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STOXX TRU UK INDICES – A MORE PRECISE BENCHMARK FOR UK EQUITY INVESTMENTS

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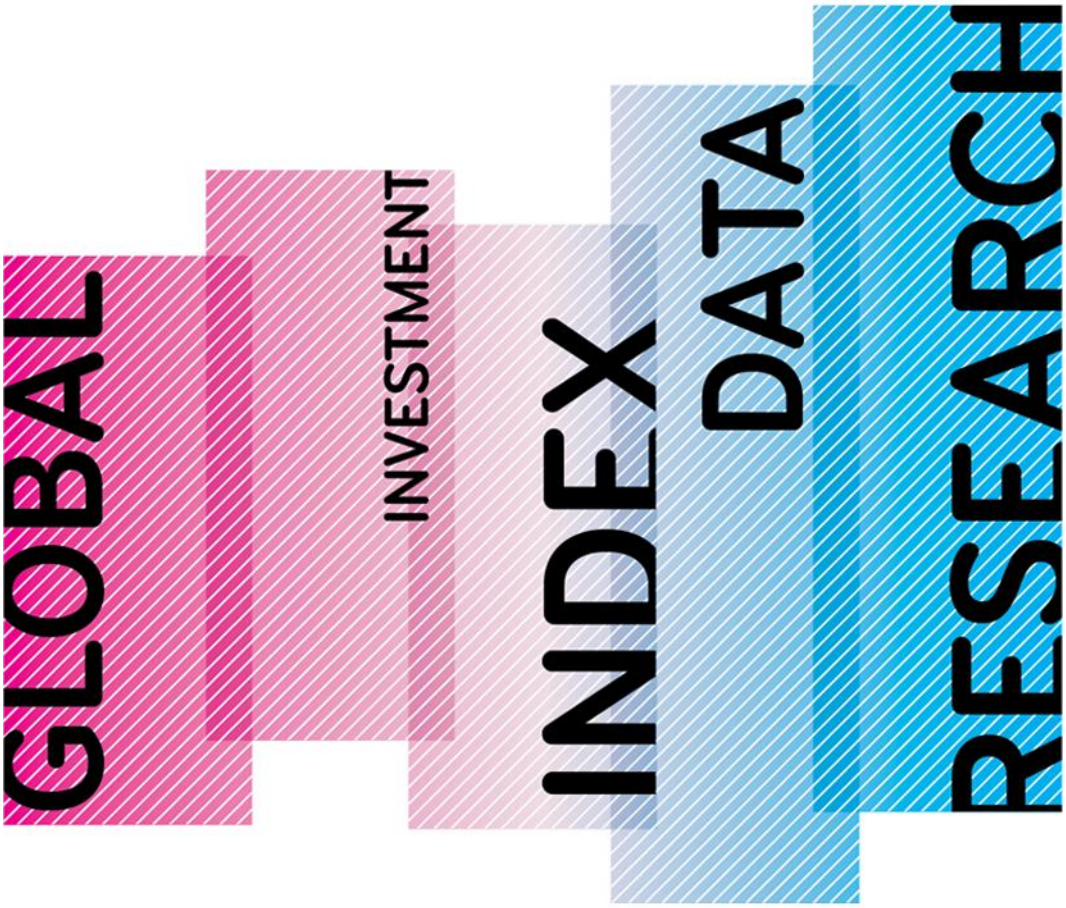

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Introduction

Since the vote of UK citizens in favor of leaving the EU in June 2016 and the more recent triggering of Article 50 by the UK government, the effects of this historical decision have been played out in the markets. Now is the right time to conduct a thorough analysis of the impact of "Brexit" on UK listed equity.

Our analysis shows that the driving parameter behind listed equity's reaction to both, the initial referendum and the longer-term economic condition is the revenue exposure of UK domiciled companies to the UK's economy. The empirical results indicate that the higher a company's revenue entanglement with the UK is, the higher was the negative impact of the Brexit vote on firm value. In order to demonstrate this effect, we take a closer look at the relationship between company-level revenue exposures to the UK and stock price performance, as well as the impact of the depreciation of the British Pound (GBP), measured over the course of time since the referendum.

But what does this mean for investors? Portfolios that include companies that are not only domiciled in the UK but additionally generate a substantial portion of their revenue within the UK provide investors with a vehicle that captures the local economic characteristics of the UK to a much better extent than traditional regional benchmarks. STOXX TRU UK indices, available with four different minimum revenue exposure thresholds to the UK of 25%, 50%, 75% and 100% represent such portfolios. These more focused and concise benchmarks allow investors to invest more closely aligned with their convictions: Those who have a positive view on the future economic development of the UK may chose a long position in a STOXX TRU UK index while those with a pessimistic view may use a short position in STOXX TRU UK indices as hedge. We will touch upon these use cases throughout the paper.

UK Market Overview

STOXX True Exposure UK indices allow us to analyze the characteristics of stocks grouped by varying levels of revenue exposure to the UK economy. Figure 1, below, details the breakdown of the exposures of both, the respective STOXX TRU UK indices as well as of the STOXX UK 50 and STOXX UK 180, two standard UK benchmarks that select the largest 50 (and respectively, 180) companies domiciled in the UK, irrespective of their regional source of revenue generation.

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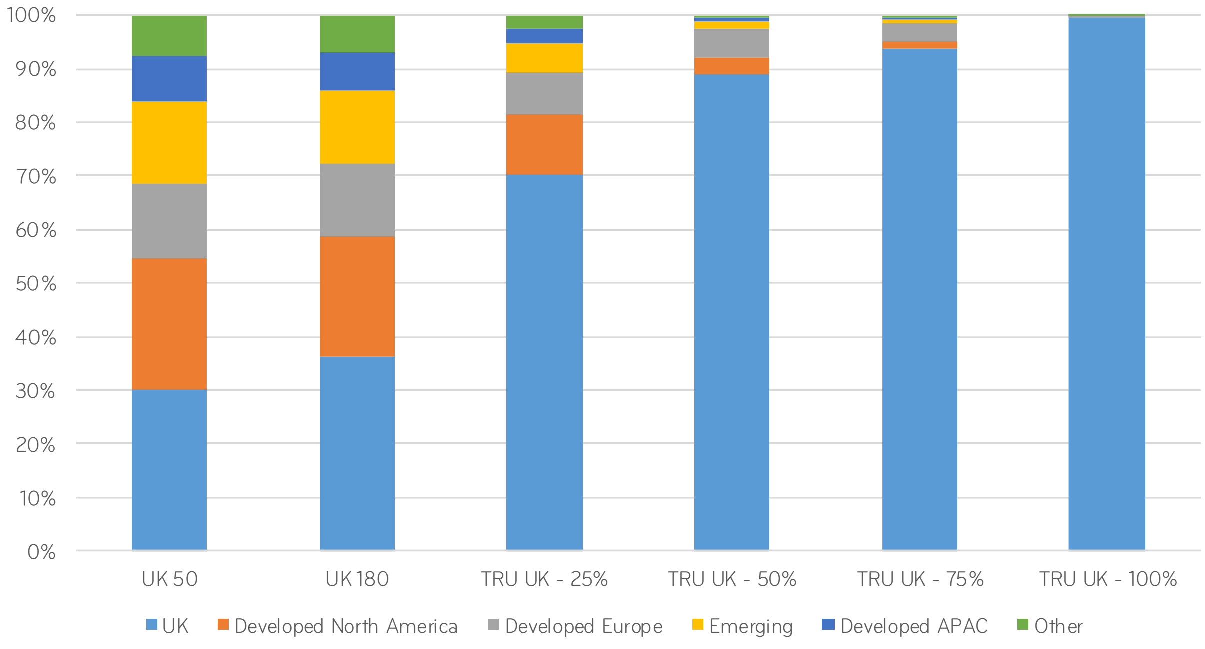

Figure 1: Revenue exposure of STOXX UK 50, STOXX UK 180, STOXX True Exposure UK 25%, STOXX True Exposure UK 50%, STOXX True Exposure UK 75%, STOXX True Exposure UK 100% to key markets

Presumably surprising to most readers, traditional UK benchmarks have a revenue exposure to the UK economy of less than 40%. This is primarily due to large international corporates with globally diversified revenue streams, choosing to list in London. STOXX UK True Exposure indices, on the other hand, have been designed to counter this effect by selecting only companies that have a defined minimum exposure to the UK economy. Consequently, an increase in the required minimum exposure leads to a subsequent increase in effective revenue exposures to the UK. Hereby, the impact of a revenue filter is found to be the highest for the most conservative STOXX TRU UK index: the exclusion of UK companies that do not even generate 25% of their revenue within the UK increases the resulting revenue exposure of the STOXX TRU UK 25% index all the way up to 70%.

Revenue Exposure and Risk-Return Characteristics

Having made the revenue exposures of our six sample indices explicit, we now focus on the analysis of risk and return characteristics. As we are specifically interested in understanding the impact of the Brexit on listed UK equity, we subject the empirical analysis to the time period starting with the date of the UK referendum. Absolute performance figures are represented in Figure 2, performance statistics are presented in Table 1.

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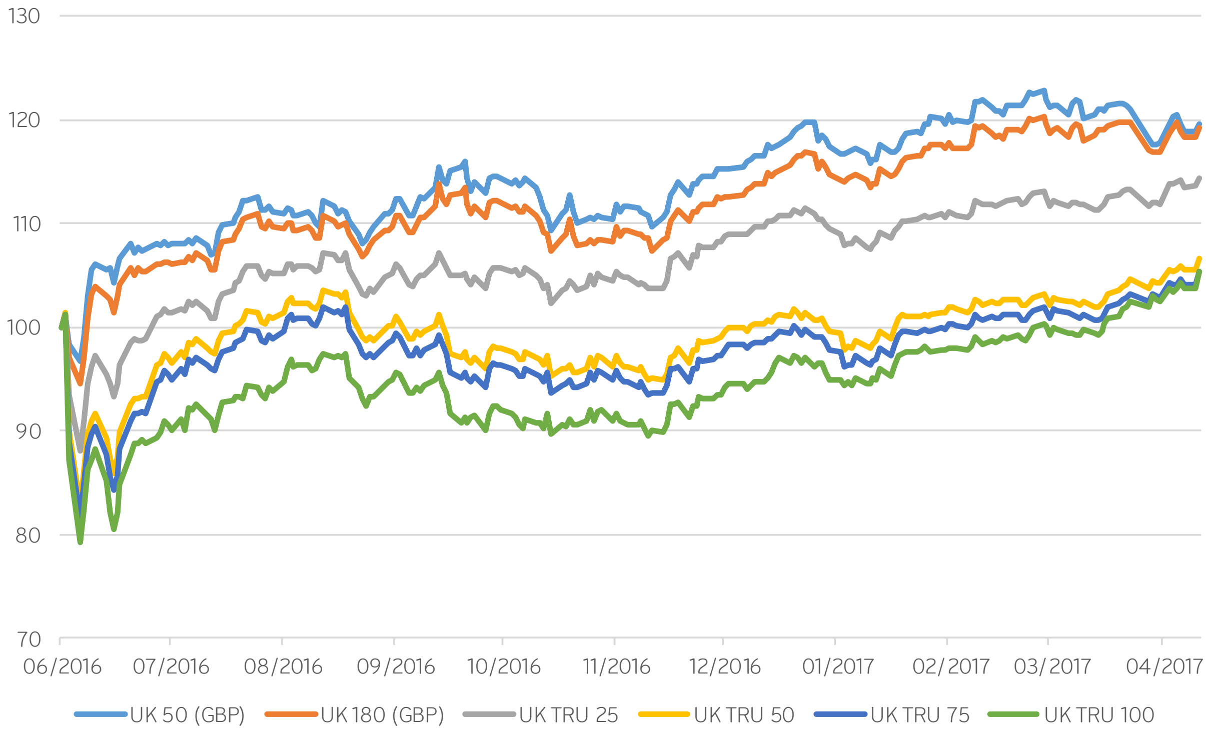

Figure 2: Performance of STOXX UK 50, STOXX UK 180, STOXX True Exposure UK 25%, STOXX True Exposure UK 50%, STOXX True Exposure UK 75%, STOXX True Exposure UK 100% from 22/06/2016 to 26/04/2017 (GBP NR)

	UK 50	UK 180	UK TRU 25	UK TRU 50	UK TRU 75	UK TRU 100
Return	20.2%	19.3%	13.8%	5.3%	4.0%	3.4%
Volatility	12.6%	13.0%	16.3%	21.1%	22.2%	25.0%
R/R	1.61	1.49	0.85	0.25	0.18	0.14
Max DD	-5.6%	-6.6%	-13.2%	-18.5%	-19.6%	-21.8%

Table 1: Performance Statistics of STOXX UK 50, STOXX UK 180, STOXX True Exposure UK 25%, STOXX True Exposure UK 50%, STOXX True Exposure UK 75%, STOXX True Exposure UK 100% from 22/06/2016 to 26/04/2017 (GBP NR)

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The extent of UK economic exposure is found to have had a clear impact on performance: The referendum, widely assumed to have negative consequences on the UK economy, is found to have had an impact that was the more negative, the higher the respective indexes economic exposure to the UK. While the STOXX UK 50 index barely decreased in value, the STOXX TRU UK 100%, the index with the highest exposure to the UK, drew down by as much as 20% and just recently recovered from its losses. This, for one, highlights the efficiency of equity markets as the effect was priced into equity valuations immediately after the event and secondly highlights the ability of the True Exposure indices to capture the market sentiment towards the UK's economic prospects. The differentiated reaction to the Brexit event is further supported by an increase in risk, i.e. volatilities and drawdowns (see Table 1).

Currency Impact

In addition to the immediate impact of the British referendum, relative performance figures as displayed in Figure 3 below, further show that the behavior of STOXX UK True Exposure indices differed from that of standard benchmarks also after the Brexit referendum. Assuming that the value of the British Pound provides a proxy for the (perceived) state of the UK economy, we make use of the Bloomberg Pound Index as a real time indicator in order to explain the performance difference between STOXX TRU UK indices and traditional benchmarks (represented by the STOXX UK 180). In Figure 3 below, we note two significant drawdown periods. The first being the immediate effect in the wake of the referendum, and the second being a more drawn out effect lasting from early September to mid-October 2016 during which the likelihood of a "hard" Brexit, that is an exit from the EU without a deal that would maintain the UK's access to the single market, further manifested itself. The implication of this is that while a large proportion of the effects of uncertainty and potential economic slowdown as a result of Brexit have been priced in, further developments as negotiations begin are very likely to have a significant impact on markets. STOXX UK True Exposure indices provide the perfect tool to implement a Brexit based investment strategy or hedge to profit from or protect a portfolio against these implications.

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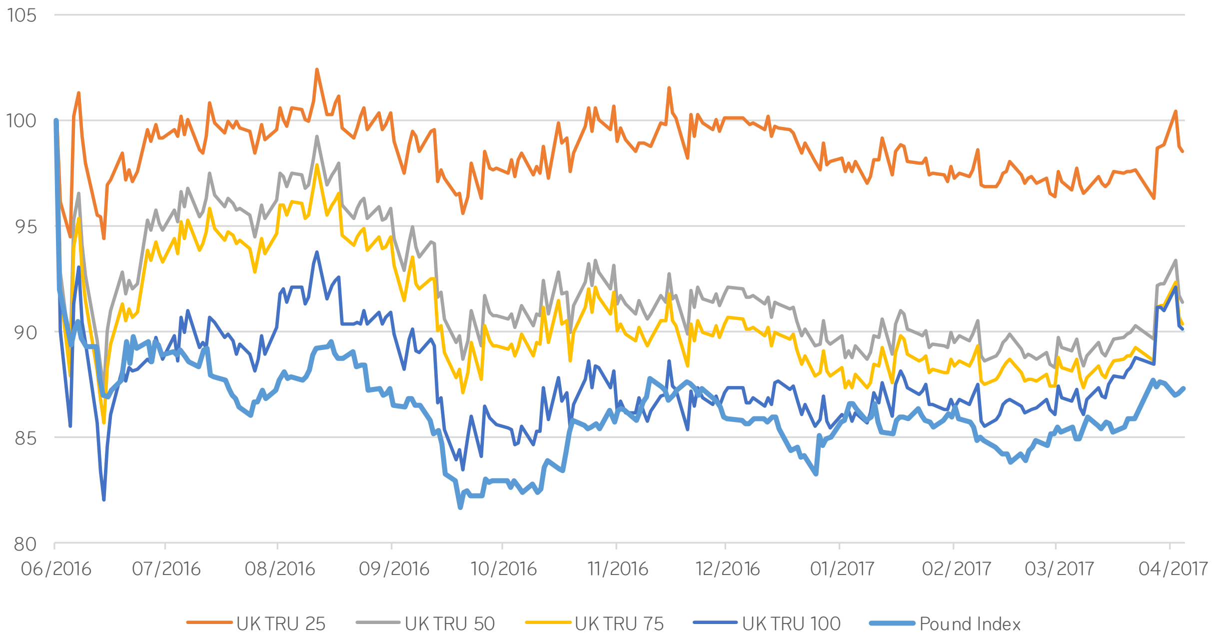

Figure 3: Excess performance of STOXX True Exposure UK 25%, STOXX True Exposure UK 50%, STOXX True Exposure UK 75%, STOXX True Exposure UK 100% over STOXX UK 180 from 22/06/2016 to 26/04/2017 (GBP ER)

Figure 3 suggests that a significant proportion of the underperformance of the STOXX UK True Exposure indices can be attributed to the depreciation in the pound as there appears to be a clear positive correlation between the two. This initial conclusion, drawn based upon the graphical representation is further supported when regressing the weekly excess returns against the percentage change in the pound index. For the case of the index with the highest focus on the UK, STOXX TRU UK 100% index, we find a statistically significant beta of 0.92, indicating a high sensitivity to changes in the valuation of the British Pound. The R-squared of the regression is 59%, suggesting that 59% of the variation of excess returns can be explained by movements in the currency.

To further investigate the currency impact on the performance of indices of varying degrees of UK exposure we regress the weekly (long only) returns of our two traditional benchmarks (STOXX UK 50 and STOXX UK 180) as well as those of the four STOXX UK True Exposure indices against the percentage changes in the pound index. The results of the regression, coefficients and p-values detailed in Table 2, provide evidence that the exchange rate is a key performance driver.

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	STOXX UK 50	STOXX UK 180	STOXX TRU UK 25	STOXX TRU UK 50	STOXX TRU UK 75	STOXX TRU UK 100
Coef	-0.27	-0.10	0.40	0.83	0.93	1.17
P-val	0.013	0.346	0.002	2.91E-06	9.78E-07	5.98E-08
R Squared	14%	2%	20%	42%	45%	52%

Table 2: Regression statistics of STOXX UK 50, STOXX UK 180, STOXX True Exposure UK 25%, STOXX True Exposure UK 50%, STOXX True Exposure UK 75%, STOXX True Exposure UK 100% GBP NR weekly returns from 22/06/2016 to 26/04/2017

We observe a clear trend in that the higher the UK exposure, the more sensitive the index is to the pound. This effect can be explained twofold, the direct currency impact and the correlation impact: For one, those companies reporting in GBP with little revenue streams in GBP, benefit from the depreciation of the pound, as their earnings in other currencies rise on a relative basis, whereas companies that, for example, have all of their earnings in GBP are severely impacted by the fall. This is the direct impact. Secondly, the impact we observe both on the pound and the high exposure indices is due to the increased uncertainty and potential economic headwinds facing the UK as a direct result of Brexit. This is the correlated effect.

Building tactical positions using STOXX TRU Indices

STOXX UK True Exposure indices allow investors to take a more focused position on the UK economy than via standard benchmark indices. For example, an investor who deems the negative impact of Brexit on the UK economy to be exaggerated by the market could take a long position in the UK True Exposure 100% index rather than traditional benchmark indices as this would result in superior returns should his convictions turn out to be correct. As observed in figure 3 above, the STOXX UK 100, the "highest conviction" strategy" outperformed traditional UK benchmarks in recent weeks in line with an appreciation in the British Pound.

Conversely, market participants who seek positive exposure to an underperforming UK economy could take a short position in the UK True Exposure 100% combined with a long position in the UK 180 in order to hedge out some market risks.

Individual Stocks Example

Finally, we consider a specific example of two single stocks within the same industry, one with top decile the other with bottom decile UK revenue exposure. For this example, we have selected Lloyds Bank, a financial institution with a focus on UK retail banking and Standard Chartered, which while headquartered in London, has its roots in South Africa, India, Australia and China and derives more that 90% of its revenues from outside the UK.

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The divergence in performance between the two stocks, over the post referendum period, illustrated in Figure 5, bares a strong resemblance to that of the relative performance of the top level indices in Figure 2. As previously observed, most of the divergence occurs in the immediate aftermath of the referendum, and persists for the remaining sample period. The globally diversified Standard Chartered significantly outperforms the domestically focus Lloyds Bank.

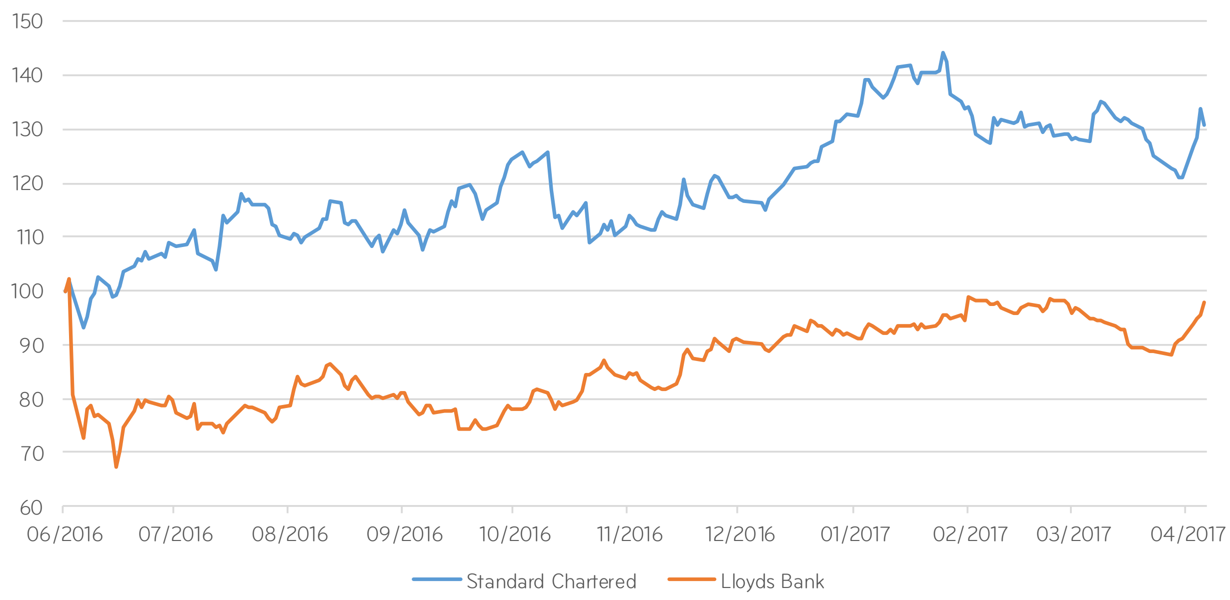

Figure 4: Performance of Standard Chartered and Lloyds Bank (rebased to 100 as of 22/06/2016) from 23/06/2016 to 26/04/2017

Conclusion

In summary, the effect of the decision of the UK to leave the EU on UK listed equities has been twofold, those companies with an internationally diversified revenue stream and little exposure to the UK economy benefitting from the weakened pound and those companies that have the majority of their revenues in the UK suffering sharp declines in their stock prices as a result of the weakened currency and the uncertainty and potential headwinds for the UK economy as we approach Brexit. This presents a vast array of opportunities to take advantage of divergence in UK equity indices by implementing investment strategies using STOXX UK True Exposure indices.

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About STOXX Limited

STOXX Ltd. is a global index provider, currently calculating a global, comprehensive index family of over 7,000 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 regions Americas, Europe, Asia/Pacific and sub-regions Latin America and BRIC (Brazil, Russia, India and China) as well as global markets.

To provide market participants with optimal transparency, STOXX indices are classified into three 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 indices that are branded "STOXX" and "iSTOXX" 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 carry the STOXX brand in the index name.

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STOXX is part of Deutsche Börse Group, and markets the DAX indices.

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