MiFID II and algo trading/HFT:

ESMA’s draft RTS on Microstructural Issues

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Agenda

- **AFM involvement in ESMA level-2 work**
- **Recap: Key points from level-1**
- **Overview of level-2 issues in area of algo trading / HFT / microstructural issues**
- **RTS – focus on:**
  - Systems & Controls
  - Records of orders and clock synchronisation
  - Tick sizes
  - Market making requirements

Recap: Key points from Level 1

Policy objective: Regulating risks arising from algorithmic trading, with particular (but not exclusive) attention to HFT

Risks:
•Overloading of the systems of trading venues;
•Creating a disorderly market (i.e. generating duplicative or erroneous orders or otherwise malfunctioning);
•Overreacting to other market events which can exacerbate volatility;
•Market abuse / market manipulation
•Prompting other investors to move to dark pools

Scope:
•Firms that engage in algorithmic trading or high-frequency algorithmic trading techniques;
•Firms that provide direct electronic access (DEA);
•DEA users;
•General clearing members;
•Trading venues (RM, MTF, OTF)

MiFID-II treatment of market microstructure can be distinguished in four main buckets

A. Licensing and organisational requirements

- **Defining HFT, DEA, algorithmic trading**
- **Regulating HFT firms and members of trading venues**
- **Systems and controls for investment firms, DEA providers, clearing members, and trading venues**
  - Pre- and post-trade controls
  - Algo development, testing, and review
  - Systems resilience
  - Monitoring and surveillance
  - Due diligence
  - Governance, compliance, and documentation

B. Reporting, documentation and standards

- **Notification and documentation of algorithmic and HFT trading activity**
- **Algo flagging**
- **Exchange of order book data**
- **Synchronisation of business clocks**
- **Algo ID in transaction reporting**

C. Market microstructure

- **Volatility management (i.a. circuitbreakers)**
- **Tick sizes**
- **Order to trade ratios (OTRs)**
- **Fee structures**
- **Co-location**

D. Liquidity provision

- **Requirements for algo firms that undertake MM strategies (and market making schemes for TVs)**

Overview of draft RTS on Systems & controls for investment firms and trading venues

- Further specification of ESMA Guidelines (2012)
- Scope: undertaking algorithmic trading activities or facilitating them (trading venues / DEA providers / clearing members)
- Less discretion on basis of proportionality, due to nature of legal instrument (=RTS)

- **Key themes:**
  - Development, testing, deployment, and review of algos and trading systems
  - Systems capacity and resilience
  - Pre-trade/post-trade controls
  - Monitoring and alerting (disorderly trading and market manipulation)
  - Kill Buttons
  - Systems security
  - Outsourcing
  - Governance Framework

Draft RTS on Systems & controls: key issues and changes from the DP

- Frequency of reviews changed to annually
- More realistic requirements on IT security
- Requirements on outsourcing added
- Venue-by-venue non-live testing requirements unchanged
- Default pre-trade controls slightly tweaked
- Automated alerting required for market manipulation surveillance
- DEA: no analysis of source code by broker required, however strong focus on due diligence

Obligation to maintain records of orders for firms engaging in HFT algorithmic trading technique

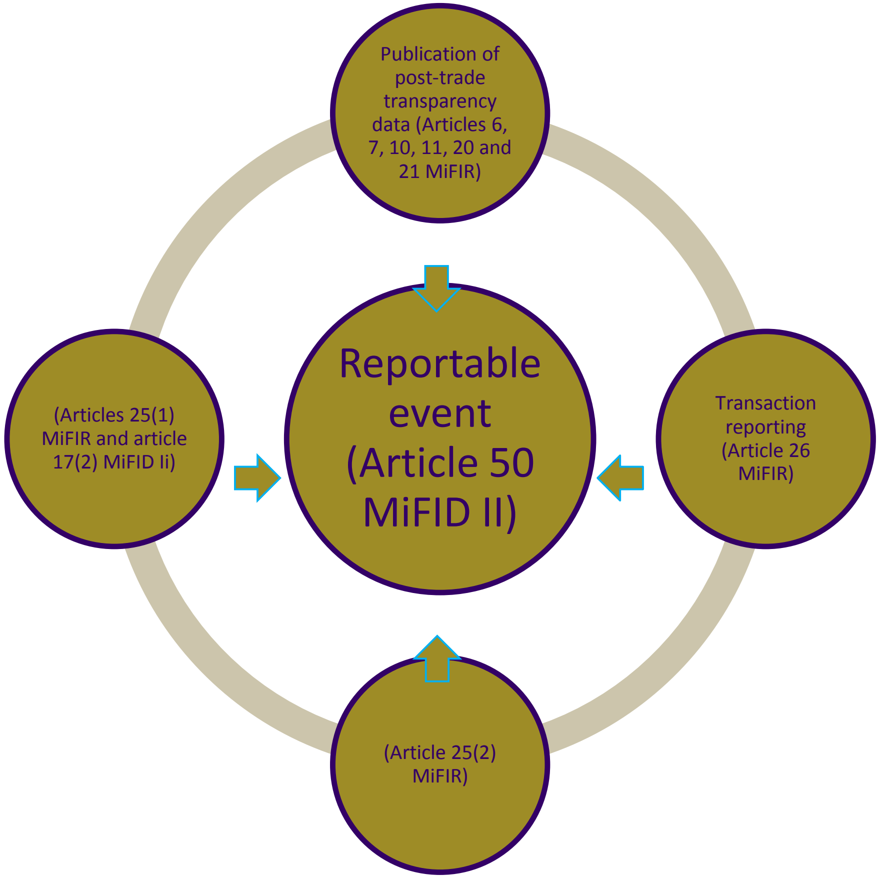
- Content and format of records of placed orders
- Record keeping period: five years

Additional required information under article 17(2) <u>for each placed order</u>:

- internal timestamp (accommodating granularity of a nanosecond)
- timestamp by the trading venue (accommodating granularity of a nanosecond)
- sequences
- unique internal identifier
- identifier provided by the trading venue

Synchronisation of business clocks (1)

Article 50:
Member States shall require that all trading venues and their members or participants synchronise the business clocks they use to record the date and time of any reportable event.



Synchronisation of business clocks (2)

Elements to be considered when specifying the level of accuracy

- Requirement to synchronize to a common time source
- Requirement to have internal clocks able to reach a certain time granularity
- One microsecond maximum divergence permitted with respect to the reference atomic clock
- Timing and frequency of the synchronization with the reference clock for each type of entity

Tick sizes: recap from the DP

- **Option 1**:
- Granular, two-dimensional (double entry) tick size table
- Each share, depending on its liquidity profile and its price, will be assigned a tick size
  - Dimension A = share's liquidity profile (i.e., avg. numbers of trades per day).
  - Dimension B = price of the shares, expressed in monetary units and grouped in ranges.

- **Option 2:**
- Binary tick size table (liquid/non-liquid)
- Single common tick size table, modeled on the existing FESE Table 2
- Liquidity profile based on MiFID definition of "liquid share"
- Application of "spread adjustment factor" (SAF)

Tick sizes: approach taken in draft RTS

- Options 1 and 2 merged, on basis of three main principles:
  - Ease of understanding→ simplification of TS table, based on modified FESE table 2
  - Reduction of operational complexity → no SAF or national discretion, but per-group of instruments approach
  - Sufficient granularity to reduce orderbook flicker
- Scope: shares, depositary receipts and certificates traded on it
- Tick size of ETFs treated as most liquid shares (i.e. most granular tick size to be applied)
- Tick size depends on average number of trades per day on most relevant market in terms of liquidity
- Further elaboration of operational issues, such a initial listing and corporate actions
- Annual review of tick size regime by ESMA: proposal to COM for revision of RTS

The draft final tick size table…

Liquidity bands							
Price ranges			0-100	100-500	500-2000	2000-15000	15000-
0	≤…<	0,1	0,0002	0,0001	0,0001	0,0001	0,0001
0,1	≤…<	0,2	0,0005	0,0002	0,0001	0,0001	0,0001
0,2	≤…<	0,5	0,001	0,0005	0,0002	0,0001	0,0001
0,5	≤…<	1	0,002	0,001	0,0005	0,0002	0,0001
1	≤…<	2	0,005	0,002	0,001	0,0005	0,0002
2	≤…<	5	0,01	0,005	0,002	0,001	0,0005
5	≤…<	10	0,02	0,01	0,005	0,002	0,001
10	≤…<	20	0,05	0,02	0,01	0,005	0,002
20	≤…<	50	0,1	0,05	0,02	0,01	0,005
50	≤…<	100	0,2	0,1	0,05	0,02	0,01
100	≤…<	200	0,5	0,2	0,1	0,05	0,02
200	≤…<	500	1	0,5	0,2	0,1	0,05
500	≤…<	1000	2	1	0,5	0,2	0,1
1000	≤…<	2000	5	2	1	0,5	0,2
2000	≤…<	5000	10	5	2	1	0,5
5000	≤…<	10000	20	10	5	2	1
10000	≤…<	…	50	20	10	5	2

… is based on extensive impact assessment and scenario analysis

	liquidity bands									
liquidity bands	0-100		100-500		500-2000		2000-15000		15000-	
Number of stocks	2830		619		445		873		6	
Spread to tick ratio distribution	Current situation	New regime situation	Current situation	New regime situation	Current situation	New regime situation	Current situation	New regime situation	Current situation	New regime situation
10th percentile	2,1	1,9	1,4	1,6	1,7	1,5	1,4	1,6	1,3	2,3
1st quarter	4,7	3,1	2,5	2,4	2,4	1,9	1,7	2,0	2,1	2,9
Median	**12,6**	**5,6**	**6,3**	**3,5**	**4,3**	**2,7**	**2,5**	**2,8**	**2,9**	3,3
3rd quater	33,9	10,7	14,0	5,6	7,9	4,1	3,8	3,9	3,4	4,3
90th percentile	78,3	20,2	26,0	9,5	13,5	6,7	5,6	5,6	4,0	5,4
Interquartile Range	29,2	7,6	11,5	3,2	5,5	2,2	2,1	1,9	1,3	1,4
Control Group	**16,0%**		**8,5%**		**38,0%**		**34,5%**		**78,5%**	
Roundup	25,6%		32,5%		40,5%		30,5%		0,0%	
Rounddown	14,4%		20,7%		3,5%		32,5%		18,8%	
Adjusted No Change	56,0%		61,7%		82,0%		97,5%		97,3%	
Increase	35,5%		28,8%		11,5%		0,0%		0,0%	
Decrease	8,5%		9,5%		6,5%		2,5%		2,7%	

Analysis based on 829,076 observations on 4,220 shares over a 1 year period, from 1st November 2012 to 31st October 2013

Market making strategies and schemes

Scope:
•Firms that engage in algorithmic trading to pursue a market making strategy
•Venues for which it is appropriate to offer market making schemes

When? → "Continuously" (=during specified proportion of trading hours, except under exceptional circumstances)

What?
Firms
•Enter into a binding written agreement with the trading venue
•Providing liquidity on a regular and predictable basis to the trading venue
•Have in place effective systems and controls

Venues
•Written agreements with all investment firms pursuing a market making strategy
•Schemes to ensure that a sufficient number of IFs participate in agreements
•Specifying the obligations of the IF and incentives offered
•Monitor and enforce compliance
•Inform NCA of content of agreements

Defining “market making strategy”

[W]hen, as a member or participant of one or more trading venues, [the firm’s] strategy, when dealing on own account, involves posting firm, simultaneous two-way quotes of comparable size and at competitive prices relating to one or more financial instruments on a single trading venue or across different trading venues, with the result of providing liquidity on a regular and frequent basis to the overall market.

Draft RTS:

- ‘simultaneous’: within **one second** of one another
- ‘comparable size’: size of the quotes **within 50%** of each other.
- ‘competitive prices’: quotes posted **within the average bid-ask spread**.
- in at least **one** financial instrument on a **single** trading venue
- ‘regular and frequent’: at least **30 %** of the daily trading hours during one trading day.

Market circumstances and market making requirements/incentives

V O L A T I L I T Y

Type of circumstance	Characteristics	Required presence time	Incentives
Exceptional	1. Extreme volatility (interruption of trading) 2. Political and macroeconomic events 3. Disorderly trading conditions 4. Investment firm unable to maintain prudent risk management: • Technological issues • Risk management issues (capital or clearing problems) 5. (for non-equity:) Suspension of pre-trade transparency by NCA *Exceptional circumstances do not include regular or pre-planned information events (e.g. publication of macroeconomic statistics)*	0%	--
Stressed	• Declared by trading venue • Price discovery process and liquidity materially affected by either: (a) Significant change in the number of messages; (b) Significant short-term changes in market volume; or (c) Significant short term changes in price (=volatility, includes “fast markets”).	>50%	Required, higher
Normal		>50%	Optional, lower (but: no incentives w/o MM scheme)

Annex: ESMA’s Technical Advice on the definition of algorithmic trading and DEA

TA: Definition and scope of algorithmic trading

→ **Triggers organisational (and other) requirements**

"Trading in financial instruments where a computer **algorithm automatically** determines **individual parameters** of orders **<u>such as</u>**:

- whether to **initiate** the order
- the **timing, price or quantity** of the order, **<u>or</u>**
- how to **manage** the order after its submission,

with **limited <u>or</u> no human intervention**,

and does **not** include any system that is **only** used for:

- the purpose of **routing** orders to one or more trading venues, or
- for the **processing** of orders involving **no determination of any trading parameters**, or
- for the **confirmation** of orders or the post-trade processing of executed transactions"

TA: Clarifications of the definition of algorithmic trading by ESMA

- Optimisation of order execution processes by automated means (=smart order routers, SORs) are <u>included</u> in the definition of algorithmic trading

- Arrangements are considered as algorithmic trading if the system makes independent decisions at <u>any stage</u> of the processes on <u>either</u> initiating, generating, routing or executing orders

- Definition excludes automated order routers that <u>only</u> determine the venue(s) where the order should be submitted <u>without changing any other</u> parameters of the order.

TA: Refining definition of Direct Electronic Access (DEA)

Relevance:

- **Systems and controls requirements for**
  - **DEA providers**
  - **Trading venues allowing DEA**
- **DEA users will be regulated**

Defining the scope of DEA

- *Not* in scope: web based applications that allow clients to transmit orders to an investment firm (broker) in an electronic format, but where client is:
  - subject to execution policy of the broker, and
  - does not have full discretion and control over all details of order entry process (e.g. order types, timing, routing)

- Use of SOR = agency algorithmic trading, but not DEA → Client has no control over all order parameters, exact moment of order entry, and order lifetime.

Questions?

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