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# DAX® 50 ESG INDEX OUTPERFORMS AS MARKETS RECOVER

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## INTRODUCTION

Our paper titled "The DAX® 50 ESG – The New Standard In German ESG Investing", which was published in March 2020, introduced the DAX® 50 ESG Index, which applies exclusionary screens and uses sustainability parameters in its stock selection methodology. Companies involved in undesirable or controversial activities from a responsible investing perspective are excluded, while companies with the highest ESG scores are prioritized for inclusion over these laggards. The paper compared the index's risk-return characteristics to the DAX® given its overlapping stock universe, the similarities in its methodology, and the fact that it provides "greener" exposure to the German capital market thanks to its higher ESG score. Our analysis showed that it had provided better risk-adjusted returns since index inception (September 2012).

In this paper, we have narrowed our focus and analyzed the performance of the DAX® 50 ESG Index over the period from March 20, 2020 (the end date of our analysis last time and which was around the beginning of the recovery from the market distress caused by the COVID-19 pandemic) until November 13, 2020. Our findings show that the DAX® 50 ESG Index has outperformed during this period, with the sustainability criteria applied as part of the index methodology contributing favorably to returns.

The international derivatives exchange Eurex is supporting the strong global trend towards responsible investing by expanding its ESG segment. It recently launched listed futures and options on the DAX® 50 ESG Index, adding another European benchmark to its offering and increasing the accessibility of the index for investors in the process.

## DAX® 50 ESG INDEX

### METHODOLOGY

The DAX® 50 ESG Index's starting universe is based on the securities included in the HDAX®, which comprises securities from the DAX®, MDAX®, and TecDAX®[1]. This approach provides exposure to large and medium-sized companies without any sector restrictions. The eligible universe is then derived by applying standardized ESG exclusions based on Sustainalytics' Global Standards screening, controversial weapons, tobacco production, thermal coal, nuclear power, and military contracting.

The index then selects the 50 largest and most liquid securities with the best comparative ESG performances, based on three quantitative criteria:

1. Order book volume,
2. Free-float market capitalization,
3. ESG score.

[1] See index methodology guide for further details: Guide to the DAX Equity Indices

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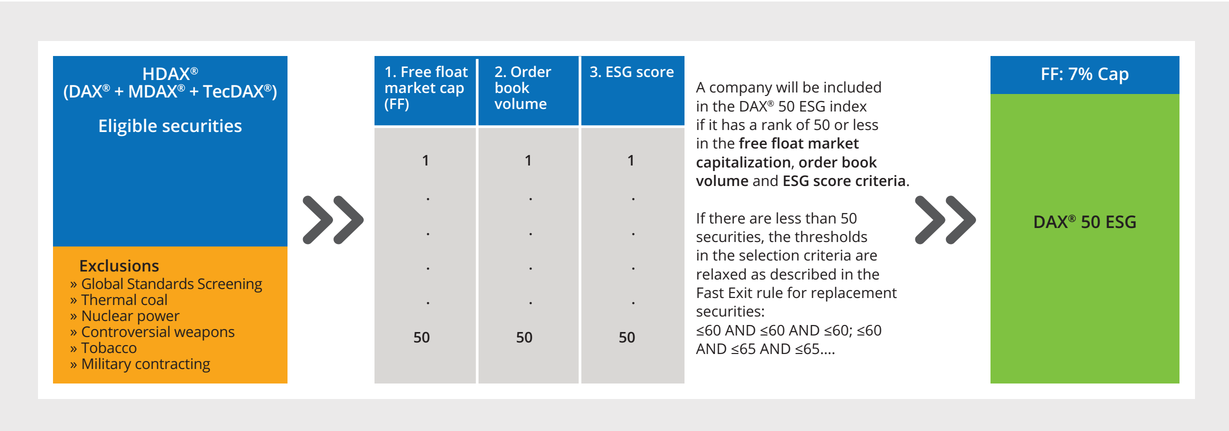
**FIGURE 1:** DAX® 50 ESG Index methodology




Source: Qontigo, for illustrative purposes only, refer to the index methodology guide for full details.

The exclusions and ESG scores are based on data and information about the individual companies sourced from Sustainalytics, a global leader in ESG and corporate governance research and ratings. Receiving data from an independent, multi-award winning[2] ESG data provider such as Sustainalytics allows STOXX[3] 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.

In order to simplify the rules without foregoing investability, the constituents will be selected by market capitalization and ESG score only from the September 2021 review onward. From this point in time, the order book volume will no longer be part of the ranking process. Instead, constituents will need to fulfill requirements in terms of minimum turnover[4].

## DAX® 50 ESG INDEX PROFILE

Since the DAX® is the flagship index for conventional equity exposure to the German capital market, we considered it suitable to compare its profile to that of the DAX® 50 ESG besides comparing it with the HDAX®, being the universe of securities selected in the DAX® 50 ESG. The remainder of this paper therefore compares the three indices and analyzes their various attributes.

Securities in the Finance, Insurance, Real Estate (FIRE) sector account for the largest portion of the three indices. At 22.9%, the DAX® 50 ESG Index had the greatest exposure to this sector as of the September 18, 2020 review, compared to 19.6% for the DAX® and 17.6% for the HDAX®. The weight cap of 7% in the DAX® 50 ESG Index benefits the FIRE sector, since the weights for larger names in the Basic Materials and Information Technology categories were redistributed on a pro rata basis.

[2] https://www.sustainalytics.com/about-us/#awards
[3] Deutsche Börse AG transferred the role of administrator (as defined in the EU Benchmarks Regulation) for its indices (DAX®, eb.rexx®, etc.) to STOXX Ltd. (STOXX) on August 21, 2019.
[4] Press release November 24, 2020 – Revised rules for the DAX Selection Indices

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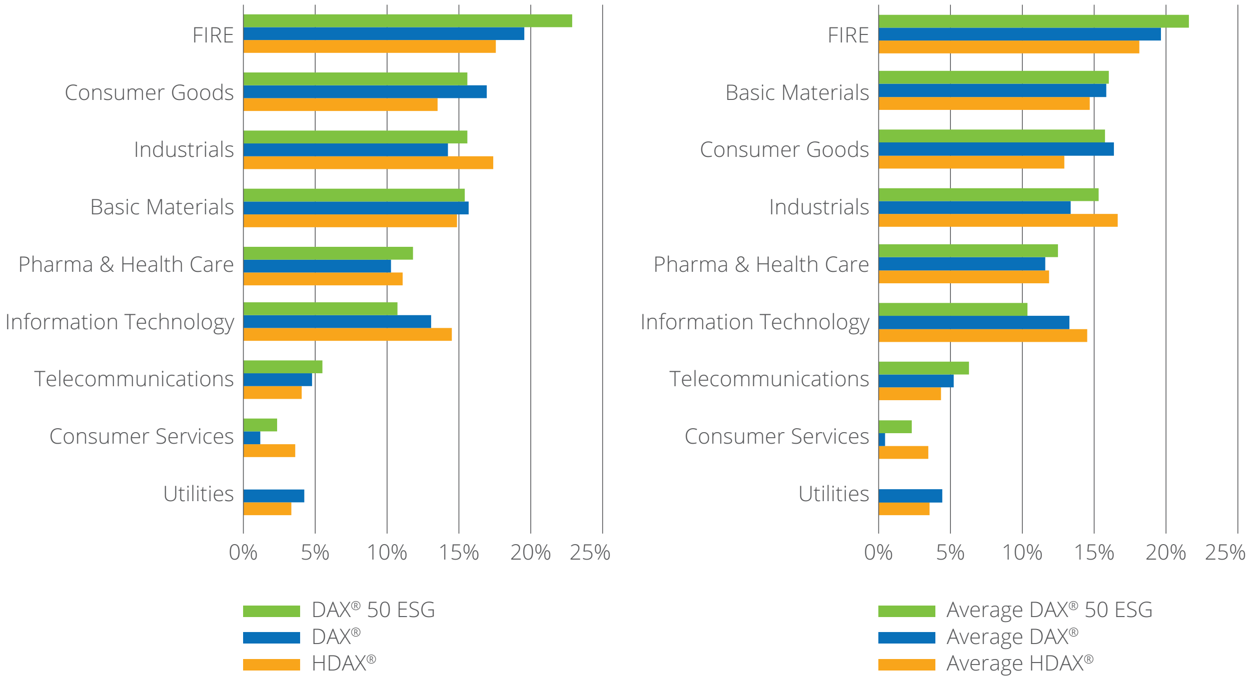
**FIGURE 2:** Sector allocations for the DAX® 50 ESG, DAX®, and HDAX® indices




Source: Qontigo, as of September 18, 2020 (left chart); average of March 20, 2020, June 19, 2020, September 18, 2020 (right chart)

The exclusionary screening for nuclear power and thermal coal applied as part of the DAX® 50 ESG Index methodology explains the absence of the Utilities sector, which accounts for 4.2% and 3.4% of the DAX® and HDAX® respectively.

The stocks excluded due to these screens have remained the same for the last three review periods and have contributed to the relatively stable allocations for the various sectors that can be seen across the average weights in the DAX® 50 ESG Index. Although military contracting recorded the most instances of exclusions, controversial weapons had the greatest weight on average, with over 3 percentage points. No securities have been excluded due to tobacco related screens.

**FIGURE 3:** Instances of DAX® 50 ESG Index exclusions by type (securities may fall under more than one exclusion type)

| | No. of Exclusions | March 2020 | June 2020 | September 2020 | Average weight |
|---|---|---|---|---|---|
| Military contracting | 12 | 4 | 4 | 4 | 1.10% |
| Nuclear power | 9 | 3 | 3 | 3 | 1.19% |
| Thermal coal | 6 | 2 | 2 | 2 | 0.89% |
| Global Standards Screening | 3 | 1 | 1 | 1 | 1.90% |
| Controversial weapons | 3 | 1 | 1 | 1 | 3.37% |
| Tobacco | 0 | 0 | 0 | 0 | n.a. |

Source: Qontigo, March 20, 2020 to September 18, 2020

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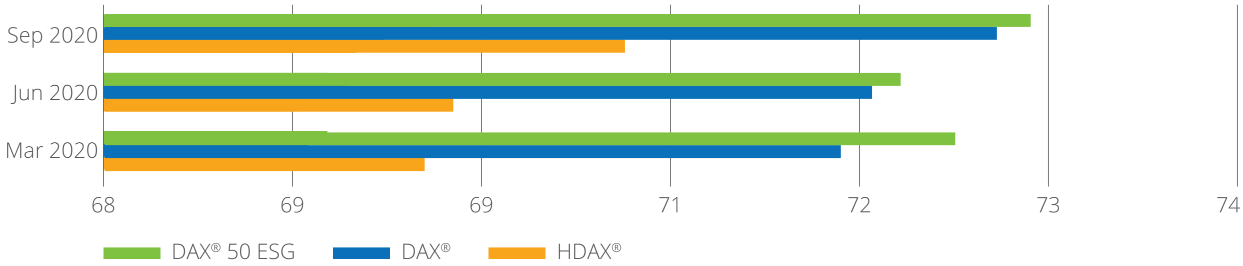
The DAX® 50 ESG Index has maintained a better ESG score than the HDAX®, over the last three rebalancing periods. This is unsurprising given that the selection criteria incorporates both standardized ESG exclusion screens and ESG scores for individual securities. What is of greater interest is that the index has also outperformed the DAX® on this metric, although this should only be considered as a by-product rather than a direct objective.

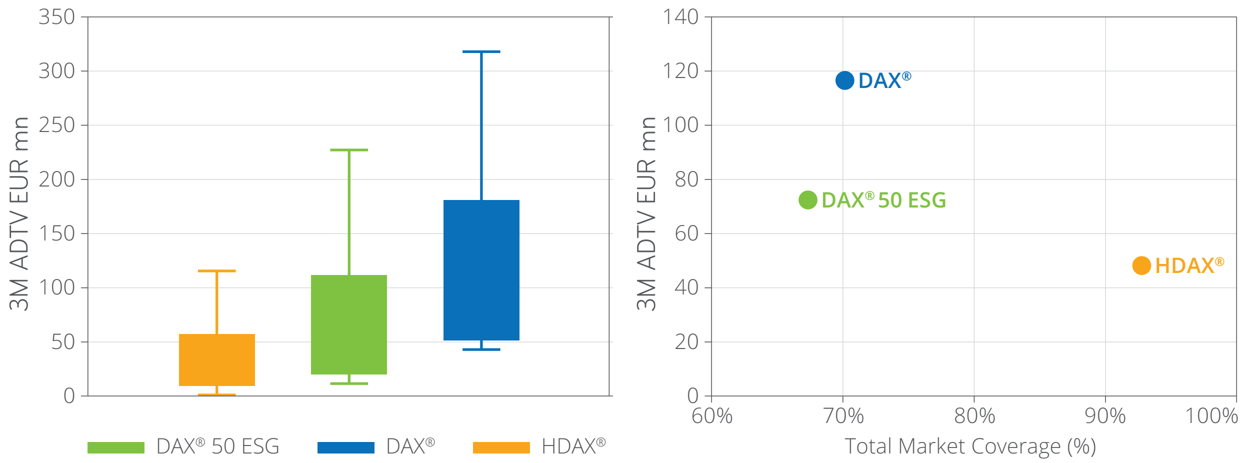
**FIGURE 4:** Aggregate ESG score for the DAX® 50 ESG, DAX®, and HDAX® indices




Source: Qontigo, as of September 18, 2020

In addition to the ESG criteria, the inclusion in the DAX® 50 ESG Index methodology of both size and turnover requirements ensures that its liquidity profile (measured in terms of the 3-month average daily traded volume (3M ADTV) of the index securities) is not overly compromised, although this comes at the expense of market coverage. It should be noted that nearly 85% of the DAX® 50 ESG weight comes from securities that it has in common with the DAX® Index, therefore allowing it to benefit from the high levels of liquidity already associated with these stocks. This means that the DAX® 50 ESG improves on the liquidity of the HDAX® while not being too far from the DAX®.

**FIGURE 5:** Liquidity profile of DAX® 50 ESG, DAX®, and HDAX®



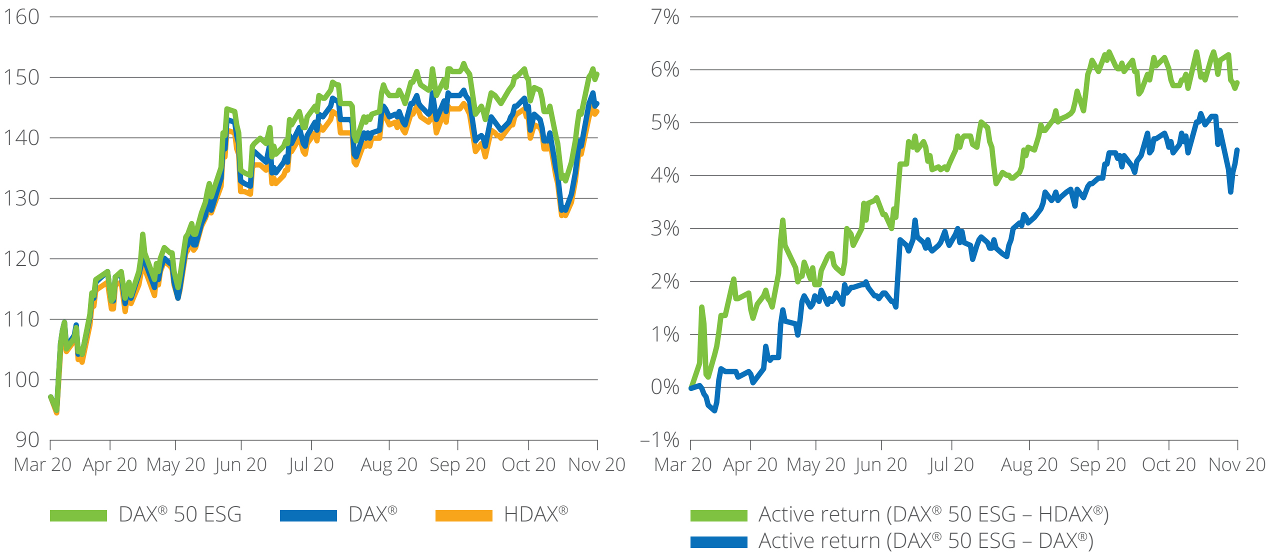

Source: Qontigo, as of September 18, 2020

# DAX® 50 ESG INDEX OUTPERFORMS AS MARKETS RECOVER

## OVERALL INDEX PERFORMANCE

The DAX® 50 ESG Index has delivered a cumulative return of 50.9 percentage points and outperformed the HDAX® and the DAX® by 573 bps and 446 bps respectively since March 20, 2020 through November 13, 2020, with the start date being around the beginning of the market recovery from the COVID-19 pandemic induced distress.

**FIGURE 6:** Performance of the DAX® 50 ESG, DAX®, and HDAX® indices




Source: Qontigo, EUR gross returns from March 20, 2020, to November 13, 2020

At the same time, it has had a lower drawdown and maintained similar levels of volatility to its counterparts, which have led to better risk-adjusted returns.

**FIGURE 7:** Return attribution for the DAX® 50 ESG, DAX® and HDAX® indices

| | DAX® 50 ESG | DAX® | HDAX® |
|---|---|---|---|
| Cumulative return | 50.92% | 46.45% | 45.19% |
| Volatility | 31.51% | 32.45% | 30.71% |
| Max. drawdown | 11.99% | 12.82% | 12.33% |
| Sharpe ratio | 2.23 | 2.03 | 2.08 |

Source: Qontigo, EUR gross returns from March 20, 2020, to November 13, 2020

We used a factor-based performance attribution to identify the drivers behind the outperformance of the DAX® 50 ESG ("the portfolio") compared to both the HDAX® and the DAX® over this period. In both cases, we observed that factor contributions acted as a drag on overall returns, with style factors led by volatility in the HDAX® and beta (market sensitivity) in the DAX® being the culprits, offsetting gains from Industry such as Financials. Similarly, we found that the active return was entirely attributable to specific return i.e. the return that cannot be explained by factors, largely securities present in the portfolio but absent from the DAX® or the HDAX®.

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**FIGURE 8:** Subset of factor-based performance attribution[5] of the DAX® 50 ESG (portfolio) versus HDAX® and DAX®

| | HDAX® | | DAX® | |
|---|---|---|---|---|
| **Source of return** | **Contribution** | **Avg. exposure** | **Contribution** | **Avg. exposure** |
| **Active** | 5.75% | | 4.50% | |
| **Specific return** | 6.81% | | 4.56% | |
| **Factor contribution** | –1.05% | | –0.06% | |
| **Style** | –1.45% | | –0.43% | |
| Dividend yield | –0.33% | 0.13 | 0.05% | –0.01 |
| Growth | –0.33% | –0.06 | –0.04% | 0 |
| Liquidity | 0.19% | 0.04 | –0.19% | –0.02 |
| Market sensitivity | 0.32% | 0 | –0.37% | –0.02 |
| Medium-term momentum | –0.22% | –0.04 | –0.21% | 0.01 |
| Size | –0.01% | 0.01 | 0.31% | –0.07 |
| Value | –0.05% | 0.06 | –0.01% | –0.01 |
| Volatility | –0.87% | –0.06 | 0.17% | 0.03 |
| **Industry** | 0.39% | | 0.37% | |

Source: Axioma Portfolio Analytics WW4AxiomaMH risk model, Qontigo, EUR gross returns from March 20, 2020, to November 13, 2020

The difference in composition between the HDAX®, which typically has around 100 securities, and the DAX® 50 ESG Index is due in the first instance to the exclusion of securities during the ESG screening process described earlier (around eight securities on average). The exclusion of the remaining 40+ securities is attributable to the application of the quantitative criteria of:

1. Order book volume,
2. Free-float market capitalization,
3. ESG score.

A series of performance simulations on hypothetical portfolios that applied each of the ESG screens individually, plus an aggregate portfolio comprising all exclusions, allowed us to analyze their impact on the HDAX® returns. Global Standards Screening and thermal coal exclusions have both been a drag on returns since March 20, 2020, with the aggregate portfolio contributing 31bps through November 13, 2020. It should be noted that in some periods the contribution from ESG screens was as high as 260 bps and generally had a positive impact on returns, which are cascaded down to the DAX® 50 ESG.

[5] Returns obtained from Axioma Portfolio Analytics differ slightly from those derived from the official index returns. We believe that this return differential may be the result of a difference in the treatment of corporate actions in Axioma Portfolio Analytics compared to the official DAX® methodology. However, we consider the difference and its likely impact on the performance attribution to be minimal.

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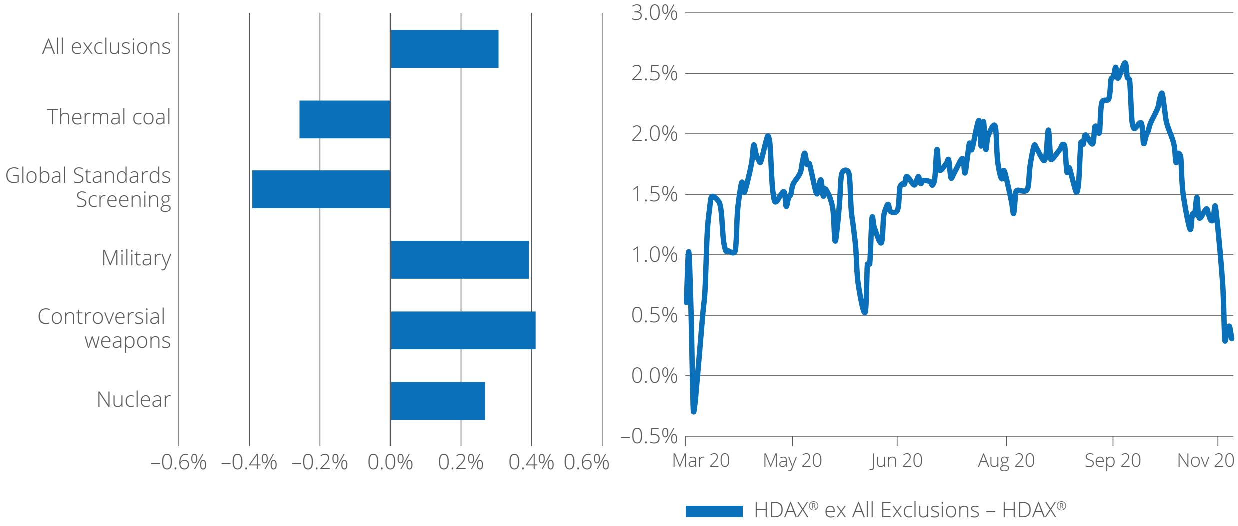
**FIGURE 9:** Impact of ESG exclusions on the return of the HDAX®




Source: Qontigo, EUR gross returns from March 20, 2020, to November 13, 2020

The active return of the DAX® 50 ESG to the DAX® is less than the HDAX®, despite the drag from style factors not weighing down as much on returns. This is due to a smaller contribution from the specific return which is not surprising in some respects, given that there is likely greater homogeneity between the DAX® and the DAX® 50 ESG Index (based on the weights of such securities), as the 24 securities they have in common account for 85% of the weight of the DAX® 50 ESG.

By charting hypothetical portfolios that are comprised of securities:

1) That are in the DAX® but not in DAX® 50 ESG due to sustainability criteria e.g. low ESG score and ESG screens,
2) That are in the DAX® 50 ESG but not the DAX®.

It is possible to look at the drivers behind the outperformance of the DAX® 50 ESG to the DAX® from a different perspective. Portfolio number 1 as denoted by the "DAX_ESG exclusions" line has under-performed the DAX® 50 ESG, indicating that the absence of these securities from the DAX® 50 ESG and therefore the sustainability criteria in the methodology that excludes these, has been beneficial to the overall returns. Portfolio 2 as denoted by the DAXESG_exDAX" has outperformed the DAX® 50 ESG, albeit marginally, suggesting that the securities that are not a part of the DAX® but in the DAX® 50 ESG have also contributed positively to returns.

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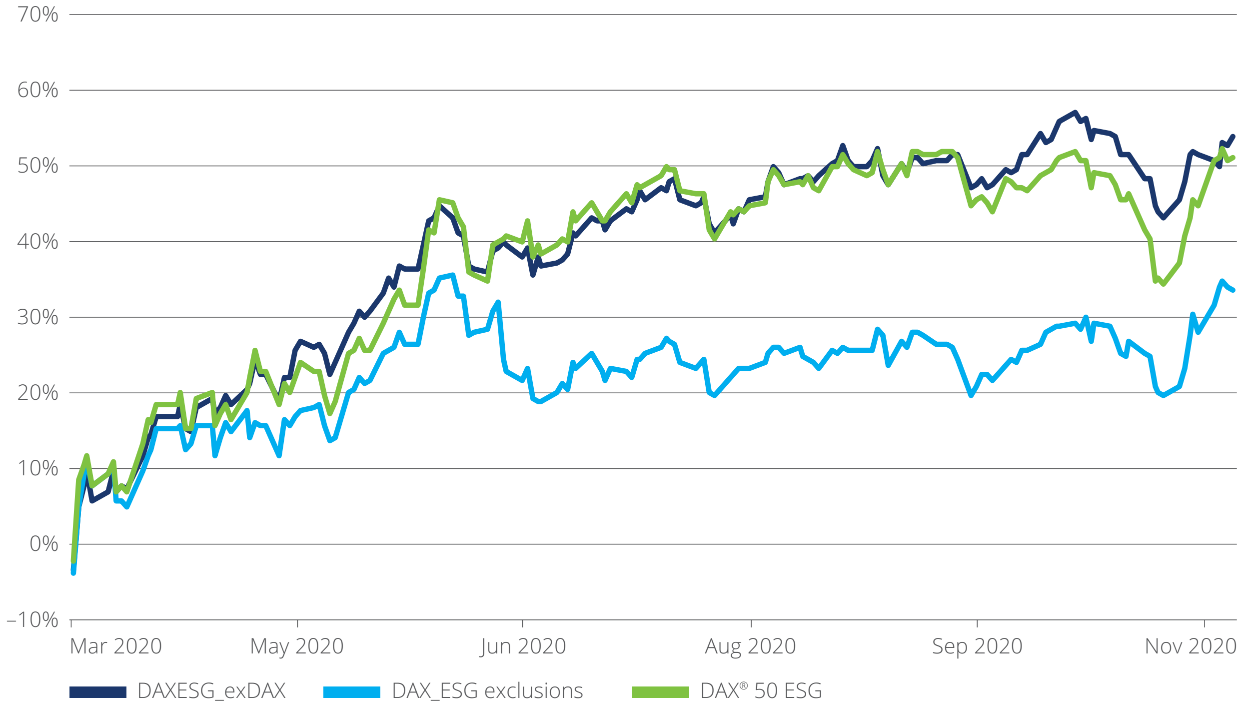
**FIGURE 10:** Performance of portfolios comprising of security differentials between DAX 50® ESG and DAX®




Source: Qontigo, EUR gross returns from March 20, 2020, to November 13, 2020

It should also be noted that during this period, the 7% security cap of the DAX® 50 ESG versus the 10% of the DAX® has had a net positive impact on returns, as exposure to names that have underperformed has been reduced.

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## CONCLUSION

The launch of the DAX® 50 ESG Index earlier this year added an index for sustainable equity investing to the DAX® family, which already includes regional, sector, strategy, and fixed-income gauges. The move has since been complemented by the launch of funds and recently derivatives on Eurex[6] that use the index as an underlying. This broadens its appeal and increases its accessibility to investors seeking greener exposure to the German equity capital markets, as can be seen from the improved ESG score compared to the DAX® and the HDAX®.

We found that the index outperformed its benchmark, the HDAX®, by a cumulative 5.7 percentage points from March 20, 2020 to November 13, 2020, with just an additional 0.8 points of volatility. Similarly, the index has outpaced the flagship DAX® index by 4.5 percentage points while exhibiting lower volatility. Using a factor-based performance attribution to break down these returns identified portfolio idiosyncrasies (specific return) as the main source of the positive gains, as style factors weighed down returns. We noted that the application of ESG criteria as part of the index methodology which led to the exclusion of certain securities from the selection universe had a positive impact on returns in general. However, we stop short of attributing this purely to ESG and note the coincidental nature of some of these exclusions, as they relate to industries that have been impacted heavily by the COVID-19 pandemic.

The DAX® 50 ESG Index presents investors with a sustainable alternative method by which to access the German equity capital markets that is part of the well-established DAX® family, without overly compensating on liquidity while also benefitting from better risk adjusted returns.

[6] November 9, 2020 saw the launch of futures and options on the DAX® 50 ESG (and EURO STOXX 50® ESG) on Eurex.

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**About Us**

STOXX Ltd., now part of Qontigo, is a global index provide 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, Qontigo 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. Qontigo 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, headquartered 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.

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