

# THE EVOLUTION OF ESG ASSETS – A SYSTEMATIC TRADER’S PERSPECTIVE

Sustainability as an investment consideration began in Europe, but we are now seeing heightened interest in environmental, social and governance (ESG) investing across all regions, none more so than from equity market investors. According to Morningstar, equity portfolios currently account for 55% of all ESG assets under management. With vast amounts of capital being deployed, this naturally creates financial innovation in the form of ESG-related equity derivatives that we believe may help assist market participants with their various investment and risk management needs. We have also seen increased investor interest in ESG considerations in credit markets, but this journey has not yet evolved into a liquid derivative market for ESG credit.

ESG equity index derivatives – essentially tradable indices that adjust holdings based on ESG considerations – are in their nascent phase of trading activity, especially if one compares them to their underlying and more liquid benchmark equity indices. However, we see substantial and growing interest in this type of exposure from a wide array of market participants. Part of our daily trading desk activities includes engagement with the relevant exchanges and counterparties. In our conversations with EUREX, CME and OMX – home to the most liquid ESG index contracts – they each explained that the path to introduce ESG equity derivative products was initially driven by long only equity mandates. However, as the ESG space has garnered much more interest, particularly in the period since the Covid outbreak, a more diverse set of market participants are expressing interest and steadily dipping their toes in to trade ESG index futures.

In this paper, we will look at the three most liquid ESG index futures – the E-mini S&P 500 ESG index (S&P 500 ESG), STOXX Europe 600 ESG-X index (STOXX 600 ESG) and OMX Stockholm 30 ESG Responsible index (OMX 30 ESG) contracts – with the aim of assessing the current tradability of ESG linked equity contracts. Together these three futures contracts make up more than 90% of global ESG index trading volume<sup>1</sup>. We will map their evolutionary journey from launch to present, looking at growth in daily volumes and open interest (OI), which refers to the number of contracts outstanding, alongside the current liquidity landscape. Data analysis of order book liquidity and bid/offer spreads provides an insight into the implied trading costs of each contract, upon which we draw the conclusion that these ESG futures can now offer enough liquidity to trade at a reasonable cost. By exploring these key features throughout the paper, we hope to provide a useful framework for those considering the inclusion of ESG futures in their portfolios.

## ESG ecosystem

The global increase in ESG assets under management (AUM) has been driven by the flow dynamics of capital allocators and asset owners. As flows increased into ESG equity mandates, these investment managers required derivative contracts to help them with their various risk management functions. The innovation of these contracts helped asset managers rebalance inflows/outflows, improve exposure hedging, and opened the door to other investing styles, such as relative value.



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<sup>1</sup> <https://www.fia.org/resources/data-spotlight-esg-futures-gaining-traction>

One of the challenges facing systematic investors is the trade-off between liquidity and diversification. As systematic investors, we care about both the ability to liquidly gain exposure in an ESG format, as well as any diversification benefits it may bring to our portfolio. If the ESG flagship futures contracts have a low tracking error to their parent contracts, it indicates there is strong correlation between the two. This strong correlation indicates a low diversification benefit to portfolios should we continue to also hold the underlying non-ESG version of the equity index futures. On the other hand, a high tracking error could prevent a large segment of the equity investing community from using the new derivative as it is not similar enough to the parent underlying from a risk or hedging perspective. Low tracking error also serves an additional purpose; it can create a natural hedging pool for liquidity provisioning market participants. This in turn bolsters confidence in trading these markets and the increased two-sided volume helps reduce transaction costs. From the perspective of systematic investment managers, whether diversification or correlation is preferred depends on whether one seeks to replace an exposure or to add a new exposure to the portfolio. EUREX, CME and OMX exchanges have all designed their ESG benchmark offerings to ensure there is low tracking error between the ESG contract and their parent, thus helping investors with their liquidity and investment mandate needs.

**The liquidity journey**

As a systematic investment manager, liquidity is an important consideration in portfolio construction. This is because the more liquid an asset class, the lower the expected trading costs/spreads and the easier it is to enter and exit positions without impacting the market price and thus limiting any adverse market impact.

We start by looking at the top three most liquid ESG index futures - S&P 500 ESG, STOXX 600 ESG and OMX 30 ESG.

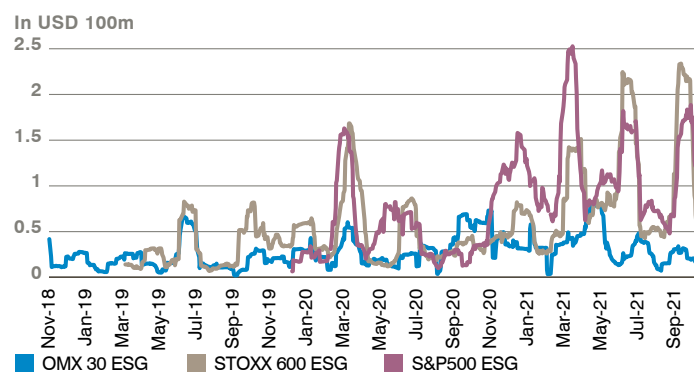
Liquidity of ESG index futures is at an early developmental stage. However, there clearly has been an upward trajectory in open interest (OI). In our view, current bid/offer spreads are sufficiently tight in the observable central limit orderbooks (CLOBs) for systematic participants.

**Volume and open interest**

Two important liquidity attributes for any derivative contracts are volume and OI. An increase in OI can indicate growing interest in a contract from market participants, while traded volumes are a good indicator of activity and liquidity in the contract. These metrics can also help investors measure how large their positions are relative to other market participants. In short, the larger the OI and volume of the contract, the more confidence investors can likely have in trading the contract from a cost and liquidity perspective.

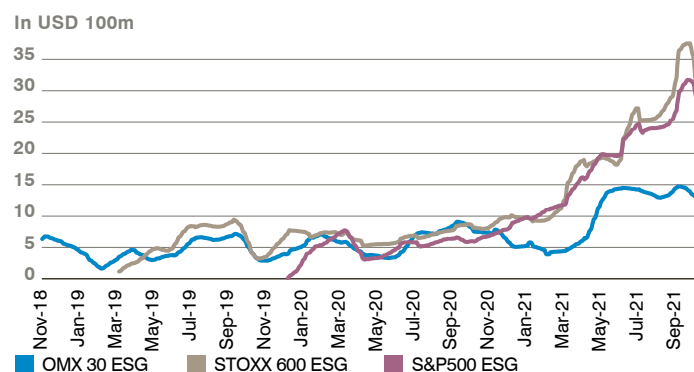
In the charts below we show the evolution of trading volumes and OI across the three contracts<sup>2</sup>. The STOXX 600 ESG and S&P 500 ESG exhibit higher volumes and OI in USD than OMX 30 ESG. All three contracts show increasing OI since the end of 2020. The factors we believe explain this liquidity landscape are: 1) regional ESG appetite; 2) liquidity of the parent contract; and 3) performance and tracking, each of which we would like to explore in greater detail.

**Trading Volume (Market Value in USD) – 20 Day Moving Average**



Source: GAM, Bloomberg. The mentioned financial instruments are provided for illustrative purposes only to assist the reader in understanding the themes presented and should not be construed as a recommendation to buy or sell securities or investment advice.

**Open Interest (Market Value in USD) – 20 Day Moving Average**



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<sup>2</sup> Volume and open interest are shown in market value, which is calculated as (volume or open interest in number of contracts multiplied by contract price multiplied by contract value), adjusted for foreign exchange rate.

### Regional ESG appetite

The ESG concept first gained interest among European investors, particularly the Nordic region. It is perhaps not surprising then that OMX 30 ESG was the first ESG equity future, launched in answer to popular demand from these investors.

Four months later, the STOXX 600 ESG, the first pan-European ESG equity future, was launched and quickly gathered trading volume and OI. Both contracts enjoyed first mover advantage supported by a keen investor base in the wider European area.

Despite the S&P 500 being the world's most dominant equity index, it was more than a year after the OMX ESG launch that S&P finally developed an ESG index of its own, with the launch of the E-mini S&P 500 ESG Index (S&P 500 ESG).

### Liquidity of the parent contract

STOXX 600 ESG benefits from the breadth and depth of its parent contract. Stoxx Europe 600 covers a much larger universe than other major European benchmarks such as Euro Stoxx 50 and the DAX index, which includes only 40 stocks. This means that for the STOXX 600 ESG, stock exclusions due to ESG screening are in our view unlikely to cause significant changes in sector or factor exposures. In terms of liquidity, Stoxx Europe 600 future is one of the most liquid equity future contracts on Eurex.

The parent contract of the S&P 500 ESG future is the most actively traded equity index future in the world, which has an OI more than 40 times that of the STOXX 600 future. This has helped the S&P 500 ESG future gain attention despite both the fact that it was launched more than a year after OMX 30 ESG, and the lower demand for ESG in the US compared to Europe.

OMX 30 ESG on the other hand, has a parent contract that covers a relatively small equity market. This means that exclusions can create a large tracking error in the ESG future versus the parent contract. This puts the contract at a disadvantage when it comes to gaining volume and OI.

### Performance and tracking error

Close tracking to the parent index is important to investors seeking to replicate their equity exposures. Out of the three contracts, STOXX 600 ESG has the closest tracking to the parent index. Since launch the performance of the ESG contract has been almost exactly in line with the parent index - it has outperformed the parent index by 14 basis points (0.14%) on an annualised basis<sup>3</sup>. During this period the parent index benchmark gained 8.2% annualised and as such a 14-basis point tracking error is very low. This close tracking can be seen as a direct result of relatively few exclusions after ESG screening. The exchange relies on an external data provider (Sustainalytics) when applying ESG screening. Currently it only excludes 17 out of 600 names, the equivalent of 2.8% of the parent index.

OMX 30 ESG shows a far higher tracking error and underperformed its parent index by 66 basis points on an annualised basis<sup>3</sup>. As the first ESG equity future launched, its screening methodology set a framework for subsequent ESG instruments, using a combination of qualitative and quantitative criteria. As of today, it excludes two stocks. The parent index only has 30 stocks as of the same period so that represents an exclusion of 6.7% of stocks.

S&P 500 ESG shows a high tracking error which may surprise some given the large number of constituents. The tracking error is due to the large proportion of excluded stocks compared to the two aforementioned indices. The S&P 500 ESG future has outperformed its parent index by 1.25% on an annualised basis<sup>3</sup>. While outperformance is typically welcomed, some investors may be averse to higher tracking error.

The S&P screening methodology is multi-layered. It will exclude companies that score poorly relative to their peers in the same sector, even if they meet the absolute ESG standards of inclusion. This approach results in far more exclusions than the other two ESG contracts. As of Q4 2021, it excludes 190 stocks, or 38% of the stocks in the parent index.

### Liquidity landscape

We have discussed three key factors which contribute positively to increasing liquidity of ESG contracts: 1) a keen interest in ESG issues among investors in the home region, 2) a parent contract that is both very liquid and also covers a wide span of the investment landscape of that region, 3) performance that closely tracks that of the parent index. Out of the three ESG contracts discussed above, STOXX 600 ESG is the one where all three factors work to its benefit, while S&P 500 ESG levels the field with by far the most liquid parent contract.

### Trading Costs

Bid/offer spreads are an important indicator of market depth and trading costs. A market that has tight bid/offer spreads, or shows a contracting trend, is one where market participants can increasingly trade with confidence without their trading causing large price impact. Tight or tightening bid/offer spreads help lower trading costs and minimise any post-trade alpha erosion.

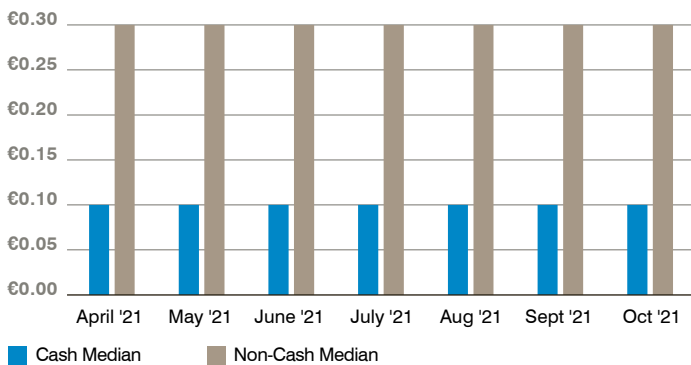
Cost minimisation is key for any trading desk, even more so for systematic portfolios which often rebalance daily or at higher frequencies. The majority of these costs arises through crossing bid/offer spreads. Understanding and identifying the optimal trading hours – when spreads are at their tightest – for each asset is therefore crucial. Within the futures market, spreads are often noticeably tighter during the cash trading hours of the respectively underlying asset; this certainly holds true for ESG futures.

We have analysed the three ESG contracts within this paper and found that bid/offer spreads are typically 50% tighter during cash trading hours of the underlying.<sup>4</sup>

<sup>3</sup> Analysis covers period from launch through to 30 September 2021.

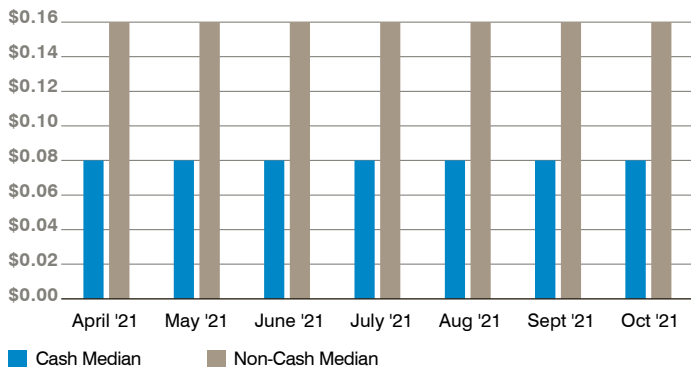
<sup>4</sup> We have denoted time periods as 'cash hours' or 'non-cash hours' for each contract, based on when their respective underlying trades. The sample data uses the bid/offer spread every minute, with a six month look back period.

### STOXX 600 ESG futures average spread



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### E-mini S&P 500 ESG futures average spread



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As shown above, for the S&P 500 ESG, the median bid/offer spread reduces from 0.16 to 0.08 index points when we go from non-cash into cash hours. The median STOXX 600 ESG spread during cash hours is 0.10 index points, increasing to 0.30 during non-cash hours. These results show that understanding the liquidity dynamics of each individual market can have a material impact on implied trading costs. Within our sample analysed above, trading these ESG futures outside of their respective cash hours would increase spread costs on average by 100-200%. For strategies that frequently rebalance, the accumulated cost of paying this spread can be highly significant.

Data suggests we are likely not too far away from ESG futures being fully viable in terms of costs for systematic portfolios that actively rebalance. Shown in the table below, bid/offer spreads of the ESG contracts may seem slightly large relative to their parent contract, though we must consider that these parent futures are some of the most highly traded and liquid equity contracts worldwide, thus a spread between the two is to be expected. Relative to observed volatility during the sample period, which displayed an average daily range of 56.81-74.90 bps, a spread to mid below 3 bps across all three contracts can be viewed as reasonable from an execution trading perspective.

Index	Parent Spread bps	ESG Spread bps	Avg Daily Move bps
S&P 500	0.57	2.16	56.92
OMX 30	1.09	4.51	74.90
STOXX 600	2.18	5.79	56.81

Average bid/offer spread in Bps during respective cash hours across sample period.  
Average daily absolute price change in Bps across the sample period.

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A key consideration for including these ESG futures in a systematic portfolio is that of execution timing. In our view, liquidity and daily volumes have reached a level where the inclusion of these contracts into a systematic portfolio can be implemented with reasonable trading costs, assuming execution is contained within cash hours.

#### Looking towards the horizon

The ESG landscape has evolved dramatically over the past few years and the number of tradeable ESG assets continues to grow. One of the biggest recent developments in the ESG futures space was the launch of the MSCI Climate Paris Aligned Futures in February 2022<sup>5</sup>. The stated aim of these new listings is to allow investors a US dollar denominated means to align exposure with a net zero world. The construction of these indices uses key climate metrics and models, including climate value-at-risk, low carbon transition scores and companies' carbon emission reduction targets.

We will be keenly observing how the market structure and liquidity of these contracts evolves over time. As with the existing tradable ESG futures examples we have examined in this paper, it will take some time for the liquidity profile of these new contracts to develop before we can begin to consider them in the systematic space.

<sup>5</sup> [https://www.theice.com/publicdocs/futures\\_us/exchange\\_notices/ICE\\_Futures\\_US\\_NewMSCI\\_20220113.pdf?utm\\_source2=ICE\\_Futures\\_US\\_NewMSCI\\_20220113](https://www.theice.com/publicdocs/futures_us/exchange_notices/ICE_Futures_US_NewMSCI_20220113.pdf?utm_source2=ICE_Futures_US_NewMSCI_20220113).

Over time, we hope that ESG contracts can become benchmarks and dominant protagonists. As active traders and keen market observers, we would naturally gravitate towards this liquidity. This would allow us to help speed up the transition from traditional contracts to ESG successors, as well as to play our part as investors in the transition to a more sustainable world.

We hope the insight we have provided in this paper encourages others to also explore the world of tradeable ESG assets and support the positive momentum within this space.

For more information, please visit [GAM.com](https://www.gam.com)

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