

FOR ECB BMCG USE ONLY

ECB BMCG

MIFID 2: INITIAL TAKE-AWAYS

THIS IS SALES AND TRADING COMMENTARY PREPARED FOR INSTITUTIONAL INVESTORS; it is NOT a research report; tax, legal, financial, or accounting advice; or an official confirm. The views of the author may differ from others at MS (including MS Research). MS may engage in conflicting activities -- including principal trading before or after sending these views -- market making, lending, and the provision of investment banking or other services related to instruments/issuers mentioned. No investment decision should be made in reliance on this material, which is condensed and incomplete; does not include all risk factors or other matters that may be material; does not take into account your investment objectives, financial conditions, or needs; and IS NOT A PERSONAL RECOMMENDATION OR INVESTMENT ADVICE or a basis to consider MS to be a fiduciary or municipal or other type of advisor. It constitutes an invitation to consider entering into derivatives transactions under CFTC Rules 1.71 and 23.605 (where applicable) but is not a binding offer to buy or sell any financial instrument or enter into any transaction. It is based upon sources believed to be reliable (but no representation of accuracy or completeness is made) and is likely to change without notice. Any price levels are indicative only and not intended for use by third parties. Subject to additional terms at <http://www.morganstanley.com/disclosures>.

No material issues to report so far....

INITIAL TAKEAWAYS

Bond business operating business as usual

- Overall a smooth transition, notwithstanding some minor glitches observed
 - ISIN's, time-stamps, SI entity, pre-agreed trade protocols
- Increase in YoY trading volumes has been accommodated
 - Transaction reporting up and running: sending ~3m reports to regulators a day

Some impact on work-load on trading floor itself

- Client coverage increased work-load from MIFID 2 processes ~1 hour a day fully on-boarded
- Expected to fall substantially in coming months

SOME STATISTICS ON INVESTMENT

1. Four year project, ramping up in 2017
2. ~1200 Technologists substantially involved last year
3. ~500 FTE workforce deployed for MIFID 2 in 2017
4. Expect smaller but still substantial FTE allocation in 2018

Please see additional important information and qualifications at the end of this material.

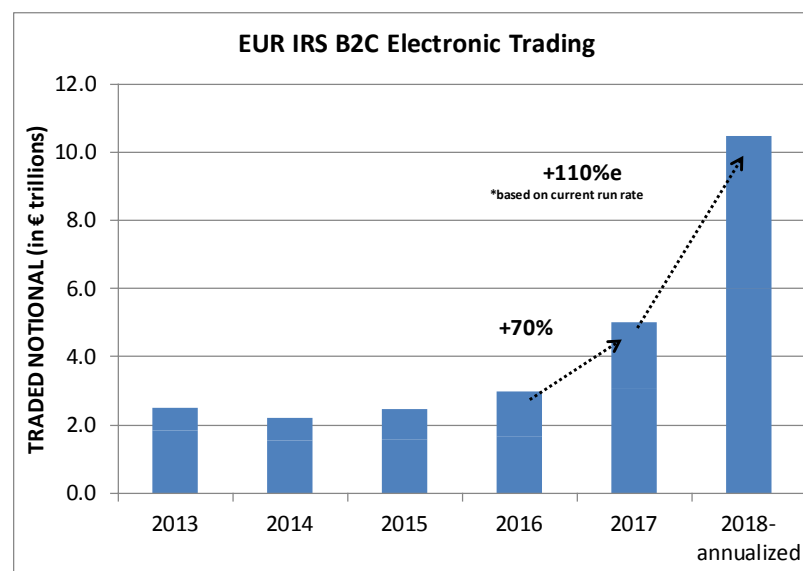
With only a few weeks of data, we expect a continuing transition to electronic

Large spike in volumes, voice growing faster but temporary

| | Overall | Volumes vs prior YTD |
|-------------------|---------|----------------------|
| Flow rates | | |
| Real money | ~30% | ~85% |
| Banks | ~30% | ~160% |
| Hedge funds | ~25% | ~90% |
| Other | ~10% | - |
| Type | | |
| | YTD | vs. year ago |
| Electronic | ~55% | ~60% |
| Voice | ~45% | ~110% |

Source: Bloomberg, TradeWeb, Morgan Stanley calculations

Trends in electronic trading



Please see additional important information and qualifications at the end of this material.

Disclaimer

The information in this material was prepared by sales, trading, or other non-research personnel of Morgan Stanley for institutional investors. This is not a research report, and unless otherwise indicated, the views herein (if any) are the author's and may differ from those of our Research Department or others in the Firm. This material is not impartial and is not independent of the interests of our trading and other activities, which may conflict with your interests. We may deal in any of the markets, issuers, or instruments mentioned herein before or after providing this information, as principal, market maker, or liquidity provider and may also seek to advise issuers or other market participants.

Where you provide us with information relating to an order, inquiry, or potential transaction, we may use that information to facilitate execution and in managing our market making and hedging activities.

This material does not provide (and should not be construed to be) investment advice (including, without limitation, as defined under the Employee Benefit Income Security Act of 1974, as amended or similar concepts under applicable law) or offer tax, regulatory, accounting, or legal advice. By submitting this document to you, Morgan Stanley is not your fiduciary, municipal, or any other type of advisor.

This material is general in nature and not based on a consideration of any individual client circumstances and thus should not be considered a recommendation to any recipient or group of recipients. This material is an invitation to consider entering into derivatives transactions under CFTC Rules 1.71 and 23.605 (where applicable) but is not a binding offer to buy or sell any instrument or enter into any transaction.

To receive further information in relation to the past performance of the financial instrument and or underlying (as applicable) and/or the functioning of the financial instrument in different market conditions referred to in any communications produced by Employees of any Morgan Stanley entity based in EMEA, please contact your EMEA Morgan Stanley Sales representative.

Unless otherwise specifically indicated, all information in these materials with respect to any third party entity not affiliated with Morgan Stanley has been provided by, and is the sole responsibility of, such third party and has not been independently verified by Morgan Stanley, our affiliates or any other independent third party. We make no express or implied representation or warranty with respect to the accuracy or completeness of this material, nor will we undertake to provide updated information or notify recipients when information contained herein becomes stale.

Disclaimer

Any prices contained herein are indicative only and should not be relied upon for valuation or for any use with third parties.

All financial information is taken from company disclosures and presentations (including 10Q, 10K and 8K filings and other public announcements), unless otherwise noted. Any securities referred to in this material may not have been registered under the U.S. Securities Act of 1933, as amended and, if not, may not be offered or sold absent an exemption therefrom. In relation to any member state of the European Economic Area, a prospectus may not have been published pursuant to measures implementing the Prospectus Directive (2003/71/EC) and any securities referred to herein may not be offered in circumstances that would require such publication. Recipients are required to comply with any legal or contractual restrictions on their purchase, holding, sale, exercise of rights, or performance of obligations under any instrument or otherwise applicable to any transaction. In addition, a secondary market may not exist for certain of the instruments referenced herein.

The value of and income from investments may vary because of, among other things, changes in interest rates, foreign exchange rates, default rates, prepayment rates, securities, prices of instruments or securities, market indexes, operational, or financial conditions of companies or other factors. There may be time limitations on the exercise of options or other rights in instruments (or related derivatives) transactions. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may

not be realized. Actual events may differ from those assumed, and changes to any assumptions may have a material impact on any projections or estimates. Other events not taken into account may occur and may significantly affect any projections or estimates. Certain assumptions may have been made for modelling purposes only to simplify the presentation or calculation of any projections or estimates, and Morgan Stanley

does not represent that any such assumptions will reflect actual future events or that all assumptions have been considered or stated. Accordingly, there can be no assurance that any hypothetical estimated returns or projections will be realized or that actual returns or performance results will not materially differ. Some of the information contained in this document may be aggregated data of transactions executed by Morgan Stanley that has been compiled so as not to identify the underlying transactions of any particular customer.

This information is not intended to be provided to and may not be used by any person or entity in any jurisdiction where the provision or use thereof would be contrary to applicable laws, rules, or regulations.

This communication is directed to and meant for sophisticated investors, including specifically, institutional investors in the U.S and/or those persons who are eligible counterparties or professional clients in the European Economic Area. It must not be re-distributed to or relied upon by retail clients.

Disclaimer

This information is being disseminated in Hong Kong by Morgan Stanley Asia Limited and is intended for professional investors (as defined in the Securities and Futures Ordinance) and is not directed at the public of Hong Kong. This information is being disseminated in Singapore by Morgan Stanley Asia (Singapore) Pte. This information has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this information and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of this security may not be circulated or distributed, nor may this security be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions, specified in Section

275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA. Any offering of this security in Singapore would be through Morgan Stanley Asia (Singapore) Pte, an entity regulated by the Monetary Authority of Singapore.

This information is being disseminated in Japan by Morgan Stanley MUFG Securities Co., Ltd. (For guidance purposes only, Morgan Stanley MUFG Securities Co., Ltd is a joint venture in Japan between Morgan Stanley and Mitsubishi UFJ Financial Group. Morgan Stanley and Mitsubishi UFJ Financial Group have formed another joint venture in Japan called Mitsubishi UFJ Morgan Stanley Securities Co., Ltd). Any securities referred to herein may not have been and/or will not be registered under the Financial Instruments Exchange

Law of Japan (Law No. 25 of 1948, as amended, hereinafter referred to as the "Financial Instruments Exchange Law of Japan"). Such securities may not be offered, sold, or transferred, directly or indirectly, to or for the benefit of any resident of Japan unless pursuant to an exemption from the registration requirements of and otherwise in compliance with the Financial Instruments Exchange Law and other relevant laws and regulations of Japan. As used in this paragraph, "resident of Japan" means any person resident in Japan, including any corporation or other entity organized or engaged in business under the laws of Japan. If you reside in Japan, please contact Morgan Stanley MUFG Securities for further details at +813-6836-5000. This information is distributed in Australia by Morgan Stanley Australia Limited A.B.N. 67 003 734 576, holder of Australian financial services license No. 233742, which accepts responsibility for its contents, and arranges for it to be provided to potential clients. In Australia, this report, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act.

Disclaimer

For additional information and important disclosures see <http://www.morganstanley.com/disclaimers/terms.html>. The trademarks and service marks contained herein are the property of their respective owners. Third-party data providers make no warranties or representations of any kind relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages of any kind relating to such data.

This material may not be redistributed without the prior written consent of Morgan Stanley.

© 2018 Morgan Stanley