December 2020

EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

Anand Venkataraman, CFA, Head of Product Management – Index, Qontigo
Ladi Williams, Product Manager – Index, Qontigo

TABLE OF CONTENTS

EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

INTRODUCTION

In our recent paper titled "EURO STOXX 50® ESG INDEX – DELIVERING ON ITS OBJECTIVE?", which was published in August 2020, we noted that the EURO STOXX 50 ESG Index ("the index") had a better average ESG score than the EURO STOXX 50® Index ("the benchmark"). The index also had a better risk-return profile over a period spanning the turbulent market conditions caused by the COVID-19 pandemic. We concluded that this outperformance may be partly attributable to the application of ESG-related exclusions and the replacement of securities in line with the index methodology. However, we also recognized the coincidental nature of these gains, which related to securities from sectors that had been significantly impacted by the COVID-19 pandemic.

In our original paper from September 2019 titled "EURO STOXX 50® ESG INDEX – INTEGRATING SUSTAINABILITY", we had concluded that the EURO STOXX 50® ESG Index had similar risk-return characteristics and enhanced ESG profile compared to the benchmark over the long term. Given these characteristics, the EURO STOXX 50® ESG Index is a suitable underlying for exchange traded funds (ETFs) and listed index-linked derivatives. The international derivatives exchange Eurex, in support of the strong global trend towards responsible investing recently launched listed futures and options on the EURO STOXX 50® ESG Index, adding another European ESG benchmark to its offering.

In this paper, we evaluate the EURO STOXX 50® ESG Index's liquidity and tradability characteristics compared to its benchmark, and make an estimation of execution cost of switching from the benchmark to the index. We believe this analysis would be of interest to market participants given the recent launch of derivatives on the EURO STOXX 50® ESG Index, and to those with exposure to the EURO STOXX 50® that may be seeking a more sustainable flagship alternative. We note that index liquidity and tradability is lower than that of the benchmark, since the index methodology replaces some of the largest supersector leaders in the benchmark with smaller (and therefore relatively less liquid and less tradable) securities. The index was also estimated to have higher ongoing index replication costs due to its quarterly reviews, and involves a switching cost that saw a spike (estimated) during the COVID-19 distressed market conditions. Notwithstanding, the index retains around 90% of the most liquid Eurozone equity securities from the benchmark, thereby potentially offering capacities of a similar order of magnitude to that of the benchmark while improving its sustainability profile.

EURO STOXX 50® ESG INDEX

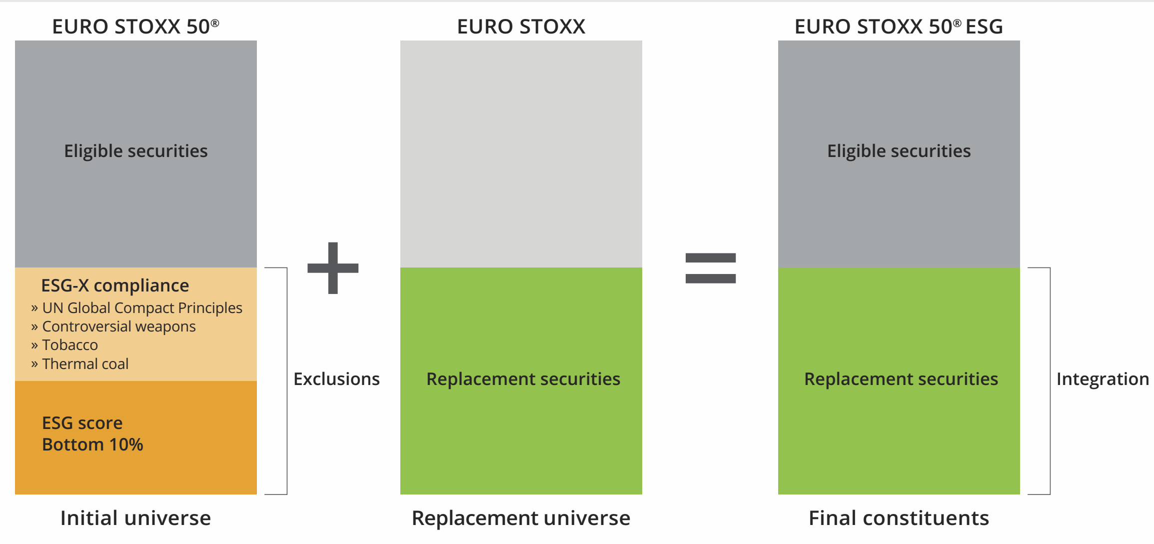
METHODOLOGY OVERVIEW

The EURO STOXX 50® ESG Index was launched in April 2019 and is based on the EURO STOXX 50® Index ("the benchmark"). It uses a fully rules-based approach to produce a blue-chip representation of super-sector leaders in the eurozone. In addition to applying exclusionary screening based on the STOXX ESG-X indices methodology, it eliminates the 10% of companies with the lowest ESG scores from the eligible universe. All excluded securities are replaced by companies from the same ICB supersector with higher ESG scores (Figure1). Securities are excluded on the basis of data and information about the individual companies sourced from Sustainalytics, a global leader in ESG and corporate governance research and ratings. Sourcing data from an independent, multi-award winning[1] ESG data provider such as Sustainalytics allows STOXX to systematically apply objective rules for component selection. It also ensures that an appropriate distance and degree of independence are maintained and avoids any potential conflicts of interest.

[1] https://www.sustainalytics.com/about-us/#awards

EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

FIGURE 1: EURO STOXX 50® ESG methodology



Source: Qontigo

LIQUIDITY AND TRADABILITY CHARACTERISTICS

In this paper, we analyze the EURO STOXX 50® ESG Index versus the EURO STOXX 50® Index by estimating capacity, trading days (for an assumed portfolio size) and index turnover. Since the two indices are made up of different securities, it is only natural that they differ with respect to the measures above. The EURO STOXX 50® ESG excludes some of the largest securities (measured in terms of their free-float market capitalization) since these are non-ESG compliant (as defined by the index rules), replacing them with relatively smaller but compliant securities. The intuitive inference would be that the EURO STOXX 50® ESG Index would fare worse than the EURO STOXX 50® Index on the measures noted earlier. The present analysis therefore attempts to estimate the extent of these likely differences between the two indices.

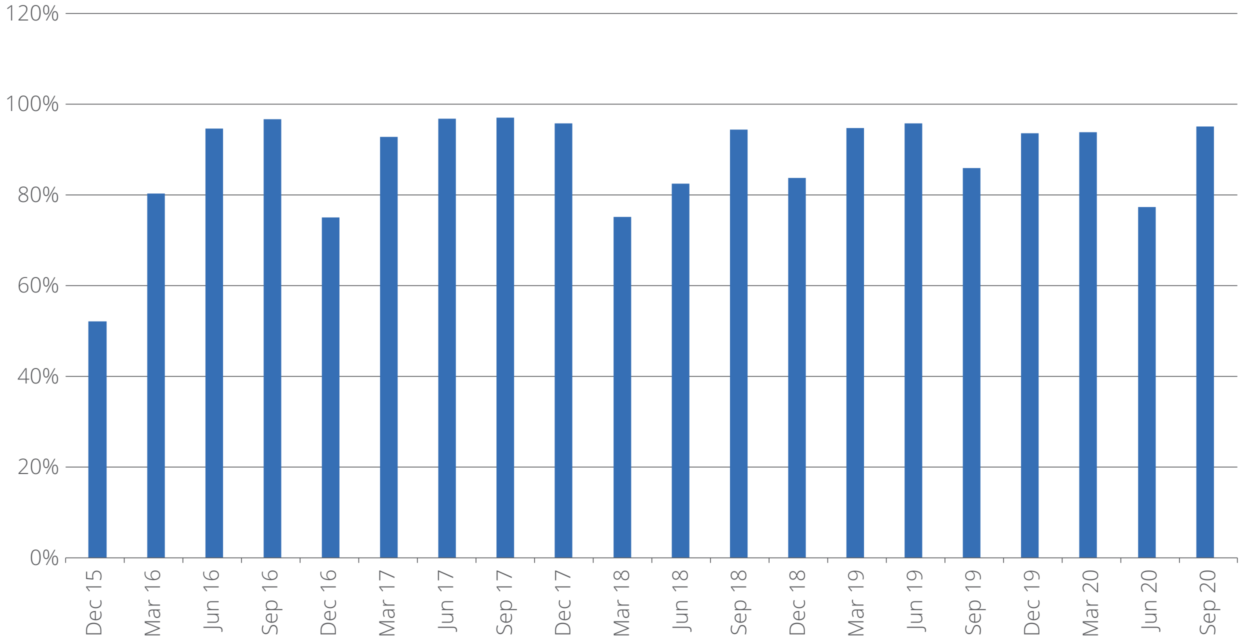
The definitions of the measures are not sacrosanct and readers may make their own assumptions on some or all of them. However, the objective of this analysis is not to be prescriptive but to offer guidance on suggested measures for comparing both indices. In our analysis, it is the relative difference in the afore-mentioned measures between the index and the benchmark that is the focus rather than the definition of the measures themselves, or the absolute values of the measures for the index or the benchmark on a stand-alone basis.

EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

CAPACITY

We estimated the trading capacity of a portfolio of securities with exactly the same holdings and exposures as the EURO STOXX 50 ESG Index at each quarterly index review (March, June, September and December). We computed "capacity" as the maximum amount of the portfolio that may be fully exited over five trading days, based on 50% of the three-month average daily traded value (ADTV) of the constituent security with the lowest ADTV-to-weight ratio. We then compared the estimated capacity of the index as a proportion of the corresponding estimates for the benchmark at each index review.

FIGURE 2: Estimated capacity of EURO STOXX 50® ESG Index as proportion of the EURO STOXX 50® Index



Source: Qontigo

The index methodology excludes certain securities that are amongst the supersector leaders in the benchmark and replaces them with other relatively smaller securities. Generally, this also translates into smaller ADTVs for the replacement securities. In addition, the weights of securities that are common in both the index and the benchmark are different too.

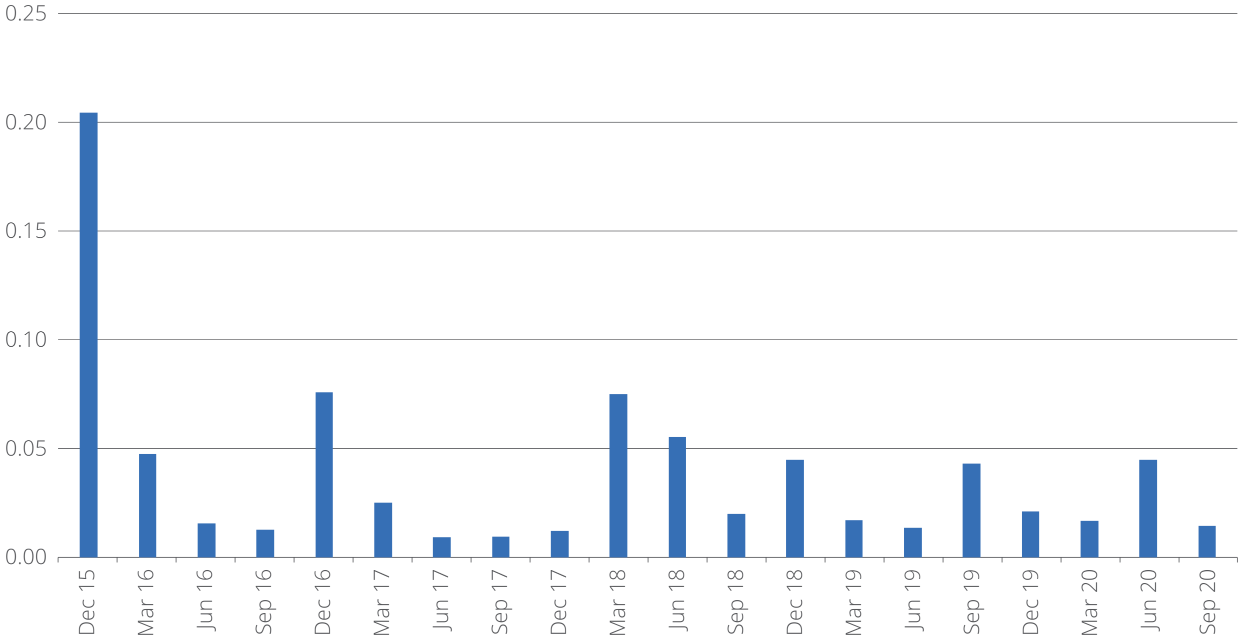
The ex-post capacity of the index thus estimated at each of index review since its launch in April 2019, was an average of 9.7% lower than the benchmark; the lowest figure (nearly 23% less) being recorded at the June 2020 review. Index capacity over a five-year period spanning part of the index backtest period was an average of 12.3% lower, with the lowest figure (48% less) being recorded in December 2015. The median value across both time periods was 6.3% lower.

It should be worth noting that the benchmark is the EURO STOXX 50® Index – one of the most invested eurozone blue-chip indices with substantial ETF assets and a notional in derivatives. The EURO STOXX 50® ESG Index is a variant that employs ESG-based exclusions and inclusions, thereby increasing the sustainability profile of the resulting portfolio.

TRADING DAYS

We estimate the trading days for a portfolio of securities with exactly the same holdings and exposures as the EURO STOXX 50® ESG Index at each quarterly index review (March, June, September and December) in order to establish the immediacy (i.e. the speed) of the orders executed. We compute "trading days" as the number of days needed to fully trade a hypothetical EUR 1bn index portfolio, assuming 50% of the ADTV for all securities. We then compare the estimated increase in trading days of the index over the corresponding estimates for the EURO STOXX 50® Index at each index review.

FIGURE 3: Increase in estimated trading days for the index over the benchmark



Source: Qontigo

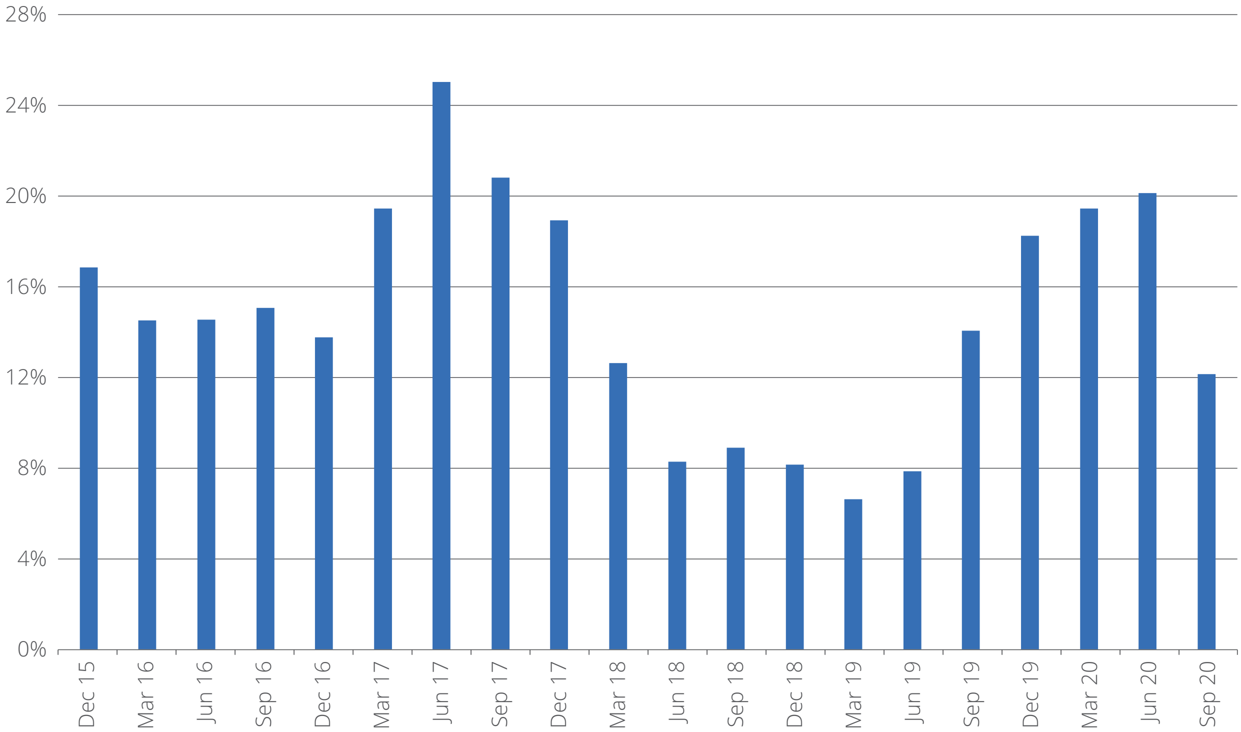
The lower trading capacity effectively means that the time taken to trade the hypothetical EUR 1bn index portfolio would have taken an average of 0.0389 days longer than that of the benchmark over the past five-year period, and 0.0256 days longer since the index was launched in April 2019. The estimated increases in days to trade the hypothetical notional is still considerably less than one day. We therefore believe that, this increase in the time taken to trade is unlikely to be a huge concern in the case of portfolio sizes of similar order of magnitude. Portfolios that are significantly larger (maybe an order of magnitude more, i.e., EUR 10bn or above) might take longer than expected due to the size of the trades involved.

EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

INDEX TURNOVER

Turnover indicates the portion of an index that is bought or sold over a certain period following rebalancing events. We computed the turnover for a portfolio of securities with exactly the same holdings and exposures as the EURO STOXX 50® ESG Index at each quarterly index review (March, June, September and December). An annualized one-way turnover measure based on quarterly data, i.e., for the quarterly reviews, is computed for the index and compared with that of the benchmark to estimate the incremental amount of trading needed to replicate the index.

FIGURE 4: Rolling 12-month incremental index turnover



Source: Qontigo

The EURO STOXX 50® ESG Index is reviewed and rebalanced every quarter, with changes being effected to its constituents and weights at each rebalancing date, versus an annual review for the benchmark. The rolling 12-month turnover for the index is therefore higher and the incremental turnover ranges from a minimum around 6.5% to a maximum of around 25% over the benchmark. In the subsequent section, we attempt to estimate the difference in the cost of ongoing replication of the index versus the benchmark.

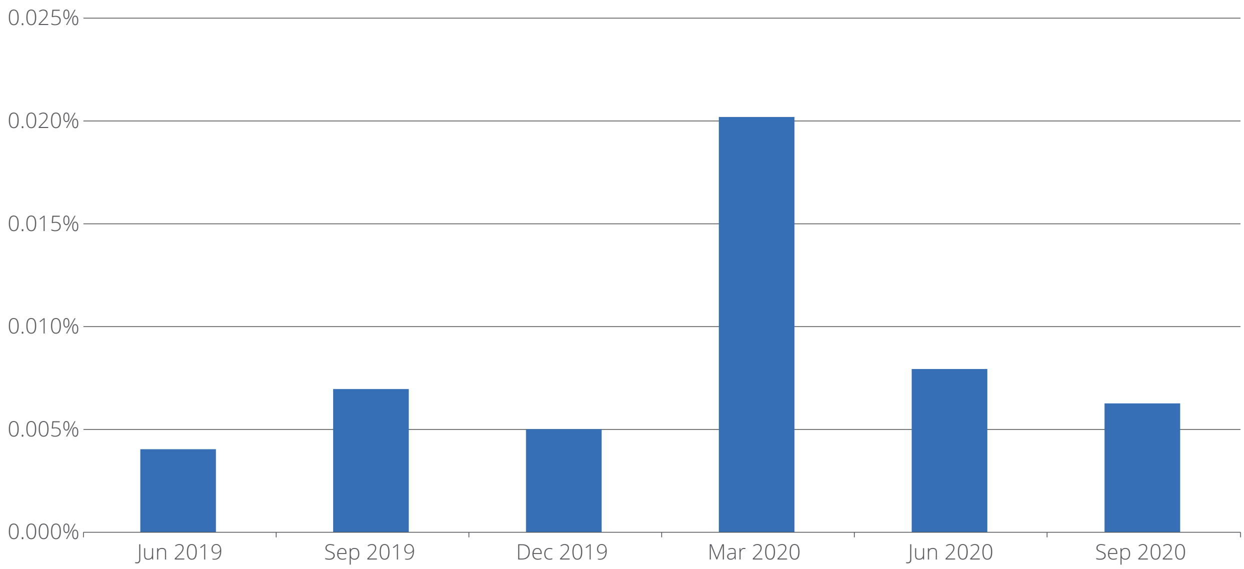
EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

ESTIMATED COSTS OF SWITCHING AND ONGOING REPLICATION

We estimated the cost (assuming full physical replication) of switching out of the benchmark into the index at each quarterly review. We did this by determining the net amount of each security needing to be bought or sold in order to carry out the switch, for a portfolio of EUR 1bn value. We then used an average transaction cost estimate to compute the total cost of switching the portfolio as a percentage of the portfolio value.

We assumed an implementation period of five days for the switch, i.e., that the net sales and purchases would be spread over five trading days. Other costs such as broker commissions, transaction taxes, shortfall and delay costs etc. were ignored for the purposes of this estimate. We only computed the cost at each index review since the launch of the index in April 2019.

FIGURE 5: Estimated switching cost



Source: Qontigo, Axioma Portfolio and Goldman Sachs Shortfall Model

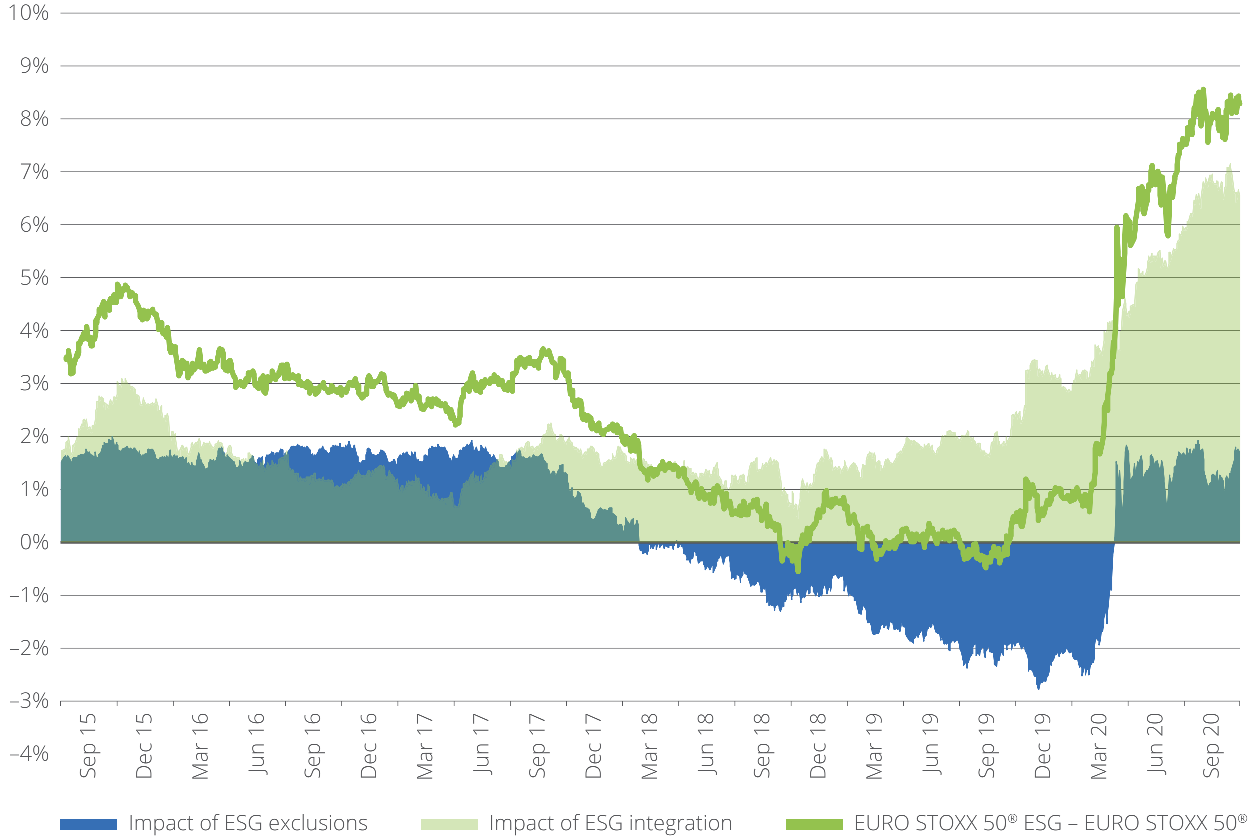
The estimated switching cost varied from a low of around 0.0040% in June 2019 to a high of almost 0.0202% during the March 2020 review, when COVID-19 related market distress was at or near its peak. However, subsequent quarters have seen this estimate drop to around 0.0063% as of the September 2020 review. For a portfolio size of EUR 10bn, these cost estimates vary between 0.0067% in June 2019 review and 0.0386% during the March 2020 review.

We also computed the difference between the estimated ongoing costs of index replication for the index versus that of the benchmark at each quarterly index review over a trailing five-year period, based on the net amount of each security being bought or sold in order to replicate each index. The ongoing index replication cost estimates for the index are higher by a maximum of around 0.01% than the benchmark over the last five years.

Evaluating this (presumably) one-time cost of switching and ongoing index replication cost in context of the performance of the two indices, the EURO STOXX 50® ESG Index has not only delivered better returns but achieved this at a lower volatility (measured by the standard deviation of daily returns) over various time periods, although not statistically significant at 95% confidence levels (see EURO STOXX 50® ESG INDEX – INTEGRATING SUSTAINABILITY).

EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

FIGURE 6: Index performance chart



Source: Qontigo

FIGURE 7: Performance statistics[2,4]

	EURO STOXX 50® ESG	EURO STOXX 50®
Performance overall (annualized)	7.02%	6.42%
Return (1Y)	–3.62%	–8.12%
Return (3Y) (annualized)	0.30%	–0.65%
Return (5Y) (annualized)	4.55%	4.16%
Volatility overall (annualized)	19.48%	19.85%
Volatility (1Y) (annualized)	29.69%	31.13%
Volatility (3Y) (annualized)	20.10%	20.89%
Volatility (5Y) (annualized)	19.43%	19.94%
Sharpe ratio[3] overall	0.46	0.42
Sharpe ratio[3] (5Y)	0.35	0.32
Tracking error overall	1.25%	n.a.
Tracking error (5Y)	1.39%	n.a.
Dividend yield overall	4.79%	4.63%
Maximum drawdown	35.83%	38.23%
Constituents	50	50

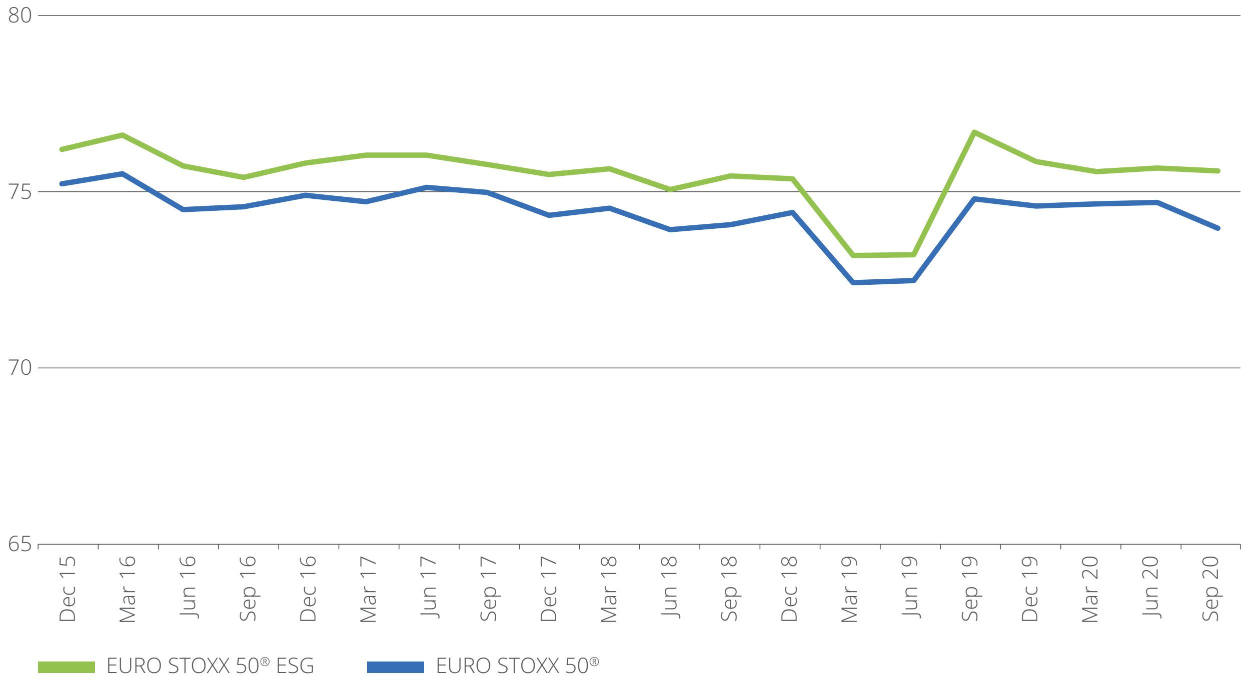
Source: Qontigo, data as of September 30, 2020

[2] Source: Qontigo, daily data. Relative figures calculated against Benchmark
[3] EONIA used as a proxy for riskless returns
[4] Qontigo Data March 2019, 2012 – September 30, 2020

EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

The EURO STOXX 50® ESG Index has achieved this improved performance simultaneously with an enhancement in the sustainability profile measured by the overall average ESG score.

FIGURE 8: Average ESG score



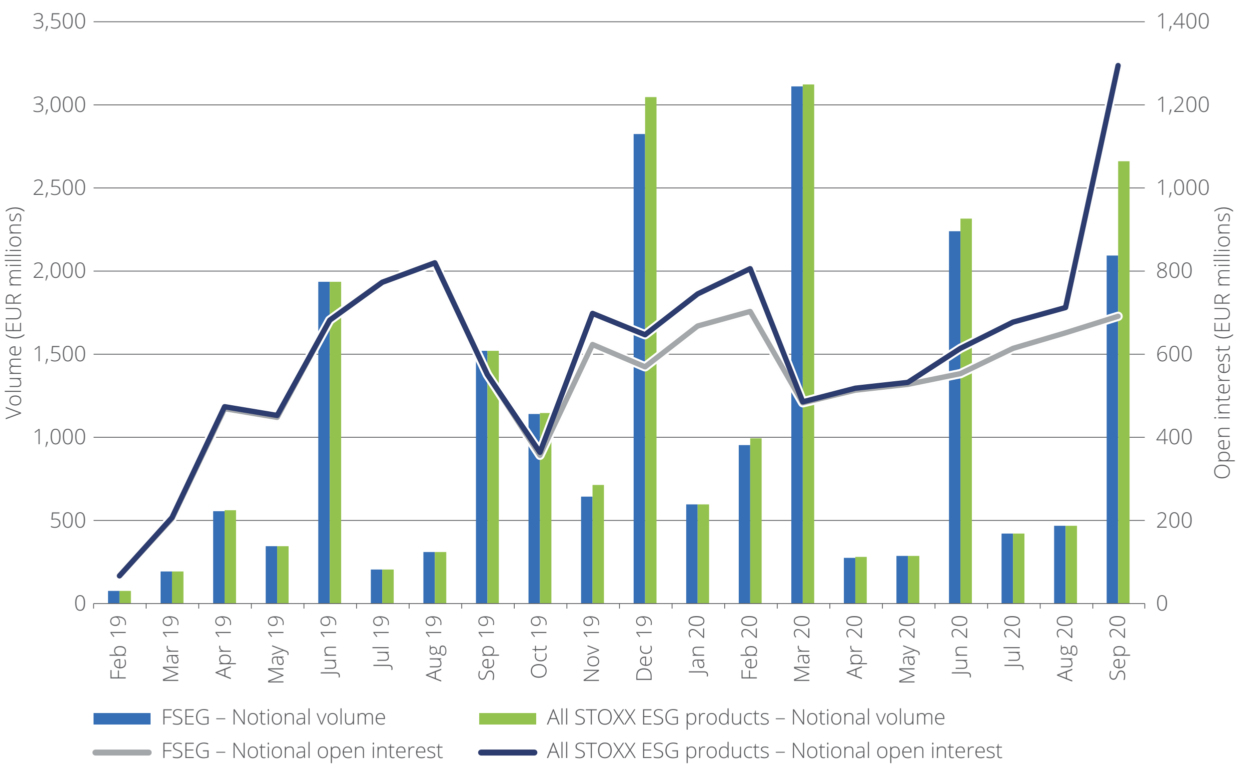
Source: Qontigo

EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

LISTED ESG DERIVATIVES: VOLUMES AND OPEN INTEREST

The increasing focus on and appetite for efficient access to sustainable investing has seen volumes and open interest rise on all ESG derivatives listed on Eurex with STOXX indices as underlying.

FIGURE 9: Performance statistics



Source: Eurex

Listed futures on the STOXX® Europe 600 ESG-X (Eurex Product-ID: FSEG) had a total capital volume of around EUR 15 bn traded over the 12 months ending September2020, compared to EUR 422 bn over the same period for the STOXX® Europe 600 index futures (Eurex Product-ID: FXXP). EURO STOXX 50® listed futures, being the leading Eurozone index consisting of supersector leaders that are amongst the most liquid securities in the region, had a total capital volume of more than EUR 11 tn traded over the same period, which is more than 20 times that of the STOXX Europe 600 futures. It may therefore not be unrealistic to expect the EURO STOXX 50® ESG futures volumes to pick up and outpace the STOXX® Europe 600 ESG-X futures traded volumes, which itself is on a steep growth trajectory, by a ratio that is not too dissimilar in order of magnitude.

CONCLUSION

In this paper, we analyzed the EURO STOXX 50® ESG Index and compared it to the EURO STOXX 50® Index in terms of its estimated capacity, trading days (for an assumed portfolio size) and index turnover. Since the construction of the EURO STOXX 50® ESG Index means that the two indices have different review schedules and are composed of dissimilar securities, differences are observed in the various liquidity and tradability measures that were considered.

The estimated one-time switching cost was low and under 1bp during most index reviews since launch (for a portfolio of EUR 1 bn value) and the difference in ongoing index replication costs also tends to be relatively small during benign market conditions, though both have widened during the recent market distress. Notwithstanding, the EURO STOXX 50® ESG index delivers a better sustainability profile with the additional costs (switching and ongoing index tracking) being more than offset in the past by higher returns and lower volatility. Given the increasing focus on and appetite for efficient access to sustainable investing, listed derivatives on EURO STOXX 50® ESG provide efficient access to the flagship Eurozone sustainable index, and may be expected to far outpace the other listed ESG derivatives, based on the empirical evidence from listed futures on existing benchmarks such as EURO STOXX 50®.

EURO STOXX 50® ESG: LIQUIDITY AND TRADABILITY CHARACTERISTICS

About STOXX Ltd.

STOXX Ltd. is a global index provider that currently calculates a global, comprehensive index family of over 13,000 strictly rules-based and transparent indices. Best known for the leading European equity indices EURO STOXX 50®, STOXX® Europe 50 and STOXX® Europe 600, STOXX Ltd. maintains and calculates the STOXX Global index family which consists of total market, broad and blue-chip indices for the Americas, Europe and Asia/Pacific regions and the Latin America and BRIC (Brazil, Russia, India and China) sub-regions, as well as global markets.

To provide market participants with optimal transparency, STOXX indices are classified into four categories. Regular "STOXX" indices include all standard, theme and strategy indices that are part of STOXX's integrated index family and follow a strict rules-based methodology. The "iSTOXX" brand typically comprises less standardized index concepts that are not integrated in the STOXX Global index family, but are nevertheless strictly rules-based. While "STOXX" and "iSTOXX" brand indices are developed by STOXX for a broad range of market participants, the "STOXX Customized" brand covers indices that are specifically developed for clients and do not include the STOXX brand in the index name. STOXX uses the Omnient brand to offer custom indices from its existing index universe.

STOXX indices are licensed to more than 600 companies around the world as underlyings for Exchange Traded Funds (ETFs), futures and options, structured products and passively managed investment funds. Three of the top ETFs in Europe and approximately 25% of all assets under management are based on STOXX indices. STOXX Ltd. holds Europe's number one and the world's number two position in the derivatives segment.

Since September 2019 STOXX is part of Qontigo.

Qontigo is a financial intelligence innovator and a leader in the modernization of investment management, from risk to return. The combination of the company's world-class indices and best-of-breed analytics, with its technological expertise and customer-driven innovation enables its clients to achieve competitive advantage in a rapidly changing marketplace. Qontigo's global client base includes the world's largest financial products issuers, capital owners and asset managers. Created in 2019 through the combination of STOXX, DAX and Axioma, Qontigo is part of Deutsche Börse Group, head-quartered in Eschborn with key locations in New York, Zug and London.

Qontigo's index provider STOXX is part of Deutsche Börse Group, and the administrator of the DAX indices under the European Benchmark Regulation.

www.qontigo.com

CONTACTS

Theilerstrasse 1a
CH-6300 Zug
stoxx@stoxx.com
www.stoxx.com

Frankfurt: +49 (0) 69 211 0
Zug: +41 43 430 71 60
London: +44 (0) 20 7856 2424
New York: +1 212 991 4500

Atlanta: +1 678 672 5400
Buenos Aires: +54 11 5983 0320
Chicago: +1 224 324 4279
Geneva: +41 22 700 83 00
Hong Kong: +852 8203 2790
Paris: +33 (0) 1 55 27 67 76
San Francisco: +1 415 614 4170
Singapore: +852 8203 2790
Sidney: +61 (0) 2 8074 3104
Tokyo: +81 3 5847 824