.2	24.2	24.2	17.9	25.2	25.2
4. STOXX USA 500 ESG-X Ax Quality	-10.2	-13.6	-13.6	-6.9	-18.9	-18.9	19.4	26.3	26.3	20.4	27.1	27.1
5. STOXX USA 500 ESG-X Ax Size	-8.2	-13.4	-13.4	-4.8	-18.7	-18.7	17.4	24.8	24.8	18.3	25.8	25.8
6. STOXX USA 500 ESG-X Ax Value	-9.7	-11.3	-11.3	-6.4	-16.8	-16.8	18.1	23.7	23.7	18.0	25.0	25.0
7. STOXX USA 900 ESG-X Ax Low Risk	-7.9	-9.4	-9.4	-4.6	-15.0	-15.0	16.3	20.5	20.5	16.0	20.8	20.8
8. STOXX USA 900 ESG-X Ax Momentum	-11.2	-16.9	-16.9	-7.9	-22.0	-22.0	18.9	25.8	25.8	17.9	26.8	26.8
9. STOXX USA 900 ESG-X Ax Multi-Factor	-10.2	-13.8	-13.8	-6.9	-19.1	-19.1	18.6	24.5	24.5	18.1	25.6	25.6
10. STOXX USA 900 ESG-X Ax Quality	-10.1	-15.9	-15.9	-6.8	-21.0	-21.0	19.4	26.7	26.7	20.4	27.5	27.5
11. STOXX USA 900 ESG-X Ax Size	-7.7	-10.2	-10.2	-4.3	-15.7	-15.7	18.0	24.3	24.3	18.4	25.2	25.2
12. STOXX USA 900 ESG-X Ax Value	-9.6	-9.7	-9.7	-6.3	-15.3	-15.3	18.4	23.8	23.8	18.3	25.1	25.1

Risk and return performance figures for STOXX ESG-X Factor (Regional) indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

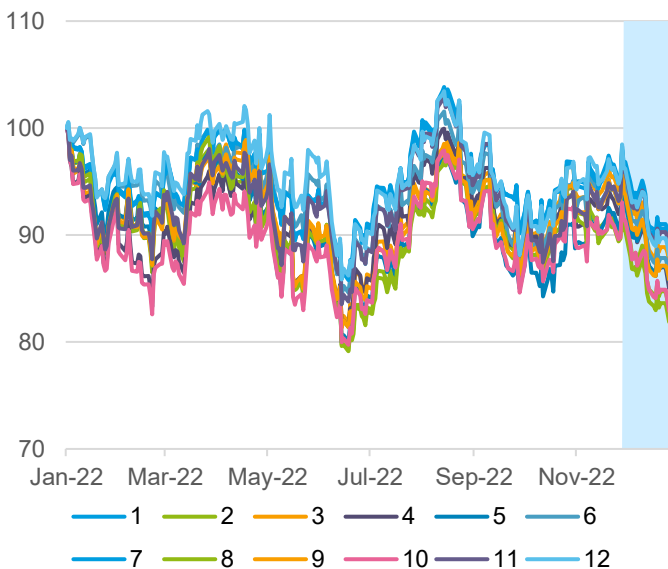


Figure 45: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

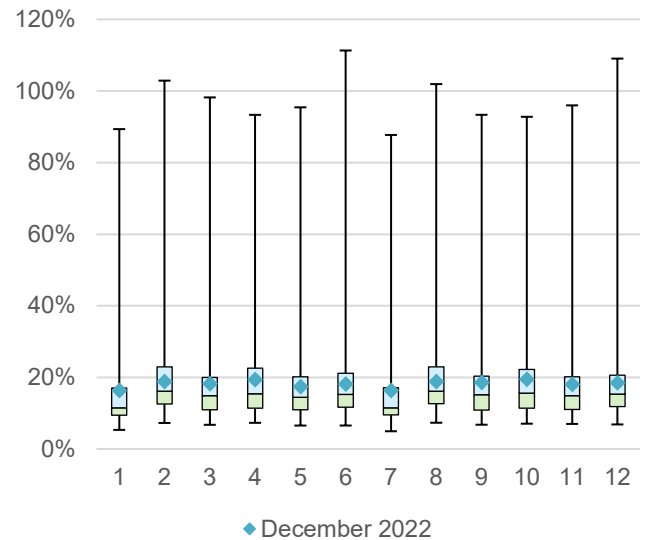


Figure 46: Monthly annualized volatility analysis, EUR gross return. Apr. 2012 – Dec. 2022. Source: Qontigo.

ESG-X Factor indices – Regional: Asia/Pacific

Key points

The STOXX ESG-X Factor indices covering the Asia/Pacific and Japan markets showed largely similar performances to the standard factor indices.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Asia/Pacific 600 ESG-X Ax Low Risk	-2.2	-4.6	-4.6	1.4	-10.5	-10.5	11.2	11.7	11.7	14.8	14.4	14.4
2. STOXX Asia/Pacific 600 ESG-X Ax Momentum	-4.0	-9.9	-9.9	-0.5	-15.4	-15.4	14.3	18.8	18.8	18.7	21.8	21.8
3. STOXX Asia/Pacific 600 ESG-X Ax Multi-Factor	0.2	2.4	2.4	3.9	-3.9	-3.9	13.1	14.9	14.9	16.3	17.2	17.2
4. STOXX Asia/Pacific 600 ESG-X Ax Quality	-2.0	-10.4	-10.4	1.6	-15.9	-15.9	15.3	18.6	18.6	19.9	21.8	21.8
5. STOXX Asia/Pacific 600 ESG-X Ax Size	-2.1	-7.7	-7.7	1.4	-13.4	-13.4	12.1	16.0	16.0	16.1	19.3	19.3
6. STOXX Asia/Pacific 600 ESG-X Ax Value	-0.4	1.0	1.0	3.2	-5.2	-5.2	13.7	15.8	15.8	16.4	18.5	18.5
7. STOXX Japan 600 ESG-X Ax Low Risk	-2.3	-8.6	-8.6	1.3	-14.2	-14.2	14.6	14.8	14.8	18.2	17.0	17.0
8. STOXX Japan 600 ESG-X Ax Momentum	-2.5	-10.4	-10.4	1.1	-15.9	-15.9	16.7	19.9	19.9	21.4	22.5	22.5
9. STOXX Japan 600 ESG-X Ax Multi-Factor	-2.7	-2.1	-2.1	0.8	-8.1	-8.1	16.4	17.1	17.1	20.2	19.2	19.2
10. STOXX Japan 600 ESG-X Ax Quality	-3.6	-12.8	-12.8	-0.1	-18.2	-18.2	16.6	18.8	18.8	21.3	21.4	21.4
11. STOXX Japan 600 ESG-X Ax Size	-1.3	-3.7	-3.7	2.3	-9.6	-9.6	14.7	16.9	16.9	18.6	19.2	19.2
12. STOXX Japan 600 ESG-X Ax Value	-2.1	-1.3	-1.3	1.5	-7.3	-7.3	16.2	18.7	18.7	19.9	21.2	21.2

Risk and return performance figures for STOXX ESG-X Factor (Regional) indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

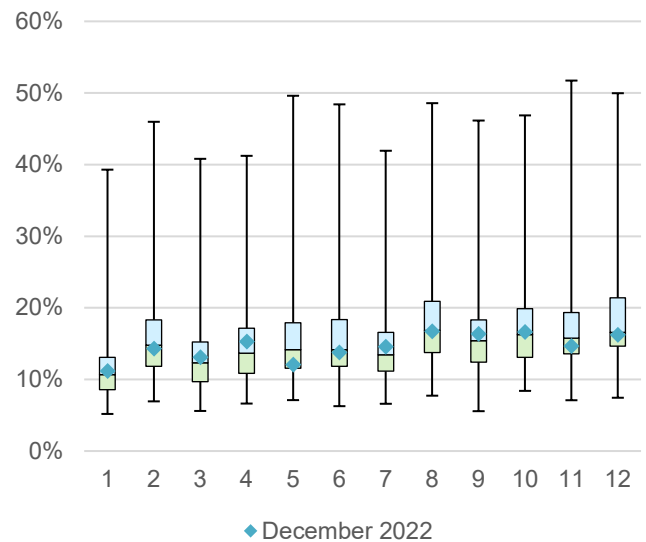
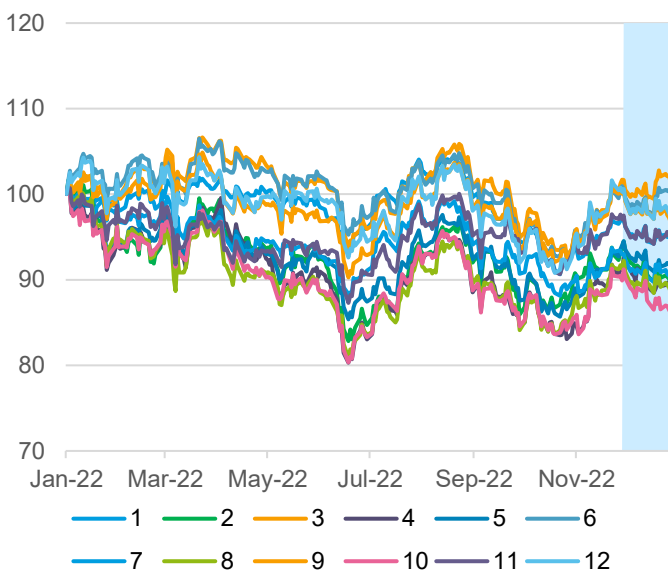


Figure 47: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 48: Monthly annualized volatility analysis, EUR gross return. Apr. 2012 – Dec. 2022. Source: Qontigo.

Industry Neutral Factor indices

Key points

The STOXX Industry Neutral Single and Multi-Factor indices aim to harvest the risk premia of several academically validated style factors — Value, Momentum, Quality, Size and Low Risk — within each ICB industry.

The indices rely on Axioma’s proven factor models and keep the same industry allocation as the respective benchmarks, helping remove unintended industry exposures and enabling access to the ‘pure’ return of the factor. Multi-Factor and Quality were the worst signals last month for the Industry Neutral Factor indices covering Europe, while Momentum was the laggard in the STOXX USA 500 universe.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Europe 600 Industry Neutral Ax Low Risk	-3.8	-9.8	-9.8	-0.3	-15.3	-15.3	13.5	14.4	14.4	18.0	20.2	20.2
2. STOXX Europe 600 Industry Neutral Ax Momentum	-3.7	-18.7	-18.7	-0.2	-23.7	-23.7	14.5	22.4	22.4	19.3	28.4	28.4
3. STOXX Europe 600 Industry Neutral Ax Multi-Factor	-4.0	-17.1	-17.1	-0.5	-22.2	-22.2	13.3	18.9	18.9	18.2	25.0	25.0
4. STOXX Europe 600 Industry Neutral Ax Quality	-4.0	-19.9	-19.9	-0.5	-24.8	-24.8	18.0	21.4	21.4	23.2	27.4	27.4
5. STOXX Europe 600 Industry Neutral Ax Size	-2.5	-19.7	-19.7	1.0	-24.7	-24.7	16.9	22.1	22.1	21.7	28.4	28.4
6. STOXX Europe 600 Industry Neutral Ax Value	-3.1	-10.9	-10.9	0.5	-16.4	-16.4	14.6	20.8	20.8	18.7	26.8	26.8
7. STOXX USA 500 Industry Neutral Ax Low Risk	-7.6	-5.9	-5.9	-4.2	-11.6	-11.6	16.3	20.1	20.1	16.1	20.3	20.3
8. STOXX USA 500 Industry Neutral Ax Momentum	-10.9	-17.1	-17.1	-7.7	-22.2	-22.2	18.2	25.9	25.9	17.5	26.7	26.7
9. STOXX USA 500 Industry Neutral Ax Multi-Factor	-9.3	-10.6	-10.6	-6.0	-16.1	-16.1	16.9	23.2	23.2	16.3	23.8	23.8
10. STOXX USA 500 Industry Neutral Ax Quality	-10.1	-14.6	-14.6	-6.8	-19.9	-19.9	18.3	25.1	25.1	19.4	25.7	25.7
11. STOXX USA 500 Industry Neutral Ax Size	-8.0	-14.4	-14.4	-4.7	-19.6	-19.6	18.2	24.7	24.7	19.0	25.6	25.6
12. STOXX USA 500 Industry Neutral Ax Value	-9.0	-11.5	-11.5	-5.7	-17.0	-17.0	17.9	23.5	23.5	18.1	24.7	24.7

Risk and return performance figures for STOXX Industry Neutral Factor indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

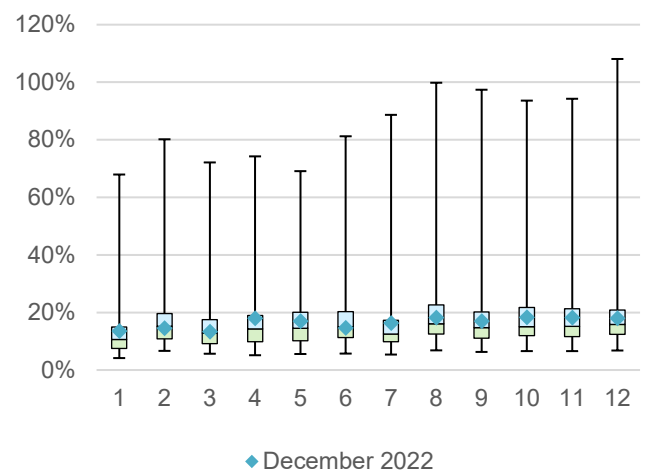
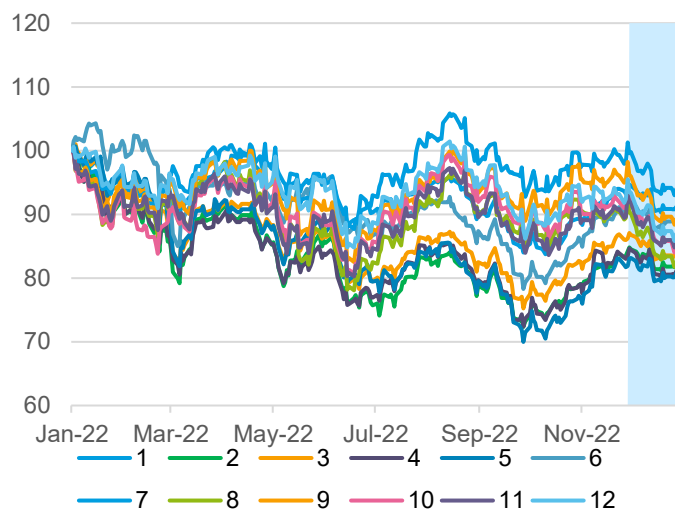


Figure 49: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 50: Monthly annualized volatility analysis, EUR gross return. Jan. 2004 – Dec. 2022. Source: Qontigo.

Europe Factor Market Neutral indices

Key points

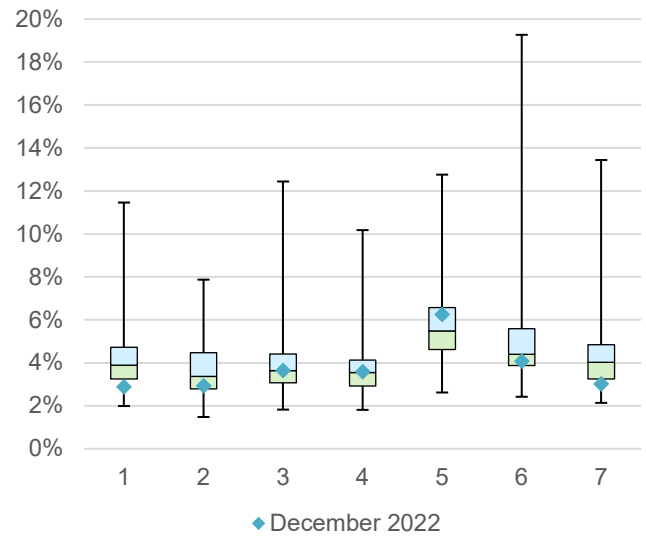
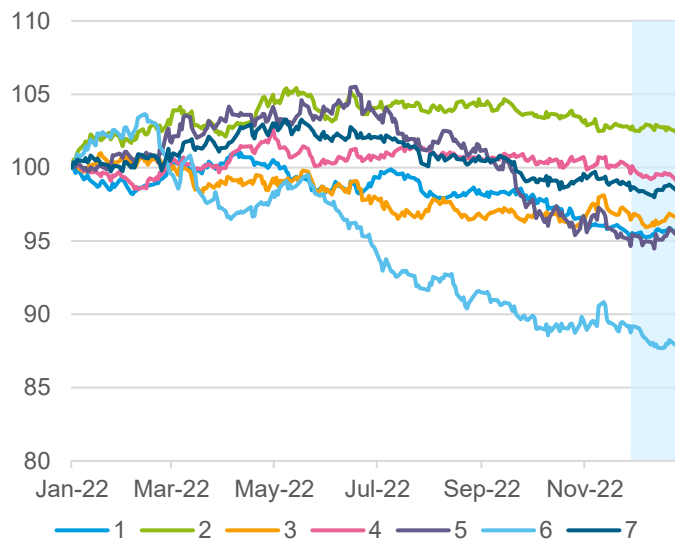
The iSTOXX® Europe Factor Market Neutral indices assume a short position in STOXX Europe 600 futures to help investors neutralize systematic risk and tap exposure to pure factor investing. The [iSTOXX® Europe Value Factor Market Neutral](#) index outperformed by a wide margin last year.

Risk and return characteristics

	(EUR) Return (%)			(EUR) Annualized volatility (%)		
	1M	YTD	1Y	1M	YTD	1Y
1. iSTOXX Europe Carry Factor Market Neutral	0.8	-4.0	-4.0	2.9	4.0	4.0
2. iSTOXX Europe Low Risk Factor Market Neutral	0.2	2.9	2.9	2.9	4.2	4.2
3. iSTOXX Europe Momentum Factor Market Neutral	0.8	-2.6	-2.6	3.6	4.6	4.6
4. iSTOXX Europe Quality Factor Market Neutral	0.1	-0.5	-0.5	3.6	3.9	3.9
5. iSTOXX Europe Size Factor Market Neutral	1.4	-3.8	-3.8	6.3	6.4	6.4
6. iSTOXX Europe Value Factor Market Neutral	-0.4	-11.4	-11.4	4.1	6.2	6.2
7. iSTOXX Europe Multi-Factor Market Neutral	0.5	-1.0	-1.0	3.0	4.4	4.4

Risk and return performance figures for iSTOXX Europe Factor Market Neutral indices, net return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance



Minimum Variance indices

Key points

Minimum variance strategies outperformed benchmarks last month. The STOXX Minimum Variance indices come in two versions. A constrained version has similar exposure to its market-capitalization-weighted benchmark 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.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Europe 600 MV	-2.5	-12.8	-12.8	1.0	-18.1	-18.1	13.6	15.7	15.7	18.4	21.8	21.8
2. STOXX Europe 600 MV Unconstrained	-2.4	-11.2	-11.2	1.2	-16.7	-16.7	10.8	13.2	13.2	15.6	19.0	19.0
3. STOXX Global 1800 MV	-6.3	-3.7	-3.7	-2.9	-9.7	-9.7	10.9	13.6	13.6	10.9	14.2	14.2
4. STOXX Global 1800 MV Unconstrained	-2.4	-1.3	-1.3	1.1	-7.3	-7.3	7.8	9.4	9.4	10.8	11.1	11.1
5. STOXX USA 900 MV	-7.5	1.3	1.3	-4.1	-4.9	-4.9	13.9	17.2	17.2	12.9	16.5	16.5
6. STOXX USA 900 MV Unconstrained	-5.9	6.2	6.2	-2.4	-0.3	-0.3	14.0	16.1	16.1	11.8	15.1	15.1

Risk and return performance figures for STOXX Minimum Variance indices, gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

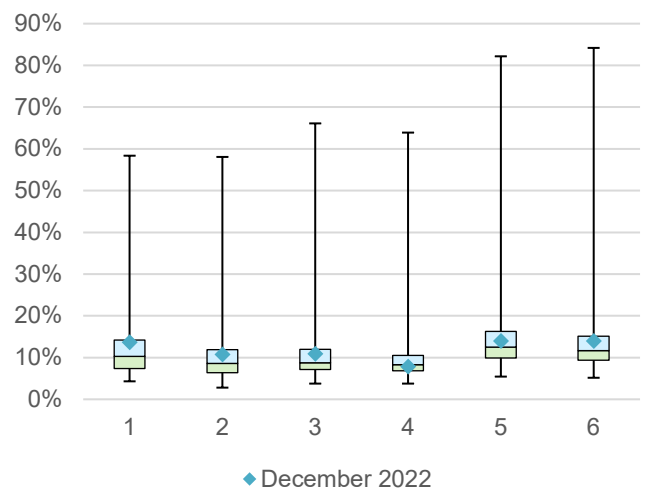
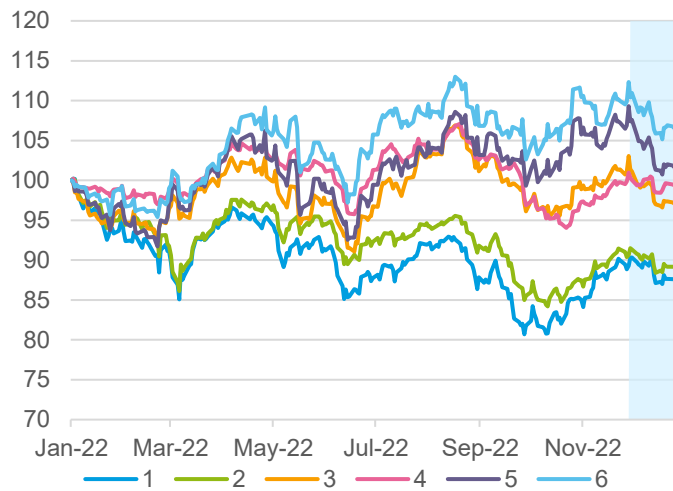


Figure 53: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 54: Monthly annualized volatility analysis, EUR gross return. Jan. 2004 – Dec. 2022. Source: Qontigo.

Dividend indices

Key points

Most [dividend strategies](#) had positive returns last month.

The [STOXX® Global Maximum Dividend 40 index](#) selects only the highest-dividend-yielding stocks. The [STOXX® Global Select Dividend 100 index](#), meanwhile, tracks companies with sizeable dividends but also applies a quality filter such as a history of stable payments. The [STOXX® Global ESG-X Select Dividend 100 index](#) targets the highest-yielding stocks within universes screened for responsible investment criteria.

The [STOXX® Global Select 100 EUR index](#) blends increasing dividend yields with low volatility and is calculated in euros.

Risk and return characteristics

	Return (%)						Annualized volatility (%)					
	EUR			USD			EUR			USD		
	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y	1M	YTD	1Y
1. STOXX Global Maximum Dividend 40 ¹	-2.0	4.1	4.1	1.6	-2.3	-2.3	14.2	17.3	17.3	16.7	22.0	22.0
2. STOXX Global Select Dividend 100	-3.3	-1.0	-1.0	0.2	-7.1	-7.1	9.3	11.8	11.8	13.2	16.8	16.8
3. STOXX Global ESG-X Select Dividend 100	-2.3	0.3	0.3	1.3	-5.8	-5.8	9.4	12.1	12.1	12.7	17.2	17.2
4. STOXX Global Select 100 EUR	-1.7	-1.7	-1.7				8.6	8.8	8.8			

Risk and return performance figures for STOXX Dividend indices, gross return except when shown. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

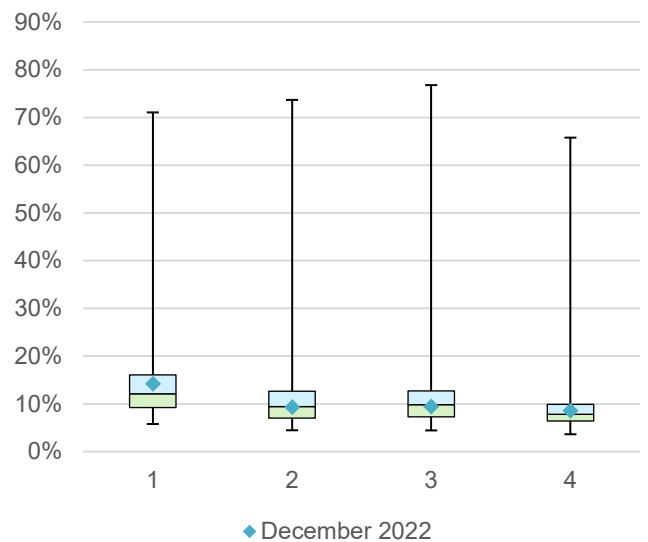
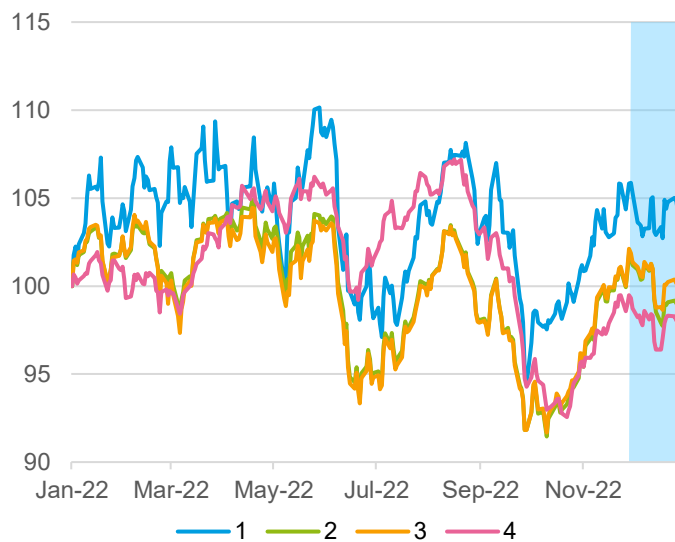


Figure 55: Annual price performance, EUR net return for 1; EUR gross return for 2-4. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 56: Monthly annualized volatility analysis. EUR net return for 1; EUR gross return for 2-4. Apr. 2012 – Dec. 2022. Source: Qontigo.

¹ EUR net return and USD net return used for STOXX Maximum Dividend 40.

Volatility indices

Key points

European equity volatility eased slightly in December, as measured by the [EURO STOXX 50® Volatility \(VSTOXX®\) index](#) and [VDAX-New® index](#). The [EURO STOXX 50® Volatility of Volatility index \(V-VSTOXX\)](#), on the other hand, increased.

The VSTOXX and VDAX measure the implied volatility of EURO STOXX 50 index and DAX index options, respectively, across their entire expiration curve. The V-VSTOXX measures the implied volatility of options on VSTOXX futures, hence reflecting expectations regarding the volatility of volatility. All three are significantly lower than their March 2020 peaks. The VSTOXX, for example, rose to 86 in March 2020.

The correlation between the VSTOXX and VDAX and share prices became less negative towards the end of 2022, compared to earlier in the year.

Risk and return characteristics

	Index Level			Correlation	
	T	T-1M	T-12M	1M	1Y
1. VSTOXX	20.9	21.2	19.3	-0.7	-0.8
2. V-VSTOXX	78.3	76.1	109.8	-0.6	-0.7
3. VDAX	20.6	21.7	17.7	-0.7	-0.8

Index levels for STOXX and DAX Volatility indices. Correlation for VSTOXX and V-VSTOXX compared with EURO STOXX 50 price return, and VDAX relative to DAX gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

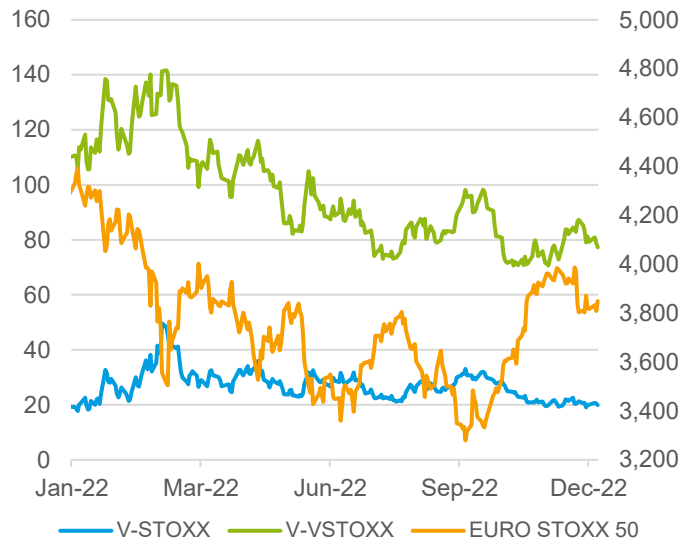


Figure 57: VSTOXX and V-VSTOXX (primary axis). EURO STOXX 50 price return Index (secondary axis). Jan. 2022 – Dec. 2022. Source: Qontigo.



Figure 58: VDAX (primary axis). DAX gross return index (secondary axis). Jan. 2022 – Dec. 2022. Source: Qontigo.

Volatility Strategy indices

Key points

The [VSTOXX® Short-Term Futures](#) and [VSTOXX® Mid-Term Futures](#) indices, which track the return from a rolling long position in VSTOXX futures contracts on Eurex, had negative returns in the month that ended. The [EURO STOXX 50® Investable Volatility index](#), which measures forward implied volatility in the Eurozone equity market, also fell.

The [Dynamic VSTOXX® index](#) lost 1.7% in the month. The index combines the VSTOXX Short-Term Futures index and the VSTOXX Mid-Term Futures index to exploit the superior performance of short-term futures when the volatility forward curve is in backwardation and of mid-term futures when the volatility forward curve is in contango.

Lastly, the [EURO STOXX 50® Volatility-Balanced index](#) fell 4.3%. The index combines investments in the EURO STOXX 50 and in the VSTOXX Short-Term Futures index.

Risk and return characteristics

	(EUR) Return (%)			(EUR) Annualized volatility (%)		
	1M	YTD	1Y	1M	YTD	1Y
1. EURO STOXX 50 Investable Volatility	-6.0	0.8	0.8	38.7	52.9	52.9
2. VSTOXX Short-Term Futures	-6.1	-14.7	-14.7	47.2	67.1	67.1
3. VSTOXX Mid-Term Futures	-5.1	7.5	7.5	24.4	29.9	29.9
4. Dynamic VSTOXX	-1.7	-1.1	-1.1	6.9	18.6	18.6
5. EURO STOXX 50 Volatility-Balanced	-4.3	-4.3	-4.3	16.7	18.4	18.4

Risk and return performance figures for STOXX Volatility Strategy indices, EUR gross return. Data as of Dec. 30, 2022. Source: Qontigo.

Index and volatility performance

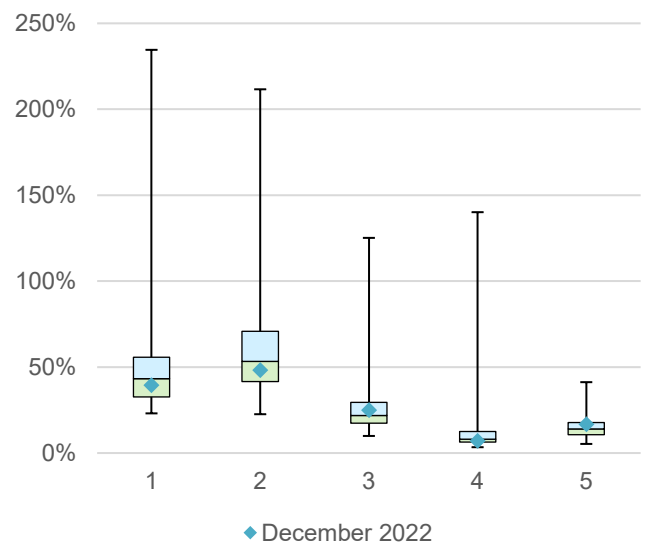
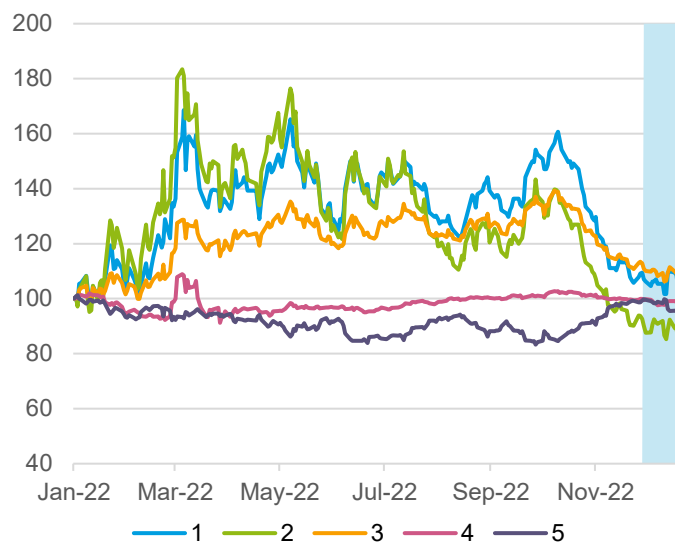


Figure 59: EUR gross return index performance. Jan. 2022 – Dec. 2022. Shaded area: Dec. 2022. Source: Qontigo.

Figure 60: Monthly annualized volatility analysis, EUR gross return. Jun. 2010 – Dec. 2022. Source: Qontigo.

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STOXX and DAX indices by Qontigo comprise a global and comprehensive family of more than 16,000 strictly rules-based and transparent indices. Best known for the leading European equity indices EURO STOXX 50®, STOXX® Europe 600 and DAX®, Qontigo's portfolio of index solutions consists of total market, benchmark, blue-chip, sustainability, thematic and factor-based indices covering a complete set of world, regional and country markets.

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