



SPANISH EQUITY MARKET FRAGMENTATION and the AURIGA SOLUTION

“MiFID's best execution regime requires investment firms to take all reasonable steps to obtain the best possible result for their clients, taking into account: price, costs, speed, likelihood of execution and settlement, size, nature or any other consideration relevant to order execution”. (CESR The Committee of European Securities Regulators)

Private&Confidential

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1. BEST EXECUTION OBLIGATION & FACTORS - MiFID legislation

In conformity with MiFID legislation, intermediaries who execute orders on financial instruments on behalf of their clients are obliged to take all reasonable measures to obtain the best possible result (known as Best Execution). The Best Execution obligation applies to all financial instruments, whether they are listed or not on a regulated market and regardless of the trading venue (regulated markets, multilateral trading facilities or outside these), with reference to order execution services but also, albeit to a different degree, to the reception and transmission of orders and portfolio management. When defining their Order Transmission and Execution Policy, intermediaries have to take the following factors into account:

- 1. price of the financial instrument**
- 2. costs of execution;**
- 3. speed of execution;**
- 4. likelihood of execution and settlement;**
- 5. size of the order;**
- 6. nature of the order;**
- 7. any other consideration relevant to the execution of the order.**

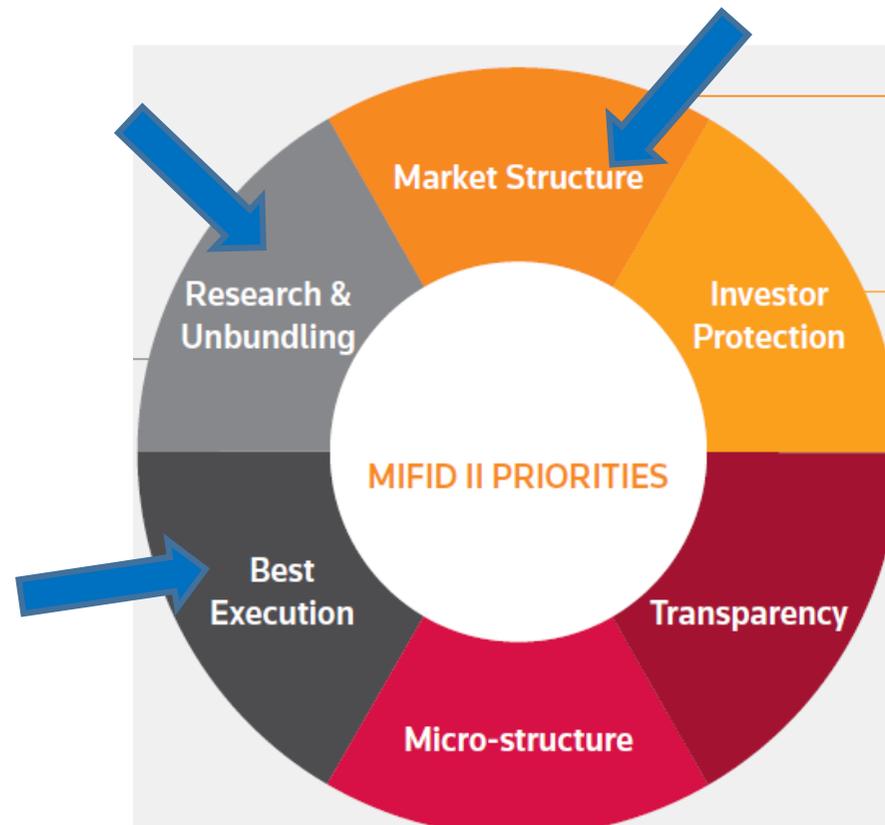
Intermediaries give a specific order of importance to these factors for each class of financial instrument and for each kind of client and use this as a basis to select the execution venues and/or the specified broker-dealers to use for the execution of the orders, in order to guarantee that the best possible result is obtained on a consistent basis.

In this regard Auriga has adopted an Order Transmission and Execution Policy which is intended to ensure we deliver the best possible execution of our client orders, taking into account the nature of the orders, the execution venues to which the company has access and the type of financial instruments.

2. MiFID II: significant changes (and opportunities) for the Investment Industry

MiFID II will command significant changes in business and operating models, systems, data, people and processes. As a result, a fundamental transformation will emerge. Auriga has the content, the technology and the expertise to help to meet this challenge, as well as take advantage of the market opportunities and potential for competitive advantage that the regulation undoubtedly offers.

Auriga can help on the MiFID II implementation especially on Best Execution, Market Structure and Unbundling



About BEST EXECUTION UNDER MiFIDII

From **“all reasonable steps”** under MiFID I, to **“all sufficient steps”** under MiFID II

(to obtain, when executing orders, the best possible result for their clients...)

Under MiFID II, investment firms have an obligation to execute client orders in such a way as to ensure the best possible outcome for their customers. The definition of **best execution under MiFID II is almost identical to that in MiFID I**, and looks at a number of key factors, among them:

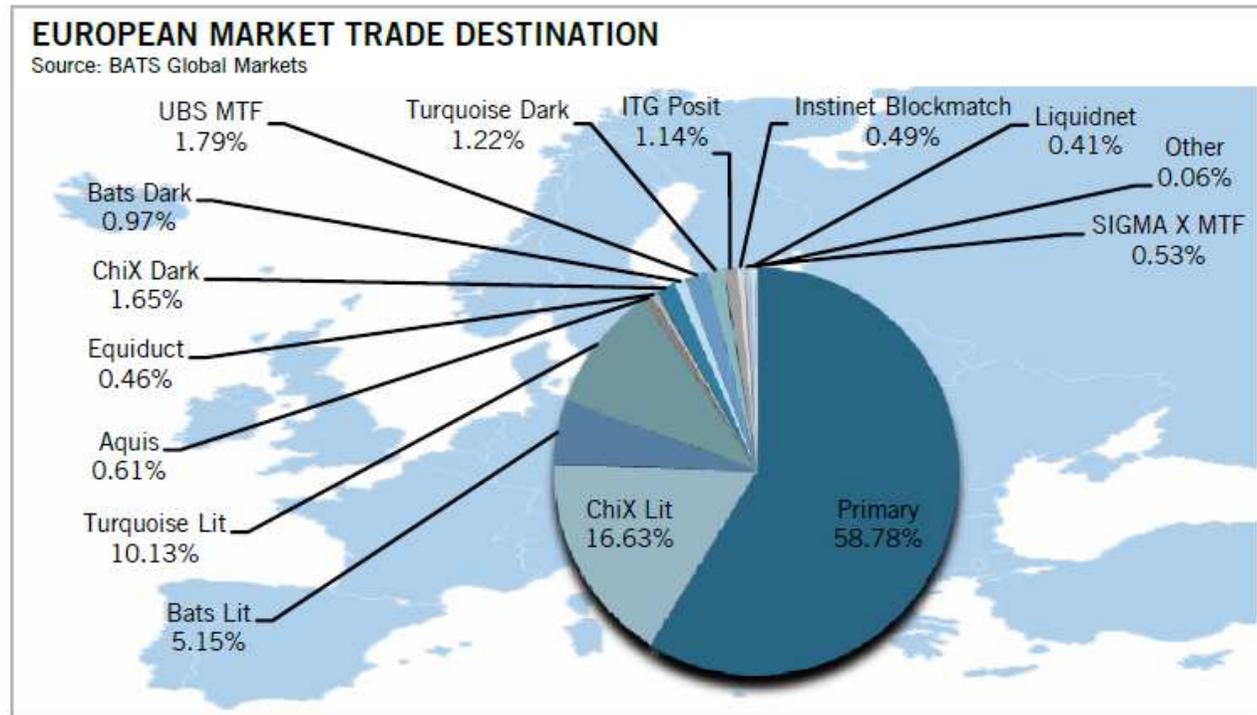
- price,
- cost,
- speed and likelihood of execution and settlement,
- size and
- nature of orders.

The big change under MiFID II is that compliance **will be subject to closer scrutiny** by customers and supervisors, both of which will have access to higher quality execution data.

Best Execution: What's Needed: Firms will need **to demonstrate proof of best execution**. Under MiFID II, this will require investment firms handling client orders **to identify their top five execution venues**, in terms of trading volumes, for the preceding year. In addition, firms will need to furnish customers with a clearly written execution policy accompanied by supporting data. Clients must be notified of any material changes to the policy. From a technological perspective, firms operating in multiple markets or venues will need to ensure and **demonstrate clock synchronization** as part of their evidence of a robust execution policy. Furthermore, the new regulation requires massive amounts of data to be collected, normalised, analysed and presented in a user-friendly way. In order to do this, the investment firm needs a tick database with advanced analysis tools.

3. How to comply with the Best Execution Requirement in a fragmented Market?

Market fragmentation has reshaped the financial landscape, creating new paths and obstacles for orders to follow and overcome.



As of January 2017

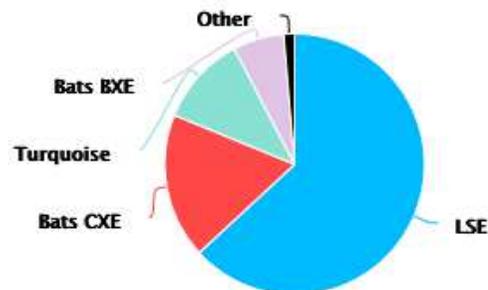
MAIN MARKETs BREAKDOWN (INCLUDING AUCTIONS)

FTSE 100 *week ending 10th Feb 2017 (Source Fidessa) Including Auctions*

Market share by venue

Venue	Value (mil GBP)	Volume	Share
LSE	17,954.56	2,953,280,959	63.16%
Bats CXE	5,121.84	844,557,420	18.02%
Turquoise	3,168.80	556,953,140	11.15%
Bats BXE	1,800.71	261,819,820	6.33%
Aquis	312.17	43,611,716	1.10%
Equiduct	68.73	15,647,292	0.24%
Bats Periodic	2.02	234,547	0.01%

Market breakdown



% Market share

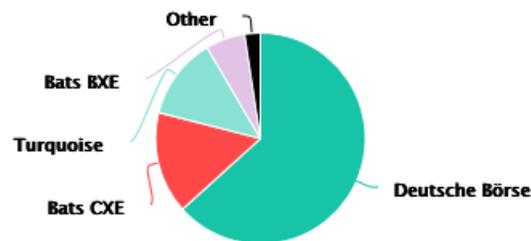


DAX*week ending 10th Feb 2017 (Source Fidessa) Including Auctions*

Market share by venue

Venue	Value (mil EUR)	Volume	Share
Deutsche Börse	16,162.26	451,253,326	63.32%
Bats CXE	3,996.96	113,189,765	15.66%
Turquoise	3,202.76	73,579,256	12.55%
Bats BXE	1,549.73	35,777,631	6.07%
Aquis	406.56	9,651,507	1.59%
Frankfurt	92.48	3,114,845	0.36%
Equiduct	82.07	3,380,268	0.32%
Munich	12.03	389,225	0.05%
Hamburg	9.90	232,018	0.04%
Berlin	3.03	88,275	0.01%
Dusseldorf	2.94	86,790	0.01%
Bats Periodic	2.61	46,829	0.01%
Hanover	2.41	42,571	0.01%

Market breakdown



% Market share



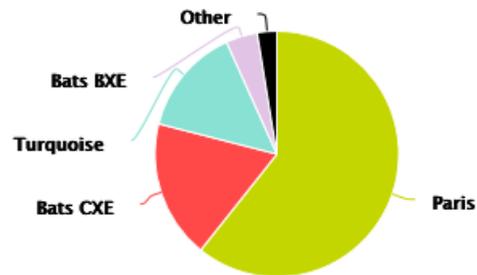
CAC 40

week ending 10th Feb 2017 (Source Fidessa) Including Auctions

Market share by venue

Venue	Value (mil EUR)	Volume	Share
Paris	14,149.56	391,447,329	60.75%
Bats CXE	4,244.96	106,599,241	18.22%
Turquoise	3,322.55	87,619,462	14.26%
Bats BXE	972.44	24,724,992	4.17%
Equiduct	278.20	8,243,456	1.19%
Aquis	211.05	5,663,766	0.91%
Brussels	107.74	989,635	0.46%
Bats Periodic	6.77	230,329	0.03%
Hamburg	0.04	640	0.00%

Market breakdown



% Market share



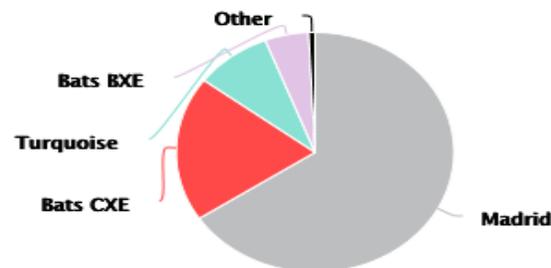
And, what about the Spanish Market?

IBEX 35 *week ending 10th Feb 2017 (Source Fidessa) Including Auctions*

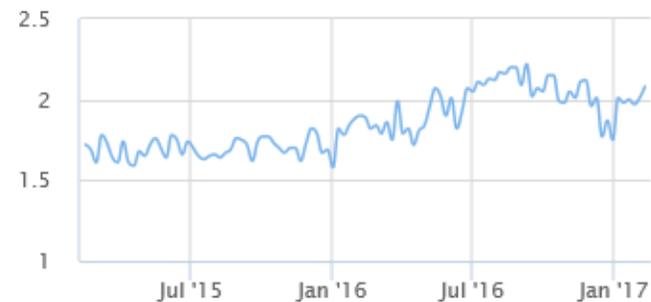
Market share by venue

Venue	Value (mil EUR)	Volume	Share
Madrid	6,860.78	1,389,412,824	65.72%
Bats CXE	2,040.34	336,595,058	19.54%
Turquoise	928.96	150,264,191	8.90%
Bats BXE	533.34	93,244,640	5.11%
Aquis	73.41	14,884,486	0.70%
Equiduct	2.79	409,735	0.03%
Bats Periodic	0.04	15,917	0.00%
Dusseldorf	0.00	315	0.00%
Munich	0.00	30	0.00%

Market breakdown



Fidessa Fragmentation Index



— IBEX
Current FFI:
2.08 **F**

Top fragmented stocks

Stock	Description	FFI	Value	Volume	Trades
TLS.MA	T MEDIASET ESPANA COMUNICACION, S.A.	2.58	47,722,383	4,186,410	12,803
ACS.MA	T ACS,ACTIVIDADES DE CONSTRUCCION Y SERVICIOS,S.A.	2.44	186,854,888	6,390,599	39,873
ABE.MA	T ABERTIS INFRAESTRUCTURAS, S.A.	2.35	178,813,914	13,342,292	29,095
AMS.MA	T AMADEUS IT GROUP, S.A.	2.31	349,140,720	8,061,079	57,378
ENG.MA	T ENAGAS,S.A.	2.30	236,273,666	10,265,949	44,020
REP.MA	T REPSOL, S.A.	2.30	559,044,886	40,902,569	70,381
ELE.MA	T ENDESA,S.A.	2.28	184,498,170	9,478,287	33,941
FER.MA	T FERROVIAL, S.A.	2.28	193,747,844	11,311,614	35,582
IBE.MA	T ACCIONES IBERDROLA	2.26	604,850,392	101,617,524	88,488
GRF.MA	T GRIFOLS S.A.	2.24	150,795,949	7,350,145	29,478
REE.MA	T RED ELECTRICA CORPORACION, S.A.	2.22	205,476,130	12,084,514	41,841
CABK.MA	T CAIXABANK, S.A.	2.18	781,105,016	230,734,035	119,403
GAS.MA	T GAS NATURAL SDG	2.16	256,305,042	14,068,924	46,005
AENA.MA	T AENA, S.A.	2.13	153,297,213	1,146,460	19,545
BBVA.MA	T BANCO BILBAO VIZCAYA ARGENTARIA, S.A.	2.12	1,139,601,292	188,364,139	148,262
ITX.MA	T INDUSTRIA DE DISEO TEXTIL S.A. INDITEX-	2.11	567,846,388	18,356,925	78,180
SAN.MA	T BANCO SANTANDER S.A.	2.10	1,768,713,786	346,787,551	192,856
MAP.MA	T MAPFRE, S.A.	2.00	138,010,043	48,133,143	34,415
GAM.MA	T GAMESA CORPORACION TECNOLOGICA, S.A.	1.96	155,520,261	7,722,747	29,329
TEF.MA	T TELEFONICA,S.A.	1.94	716,016,401	79,709,445	97,072

Ibex - week ending 10th Feb 2017 (Source Fidessa)

(*) Fragmentation Index (FFI): shows the average number of venues you should visit in order to achieve best execution when completing an order. So an index of 1 means that the stock is still traded at one venue. Increases in the FFI indicate a fragmentation of trading across multiple venues and as such any firm wishing to effectively trade that security must be able to execute across more venues. **Once a stock's FFI exceeds 2**, liquidity in that stock has fragmented to the extent that it no longer "belongs" to its originating venue (Source Fidessa).

Fragmentation illustration market moment: TEF SM, March 22nd at 13:05H (TEF SM EQUITY QM)

TEF SM € ↓ 10.39 +0.035 Q10.39 / 10.395Q 3925x5234										
A 13:05 Vol 9,717,208 O 10.33Q H 10.45Q L 10.295Q Val 101.05M										
TEF SM Equity 96 Acciones 95 Parámetros Montaje de cotizaciones de empresa										
Regional TELEFONICA SA Spain EUR										
Excluir: Retrasado (d) Local No EUR No EU HALT (H) SUSP (S) PRNA (N) Otros										
1) Precio actual 2) Cuota de mercado 3) Gráficos 4) Oportunidades de arbitraje										
Convertir precios EUR										
Ticker	D S	Hora	Último	Cmb	Máximo	Mínimo	Volumen	Bid / Ask	Tamaño	
Acciones comunes - TELEFONICA SA - ISIN ES0178430E18							20.485M			
Europa - EUR							14.577M			
TEF EU	A	13:05	10.39	+0.02	10.45	10.23	14.577M	10.390 / 10.395	12k x 5k	
Nivel 1 - EUR							14.577M			
TEF SM	A	13:05	10.39	+0.04	10.45	10.295	9.717M	10.390 / 10.395	4k x 5k	
TEF SQ	A	13:05	10.39	+0.04	10.45	10.295	9.717M	10.390 / 10.395	4k x 5k	
TEF IX	A	13:03	10.395	+0.07	10.45	10.3	2.317M	10.390 / 10.395	12k x 3k	
TEF TQ	A	13:04	10.395	+0.06	10.45	10.3	1.153M	10.390 / 10.395	3k x 3k	
TEF EB	A	13:03	10.395	+0.07	10.45	10.3	913.529k	10.390 / 10.395	4k x 2k	
TDE LN	A	03/21/17	10.43	-0.09	10.43	10.43	251.937k	9.880 / 10.840	500 x 10k	
TEFE QX	A	13:04	10.39	+0.06	10.44	10.31	86.154k	10.390 / 10.395	491 x 1k	
TEFE S2	A	12:41	10.39	+0.06	10.435	10.3125	41.264k			
TNE5 GR	A	13:03	10.391	+0.12	10.445	10.23	31.559k	10.385 / 10.400	8k x 2k	
TNE5 GY	A	12:52	10.4	+0.03	10.445	10.295	24.939k	10.385 / 10.400	8k x 2k	
TNE5 GS	A	13:03	10.391	+0.12	10.406	10.236	4.744k	10.391 / 10.394	25k x 25k	
TNE5 GF	A	11:21	10.4	+0.13	10.435	10.265	1.875k	10.389 / 10.396	7k x 7k	
TNE5 GM	A	08:00	10.295	0.00	10.295	10.295	1.000	10.390 / 10.395	7k x 7k	
TNE5 GD	A	08:12	10.23	-0.28	10.23	10.23		10.390 / 10.395	5k x 5k	
TNE5 GB	A	08:08	10.235	-0.31	10.235	10.235		10.390 / 10.395	5k x 5k	
TNE5 GH	A	08:21	10.265	+0.04	10.265	10.265		10.390 / 10.400	2k x 2k	
TNE5 GI	A	08:21	10.265	-0.17	10.265	10.265		10.390 / 10.400	2k x 2k	
TEFE B3	A	12:47	10.4	+0.02	10.445	10.325	25.719k			

What is the positive effect of Market Fragmentation? : Improvements on trade price in most of the stocks



Taker Opportunity Ibx

BATS	BATS Matched Notional	BATS Routed Notional	BATS Match Rate	BATS Matched Market Share	% At or Better	% Better	Av. Bp Improvement
IBEX	147,244,129	0	100.00%	5.13%	92.34%	46.28%	1.63

Symbol	Market Notional	BATS Matched Notional	BATS Routed Notional	BATS Match Rate	BATS Matched Market Share	% At or Better	% Better	Av. Bp Improvement
SANe	439,838,546	24,917,418	0	100.00%	5.67%	89.34%	42.70%	1.19
BBVAe	322,183,539	13,707,152	0	100.00%	4.25%	87.47%	47.61%	1.02
IBEe	203,818,293	11,496,247	0	100.00%	5.64%	93.33%	44.09%	0.82
ITXe	237,170,643	10,246,014	0	100.00%	4.32%	92.99%	49.69%	1.12
TEFe	243,470,873	9,571,077	0	100.00%	3.93%	86.03%	49.22%	0.96
REPe	143,000,068	8,007,256	0	100.00%	5.60%	95.19%	42.37%	1.81
FERe	83,971,805	6,317,283	0	100.00%	7.52%	95.18%	42.73%	1.53
AENa	57,679,787	5,017,543	0	100.00%	8.70%	98.22%	44.78%	2.26
AMSe	82,469,506	4,518,474	0	100.00%	5.48%	92.60%	52.41%	1.35
IAGe	54,882,970	4,415,026	0	100.00%	8.04%	91.98%	55.19%	3.23
BKTe	32,451,039	4,391,307	0	100.00%	13.53%	93.40%	43.24%	1.75
ABEe	68,836,574	4,074,069	0	100.00%	5.92%	97.76%	54.54%	2.10
ELEe	59,592,517	3,498,205	0	100.00%	5.87%	97.66%	43.24%	1.65
GASe	57,140,477	3,103,088	0	100.00%	5.43%	97.78%	49.10%	1.38
GAMe	55,082,078	2,896,774	0	100.00%	5.26%	94.58%	40.24%	1.62
REEe	72,933,157	2,839,564	0	100.00%	3.89%	95.13%	56.20%	1.22
ACXe	24,650,098	2,763,231	0	100.00%	11.21%	93.22%	44.93%	3.42
TL5e	29,952,337	2,739,504	0	100.00%	9.15%	97.00%	43.17%	2.59
GRFe	36,572,763	2,505,582	0	100.00%	6.85%	96.57%	47.64%	1.54
BKIAe	36,839,497	2,215,550	0	100.00%	6.01%	96.64%	37.86%	4.85

June 2016

4. The Auriga Solution: SMART ORDER ROUTING (SOR)

The Auriga Solution: SMART ORDER ROUTING. How does our SOR function?

A smart order router (SOR) is an automated process used in electronic trading that follows a set of rules when looking for trading/liquidity. The goal of an SOR is to find the best way of executing a trade, complying with the “best execution” policy.

The Auriga approach around venue selection/order routing is driven entirely by market signals designed to maximize our potential to achieve best execution for our clients. We do not preference any particular destination and we will always look to complete in the **lit market** if there is available liquidity. A full list of available liquidity pools is shown on next page.

How do we interact with Dark Pools/BCN's?

Auriga has access to an extensive list of **Dark pools**/Broker crossing networks (BCNs). Our venue selection utilizes a combination of performance measures around our experience in each dark venue we trade in, these include:

- an indication of venue potency – for our average resting time what multiple/% of lit market liquidity do we capture in each stock;
- an indication of how relevant a venue is in the liquidity of the stock – we give more credit to venues that provide liquidity in harder to trade names;
- a “toxicity measure” designed to calculate the average information content of the flow we interact with – how far does the stock mid-price move after we have traded;
- we also consider the near term market share of the venue as a determinant of likelihood of execution. Based on the urgency of the order that we have to execute (at each specific point in time) we will then make a venue selection / combination decision based around our requirement to achieve a greater probability of execution / larger amount of liquidity vs. our risk of exposure to toxicity / negative selection. This experience is further controlled / influenced by our usage of minimum execution sizes (larger sizes for lower urgency orders) and short term fair value derived limit prices.

Anti-gaming measures.

Interaction with High Frequency Traders (HFT) order flow is much more prevalent on lit venues. There are a number of steps that we utilize within our strategies to try and protect our order flow from avoidable information leakage. These include tactics to minimize the potential for quote fading when trading aggressively (we don't ping dark pools when we can complete the whole order on the lit market for example) and to reduce signaling risk by limiting our passive posting to fewer / single venues. Additionally randomizing child slices, reload times, resting times and building in order pauses (totally out of the market) can make it harder for predatory strategies to identify our order flow.

Auriga executions Available Regulated Liquidity Pools

BME supervised by **CNMV**, rest of Liquidity Pools supervised by the **FCA (UK Financial Conduct Authority)**

DESTINATION: LIT order books / DARK order books

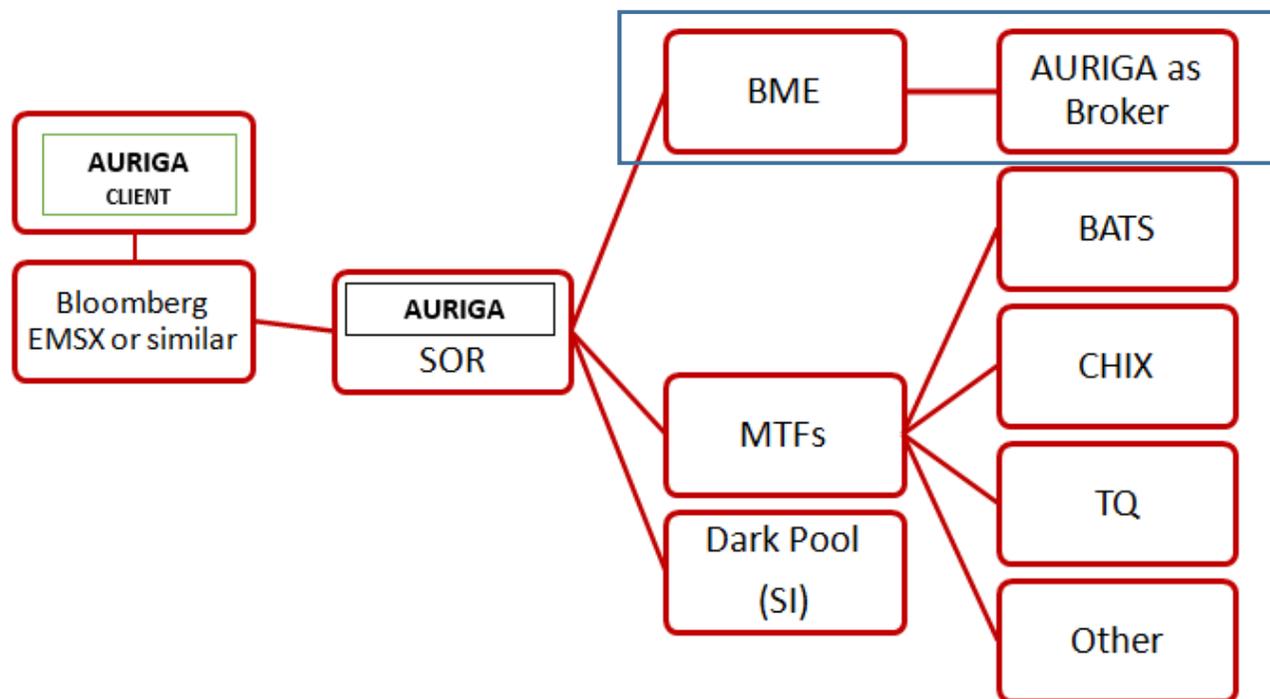
BME	X	
Aquis	X	
BATS	X	X
Chi-X	X	X
Turquoise	X	X
Barclays LX		X
CS Crossfinder		X
KCG MatchIt		X
Goldman SigmaX		X
Instinet Block Cross		X
ITG POSIT		X
JPM X		X
Liquidnet		X
MS Pool		X
UBS MTF		X



UBS MTF

MS POOLSM

AURIGAs Smart Order Router DIAGRAM

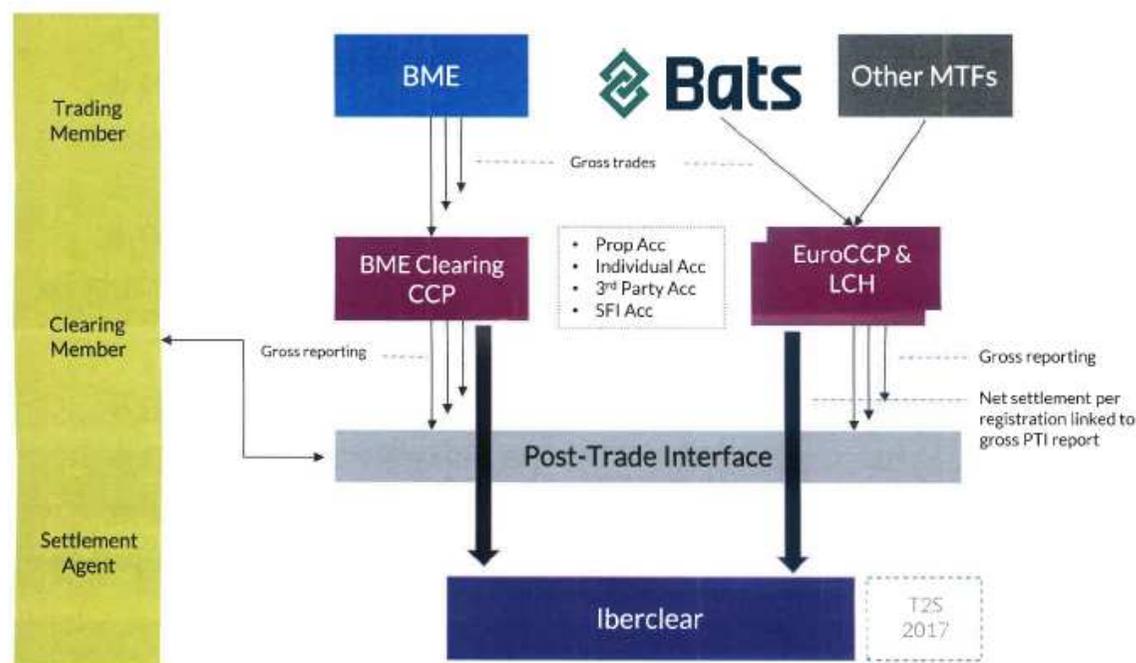


5.- The impact of the clearing Reform in the MTFs activity on Spanish Stocks

Before the Reform of the Spanish Clearing and Settlement activities (**The Reform was launched April 27th, 2016**), the only Spanish markets that provided central counterparty services (CCP) were the futures and options market, with MEFF acting as both an official secondary market and as a CCP. After the amendments to the LMV (the Spanish Securities Act) introduced by Law 44/2002, it was made possible to incorporate CCPs to provide a counterparty to one or more securities traded in the different securities markets.

Given the need to separate trading and clearing activities pursuant to the European Market Infrastructure Regulation (EMIR), the clearing activity carried out by MEFF is now carried out by **BME Clearing S.A.**, the first and exclusive CCP incorporated to date in Spain. In this regard, BME Clearing's activities, after the Reform, has been extended also to cash markets (equities and fixed income). Also, because of the Reform, other European CCPs (**EuroCCP and LCH**) that are covering the Clearing activities of the MTFs, are connected to Iberclear through the PTI (Post-Trade Interface), this connection allows MTF's Spanish Stocks executions to be interoperated with Iberclear/BME in a much easier way than before the Reform.

Clearing - Post market reforms



Conclusions:

1. – During the month of February, **only 65% (or 55%, if we exclude auctions...)** of the Spanish stocks are being traded on BME (Spanish Bolsa).

The rest, is being traded at international regulated MTFs (Multilateral Trading Facilities).

2. – Most of the **IBEX35 stocks** are traded more outside of Spain than in Spain.

3. - Equity Markets Fragmentation is a substantial reality all over Europe where Local Bolsas have lost leadership in favor of new platforms. The most relevant example is London Stock Exchange (*without its subsidiary **Turquoise***) that during 2016 was **trading around a 52% of the total British stocks.**

4. - Who are these panEuropean MTFs?:

1. **Lit Order Books:** same as traditional Bolsas. There are 4 main Lit venues.

2. **Dark Order Books:** specialized on **Block Trading.** There are more than 13 dark pools.

5. - MiFID is requiring regulated firms to apply the **BEST EXECUTION PRINCIPLE** to obtain the best possible result for their clients.

6. - How to act on an Fragmented Equity European landscape?

The answer: Smart Order Router (**SOR**) that does a platform selection routing, driven entirely by market signals designed to maximize the potential to achieve best execution for investors in **only one** ticket.



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