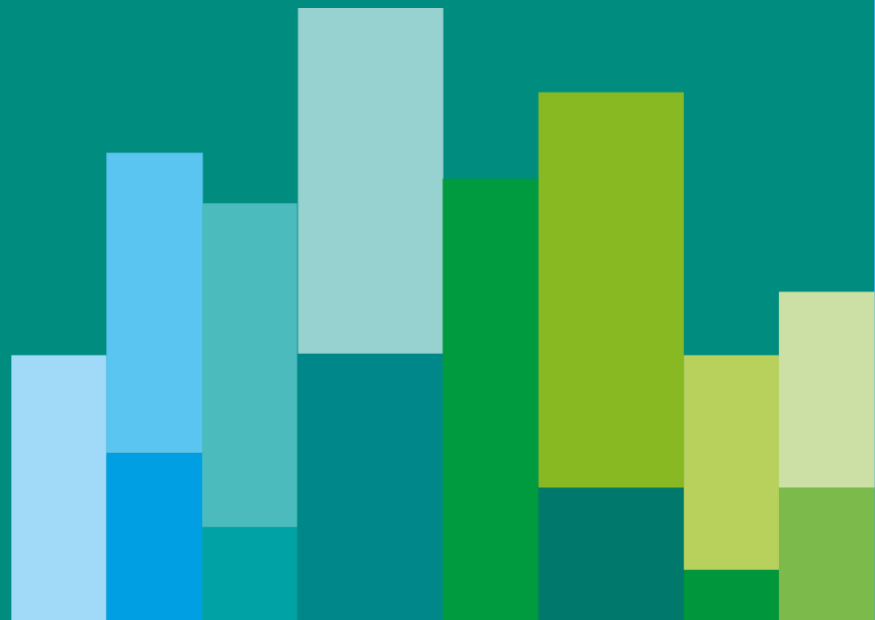


EURONEXT ETF ACCESS – THE PAN-EUROPEAN ETF PLATFORM



ETF INDUSTRY - FACTS AND OUR GOAL

Facts

Limited price formation process

- More than 2/3 of the ETF trading happens in OTC

Lack of visibility around trading at NAV

- Difficult to achieve fair value

Liquidity fragmentation

- Liquidity split across exchanges, MTFs and RFQ platforms

Limited opportunity for share lending

- Only 5% of the shares on loan vs. 45% in the US

Complex post-trading infrastructure

ETF Access

Multilateral RFQ feature

- Plugged into Euronext Order Book
- Access to all Euronext LPs*
- Dark orders functionality and conditional order types

NAV Order Book

- Transparent order book

Available for all European listed ETFs

- c. 7,000 + ETFs in Europe

Centralised L&B platform (Phase 2)

- To open up the opportunity for ETF share lending

Interoperability and flexible settlement (Phase 2)

New ETF Trading

Price improvement

- Real alternative to OTC trading
- Control market impact for large orders

Easy access to NAV trading

- Increased opportunity for price improvement

Liquidity Consolidation

- Reduce fragmentation

Enhanced visibility for shares lending

- Limit creation/redemption process
- Minimise fail and settlement delays

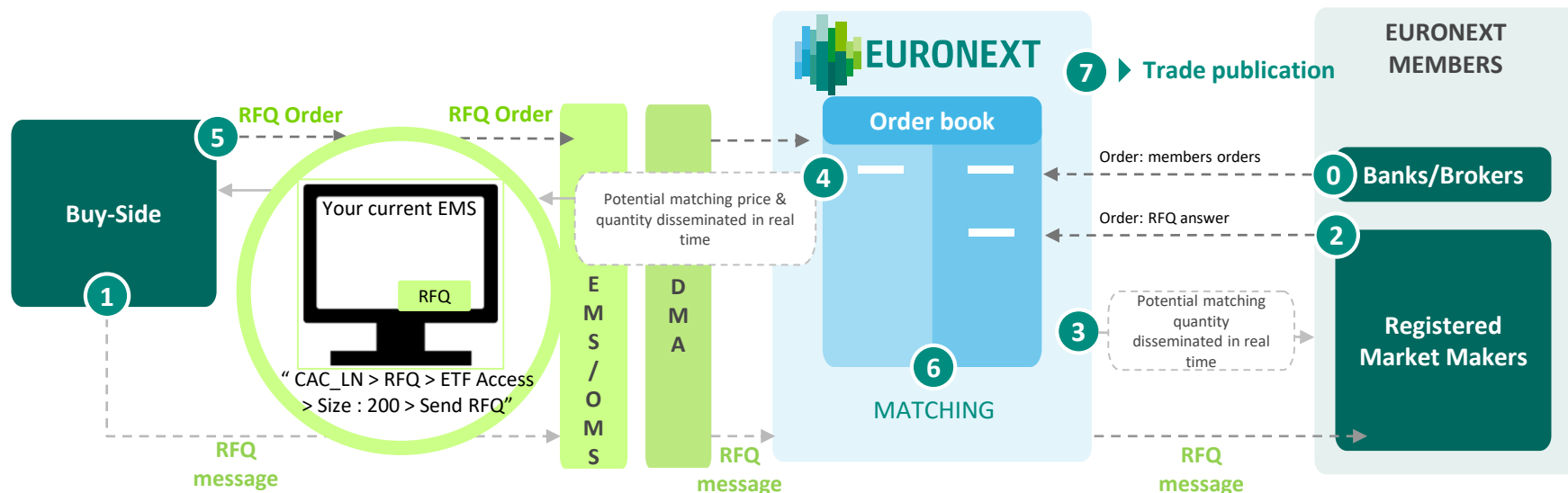
Simplified and efficient ETF trading environment

**25 ETF Liquidity providers across Euronext as of H2 2018*

DEVELOPED BASED ON INDUSTRY FEEDBACK



KEY FEATURES – MULTILATERAL RFQ



0. The RFQ functionality **takes place in the Central Order Book** (COB Standard or NAV book) of the platform to allow interactions between RFQ issuers, LPs and non-LP counterparties in the COB.

1. The Buy-Side sends a private message to all registered Market Makers via his Direct Market Access Broker with the quantity he wants to trade.

2. The Market Makers can answer the RFQ by sending a quote to the COB.

3. After sending their RFQ answers, the Market Makers are informed of the potential matching quantity that would be executed if the Buy-Side confirms his RFQ.

4. The Buy-Side receives from his DMA the potential matching quantity and potential matching price based on the best prices in the whole order book (Market Makers' answers and natural liquidity of the order book).

5. The Buy-Side confirms their RFQ request by sending the RFQ confirmation order (i.e. the average price order in the COB).

6. The Buy-Side order is matched with one or several counterparties (RFQ answers and existing liquidity in the order book).

7. Publication.

KEY FEATURES – NAV TRADING

Step 1: Order book

The Order book is composed of orders with a quantity and a price expressed as a basis point spread from NAV.

The trading members will be allowed to send orders at NAV.

Bid		Ask	
500	-1.0 bps	1.8 bps	200

Step 2: Matching

The orders will match in the respect of the Best Bid & Offer rule based on the basis point price.

The trade is in “Matched – waiting for NAV” status.

Bid		Ask	
Matched for 100		100	1.8 bps
		1.8 bps	200
500	-1.02 bps		

Step 3: Execution

At the publication of the official NAV, the matched basis point will be converted in amount for execution.

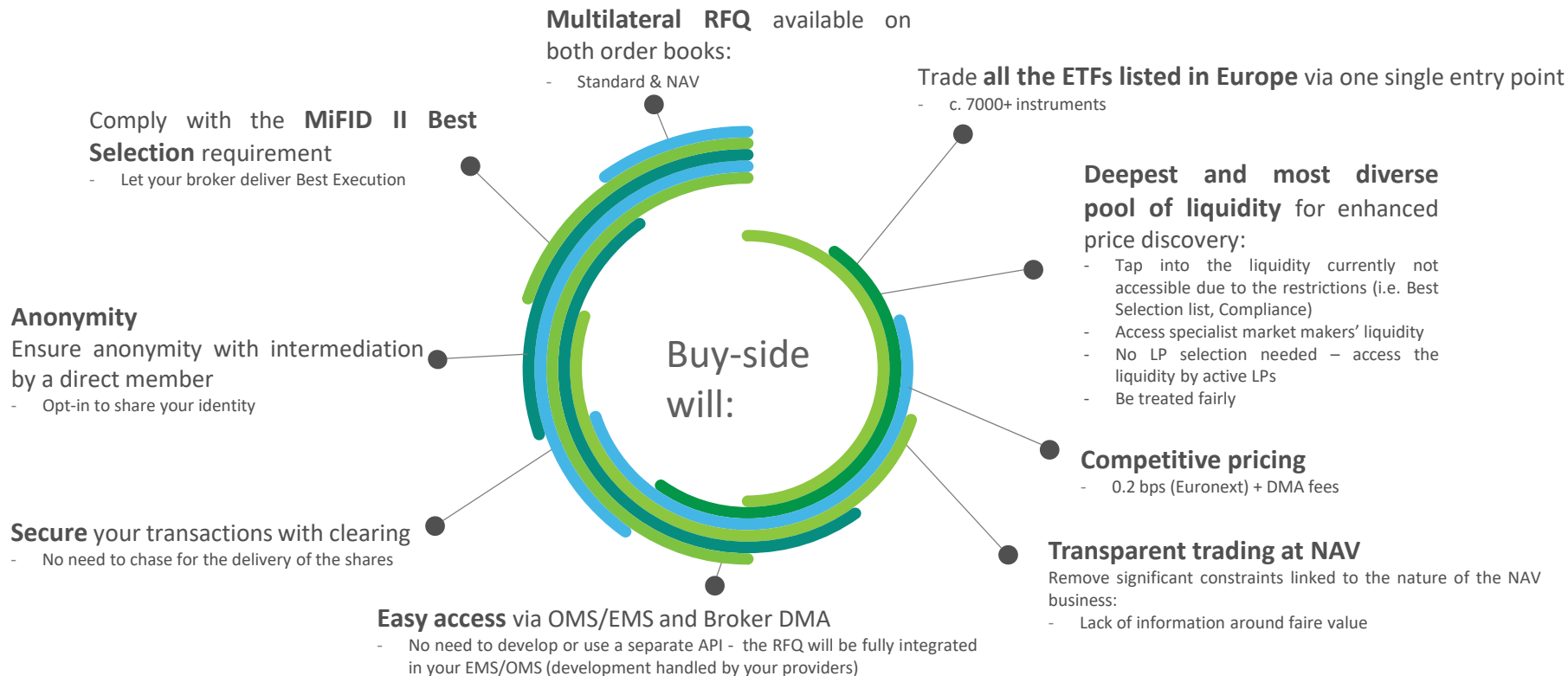
The trading price will be validated with the trade date as the date of the NAV (NAV – publication – 1)

Bid		Ask	
Executed		100	80.14 €
		80.14 €	100
500	-1.02 bps	1.8 bps	100

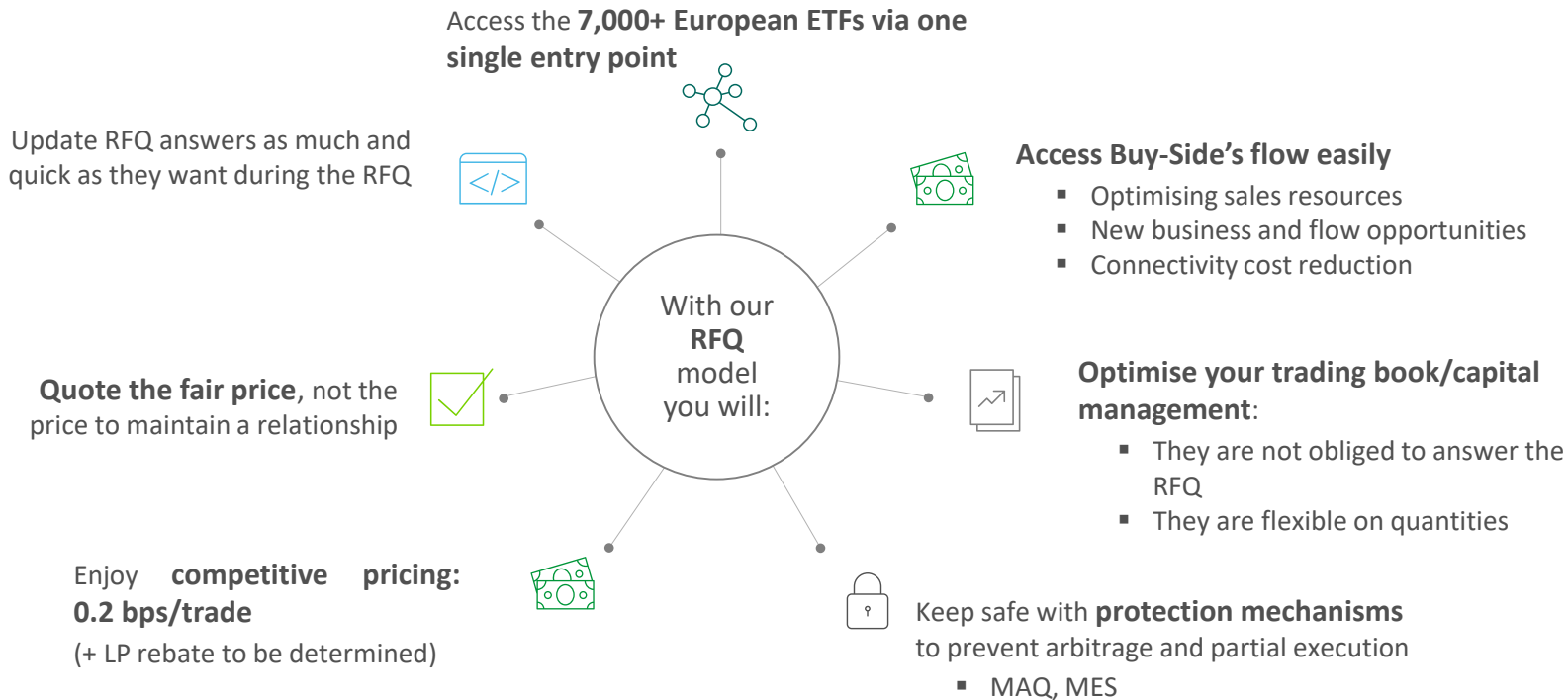
- The NAV Trading Order Book matches orders based upon a standard price, time priority method.
- Order prices are shown as a **basis point deviation** from the next official NAV.
- Negative prices are permitted since the price is expressed in basis points.
- When the official NAV is **available**, the matched prices expressed in basis points will be **converted** into a trade price in amount.

- The official NAV is available one (1) day (for European and US underlying) or two (2) days (for Asian, Australian underlying and rest of the world) after the order delivery depending on the domicile of the underlying.
- **No minimum size for subscription or redemption is required in this order book.**

BENEFITS FOR THE BUY-SIDE

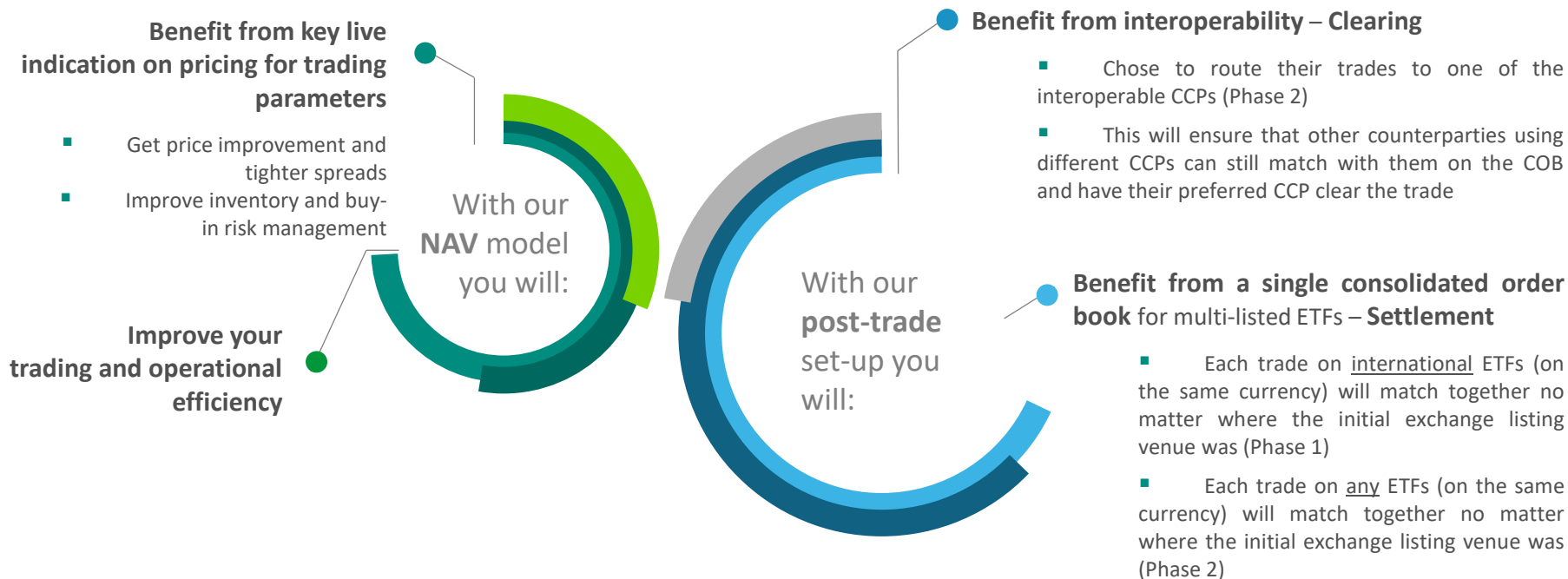


BENEFITS FOR MARKET MAKERS – MULTILATERAL RFQ*



**Available on NAV & standard book*

BENEFITS FOR MARKET MAKERS – NAV TRADING & POST TRADING



BENEFITS FOR INTERMEDIARIES (EMS PROVIDERS & DMA PROVIDERS)

Offer access to innovative and efficient features to your customer base, whether Buy-Side or Sell-Side.



Enlarge your coverage and benefit from the growing ETF business from which you are currently excluded (due to the OTC nature of this business)



- Enjoy additional and/or new business and revenues.

Brokers
and ISV
will:

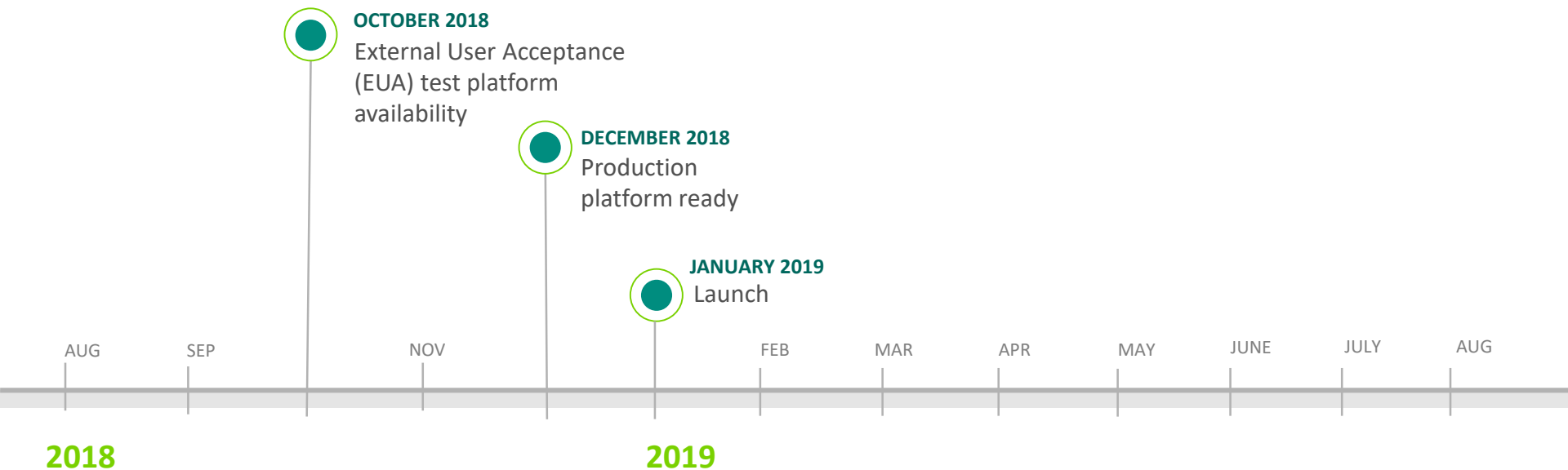


Reinforce links with ETF specialists.

BENEFITS FOR ETF ISSUERS



PLANNED SCHEDULE



EXPECTED VOLUMES (1/2)

To build the volume estimate, we extracted the ADV per country on the local exchanges' Central Order Book (excluding OTC) (cf. table below on the left).

Market studies show that c. **70% of the European ETF volume is traded OTC**. Based on this estimation, we end up with the blue table on the right.

Exchange	# ETFs / ETPs listings	ADV (US\$ Mn) Feb-18	Market Share
Deutsche Börse	1,490	945	27.7%
LSE	1,912	880	25.8%
Borsa Italiana	1,103	610	17.9%
Euronext Paris	524	367	10.8%
Six Swiss Exchange	1,378	345	10.1%
Euronext Amsterdam	225	146	4.3%
NASDAQ OMX Stockholm	35	49	1.4%

Source : ETFGI, www.etfgi.com

Country	ADV (US\$ Mn) Feb-18 on exchange (COB)	ADV (€ Mn) Feb-18 on exchange (COB)	Market Share on Exchange (COB) Feb-18	Estimation of OTC volume (estimating that 70% of volume is OTC and 30% on exchange) (€ Mn) Feb-18	Est. of total traded Volume per day COB + OTC (€ Mn) Feb-18	Est. of total traded Volume COB + OTC (€ Mn) over 1 year (we multiplied the ADV by 251 the average number of trading days over a year)
Germany	945	768	27.7%	1,791	2,559	642,327
UK	880	715	25.8%	1,668	2,383	598,146
Italy	610	496	17.9%	1,156	1,652	414,624
France	367	298	10.8%	696	994	249,454
Switzerland	345	280	10.1%	654	934	234,500
The Netherlands	146	119	4.3%	277	395	99,238
Sweden	49	40	1.4%	93	133	33,306
TOTAL	3,342	2,715	100%	6,335	9,050	2,271,595

▶ Estimated Annual Trading Volume in Europe = **€2.3 Trn**

EXPECTED VOLUMES (2/2)

- Then, following feedback received during the 2 workshops from the 20 market makers under NDA and the +200 bilateral meetings conducted on the matter, we estimate we'll have the following market share (MS):

	Euronext ETF MTF Estimated MS	
Year	2019	2020
Market Share	6.50%	13.00%

- Therefore we could expect the following estimations in terms of trading volumes:

	Euronext ETF MTF Estimated volumes	
Year	2019	2020
Estimated volumes in €Bn	148	295

► **Estimated Trading Volume on the MTF in 2020 = 295 €Bn**

We already have 60+ ETF institutions under NDA, which form part of the trading group and are supportive of the project:

- 15+ Buy-Side
- 25+ trading participants including:
 - the biggest banks & brokers
 - the biggest algorithmic/prop trading firms
- 10+ ETF issuers
- GCM, ISV, CCPs, etc.

HOW TO JOIN – SELL-SIDE & VENDORS



Existing trading members on Euronext regulated markets

Membership:

- Members of Euronext Paris will have to confirm their clearing solution in EuroCCP.
- Members will define the scope of ETFs they want to access by notifying on the Membership Extension Form the list of CSDs in which they have settlement accounts.

Connectivity:

- Euronext ETF Access will be on Optiq® (the new Euronext technology).
- Only a few additional developments will be necessary to support RFQ and NAV.

New members

Membership:

- New participants will have to follow the usual membership application process in addition to the above points.

Connectivity:

- New members will have to develop connectivity to Optiq® (Euronext trading infrastructure).

HOW TO JOIN – BUY-SIDE



**You only have to
register your interest
to your current EMS
provider and DMA
provider**

EMS/OMS Provider

- You only need to send one line email to your regular contact there, saying that you wish to register your interest on Euronext ETF Access.
- Loop us in and we will ensure the follow-up.

DMA Provider

- You only need to send one line email to your regular contact there, saying that you wish to register your interest on Euronext ETF Access.
- Loop us in and we will ensure the follow-up.
- The majority of Buy-Side will use various DMA providers throughout the year (big wheel) so don't hesitate to reach out to all your DMA providers.

ADDITIONAL DOCUMENTATION AVAILABLE

Euronext ETF Access **Global Overview Documentation** – In this document you will find a detailed explanation about the project:

- Order book mechanisms and structure
- Kinematics and order flows
- Post trading

Euronext ETF Access **Technical Specifications** – We have updated Optiq® specifications to now include Euronext ETF Access:

- Optiq® Market data gateway (MDG) specifications
- Optiq® Order entry gateway (OEG) specifications
- Optiq® Kinematics and specifications
- Optiq® Files specifications
- Euronext ETF Access – OEG change highlight

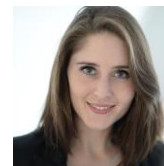
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