

ECB Bond Market Contact Group

Update on the impact of MiFID II/R on EU Bond Markets

Prepared for the ECB BMCG Meeting 9 October 2018

Prepared by a Goldman Sachs sales and trading desk, which may have a position in the products mentioned that is inconsistent with the views expressed in this material. In evaluating this material, you should know that it could have been previously provided to other clients and/or internal Goldman Sachs personnel, who could have already acted on it. The views or ideas expressed here are those of the desk and/or author only and are not an "official view" of Goldman Sachs; others at Goldman Sachs may have opinions or may express views that are contrary to those herein. This material is not independent advice and is not a product of Global Investment Research. This material is a solicitation of derivatives business generally, only for the purposes of, and to the extent it would otherwise be subject to, CFTC Regulations 1.71 and 23.605.

October 2018

ECB Market Contact Group

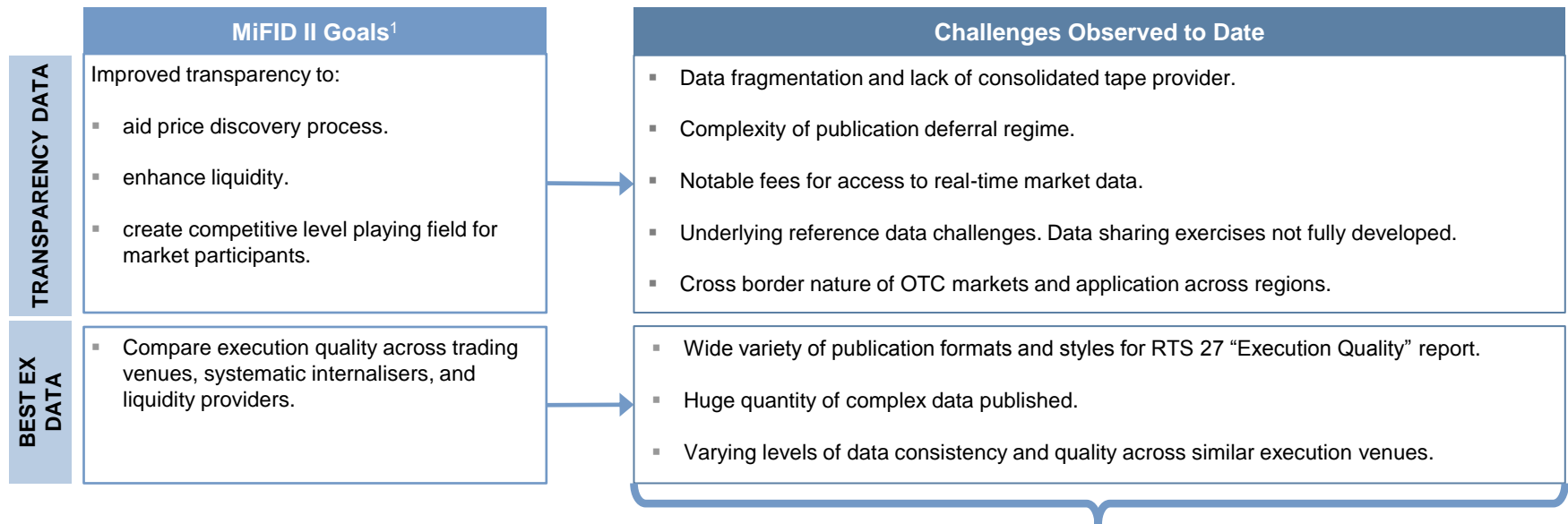
MIFID II Impact on Bond Markets: Observations so far

FOR ECB BMCG DISCUSSION PURPOSES ONLY

Summary Observations:

- Transparency: limited impact of new market data on EU bond market liquidity observed *so far*.
- Execution Quality Report: limited use of new execution report data observed *so far*.
- Slight execution channel shift from voice to electronic for Bonds, driven by embedded incentives within MiFID II reinforcing longstanding trend.
- Requirements largely fully implemented. Processes, infrastructure, and re-allocation of resources expected to evolve in response to MiFID II changes over time.

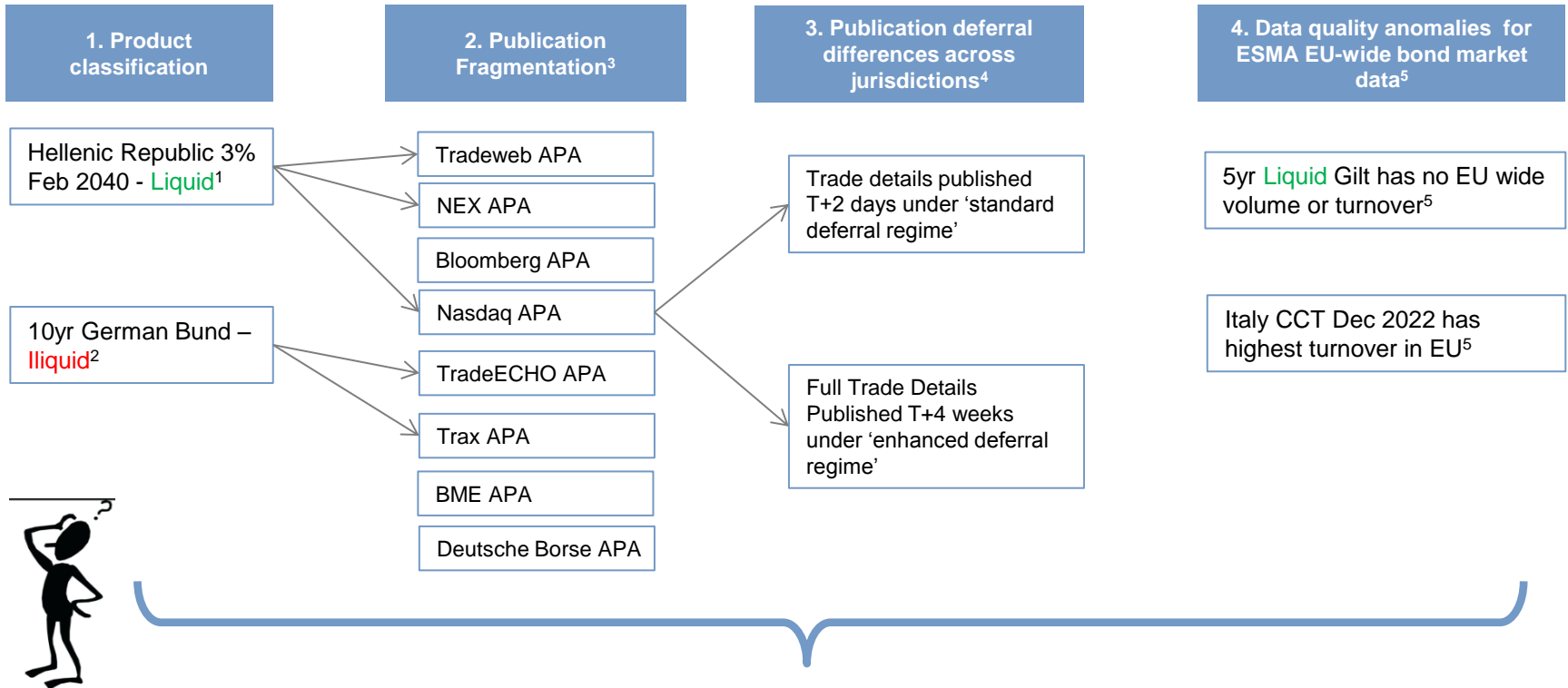
MiFID II Transparency & Best Execution Report Data Overview:



Extensive resource and data consumption exercise to overcome current challenges and extract value from Transparency and Execution Report Data

¹ = Per MiFID II/R RTS 2 and RTS 27 Recital

Illustrative Example of Observed Challenges of MiFID II Bond Market Data:



Complexity will take time to navigate. Infrastructure and mechanisms to access and interpret the data take time to bed in

1 – ISIN = GR0138012787. Source of product classification: ESMA FITRS ([Financial Instruments Transparency System](#)) Database; 2 – ISIN = DE0001102440 Source: ESMA FITRS. 3 – per Data Reporting Service Providers in ESMA's [register](#) 4 – supplementary deferral regime can differs across NCA's. FIX RTS 2 Tree illustrates: <https://www.fixtrading.org/packages/rts2/>; 5 – Source: [ESMA SI Calculations](#), ISIN = GB00BD0PCK97, ISIN = IT0005137614

Overcoming Challenges and Future Expectations:

Usability and quality of new market data generally **expected to improve over time**. Usability will be aided by the following:

- CTP (Consolidated Tape Provider) and / or complete APA aggregator to reduce fragmentation.
- Competition reducing market data costs.
- Industry solutions emerge to current reporting challenges – e.g. SI registry database.
- Improved understanding of reporting regimes and data publication.

Additional key influencing items on usefulness of MiFID II market data:

- Brexit deal and application of MiFID II in the UK vs EU-27.
- Appropriate calibration of future “liquidity” and size (LIS, SSTI) thresholds.

This message has been prepared by personnel in the Securities Division of one or more affiliates of The Goldman Sachs Group, Inc. ("Goldman Sachs") and is not the product of Global Investment Research. It is not a research report and is not intended as such.

Non-Reliance and Risk Disclosure: This material is for the general information of our clients and is a solicitation of derivatives business generally, only for the purposes of, and to the extent it would otherwise be subject to, CFTC Regulations 1.71 and 23.605. This material should not be construed as an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. We are not soliciting any specific action based on this material. For the purposes of U.S. rules and regulations, it does not constitute a recommendation or take into account the particular investment objectives, financial conditions, or needs of individual clients. Before acting on this material, you should consider whether it is suitable for your particular circumstances and, if necessary, seek professional advice. The price and value of the investments referred to in this material and the income from them may go down as well as up, and investors may realize losses on any investments. Past performance is not a guide to future performance. Future returns are not guaranteed, and a loss of original capital may occur. We do not provide tax, accounting, or legal advice to our clients, and all investors are advised to consult with their tax, accounting, or legal advisers regarding any potential investment. **The material is based on information that we consider reliable, but we do not represent that it is accurate, complete and/or up to date, and it should not be relied on as such. Opinions expressed are our current opinions as of the date appearing on this material only and only represent the views of the author and not those of Goldman Sachs, unless otherwise expressly noted.**

Conflict of Interest Disclosure: We are a full-service, integrated investment banking, investment management, and brokerage firm. The professionals who prepared this material are paid in part based on the profitability of The Goldman Sachs Group, Inc., which includes earnings from the firm's trading, capital markets, investment banking and other business. They, along with other salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients that reflect opinions that are contrary to the opinions expressed herein or the opinions expressed in research reports issued by our Research Departments, and our market making, investing and lending businesses may make investment decisions that are inconsistent with the views expressed herein. In addition, the professionals who prepared this material may also produce material for, and from time to time, may advise or otherwise be part of our trading desks that trade as principal in the securities mentioned in this material. This material is therefore not independent from our interests, which may conflict with your interests. We and our affiliates, officers, directors, and employees, including persons involved in the preparation or issuance of this material, may from time to time have "long" or "short" positions in, act as principal in, and buy or sell the securities or derivatives (including options) thereof in, and act as market maker or specialist in, and serve as a director of, companies mentioned in this material. In addition, we may have served as manager or co manager of a public offering of securities by any such company within the past three years.

Not a Municipal Advisor: Except in circumstances where Goldman Sachs expressly agrees otherwise in writing, Goldman Sachs is not acting as a municipal advisor and the opinions or views contained herein are not intended to be, and do not constitute, advice, including within the meaning of Section 15B of the Securities Exchange Act of 1934.

Disclaimers

Not a Fiduciary: To the extent this material is provided to an employee benefit plan or account subject to the Employee Retirement Income Security Act of 1974, as amended ("ERISA") or Section 4975 of the Internal Revenue Code of 1986, as amended (the "Code") (each, a "Benefit Plan Investor"), by accepting this material such Benefit Plan Investor will be deemed to have represented, warranted and acknowledged that (1) the Benefit Plan Investor is represented by a fiduciary that is independent of Goldman Sachs and its affiliates (the "Independent Fiduciary"), (2) the Independent Fiduciary is a bank (as defined in section 202 of the Investment Advisers Act of 1940 (the "Advisers Act")) or a similar institution that is regulated and supervised and subject to periodic examination by a State or Federal agency; an insurance carrier which is qualified under the laws of more than one State to perform the services of managing, acquiring or disposing of assets of a plan; an investment adviser registered under the Advisers Act or, if not registered as an investment adviser under the Advisers Act by reason of paragraph (1) of section 203A, is registered as an investment adviser under the laws of the State in which it maintains its principal office and place of business; a broker-dealer registered under the Securities Exchange Act of 1934; or an Independent Fiduciary that holds or has under management or control total assets of at least \$50 Million; (3) the Independent Fiduciary is capable of evaluating investment risks independently, both in general and with regard to the information contained in this material; (4) the Independent Fiduciary is a fiduciary under ERISA and/or the Code with respect to, and is responsible for exercising independent judgment in evaluating, the information contained in this material; (5) neither Goldman Sachs nor its affiliates are undertaking to provide impartial investment advice, or to give advice in a fiduciary capacity, in connection with the information contained in this material or with respect to any Benefit Plan Investor's subsequent investment decisions; and (6) any financial interest of Goldman Sachs and its affiliates is or has been disclosed. To the extent this material is provided to any other recipient, this material is provided solely on the basis that the recipient has the capability to independently evaluate investment risk and is exercising independent judgment in evaluating investment decisions in that its investment decisions will be based on its own independent assessment of the opportunities and risks presented by a potential investment, market factors and other investment considerations.

Legal Entities Disseminating this Material: This material is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Canada by either Goldman Sachs Canada Inc. or Goldman Sachs & Co. LLC; in Hong Kong by Goldman Sachs (Asia) L.L.C. or by Goldman Sachs Asia Bank Limited, a restricted licence bank; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs New Zealand Limited; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W), by Goldman Sachs Futures Pte. Ltd (Company Number: 199004153Z) or by J.Aron & Company (Singapore) Pte (Company Number: 198902119H); in India by Goldman Sachs (India) Securities Private Limited, Mumbai Branch; in Ireland by Goldman Sachs Bank (Europe) Public Limited Company; in Europe by Goldman Sachs International ("GSI"), unless stated otherwise; in France by Goldman Sachs Paris Inc. et Cie and/or GSI; in Germany by GSI and/or Goldman Sachs AG; in the Cayman Islands by Goldman Sachs (Cayman) Trust, Limited; in Brazil by Goldman Sachs do Brasil Banco Múltiplo S.A.; and in the United States of America by Goldman Sachs & Co. LLC (which is a member of FINRA, NYSE and SIPC) and by Goldman Sachs Bank USA. You may obtain information about SIPC, including the SIPC brochure, by contacting SIPC (website: <http://www.sipc.org/>; phone: 202-371-8300). GSI, which is authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA, has approved this material in connection with its distribution in the United Kingdom and European Union. GSI, whose registered office is at Peterborough Court, 133 Fleet Street, London EC4A 2BB, appears in the FCA's Register (Registration No.: 142888). GSI is registered as a Private Unlimited Company in England and Wales (Company Number: 2263951) and its VAT registration number is GB 447 2649 28. GSI is subject to the FCA and PRA rules and guidance, details of which can be found on the websites of the FCA and PRA at www.fca.org.uk and www.bankofengland.co.uk/pr. The FCA is located at 25 The North Colonnade, Canary Wharf, London E14 5HS, and the PRA is located at Bank of England, 20 Moorgate, London EC2R 6DA. Unless governing law permits otherwise, you must contact a Goldman Sachs entity in your home jurisdiction if you want to use our services in effecting a transaction in the securities mentioned in this material. This material is not for distribution to retail clients, as that term is defined under The European Union Markets in Financial Instruments Directive (2004/39/EC), and any investments, including derivatives, mentioned in this material will not be made available by us to any such retail client.

Phone recording: Telephone conversations with Goldman Sachs personnel may be recorded and retained.

Reproduction and Re-Distribution: Without our prior written consent, no part of this material may be (i) copied, photocopied or duplicated in any form by any means or (ii) redistributed. Notwithstanding anything herein to the contrary, and except as required to enable compliance with applicable securities law, you (and each of your employees, representatives and other agents) may disclose to any and all persons the U.S. federal income and state tax treatment and tax structure of the transaction and all materials of any kind (including tax opinions and other tax analyses) that are provided to you relating to such tax treatment and tax structure, without Goldman Sachs imposing any limitation of any kind.

Information Not for Further Dissemination: To the extent this communication contains Goldman Sachs' pricing information, such pricing information is proprietary and/or confidential and is provided solely for the internal use of the intended recipient(s). You are notified that any unauthorized use, dissemination, distribution or copying of this communication or its contents, including pricing information, in whole or in part, is strictly prohibited. Further, unless prohibited by local law, any use, review or acceptance of this information is subject to and manifests your agreement with Goldman Sachs to use such information only in accordance with the terms set forth above. Goldman Sachs has caused its proprietary information to be delivered to you in reliance upon such agreement.

Receipt of Orders: An order sent to Goldman Sachs by email or instant message is not deemed to be received by Goldman Sachs until a Goldman Sachs representative verifies the order details with a phone call to the client or acknowledges receipt of the order via email or instant message to the client. Goldman Sachs does not accept client orders sent via fax or voicemail systems.

Not a Valuation: Values herein are not customer valuations and should not be used in lieu of a customer valuation statement or account statement. These values may not reflect the value of the positions carried on the books and records of Goldman Sachs or its affiliates and should not be relied upon for the maintenance of your books and records or for any tax, accounting, legal or other purposes. The information provided herein does not supersede any customer statements, confirmations or other similar notifications.

Indicative Terms/Pricing Levels: This material may contain indicative terms only, including but not limited to pricing levels. There is no representation that any transaction can or could have been effected at such terms or prices. Proposed terms and conditions are for discussion purposes only. Finalized terms and conditions are subject to further discussion and negotiation.

Information contained in these materials does not constitute an advertisement or offering (for the purposes of the Federal Law "On Securities Market" No. 39-FZ dated 22 April 1996 (as amended) and the Federal Law "On protection of rights and lawful interests of investors in the securities market" No. 46-FZ dated 5 March 1999 (as amended)) of the securities, any other financial instruments or any financial services in Russia and must not be passed on to third parties or otherwise be made publicly available in Russia. No securities or any other financial instruments mentioned in this document are intended for "offering", "placement" or "circulation" in Russia (as defined under the Federal Law "On Securities Market" No. 39-FZ dated 22 April 1996 (as amended)).