

MIFID II/R ASSESSMENT & ARTIFICIAL INTELLIGENCE IN MARKETS

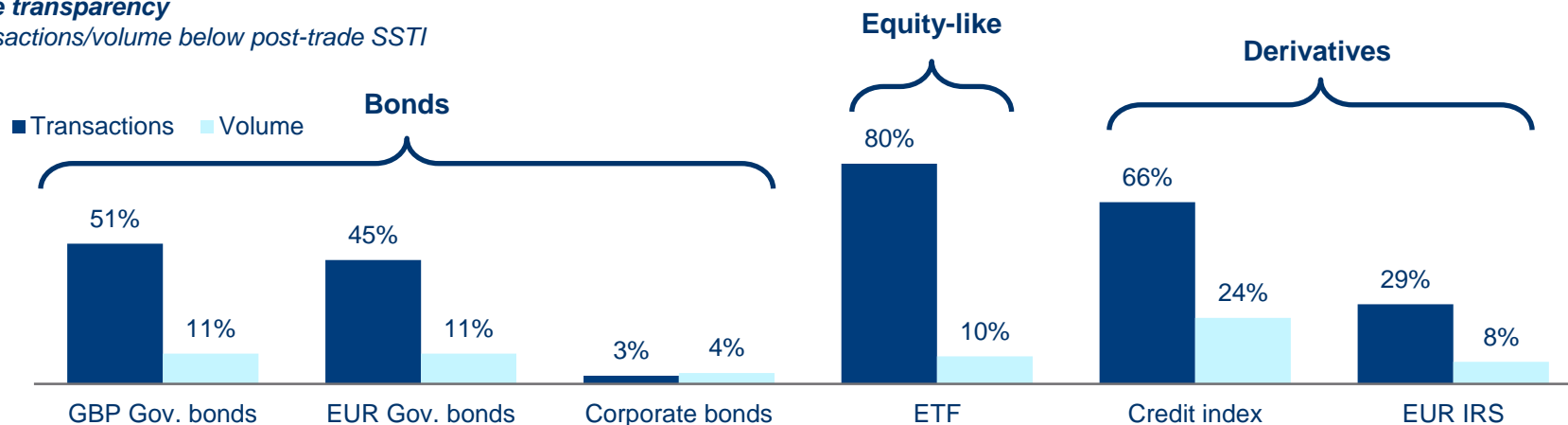
ECB BOND MARKET CONTACT GROUP

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MiFIR Transparency Update

Real-time transparency

% of transactions/volume below post-trade SSTI



Overall level of transparency

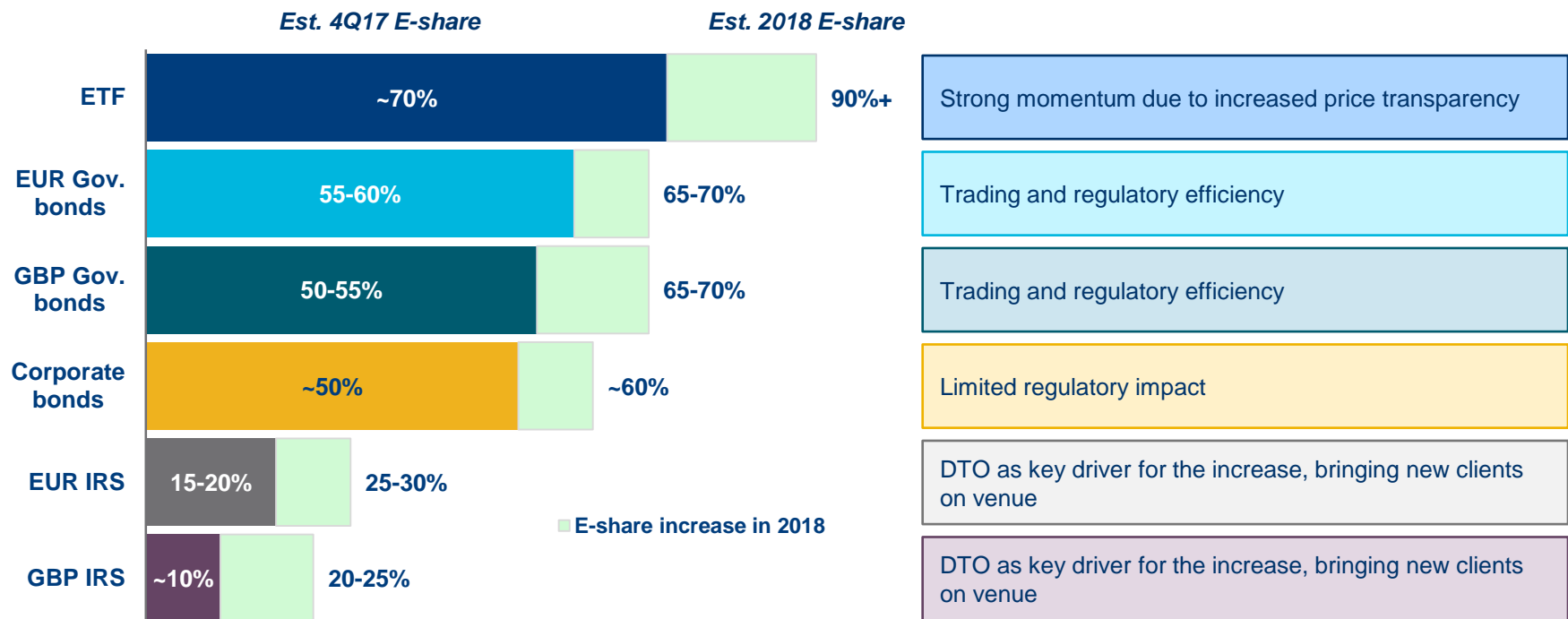
- Transparency rules did not create the somewhat feared market disruption
 - Investment and cooperative effort with regulators
- Challenges with market-specific rules: Gov't. bonds vs Corp. bonds vs ETF
 - Real time transparency confined to small transactions but has not deterred on-venue trading
 - Challenges with data availability and scope have slowed down investor behavioural change
- Lack of conformity in application of transparency rules add to the challenge in meeting regulatory objectives
 - Exception being RTS 27 and 28 reports where ESMA imposed standardization
- Static data quality could be improved by enhanced regulatory ownership
- **Regulatory trajectory will continue to impact markets in next couple years including but not limited to: derivatives reform and new effective clearing mandates, SFTR, and last but not least Brexit...**

MiFID II Impact on Various Asset Classes

Post MiFID II, increased electronic trading volumes & market-wide behavioural changes

- New clients and new types of clients trading more electronically – e.g. hedge funds
- Clients adapting their behaviour to electronic trading
 - Trading on venue even where not required (early adopters + ease/efficiency of trading electronically)
 - Consistency of workflows – STP / electronic audit trail
 - Less errors
 - Best execution requirements

Estimated electrification evolution



Machine Learning

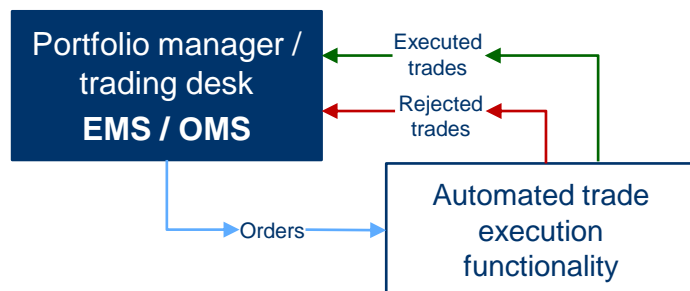
- Artificial Intelligence and Machine Learning technologies being extended from consumer markets to wholesale financial markets... But still very embryonic development in Fixed Income bond markets
- AI as a new branch of science embracing several different fields of academia



- Artificial Intelligence and Machine Learning are everywhere:
 - Advances in chat, voice, language
 - Data processing and trade execution
 - Price generations, liquidity seeking, quant modeling
 - Technology development and testing
- AI and machine learning will evolve in markets**
- Technology will not replace everything
 - Market participants / traders still there → changing functionality
 - Technology still infantile (needs rational drivers)
 - ***Key to successful implementation is to develop a symbiotic relationship between humans and new technologies as well as having a robust control environment...***

Buy Side – automated execution

- Pre-programmed execution rules tailored to each client's trading strategy
- Good fit for significant low-touch business



Evolution
From Simple execution rules to
decision making rules (time → liquidity
search → market conditions)

Sell Side Algo trading

- Increasing number of market makers have algo desk with separate trading book / risk from voice desk
- Algo trading tools more prevalent in certain financial instruments, e.g. Equities and FX
- Examples in Fixed Income:
 - Pre-trade: algo pricing
 - Intra-trade: algo trading performance monitoring (e.g. quote rate, hit rate, stream slippage)
 - Post-trade: Dealer and client specific reporting based on algo trading data

Discussion Points

- For what trade sizes and levels of product liquidity does real-time transparency start to disincentivise liquidity provision in the EU government bond market (given the current MiFID II publication deferral regime)?
- Will regulation or technological innovation have a greater impact on market participants adapting their behaviour to electronic trading?
- Why has AI not been adopted more quickly in bond markets (specifically government bond markets)?
- What will be the potential impact of different transparency regimes and product liquidity assessments as a result of Brexit?