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As markets evolve: Are underlying structures changing?

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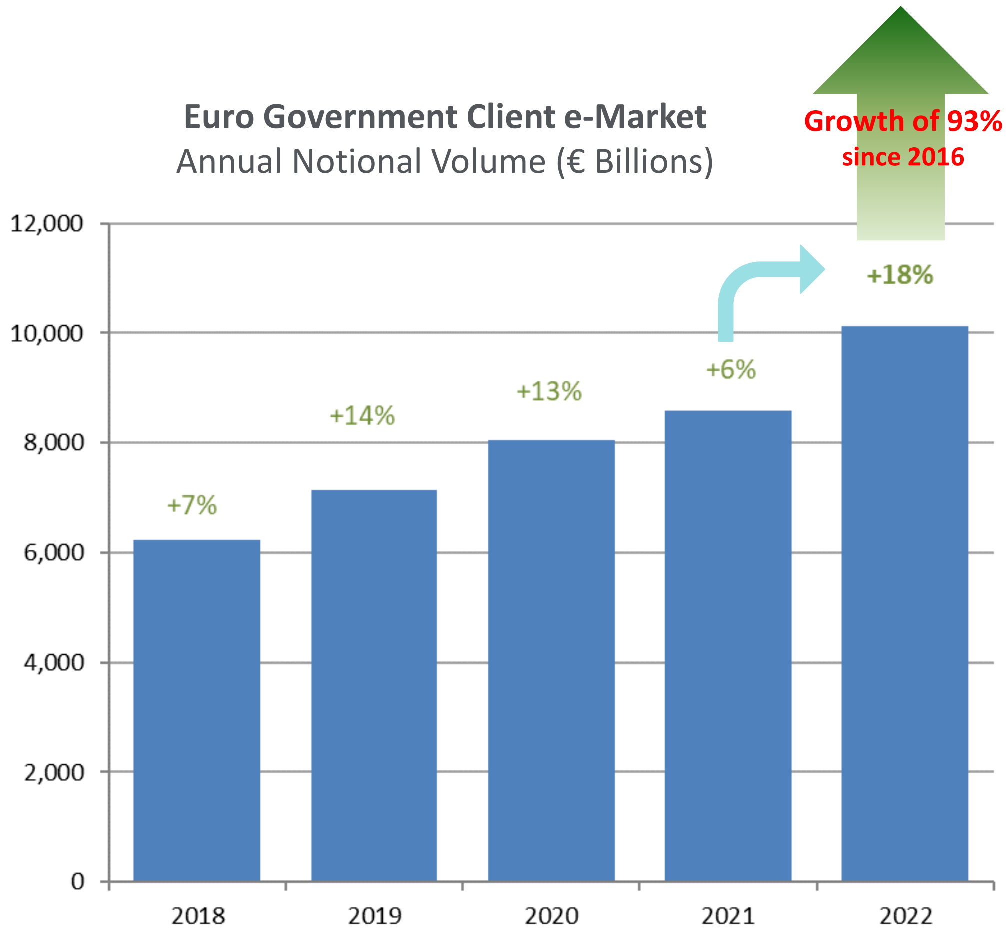
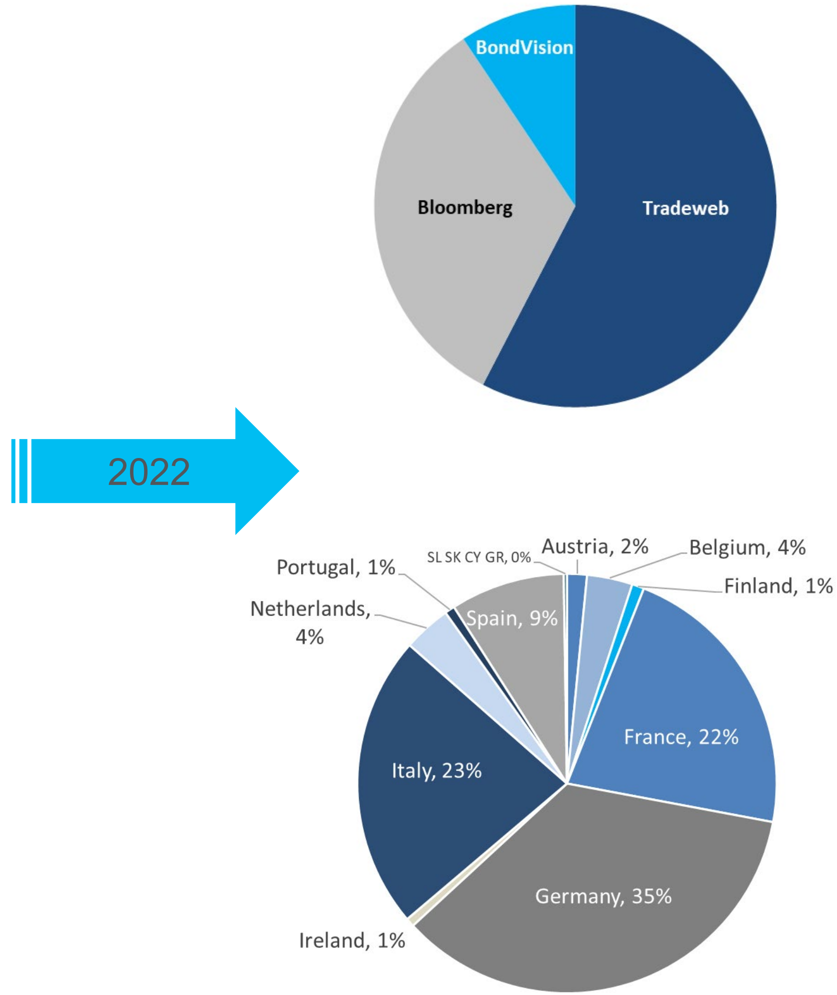
Pace of Trading Automation continues

Electronic volume records continue to be broken year on year since 2016



Source: Tradeweb, Bloomberg, BondVision



Automated execution strategies: Continuous Advancement

All EGB secondary market participants remain motivated to increase automation of execution

→ *Fundamentally for same reasons as 4yrs ago: Addressing client demand for a better outcome   Reducing costs & errors*
Increasing price accuracy & efficiency   Freeing "eyes" to focus on larger risk trades   Compliance

Market Makers: Inter-dealer

- Automation has evolved from fulfilling quoting obligations to **continuously improving price accuracy and speed**
- A subset are thought to have evolved further to **fully automated strategies**:

➔ EGB dealer algo: "ms" speed matters in inter-dealer markets

***__Co-located market makers more than tripled to double digits__ in 4yrs[1]

Dealer D2D Algo = Auto-order execution + Auto-hedge execution

Market Makers: Dealer-to-client

- Noticeable uptick in market makers deploying **fully automated strategies:**

Dealer D2C Algo = Auto-RFQ response + Auto-hedge execution

➔EGB Dealer algo: In 4 yrs,**18% to 48%** tkts done in 2secs, 5-7% dv01

*** **1 in 2 tickets now executed in 2secs**[2] ***

Compare UST: 60% tickets stable for last 4yrs, 30% dv01. Suggests algo drive peaked earlier.

DV01 remains low in EGB, algos focused on "small liquid products"

➔"Fixed income algo trader" has become a normal front office trading role

Liquidity Takers: Dealer-to-client

- Last 4 years have seen clients dramatically increase use of **automated rules engines**
- These rules engines are implemented by the platforms and **translate the client's best execution policy into a few simple automated rules:**

Client D2C Algo = Group RFQs into a List from OMS to Venue + Auto-Select Dealers in RFQ + Set Auto-execute conditions: Require min x responses within max y secs; within z tolerance to close/target/composite + Auto-select Winning Dealer

➔ EGB client algo: In 4yrs, 34% to 66% tickets done through client algo (7% to 9% DV01)

*** **2 in 3 tickets now executed through "no touch" client algos**[3] ***

➔ Highlights client algo suitability is skewed to small size tickets due to objective criteria

1 2 3 Footnotes and all stats sourced from relevant/significant venue in each case

Automated execution strategies: Market Impact

eTrading has increased market efficiency

*Note: **Supporting increased automation requires management of multiple aspects -** Continuous investment to ensure competitive offering, compliance to risk management policies, higher execution and data costs, awareness of regulatory changes.*

Benefits

Virtuous Liquidity Circle

Data

- Increased availability of data provides ability to further improve pricing and to analyse flows/revenue

Automated Execution

- Increased Innovation from all participants
- New products: Venues continuously innovating e.g. odd lot matching, basis trading, firm pricing

Pricing

- Increased confidence in prices generated
- More price transparency improves attractiveness of bonds as asset class
- Tighter prices

Risk management

- Optimised hedging
- Increased certainty, reduced basis risk, reduced market impact

Trends: Game Changers?

- Inter-dealer Markets:
  - ➔ EMEA: New entrants emerging: non-bank High Frequency Trading firms (HFTs)
  - ➔ US: Principal Trading Firms (PTFs) dominate liquid products
    Market making banks represent majority in less liquid products
- Dealer-to-client Markets:
  - ➔ Hedge Funds demanding streamed firm pricing in order to connect to their existing systematic trading strategies
- Venue Operators:
  - ➔ Inter-dealer markets adding RFQ functionality
  - ➔ Dealer-to-client markets adding firm pricing UST (with last look) & EGB (no last look)

Initiatives blurring the line between D2D and D2C?

Automated execution strategies: Market Structure

So… has the Underlying Market Structure changed?

EGB Market Structure

- Significant increased use of "algos" across the board has been:
  - Mainly technology- and data-led
  - Mainly focused on small-sized trades in liquid instruments
  - Mainly leveraging on existing trading protocols i.e. no agency-style TWAP/VWAP yet….
- No evidence at this stage that the **Underlying Market Structure** has changed or will change imminently
- Market predominantly remains:
  - Bifurcated: D2D and D2C
  - Principal: Risk taking Liquidity Providers and Price Takers (clients)
  - Institutional
  - RFQ
  - Relationship-based
- Bilateral risk taking has thus far proved to be critical for:
  - Bespoke, large and illiquid trades
  - Providing liquidity in stressed market conditions
  - Providing ability to absorb big imbalanced flows

UST Market Structure - comparison

- Specific characteristics mean that UST secondary market has evolved into a more "algo-rich" structure than EGB i.e.
  - Fewer, larger, more liquid UST cash benchmarks vs EGBs
  - Therefore fewer, deeper corresponding UST futures contracts
- Despite this, no evidence at this stage that the Underlying Market Structure has evolved or will imminently evolve to an all-to-all central limit order book

Discussion points

Group Discussion Points

1) Will evolving automated execution strategies eventually lead to **all-to-all** central limit order for liquid bonds?
   - Policy makers have considered enforcing clearing in bond markets to facilitate liquidity. Could this help?
   - Would a central limit order book lead to better tighter pricing? And what about better liquidity?

2) Should Issuers/policy makers be concerned with non-bank HFTs, particularly in times of stress?

   or

   could non-bank HFTs help unlock increasing capital restrictions facing banks?

3) Does/will increased use of algos by clients necessitate hiring of new skills (e.g. data, technology)?

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