



European
Commission

ANALYSIS OF EUROPEAN CORPORATE BOND MARKETS

*Analytical report supporting the main report from
the Commission Expert Group on Corporate Bonds
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Banking and
Finance

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INTRODUCTION

This report is the result of the work by the Expert Group on European Corporate Bond Markets, which was established by the European Commission to provide a cross-market analysis of corporate bond markets and recommendations on how to improve their functioning. This report reflects the extensive analysis by the 17 market practitioners who formed the Expert Group of the current state of the corporate bond markets and their dynamics. It is a supportive document to the Expert Group's policy report, which presents experts' recommendations to policy makers and other market participants. This analytical report is organised into four chapters analysing the European corporate bond markets from the perspectives of issuers, investors, and intermediaries, with the last chapter analysing the supporting functions and policy environment of the corporate bond markets.

Integrated, efficient and resilient corporate bond markets are a vital and core pillar of a successful Capital Markets Union. Strong corporate bond markets will give businesses access to more diverse sources of funding and offer Europeans more investment opportunities.

Issuance of corporate bonds has significantly increased over the last few years, notably driven by low interest rates and the Corporate Sector Purchase Programme (CSPP) of the European Central Bank. However, questions remain about whether this trend is sustainable, including when the current favourable economic environment changes. In any case, there is underused potential. Corporate bonds represent only 4.3 % of Non-Financial Corporations' total liabilities, far behind the 11 % registered in the US. In addition, the value of European corporate bond markets represents less than one third of what it is in the US (10 % of GDP in 2017, compared with 31 %)¹.

Given their growing importance, the functioning of European corporate bond markets needs to be enhanced. Concerns have been raised, notably in the context of the Capital Market Union and the Call for Evidence,² about a perceived reduction of liquidity³ on secondary markets, the segmentation of corporate bond markets along national lines, and more generally on the functioning of corporate bond markets.

It is against this backdrop that this Expert Group comprising 17 practitioners of corporate bond markets was established. The group's mandate was to provide a cross-market analysis of corporate bond markets and recommendations on how to improve their functioning. The Expert Group has carried out an evidence-based, forward-looking, practical assessment on how corporate bond markets can be improved to enhance their efficiency and resilience. The Expert Group's recommendations should serve as a basis for national and European authorities to decide on follow-up actions. If corporate bond market liquidity was the starting point of the Expert Group's reflection, this analytical report adopts a broader perspective and tries to give an understanding of the markets' functioning and avenues for efficiency improvement, focusing the analysis on bonds issued by NFCs.

¹ Source: SWD (2017) 224, Economic Analysis accompanying the CMU Mid Term Review

² Commission's 2015 consultation on the EU regulatory framework for financial services

³ Although liquidity is difficult to define and measure, it can be broadly described as the ability to buy or sell an asset at any time, for the desired size and at a price accurately predicted on the market, without generating significant changes to the market (i.e. price fluctuations).

Disclaimer

This report is a document prepared by the Expert Group on Corporate Bond Markets Liquidity set up by the European Commission. The views reflected in this Report are the views of the experts. They do not constitute the views of the Commission or its services, nor any indication as to the approach that the European Commission may take in the future.

CHAPTER 1 - ISSUERS AND ISSUANCE

The bond market is a significant source of financing for companies. Benefiting from a low interest rate environment, corporate bond issuances have steadily increased over the last years. However, companies have concerns about the evolution of primary bond markets – in particular as regards the difficulty for Small and Medium-Sized Enterprises (SMEs) to access these markets. This chapter describes the heterogeneity of issuances and the drivers of developments in primary markets. It analyses the reasons that make corporate debt an attractive funding option for corporates, the geographic patterns of issuance, the size and maturity of issues and the use of proceeds from bond issuance. Standardisation and disclosure requirements are also discussed.

In terms of scope, this chapter takes a closer look at issuances of investment grade, unrated and high-yield bonds⁴ by Non-Financial Corporations (NFCs) in the EU, irrespective of the nationality of the issuers and of the currency of issuances. As regards the type of issuances, both public offerings and private placements are analysed. The following type of issuers and securities have been excluded from the scope of analysis:

- issuances by financial companies;
- intra-group transactions;
- structured bonds;
- asset-backed securities;
- money market instruments with a maturity of less than 12 months;
- equity linked bonds.

1.1. Understanding the Issuer Ecosystem

This section describes the characteristics and vulnerabilities of primary bond markets. It identifies the barriers and obstacles to their development and the difficulties that companies, in particular SMEs, face to access them.

1.1.1. The benefits of issuing corporate bonds

Corporate issuers have increasingly relied on primary corporate bond markets in recent years as a permanent source of funding, to the detriment of the loan market. To understand this evolution, this section analyses first how corporates use bond proceeds, before looking at the main reasons why these markets are attractive for such issuers.

Use of Proceeds

Proceeds from bond issuances are generally used for general corporate purposes. General corporate purposes encompass various corporate finance needs, including among others: (i) maturities refinancing; (ii) funding organic corporate growth (such as capital expenditures) and increased operating expenses; (iii) operational financing such as regular operating expenditures, working capital and seasonal needs depending on the business sector; and (iv) adequacy to optimal capital structure. In

⁴ Investment grade refers to bonds or companies with a rating indicating a relatively low risk of default, as opposed to high yield bonds, characterised by higher risk and higher potential return. Investment grade encompasses high credit quality ratings ('AAA' and 'AA') and medium credit quality ratings ('A' and 'BBB')

more limited cases, proceeds from bonds such as green bonds, project bonds and bonds repurchases (liability management) may be used to finance specific projects. Lastly, corporate bonds' proceeds may also be used to finance or refinance corporate actions such as Mergers and Acquisitions (M&A) transactions.

As way of example, an analysis of prospectuses published in 2016 and 2017 for corporate bond issuances⁵ corroborated that the main use of proceeds mentioned in prospectuses was "general corporate purpose", serving objectives such as: (i) diversifying the funding sources of the company; (ii) prolonging the maturity of its financial resources by repayment of outstanding loans and/or notes; and (iii) finance and/or refinance issuer's inventory, investments and working capital.

Reasons why corporate bonds are attractive for companies

The main reasons that make corporate bond markets attractive for companies are:

- **Flexibility:** the fact that the terms of issuance (i.e. diversity of tenors, structures, conditions, covenants, currencies and timing) can be 100% customized to the company's needs is one of the most important reasons for corporate issuers to choose corporate bonds as a source of funding.
- **Agility:** in general, bond markets offer quick access and implementation compared to bank funding. They allow taking full advantage of favourable market conditions.
- **Longer tenors:** bond markets provide access to longer maturities compared to the corporate syndicated loan market, which rarely offers tenors beyond 5 to 7 years on an unsecured basis.
- **Diversification:** bond markets reduce dependence to bank lending and provide access to a new investor base.
- **Pricing:** depending on market conditions, pricing on corporate bond markets can be very attractive.

Box 1 – Why choose a bond instead of a loan?

Corporate borrowers always have the ability to choose between the loan market or the bond market. If the cost for intermediaries to provide corporates with the advantages of the bond market - longer tenors and possibly lower borrowing costs - are too high and the liquidity of the corporate bond market too low, bond markets will be less attractive. Other elements that have an impact on a company's decision to get funding through a bank loan or a bond and on an investor's appetite for a bond versus a loan are the following: (i) a loan holder generally receives more information from the issuer throughout the life of the loan; (ii) generally speaking, and even though it always depends on contractual terms and conditions, it is easier for a borrower to repay a loan than to buy-back a bond; and (iii) the costs associated with the regulatory treatment of a loan (banking regulation) and a bond may generate different incentives for the issuer and/or the investor.

⁵ Excluding issuances by banks and insurance companies

Other funding options for issuers

a) Equity financing

Equity issuance is a more permanent means of obtaining funding than corporate bond issuance, but it is also more expensive than debt instruments. It requires a review of the entire capital structure, and is therefore less frequent. At a minimum, it implies dilution for existing shareholders and thus is not a flexible financing tool. For instance, potential investors could be reluctant to provide equity if the use of proceeds is repayment of outstanding debts/liabilities. Issuing equity also tends to be a longer process and require more documentation, which translates into additional costs that can be significant. For instance, companies issuing rights would have to comply with provisions of company law. Also, when the company is public, it also has to draft and publish a prospectus.

b) Bank loans

Bank loans are normally undertaken by issuers on a syndicated loan basis for larger volumes, or bilateral basis for smaller and more specific needs. Both syndicated and bilateral loans still represent an important part of corporate financing, especially for SMEs for which access to capital markets is more difficult.

Bank loans offer mainly floating rate financing. Fixed rate financing is also available but is less frequent. The bond market offers longer financing periods than the banking system. Maturities of bank loans are shorter than debt capital markets and typically do not extend beyond 5 years and eventually 7 years, on an unsecured basis. The syndication process as well as the documentation process are clearly longer than those applicable to bond markets. Nevertheless, bank loans can be useful tools to manage short term liquidity needs, in particular when they take the form of revolving credit facilities – as the company then has flexibility to use the funds or repay them at a convenient time.

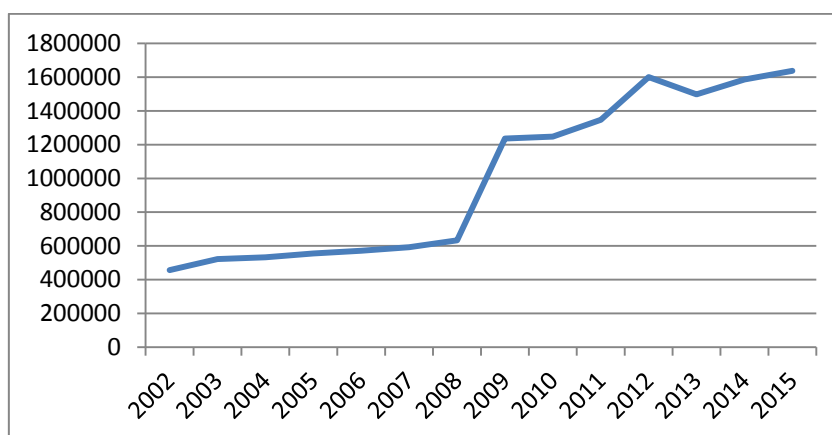
c) Asset-Backed Securities (ABS)

ABS are a means for issuers to generate more cash. Usually, the underlying assets of an ABS are illiquid and cannot be sold on their own. But pooling the assets together to create a financial security enables the owner of the assets to make them marketable. The underlying assets of these financing instruments may be *inter alia* leasing contracts or trade receivables: any predictable or consistently recurring cash-flow can be securitized into an ABS. This type of financing also gives the opportunity to adjust maturity of the financing to the specific profile of the assets.

Evolution of corporate bond markets

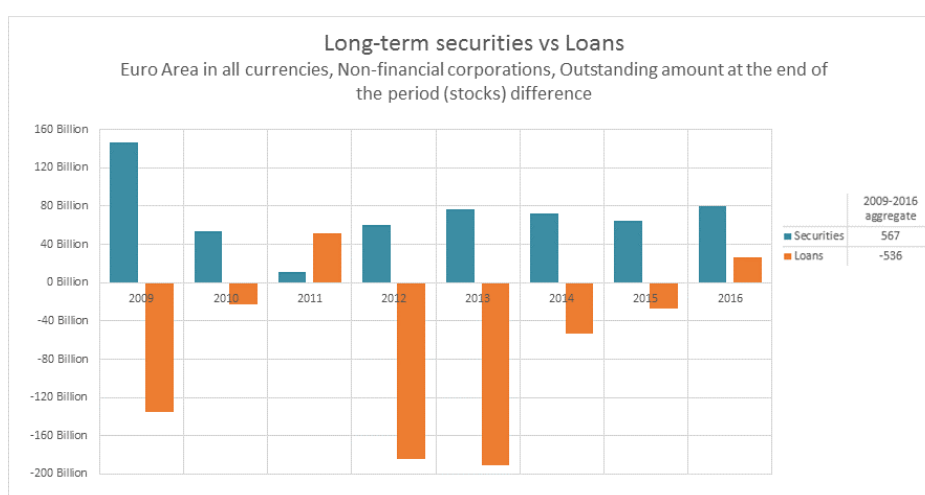
Banking disintermediation has increased in recent years and so has activity on primary bond markets. The outstanding stock of long term debt securities has increased around 3.6 times since 2002, with 70 % of the increase happening after 2008 (*see Figure 1*). For the period 2009-2016, the European bond market has compensated the decrease of bank loans to NFCs in euro area countries. In fact, according to ECB data, the stock of loans extended to corporates decreased by EUR 536 billion, whereas the stock of long term debt securities increased by EUR 567 billion over this period (*see Figure 2*).

Figure 1 - Outstanding amounts of long-term debt securities issued by NFCs, EU28



Source: ECB

Figure 2 – Evolution of outstanding amounts of Long-term Securities vs loans for NFCs.



Source: ECB

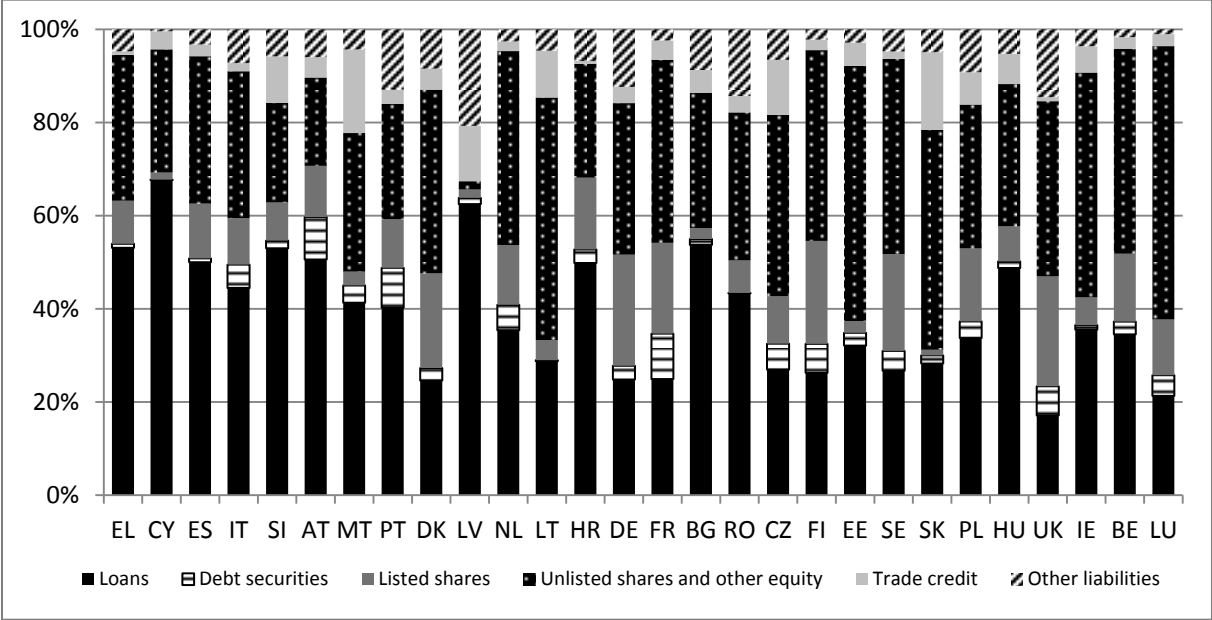
Nevertheless, issuers observe that banks are more reluctant to underwrite corporate bond transactions as a result of increased capital requirements and lower appetite for credit risk for certain industries or specific potential issuers. Market issuing windows tend to disappear temporarily in moments of stress, which can be due to geopolitical or macroeconomic tensions. New issue premiums have increased and become more volatile in recent years. In many instances, EU banking markets still offer cheaper sources of financing than bond markets. The relative underdevelopment of corporate bond markets at national and/or European level as well as a European corporate culture which traditionally relies more on bank funding than on capital markets also partly explain this situation.

How do issuers interact with corporate bond markets?

Issuers intervene on corporate bond markets mainly through the primary market, which provides part of the funding they need to run their business. Corporate bond markets have become more flexible in their issuances (in normal market conditions) and the need for underwriting from lead managers has recently become less necessary (which is matching, so far, the banks' unwillingness to provide underwriting). The proportion of debt capital markets versus banking loans funding in the corporate sector has increased in the recent years, therefore making corporates issuers more dependent on these markets.

Yet there are wide differences from one EU Member State to another. Corporate bonds are more significant in France (about 11 % of NFCs' liabilities), Portugal and the United Kingdom (about 8 %), while bonds represent 1 % or less of companies' sources of funding in eight Member States (see Figure 3)

Figure 3 – Issuance in the euro-denominated corporate bond market (EUR billion)



Source: ECB and Eurostat. Note: Consolidated data.

Access to corporate bond markets by SMEs

The corporate bond market is a wholesale market mainly focused on mid to large issuers. Although SMEs can theoretically access the market, they are much less frequent issuers due to the fact that issuances in the bond market are normally undertaken in large sizes.

One of the main characteristics of a liquid bond is its size. Big sizes allow a larger investor base and therefore a wide range of potential participants in the secondary market. Moreover, bond indexes require a minimum issuance size in order to include a bond into their references (EUR 300 to 500 million), therefore excluding smaller bonds. Bigger bond issuers tend to provide a much larger set of public information than smaller ones, which facilitates a more thorough (and cheaper) credit analysis for investors or potential market participants. Average size per tranche in the period of 2014-2016 in the European market was slightly above EUR 400 million, whereas tranches below EUR 50 million represented around 11 % of the total number of tranches and tranches below EUR 25 million just 3 %⁶.

For illustrative purposes, looking at prospectuses approved by the French *Autorité des Marchés Financiers* (AMF) in 2016 and Q1 2017:

- 66 % of issuers filing a prospectus for the admission to trading of debt securities had a market capitalisation above EUR 5 billion; 24 % had a market cap between EUR 1 billion and 5 billion; only 10 % had a market cap below EUR 1 billion including only two small cap companies (market cap below EUR 200 million);
- 71 % of these issuers and/or issuances were rated (and 29% not rated);

⁶ Source: own calculations based on Dealogic issuance data

- 66 % of the issuances were at or above benchmark size (EUR 500 million).

There are information barriers to entry on corporate bond markets for SMEs. In fact, issuing public securities requires more effort in terms of providing financial information. For example, some SMEs may establish their financial statements only in local Generally Accepted Accounting Principles (GAAP) and not in international standards. There are also requirements associated with corporate bond issuance, which represent economic barriers for SMEs, such as: the need for a rating or alternative credit assessments, the need for real assets to secure the bond, and engagement with consultants or additional human resources. Lastly, most SMEs often lack the legal, tax and financial expertise or knowledge of the market. As a result, a SME may easily find the bond market too expensive and too demanding when compared to bank financing.

Actions to facilitate SME access to bond financing within the framework of the Capital Markets Union initiative include the creation of dedicated SME bond Multi-Trading Facilities (MTFs), such as the Mercado Alternativo de Renta Fija (MARF) in Spain, which tackles some of the barriers mentioned above. Standardisation of documentation (on a voluntary basis and specifically addressed to SMEs) could also help SMEs better understand the bond documentation and information needed. Reduced legal, tax and credit costs to access the market would also encourage companies to turn to bond markets when seeking financing.

Some private-led initiatives have also been developed to help SMEs access corporate bond markets. This is notably the case of the ELITE Basket Bond, developed by the ELITE programme of the London Stock Exchange Group, which aims at supporting ambitious private companies through their next stage of growth⁷.

Standardisation of terms

Some investors consider that standardisation of the terms of issuances could improve the functioning of both primary and secondary bond markets. Many corporates issue new bonds each time they need to finance their operations. This practice allows them to minimize financing risks and optimize capital structure, debt maturity and costs. However, it also results in results in heterogeneous issuances (e.g. different coupons, maturities, embedded options or covenants), which ultimately increases the fragmentation of the secondary market. Those in favour of standardisation of selected features of newly-issued corporate bonds claim that this could bring some benefits. For instance:

- Standardised markets may be less prone to closings of issuance windows resulting from technically-driven volatility;
- the reduction of the number of individual securities could help to aggregate the secondary liquidity, currently fragmented across many securities;
- a more concentrated liquidity and the concurrent growth of electronic trading and “all to all” venues will serve to increase price transparency;
- issuers’ credit spreads would be less prone to sharp, discontinuous swings resulting from low-volume trades in illiquid bonds or in credit default swaps; liquid, standardised bonds would provide a more reliable assessment of markets’ perception of credit risk; this would enhance price transparency;

⁷ The ELITE Basket Bond is a funding tool aiming to provide debt financing to member companies of the ELITE programme. It consists of securitising a basket of individual bonds issued by ELITE companies, through a Special Purpose Vehicle (SPV). The SPV then issues an asset-backed security.

- more liquid standardised bonds could be eligible to be used as high quality collateral, easing the shortage of collateral.

From the issuers' perspective, the standardisation of the terms already exists to a certain extent (e.g. benchmark size of EUR 500 million). However, further standardisation would not help companies, in particular SMEs. The opinion that standardisation or “equalization” of corporate bond markets (particularly if regulatory driven) would not work to the benefit of issuers and should not be attempted is largely shared among issuers⁸.

Some potential disadvantages of an equalisation of corporate bonds' terms are the following:

- the standardisation of the terms would make things only marginally less complex for investors but would make debt management more difficult for companies;
- standardisation could bring new substantial risks to the financial system such as maturity walls in the corporate bond sector by setting standard maturities;
- standardisation could also undermine the reasons why issuers find the bond market attractive, which are flexibility and agility to manage their refinancing needs;
- issuers have varying cash flows/financial need cycles depending not only on their economic sector but also on their specific situations, and already have restricted windows (such as black-out periods, economical or corporate restrictions which vary among issuers); further restrictions would add extra complexity to the issuers; moreover, most NFCs do not have a significant number of different outstanding bonds compared to financial institutions.

Leaving aside the challenges that standardisation may pose to issuers, it could be argued that some of the potential benefits listed above are not clear enough. For instance, the reasons for encountering spikes in spreads volatility or even windows or periods where both primary and secondary liquidity vanish appear to be not so much linked to bond heterogeneity, but rather to external factors such geopolitical or macroeconomic tensions and expectations, or specific credit events. In short, from an issuer's perspective, the claimed benefits of standardisation are difficult to prove and quantify and will not solve the issue of a reduction in liquidity.

Considering these elements, the Expert Group does not recommend to standardise the terms of bond issuances, without prejudice to the possibility for issuers – on a voluntary basis – to avoid issuing new bonds and tap existing lines.

1.1.2. Primary market activity

Anticipation of future windows: evolution of primary markets and impact on companies' capacity to tap bond markets

The issuance of corporate bonds has significantly increased over the last decade in Europe. Issuers engaging with corporate bond primary markets realize that continuity of access at any time and reasonable credit price stability are important factors to determine the resilience and robustness of the market. In this regard, during the sovereign crisis and beyond, access to the Euro primary market was much more difficult during limited periods of time – e.g. the market could suddenly and temporarily close for high-yield issuers and a substantial part of the investment grade sector. During these periods, new issue premiums multiply on top of credit spreads widening. Reasons triggering these situations

⁸ See ICMA report "Remaking Corporate Bond Market", July 2016, and the position expressed by specific issuers, such as EACT, in the public consultation on the CMU Mid-term review of March 2017

are diverse. Market stressed conditions are mainly due to changes in the geopolitical environment, macroeconomic trends or specific negative events in a specific business sector. It is clear that when risk aversion increases because of market stressed conditions, natural buyers tend to put their purchases on hold, start to be much more selective and occasionally become sellers. However, the increase in new issue premiums on top of secondary market spreads widening could reflect not only a risk aversion premium but also a substantial liquidity premium. It is worth mentioning that such “closed windows” have not been observed for European corporate bonds primary markets since the ECB announced its Corporate Sector Purchase Programme (CSPP) back in March 2016.

Comparison with US markets

The US non-financial corporate bond market is much deeper than the European one in terms of issuances and volumes. Taking into account not only bonds registered with the Securities and Exchange Commission (SEC) but also 144A bonds in the US, the US corporate bond market is approximately three times larger than the European bond market in terms of issuance activity.⁹

One of the vulnerabilities of the Euro-denominated market is the lack of issuance of very long maturities (meaning maturities of 15 years or longer). Only 4.6 % of issuances in the past five years (2012-2016) in the euro-denominated European market have been issued with maturities equal or longer than 15 years, compared to 16.1 % in the USD primary bond market. When it comes to 30 years maturity, the percentage of euro-denominated issuance is below 1 % on average, meaning that there is virtually no issuance on 30 year or more (not taking into account hybrid securities). This very low percentage is quite meaningful, as 30 years is a standard issuance maturity in many other debt markets such as the EUR sovereign market, the GBP corporate bond market, the USD corporate bond market and some Asian bond markets (such as the “Formosa” market). As an example, the average percentage of 30 years issuance in US corporate bond Market in the past seven years is around 13 % of total issuance¹⁰.

Explaining the lack of issuance of very long maturities in the European corporate bond market is not easy. Natural buyers of very long-term assets such as pension funds and insurance companies but also some asset managers may find it useful to match the duration/yield of their portfolios with their liabilities. One of the reasons behind the shortage of corporate bonds with long tenors could be regulatory requirements (See chapter 2 section 3 on Solvency II and Chapter 3 on prudential requirements for banks). Moreover, US investors (not only pension funds or insurance companies) are traditionally much more accustomed to investing in securities with 30-year maturities or more. This implies a cultural difference. Another reason worth mentioning is the relatively recent set up of the Euro currency compared to the US Dollar or the GB Pound. European multinationals and large European corporate issuers have been regularly accessing the USD market (also called “the Yankee market”) as it enables them to extend their maturity profile, to diversify their investor base, and provides natural hedging to overseas businesses as well as arbitrage opportunities in some specific periods.

More recently, the opposite phenomenon has also been observed, sometimes referred to as “Reversed Yankee Market” deals, with US issuers tapping the European bond market and issuing in euros, often for significant amounts (EUR 123 billion during 2015-2016 years, or approximately 23 % of total corporate issuances in EUR for those years). The main reasons for US companies to issue in the EU are: (i) operational needs of the Euro currency for their business; (ii) arbitrage opportunities, mainly

⁹ Source: Dealogic and Bloomberg data

¹⁰ Source: Bloomberg

when cross currency basis swaps get closer to zero – although this did not happen in 2016 where currency swaps remained in very negative territory, possibly as a result of the ECB CSPP; (iii) market diversification; and (iv) market capacity (above all when large M&A-related financing is needed).

1.1.3. Importance of secondary market liquidity to issuers

Box 2 – The "natural liquidity life cycle" of corporate bonds

Recently, concerns have been raised about a perceived lack of secondary market liquidity of European corporate bonds. The illiquid nature of corporate bonds notably lies in their heterogeneity: a company often has several bond issues. Corporate bond trading follows a "natural liquidity life cycle": after a reasonably active period directly after issuance, trading of a corporate bond usually sees a decline in activity (i.e. buying and selling becomes increasingly scarce), until the issuer of the bond either experiences a credit event (such as, for example, a credit rating downgrade or an adverse news story), the bond is refinanced, or it matures. Typically, the active trading period ranges between one and three weeks, after which liquidity declines, as corporate bonds get "silo-ed" in portfolios of buy and hold investors.

Although primary and secondary markets are not fully linked, there are some interactions between the two markets, which mainly relate to the cost of borrowing. On primary market price discovery, secondary market's curves are used as a benchmark to determine a new bond price. This is especially true in the case of frequent issuers with enough points of reference down the curve. But prices on secondary markets are also useful to help determine the cost of inaugural bond issuances for new entrants in the bond market, by referencing similarly rated issuers and/or sector curves. There is no clear evidence that new issue premiums (concessions over secondary fair value) are related to liquidity in secondary markets, but it can be observed that during stressed market periods when liquidity is low, these concessions grow substantially and become very volatile. Given the recent expansion of the primary corporate bond market, it is difficult to determine the effect that an increasingly illiquid secondary market may have on primary issuance capacity going forward, but it should definitively be monitored.

Issuers' views and concerns

There is a shared concern among issuers with respect to the health of the secondary market.¹¹ Nevertheless, there is no consensus among issuers about the importance that each issuer attributes to secondary market. Importance would range from very low (full disconnection from secondary liquidity to primary capacity) to very high in order to raise funds on an ongoing basis: *"...the degree of concern [about secondary liquidity] is varied [among investors] as to the likely impact this could have on their future issuance and capital structure, or their potential role in improving liquidity, and is largely dependent on their issuance profile."*¹²

A concern that has been pointed out by issuers is the existence of sharp drops or even "market closed periods" in the European primary credit markets such as in January - February 2016 when, after a sharp sell-off, European primary bond market "virtually closed". Issuers are concerned that such a

¹¹ See notably ICMA report: Remaking the corporate bond market, July 2016

¹² ICMA report: The current state and future evolution of European IG corporate bond secondary market: perspectives from the market, November 2014

situation may happen again when the ECB CSPP stops¹³, which would negatively impact the capacity of companies to finance themselves on corporate bond markets.

1.1.4. Fragmentation of bond markets

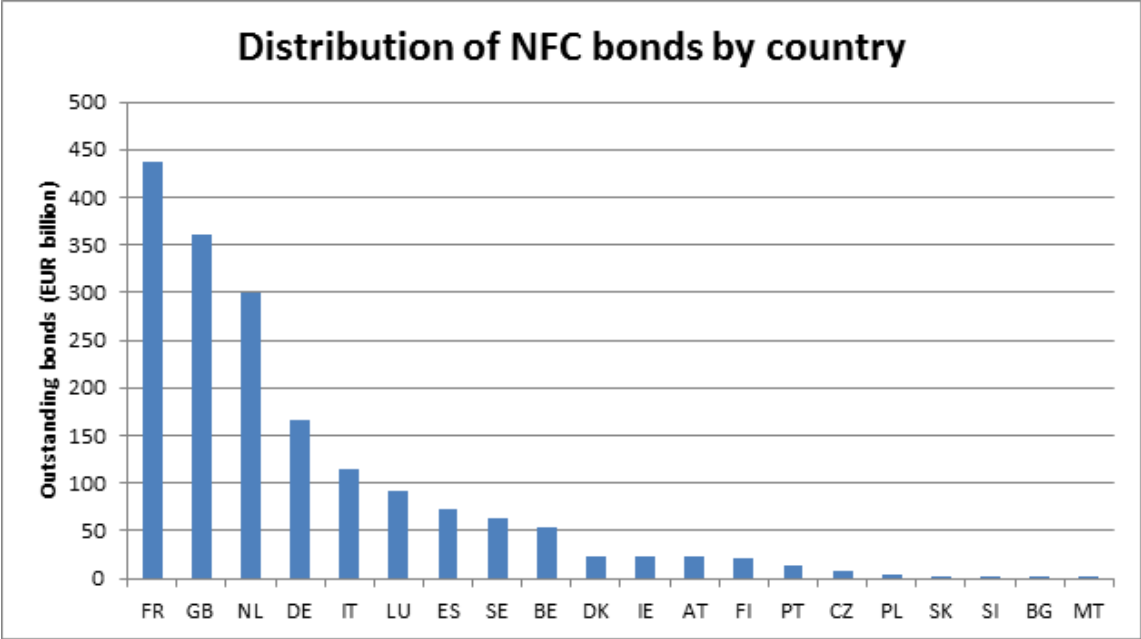
Evolution of bond markets fragmentation since the 2008 crisis

Market fragmentation in the euro area increased with the global financial crisis and then during the sovereign debt crisis. It decreased after 2012, when several non-conventional monetary policy instruments were introduced¹⁴.

In the quiet period before the burst of the global financial crisis, the euro area corporate bond market was gradually integrating. The global financial crisis reversed this integration, which deteriorated the funding ability of corporations in several countries. However, it is during the sovereign debt crisis (Q2 2010 – Q2 2012) that corporations from almost all countries experienced significant difficulties – notably in comparison with companies issuing in Germany, which was set as the reference country. It is only in the most recent period, characterised by the quantitative easing by the ECB (Q3 2014 – Q4 2015) that the market has been gradually returning to a more even level playing field.

Six countries (France, the United Kingdom, the Netherlands, Germany, Italy and Luxembourg) account for about 80 % of all European corporate bonds by value. Countries such as the Netherlands, Ireland and Luxembourg seem to attract a significant volume of bonds issued by firms operating from other EU countries (see Figure 4).

Figure 4 – Distribution of bonds by country, NFCs, EUR billion (as of 26 September 2017)



Source: Bloomberg

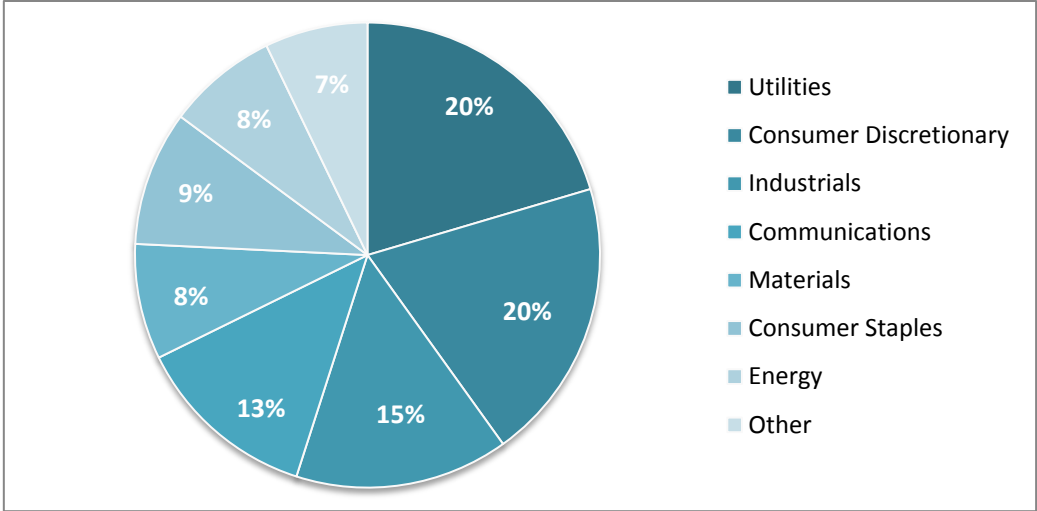
¹³ see IOSCO’s report: Examination of Liquidity of Secondary Corporate Bond Markets, February 2017, and ICMA report: Remaking the corporate bond market, July 2016

¹⁴ See De Santis, 2016; Horny, Manganelli, & Mojon, 2016; Zaghini, 2016

Concentration of the corporate bond market

Issuance by NFCs is concentrated in the EU. In 2014, 20 EU NFCs represented 37 % of total outstanding NFCs' bonds, to compare with 23 % in the US. It should also be noted that some industrial companies use a financial arm to issue bonds. This is more the case in the US (e.g. General Electric Capital, Ford Credit Europe, and Caterpillar) than in the EU (except for instance for Volkswagen, which is one of the 20 largest NFC user of corporate bonds in Europe).

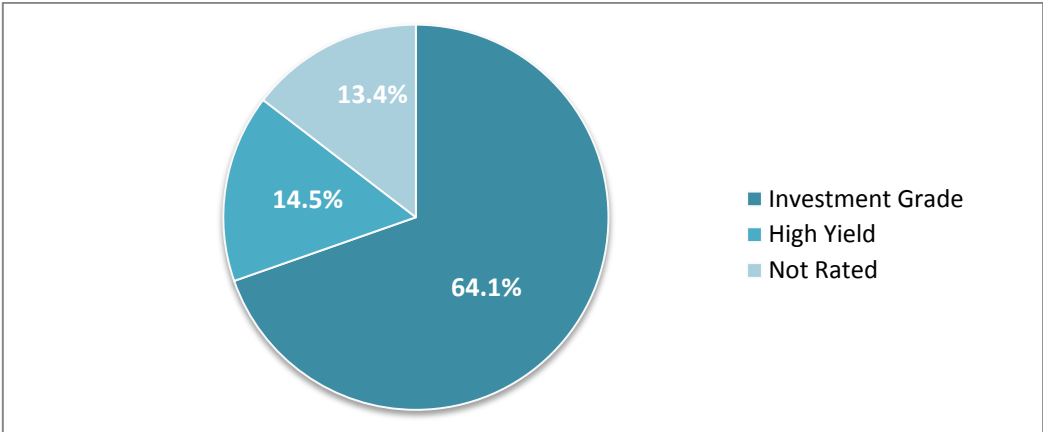
Figure 5 - Distribution of outstanding corporate bonds by sector (of issuers), 26 September 2017



Source: Bloomberg

1.1.5. High-yield bond market

Figure 6 - Distribution of outstanding corporate bonds by rating, 26, September 2017



Source: Bloomberg

Over the last decade, diversity has grown among the issuers that tap the high-yield market. In the late 1980s, high-yield bonds were generated by a few participants and heavily used to finance merger and takeover transactions. Today, the market has broadened to include many dealers and issuers with diverse needs. Issuers of high-yield bonds can be grouped into the following categories:

- **“Rising stars”** are emerging companies that have not yet reached their maximum capacity. They do not have the size or the capital strength required to receive an investment-grade rating. Although such companies can be risky, credit rating agencies only consider their lack of track

record when issuing ratings. As a result, a newly emerging company that qualifies for a single-B rating should have about the same risk level as an established company with the same rating. In some cases, bonds may offer the first chance to participate in growth companies, before these companies launch their initial public offering (IPO) of equity to the public. Eventually, rising stars may grow to become larger companies with top credit ratings.

- **“Fallen angels”** are former investment-grade companies that are experiencing hard times, causing their credit rating to drop from investment-grade to lower ratings. If their prospects improve, some fallen angels can regain their investment-grade status.
- **High-debt companies** (which may be blue chip in size and revenues) are companies leveraged with above-average debt loads that may cause concern among rating agencies. Companies refinancing debt sometimes turn to high-yield bonds to pay down bank lines of credit, retire older bonds or consolidate credit at attractive rates of interest. Companies also turn to the high-yield bond market to fund acquisitions or buyouts, or to fend off hostile takeovers.
- **Leveraged buyouts** (LBOs) create a special type of companies that typically use high-yield bonds to buy a public corporation from its shareholders, often to the benefit of a private investment group that may include senior managers. Some corporate assets or divisions may then be sold to pay down the company's debt.
- **Capital-intensive companies** turn to the high-yield bond market when they are not able to finance all of their capital needs through earnings or bank borrowings. For example, cable TV companies require large amounts of capital to expand or upgrade their systems.

1.1.6. Private placements

Private placements are also an alternative to bank loans and corporate bond markets, in particular for small and medium-sized companies. The main driver for seeking funding via private placements is the simplicity of their contractual documentation. Private placement markets can also be seen as an intermediary and preparatory stage for small and medium companies before they gain access to public debt markets.

European Corporate Debt Private Placement Market

The European Corporate Debt Private Placement Market (ECPP Market) is designed for medium-sized and unrated companies and allows them to access long-term debt funding, as an alternative to other types of funding like loans or bonds. The ECPP can however also accommodate larger corporate issuers. The ECPP market is an institutional investor market with a buy-to-hold strategy and is not aimed at retail investors. By the end 2015, the ECPP Market was estimated at EUR 14 billion by S&P¹⁵. According to the credit rating agency, the search for yield will drive the growth of ECPP over the coming years "as interest rates in Europe will likely remain low and the disintermediation of European banks slowly continues". Private placements may also play a more important part in the long run for mid-market companies.

The key characteristics of an ECPP are as follows:

- An ECPP is primarily aimed at companies that are not rated but also open to rated issuers seeking diversification of funding sources;

¹⁵ European Alternative Lending Markets Take An Ever-Bigger Slice Of The Cake, S&P, April 2016

- Its target investors are professional investors able to analyse creditworthiness, and with a buy and hold strategy;
- An ECPP, whether in the form of a loan or of an (unlisted) securities, is privately offered to a small group of investors;
- An ECPP has a senior unsecured status, ranking *pari passu* with other senior debt.

In order to help develop the ECPP Market, an ECPP Joint Committee was established in 2015 coordinated by ICMA and published a guide to build on existing practices. This guide evolved out of the *Charter for Euro PP* mentioned below.

Euro PP in France

In France, financing sources have evolved since the 2008 crisis, with financial markets representing, 35 % of funding sources in 2013 vs. 26 % in 2008, according to the ECB. In 2014, 5 000 intermediate-size companies had significant unmet financing needs in 2014 according to the French Central Bank (Banque de France, BdF).

The Euro PP initiative was launched in 2013 by the Paris Chamber of Commerce and Industry and supported by the Banque de France and French Treasury, with a view to develop private placements in France and encourage diversification of funding sources for both listed and non-listed SMEs. According to the Euro PP website, "A Euro Private Placement (Euro PP) is a medium or long-term financing transaction between a listed or unlisted company and a limited number of institutional investors, based on deal-specific documentation negotiated between the borrower and the investors, generally with the participation of an arranger".

Euro PP can either be a loan or a bond issue. They are unrated, and addressed to investors with a buy and hold strategy. The fact that the terms and conditions are negotiated with investors is an important feature of the transaction.

In March 2013, a working group of professional organisations was set up to draft a framework ("the Charter") aimed at promoting the development of this funding source, and at establishing Paris as a reference market for Euro PP in Europe. The Charter objective is to guide the different parties involved in the transaction, in particular corporates, and includes (i) an identification of the parties involved and description of responsibilities; (ii) recommendations regarding key steps of the transaction (terms and conditions definition, due diligences, periodic disclosure during terms of the bonds or loan); and (iii) standardised contractual documentation. The average amount per transaction raised in 2016 was EUR 65.0 million versus EUR 78.9 million in 2015 (see table 2).

Table 1 – Evolution of the Euro PP market

	2013	2014	2015	2016
Number of transactions	33	85	109	80
Total amount (EUR billion)	2.5	4.7	8.6	5.2

Source: Dealogic

The Schuldschein market

Schuldscheindarlehen (SSD) have become an important component of corporate finance in capital markets, and more specifically in Germany. Schuldschein has slimmer documentation requirements compared to corporate a bond issuance. Publication and documentation costs are lower and an external rating is not mandatory. Nevertheless, they are usually implicitly considered to be investment grade. SSD are particularly interesting for companies wishing to broaden their financing base across diverse institutions and to present themselves more strongly in public. Investors in Schuldschein are banks, savings banks and insurance companies, primarily for buy and hold purposes. The content of a Schuldschein contract corresponds more to a bilateral loan agreement than a bond.

SSD offer several advantages: (i) they have a broader group of investors than syndicated loans; (ii) they offer the possibility of individual coordination between issuers and borrowers; (iii) they have low documentation costs; (iv) their reporting requirements apply only to investors (i.e. no public disclosure requirements); (v) their transaction costs are significantly lower than those of corporate bonds; (vi) accounting for the investor considers the amortized cost and not the market value in accordance with IFRS (which was of important interest at the height of the crisis); and (vii) they have stable issuance spreads in volatile market phases.

According to a study¹⁶, annual corporate issuance rose by 28 %, reaching an all-time high of EUR 25.8 billion in 2016. In the same year, 129 deals were concluded, compared with 134 in 2015. German companies still account for the largest share of the issuance volume, at 58 %. France and Austria follow, each accounting for 10 % of the issuance volume. The remaining 22 % are shared between Swiss, Dutch, Irish, Belgian and US-based companies. Industrial companies continued to account for the majority of Schuldschein issuance with 46 % of the total, followed by consumer discretionary at 16 %, consumer staples at 14 %, healthcare at 7 % and technology at 5 %. In 2016 the average tenor was 6.59 years and the average size of corporate Schuldschein was over EUR 200 million.

Rated companies are still relatively rare in the Schuldschein market, with only 28 % of Schuldschein being issued by companies with ratings from the main credit rating agencies. Incentives for Schuldschein issuance are similar to those for bonds in the form of M&A and refinancing.

Table 2 – Evolution of the Schuldschein market

	2013	2014	2015	2016
Number of transactions	72	82	134	129
Total amount (EUR billion)	9.1	12.1	20.2	25.8

Source: Dealogic

The Expert Group recommends that Private Placements be further developed, building on existing experience and markets. In particular, the development of private placements for SMEs should be stimulated.

¹⁶ Corporate Schuldschein 2016 Review, Thomson Reuters

1.1.7. Other specific markets

Unrated bond market

Between 2010 and 2014, the total amount issued on the unrated corporate bond market reached about EUR 82 billion¹⁷. Issuances of unrated euro-denominated bonds hit EUR 11 billion in 2015 and decreased to EUR 4 billion in 2016. As of 26 September 2017, unrated corporate bonds represent 13.4 % of all outstanding bonds. They constitute a much smaller market than the investment grade and high yield markets – which, respectively, represented 64.1% and 14.5% of outstanding bonds, (*see Figure 6*). The unrated bond market shows little opportunity for expansion considering limited demand from retail and institutional investors and a revival of bank lending. Its development has been driven by investors' search for yield. As a matter of fact, companies issuing on the unrated bond market – despite opportunistic issuances by smaller issuers from and outside the Euro zone – show an investment or near-investment grade profile that makes them attractive to investors. Moreover, since the secondary market would offer less liquidity, investors would benefit from a higher yield (higher premium paid at issuance).

The unrated corporate bond market is characterised by the fact that it is capped to 10 % of all outstanding bonds, since investors are constrained by holding requirements in their portfolio. Germany and France are the main domiciles of unrated issuances but companies from outside the euro area have also seized opportunities to issue on this market (from Switzerland, the UK, the US, Canada...). 60 % of issuances are below EUR 100 million and 32 % of issuances between EUR 100 and EUR 500 million, the average size being around EUR 142 million. Unrated bonds issued are essentially fixed-coupon rate with an average coupon of 4.88 % (5 % in 2010 and 4.6 % in 2014). The average tenor is 5.6 years. Issuers on the unrated bond market come mainly from the following sectors: Construction/building (11 % of volume of issuance between 2010 and 2014); Oil/gas (8 %), Retail (8 %), Healthcare and Electronics (7 % each)¹⁸.

The unrated bond market is thus particularly useful for companies which do not need to tap markets on a regular basis and allows for more leeway in terms of strategy. As for investors, this market makes it possible to invest in well-known companies that would otherwise turn to private placements.

Table 3 – Advantages of unrated bonds: views of issuers and investors

Advantages of unrated bonds – Issuers' view	Advantages of unrated bonds – Investors' view
Avoid costs and effort of rating process; unrated issues are often accompanied by in-depth credit research to support transparency	Favourable investment opportunity since issuers pay a premium to the yield
Funding diversification and lighter covenant packages	Issuers could be classified as IG or near-IG and key features of unrated bonds not materially different from rated bonds
Well-known issuers can benefit from retail investor familiarity; however retail investor base is limited	Restriction on amount invested in un-rated bonds and lower liquidity

¹⁷ Unrated Corporate Bonds, Unicredit Credit Research, February 2015

¹⁸ Unicredit

The Polish experiment: Catalyst

In 2009, and after a few years of consultation with market participants, the Warsaw Stock Exchange (WSE) together with BondSpot opened a new trading platform called Catalyst, dedicated *inter alia* to corporate bonds. Catalyst combines four trading platforms: (i) two operated by the WSE (a regulated market and an alternative trading system - ATS), dedicated to retail investors, and (ii) two BondSpot markets (regulated market and ATS) focusing on wholesale investors. The idea was to ensure that the market could accommodate issuances of different sizes and parameters and serve the needs of different investor groups: wholesale and retail investors, institutions and individuals. All Catalyst platforms support trading in non-treasury debt instruments: municipal bonds, corporate bonds, and mortgage bonds. Simultaneously an authorization process was introduced to ensure that issuers are public companies, transparent and accountable to the market and business environment, as demonstrated by compliance with the Catalyst reporting requirements (which are identical to those applicable to issuers of instruments listed on regulated markets).

These changes – together with favourable market conditions – have sparked increased interest from issuers in the bond market, as reflected by the number of new issuances. Until 2012, the Polish corporate bond market had been developing at a two-digit pace. In the first quarter of 2012, the value of issued corporate debt securities exceeded PLN 100 billion, PLN 26 billion of which accounted for corporate bonds. It merely represented 3 % of Poland's GDP in 2011.

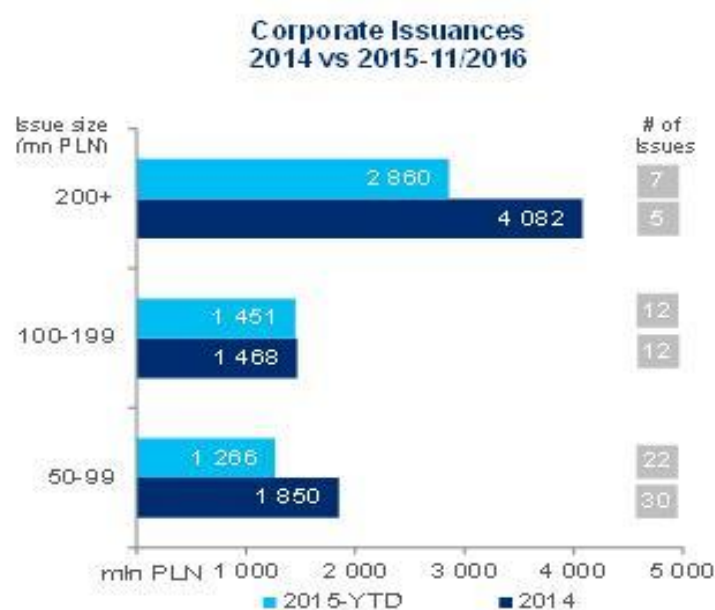
After 2015 the growth of the corporate bond market slowed down due to several important factors, including:

- a relatively high liquidity in the banking system;
- the fact that the creation of the Catalyst platform was not followed by solutions supporting market liquidity (e.g. the creation of a clear system, similar to ECB procedures, for repo transactions or making easier for banks to be market makers);
- long discussions on the direct participation of banks in trading on the public market without the need to extend – or obtain – their brokerage licenses (finally completed successfully with the relevant change in the law but too late to have real influence on the market);
- the introduction in 2016 of a banking assets tax (banks will not be interested in dynamic growth of their balance sheet);
- the still unresolved problem of withholding tax for foreign investors; and
- capital charges on banks' assets, which directly affected the tightening of banks' credit policy and forced them to adopt a more selective approach in granting new issues.

All those factors have been reflected in the loss of interest from banks (i.e. the more experienced and powerful participants of the market) in the bond market.

The following graph illustrates the evolution of the corporate bond market:

Figure 7 – Comparison of Corporate issuances by size between 2014 and 2015-2016 in Poland



Source: Based on information published by Fitch Poland

The Spanish Alternative Bond Market - Mercado Alternativo de Renta Fija (MARF)

MARF was born from a programme of reforms elaborated in 2013 with the aim to reduce the dependency of the Spanish economy to bank intermediation. It is managed by AIAF Mercado de Renta Fija, BME Group (Bolsas y Mercados Españoles), and is structured as an MTF. This is only one example among several, as other similar MTFs have been developed in recent years in Europe.

As an MTF, MARF provides access to capital markets to issuers under more flexible conditions compared to traditional regulated markets. In this sense, it does not require annual accounts to be presented under international accounting standards, but the issuers could (optionally) present accounts according to local accounting standards, and it is not necessary to get approval of the Spanish National Competent Authority (the CNMV) for the prospectus to be published. Nevertheless, there are still mandatory requirements that need to be complied with. Either a rating from a rating agency, or alternatively a credit or solvency assessment report issued by an entity certified and registered with ESMA, is needed. BME Currently requires a minimum rating of BB- or a proper credit or solvency assessment report (although this may be changed by the exchange). Audited annual accounts (individual and, where applicable consolidated) for the previous two years, with unqualified auditors report, are mandatory (this requirement may be adapted in the case of recently formed entities.). Several legal documents have to be provided and certified (certificates of incorporation, powers of attorney, etc.). Other reports related to price valuations, yield or interest rates may be required by the exchange.

Securities issued on MARF can only be distributed to qualified investors, as defined under the Prospectus Directive and Spanish Regulations, as the participation in the market is restricted to professionals, insurance companies, pension funds, investment funds, asset managers, banks and other investment services entities. MARF reduces costs and barriers to entry for local issuers, who may not have the capacity to comply with all official requirements, and offers them another way to diversify their funding sources.

The main reason why new issuers tap this market is to benefit from reduced reporting requirements, which some companies are not accustomed to produce. The requirements may still mean additional work for issuers but not as burdensome as on the official exchange. Medium or small-sized companies may access markets for relatively small issuance amounts. MARF would enable a first contact with capital markets (even for large companies) and a diversification out of bank financing. If these companies consider this first experience successful or interesting, they could plan, in a second step, to access main or international capital markets. Since the end of 2013, the development of the market has been positive, especially on the short term segment. Two main products were developed: (i) Pagares (Commercial Paper up to two-year maturities) and (ii) Bonds (for longer term maturities).

As of December 2016, 29 companies from diverse sectors and sizes had accessed MARF.

Table 1 – MARF Issuance Volumes (million euros)

	Commercial papers	Bonds	Number of issuers
2013		50	1
2014	211	278	11
2015	449	383	21
2016	1.858	422	29

Source: Bolsas y Mercados Españoles

Local bond markets of Central and Eastern Europe

Almost all countries of Central and Eastern Europe have local corporate bond markets. They remain small in terms of volume, value and the number of companies issuing bonds. Nevertheless, for many issuers they provide the first opportunity to access bond markets. In addition to the Polish market described above, corporate bond markets exist *inter alia* in Hungary, Czech Republic, Slovakia, Lithuania, Latvia, Estonia, Croatia and Romania.

The Budapest Stock Exchange (based in Hungary) has a corporate bond market with a current value of EUR 3.65 billion. The corporate bond market represents 3 % of the Hungarian economy. As of today, 13 companies have bonds listed on the Budapest stock exchange.

The Czech corporate bond market (based in Prague) is worth EUR 8.84 billion. 32 companies have bonds listed on this market. In 2016, only 86 issues were placed on the local market. The corporate bond market is worth 5.1 % of the Czech GDP.

The value of the bond market in Slovakia is around EUR 4.83 billion. It is larger than in Hungary but smaller than in the Czech Republic. In 2015, 14 companies carried out a total of 26 issues. The turnover on the Slovak Stock Exchange is created mainly by bonds (in 98 % of instances). Most of the transactions are done on state-treasury bonds.

Another group of states includes Lithuania, Latvia and Estonia. The value of the corporate bond market in Latvia is of EUR 10 million, EUR 1.4 billion in Lithuania, and EUR 340 million in Estonia. They are therefore significantly smaller than those discussed above. Only the Lithuanian Stock Exchange stands out, but remains almost three times smaller than the Hungarian one. Their markets currently comprise listed corporate bonds of 20 companies, which is also the number of all issuers in

these markets. Most are banks, but other sectors include fashion, telecommunications and energy. The turnover in these markets is negligible, and the majority comes from transactions on bank bonds.

1.2. Externalities

1.2.1. Effects of Regulation on the Industry

Impact of the new Prospectus Regulation

The EU Prospectus Directive adopted in 2003 defines and harmonises the disclosure requirements for issuers offering securities to the public and/or seeking admission of securities to trading on regulated markets. Issuers have to draw up and file a prospectus with the relevant National Competent Authority, describing the activities of the issuer, its financial situation, risk factors and prospects, as well as the characteristics of the securities and of the offer/admission. The prospectus is approved by the NCA and published by the issuer before the start of the offer or the admission to trading of the securities. The Directive was transposed in the Member States in 2005 and reviewed for the first time in 2010.

Following a second review, European legislators adopted the Prospectus Regulation, to enter in application and replace the existing rules two years after its publication in the Official Journal, on 30 June 2017.

The Prospectus Regulation offers several exemptions to the obligation to publish a prospectus. These exemptions apply to:

- offer of securities addressed solely to qualified investors;
- offer of securities addressed to fewer than 150 natural or legal persons per Member State, other than qualified investors;
- offer of securities whose denomination per unit amounts to at least EUR 100,000;
- offer of securities addressed to investors who acquire securities for a total consideration of at least EUR 100,000 per investor, for each separate offer.

However, a prospectus would still be required for the admission to trading on a regulated market even for these cases.

For non-equity securities, the prospectus may consist of a base prospectus containing information on the issuer and the securities offered to the public, or to be admitted to trading on a regulated market and approved by National Competent Authorities, and of final terms, published for each issuance and filed with the authorities. The base prospectus includes a template, entitled ‘form of the final terms’, to be filled out for each individual issue and indicating the available options with regard to the information that will be determined in the final terms of the offer.

The Commission has sent a request for technical advice to ESMA to elaborate implementing measures. ESMA will define the content of prospectuses – and in particular base prospectuses – and elaborate the different schedules applicable to equity and non-equity securities in order to draw the prospectuses. ESMA is currently working on the draft implementing measures. On 6 July 2017, it published a consultation paper on the content of prospectuses and invited market professionals to comment on the new disclosures requirement. The consultation ran from 6 July to 28 September 2017.

The Expert Group considers that this consultation could offer the opportunity to put forward recommendations to alleviate some of the burdens associated with debt securities prospectuses: as a matter of fact some issuers have complained about the length of these base prospectuses, the time required and the costs incurred.

Possible alleviations could also be found in the approval process by NCAs: when the debt securities are placed with qualified investors and the prospectus is filed only for the purpose of admission to trading on a regulated market, then a faster/lighter approval process could be applied.

The Expert Group supports the objective to streamline the Prospectus rules and reduce in particular the disclosure requirements for SMEs. Level 2 of the Regulation should be swiftly implemented, while maintaining the current flexibility and level of disclosure for wholesale debt issuances.

Impact of the Market Abuse Regulation (MAR)

MAR came into application in July 2016 and replaces the previous provisions of the 2003 Market Abuse Directive and its implementing measures.

MAR defines and prohibits market abuses (insider trading, market manipulation, unlawful disclosure of inside information) and imposes several obligations including measures to prevent and detect market abuse (notification of suspicious transactions, directors' dealings notification, insiders lists...). In particular, MAR imposes new and strict requirements regarding market soundings.

Market soundings are carried out prior to the announcement of a transaction in order to gauge the interest of potential investors and the conditions of the transaction (potential size of issuance or pricing of the bonds). Market soundings are thus mostly instrumental in the « Go - No Go » process and in determining the final terms of a bond issuance.

In case of market sounding:

- the disclosing market participant – i.e. an issuer, bank or investment firm acting on behalf of the issuer, who is disclosing information in the course of a market sounding – shall consider whether the market sounding will involve the disclosure of inside information (and make a written record of the conclusion reached);
- the disclosing market participant shall also obtain the consent of the people receiving the market sounding to receive inside information;
- the disclosing market participant shall inform the people receiving the market sounding that they are prohibited from using that information, or attempting to use that information:
 - by acquiring or disposing of, for their own account or for the account of a third party, directly or indirectly, financial instruments relating to that information;
 - by cancelling or amending an order which has already been placed concerning a financial instrument to which the information relates;
- the disclosing market participant shall inform the people receiving the market sounding that by agreeing to receive the information they are obliged to keep it confidential; and
- the disclosing market participant shall make and maintain a record of all information given to the people receiving the market sounding.

These requirements are generally considered burdensome and could dissuade banks and intermediaries from performing market soundings, or at least make these soundings more difficult. The requirements of MAR regarding market sounding are aimed at large, relatively liquid markets and do not take into

account the specifics of activity on local, illiquid markets. Implementing these rules on local markets significantly restricts the willingness of potential issuers to carry out new issuances, in particular for entities that do not fall into the "frequent issuers" category.

The Expert Group recommends that the provisions of the Market Abuse Regulation regarding market soundings be amended in order to alleviate the requirements that the firms carrying out market soundings for corporate bond issuances have to comply with.

Other legal and tax barriers: the example of the withholding tax in Poland

The concept of direct bond issue by Polish corporates on the euro-denominated market is difficult to implement due to the Polish withholding tax (WHT). Direct issuances are possible but the euro-market standards require that in case of withholding tax (such as in Poland), the issuer should gross-up the interest payment so that the bondholders receive the interest as if the tax had not been withheld (to calculate taxes in investors' tax resident countries). For many, this will mean a non-standard process and it may have an impact on pricing.

Instead of the direct issuance structure, the Polish corporates prefer (i) the consolidated SPV structure, or (ii) the orphan company structure. This creates additional costs for the issuers and complicates plain vanilla issuance structures. This is also the main difference between fixed income and equity investors.

WHT also distorts investors' valuation of bonds and makes it difficult to conclude transactions on the secondary market.

1.2.2. Central Bank Operations

ECB's Corporate Sector Purchasing Programme (CSPP)

On 8 June 2016 the Eurosystem started to make purchases under its new Corporate Sector Purchase Programme (CSPP). The CSPP aims to further strengthen the financing conditions of the real economy. The CSPP is part of the Eurosystem's asset purchase programme (APP), under which purchases are intended to run until the end of December 2017, or beyond if necessary.

The Eurosystem purchases securities issued by non-bank corporations in both the primary and the secondary market. To be eligible for purchase, securities must be eligible as collateral for Eurosystem credit operations: investment grade; denominated in euro; with a minimum remaining maturity of 6 months to a maximum remaining maturity of 30 years at the time of the purchase; issued by a non-financial corporation established in the euro area (corporate debt instruments issued by corporations established in the euro area but whose ultimate parent is not based in the euro area are also eligible for purchase under the CSPP, provided they fulfil all the other eligibility criteria). The Eurosystem applies an issue share limit of 70 % per security.

Between the start of the CSPP on 8 June 2016 and end August 2017, the Eurosystem bought EUR 106.9 billion of non-bank corporate bonds. By 31 August 2017, 14.7 % of the purchases were made in the primary market and 85.3 % in the secondary market. Trades of less than EUR 10 million therefore make up the majority of the volume under the CSPP and trades are typically larger in the primary market than in the secondary market. Average trade sizes under the CSPP are broadly comparable to those under the Third Covered Bond Purchase Programme (CBPP3) and smaller than trades under the Public Sector Purchase Programme (PSPP). The corporate bond repo market likewise tends to be less liquid than the government bond repo market. To support market liquidity, the Eurosystem made its

CSPP bond holdings available for securities lending as of 18 July 2016 via the national central banks conducting purchases.

Purchases under the CSPP are well diversified across ratings, sectors, countries and issuers. Owing to the large number of eligible corporate issuers, purchases have so far been spread over 458 different bonds issued by 175 different issuers. Yields of the purchased bonds have ranged from around -0.3 % to above 3 %, with just above 20 % of the purchases being made at negative yields above the ECB's deposit facility rate of -0.4 %. The ratings of the bonds range from AA to BBB- and the distribution of purchases broadly mirrors the rating distribution of the universe of eligible bonds. The purchases are well diversified across corporations in many economic sectors and across the euro area countries where bonds outstanding are typically larger in the primary market than in the secondary market.

The announcement of the CSPP on 10 March 2016 was followed by a significant contraction in the spread between yields on bonds issued by NFCs and a risk-free rate. NFC bond spreads declined sharply on the day of the announcement and continued to decline subsequently, interrupted only by temporary bouts of volatility in May and June relating to the referendum on the United Kingdom EU membership. The subsequent developments in corporate spreads are to some extent related to the uncertainty generated by the UK referendum. The monetary policy decisions announced in March 2016, which include the launch of the CSPP, the cut in the ECB deposit facility rate and the new series of four targeted longer-term refinancing operations (TLTRO-II), have improved the external financing conditions for firms. Providing precise estimates of the impact of the policies is most likely not feasible. However, focusing on the spread between the individual corporate bond yield and the risk-free rate of the same maturity might help to identify more directly the effects of the CSPP. In particular, it shows an impact of 25 basis points on high-yield bonds, i.e. bonds with a rating lower than investment grade, and an impact of 5 basis points on corporate bonds issued by financial institutions, which include both ineligible bank bonds and eligible bonds issued by insurance corporations. The evidence of a decline in corporate credit spreads owing to the CSPP is corroborated by the sizeable spread contraction for bonds issued by insurance corporations when it was confirmed, on 21 April 2016, that these bonds were eligible. While issuance was subdued at the beginning of the year amid elevated financial market uncertainty, it rebounded significantly after the CSPP announcement.

Preliminary data suggest that issuance in the second quarter of 2016 was well above the average seen in previous years. Moreover, the share of new bonds issued by euro area corporations in euro relative to issuance in all currencies rebounded to a level broadly similar to the share recorded in the past (about 70 %). Foreign companies with headquarters located outside the euro area have not thus far increased their bond issuance in euro. In discussions around the impact on issuance, including interviews with corporate issuers, there was some optimism that the CSPP could prompt increased issuance from non-eligible corporates, attracting high yield issuers to the market, or non-Eurozone domiciled entities¹⁹. The general view, however, was that it would not motivate eligible credits to increase their issuance. It was pointed out by a number of participants that these corporates already had no problem tapping the market, were generally already sitting on a pile of cash, and a few more basis-points off their funding costs would not prompt a wave of new issuance to fund share buy-backs or potential acquisitions. What seems to be the main concern, particularly for the buy-side, is that in a market where liquidity is already challenged, investors now have to compete with a significant, new, and somewhat transient competitor, both for secondary market liquidity and primary market

¹⁹ ICMA, 2016

allocations. Issuers, too, seem to share this worry, as they would like to keep their traditional long-term investors satisfied, and the secondary market for their bonds liquid.

1.2.3. Low interest rate environment and the challenges of 'search for yield'

The French macro-prudential authority, the High Council for Financial Stability (HCSF), highlighted in its 2015 annual report that a "search for yield" behaviour induced a risk of mispricing some assets as well as the return to risky practices. The search for yield movement has led to a reduction in premiums in certain market segments, the magnitude of which can lead to a disconnection between performance and fundamentals of assets. In the high-yield developing market, excess demand thus creates a risk of disconnection between the valuation of securities and their structural, credit and liquidity risks. The search for yield could also lead investors to be less vigilant and selective about risky and complex products. The HCSF mentions, for example, the reduction in the average number of covenant clauses in high yield bond contracts.

CHAPTER 2 – DEMAND SIDE

2.1. Characteristics of investors in euro area corporate bonds

Demand for corporate bonds often is determined by investment analysis that considers current and expected macroeconomic factors (e.g., market conditions, central bank monetary policy, inflation, economic growth, employment, and exchange rates) and current and expected bond-specific factors (e.g., credit quality of the issuer, bond terms and covenants, coupon and spread to the relevant benchmark security, and business prospects).

This section identifies the key investors in European corporate bonds.

2.1.1. *Why do investors buy corporate bonds?*

Investors generally buy corporate bonds because the bonds' **risk-return profile** fits well with the investors' investment objectives. Examples include:

- Investors looking for yield above the risk-free rate, but unwilling to accept equity-like risk, may gravitate to corporate bonds. Although corporate bonds do pose credit risk, they offer more attractive yields than comparable-maturity government bonds or certificates of deposit and have lower historical price volatility than stocks.
- As retail investors age, they tend to become less willing to take above-average or substantial investment risk and gradually reduce their equity exposure and increase their fixed-income exposure. Once retired, many investors seek to own a collection of assets that generates the highest possible steady income stream given their tolerance for risk.

Corporate bonds are also an important tool for **risk management**. Examples include:

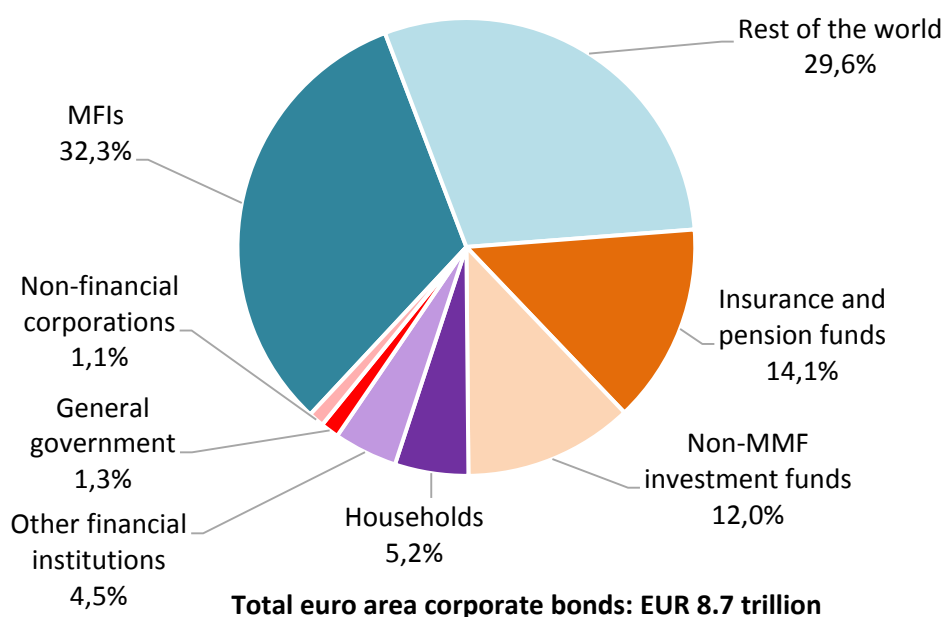
- European banks hold investment grade corporate bonds on their balance sheets for a variety of reasons. One reason is to serve as inventory for market making operations or for asset-liability management purposes as a way to generate net interest margin. Another reason is to access the ECB's marginal lending facility – i.e. a standing facility of the Eurosystem in which counterparties may receive overnight credit from a national central bank at a pre-specified interest rate against eligible assets. Indeed corporate bonds can be eligible collateral for ECB market operations, assisting banks in their funding operations.
- Insurance companies use fixed income securities, including corporate bonds, to “match” the expected profile of their liabilities (duration and predictability), which is dictated by the types of products and the nature of the guarantees they write. Insurers face the challenge of investing customer payments to ensure they will have sufficient funds available to satisfy claims and withdrawals in the future. As a result, insurance companies need predictable, long-term cash flows leading them to invest a sizeable portion of their investment portfolio in fixed income securities.
- Pension plans invest in corporate bonds for reasons similar to life insurers - their investments have to cover their long-term liabilities. Contributions paid into the pension fund are invested in the capital markets, and finally paid out in the form of pension benefits. Investing strategies that manage these types of long-term liabilities tend to have higher weights in assets with

lower risk or volatility. As a result, pension funds predominantly invest in fixed income securities.

2.1.2. Who holds euro area corporate bonds?

According to ECB data as of March 2017, Monetary Financial Institutions (MFIs) were the largest owners of euro area corporate bonds, holding 32.3 % of the EUR 8.7 trillion in long-term securities issued by financial and non-financial corporations in the euro area (*Figure 8*). Holdings of euro area corporate bonds by the ECB through its Corporate Sector Purchase Programme (CSPP) are included in the MFIs category, but at EUR 75 billion, these holdings accounted for only 0.9 % of total euro area corporate bonds. Investors located outside the euro area (rest of the world) were the second largest group of owners, representing 29.6 % of euro area corporate bonds. Insurance companies and pension funds held 14.1 % and non-Money Market Funds (MMF) held 12.0 % of euro area corporate bonds. Households and other financial institutions held similar shares of euro area corporate bonds at 5.2 % and 4.5 % respectively. Governments (1.3 %) and NFCs (1.1 %) had relatively small holdings of euro area corporate bonds.

Figure 8 – Holders of Euro Area Corporate Bonds Held by Euro Area MFIs, percentage of total outstanding, 31 March 2017



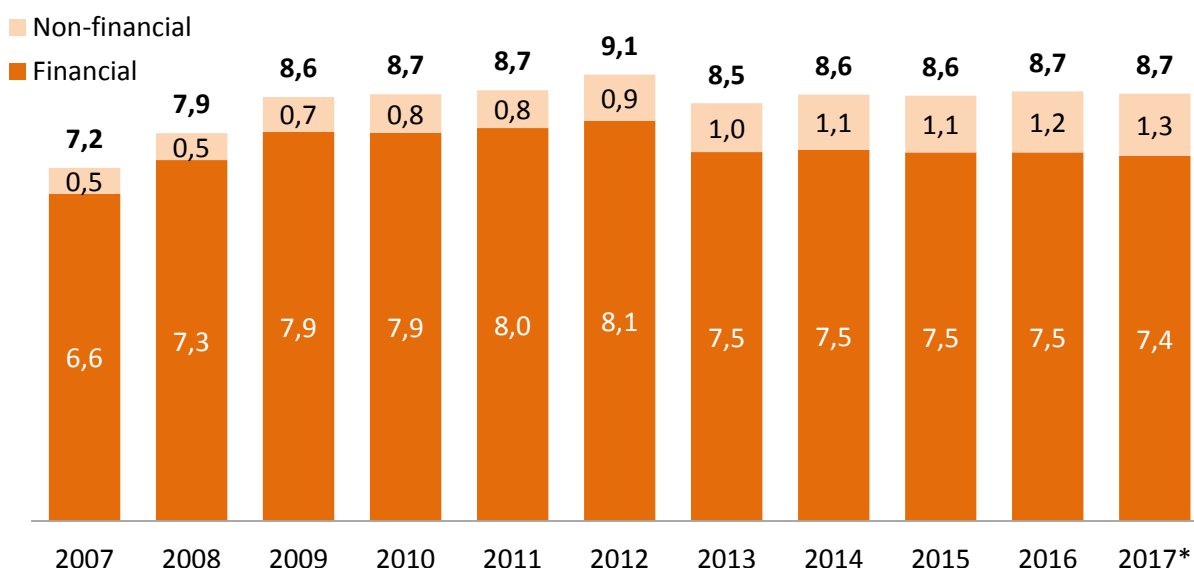
Source: European Central Bank Statistical Data Warehouse who-to-whom detail

Note: Components may not add to the total because of rounding

2.1.3. Has the composition of euro area corporate bond ownership changed?

Before examining ownership of euro area corporate bonds, it may be useful to look at the growth in outstanding corporate bonds. In the past decade, the total amount of outstanding corporate bonds issued by financial and NFCs in the euro area has increased by 21 % (net of maturities or redemptions), from EUR 7.2 trillion at year-end 2007 to EUR 8.7 trillion as of March 2017 (Figure 9). The total amount of corporate bonds outstanding peaked at EUR 9.1 trillion at year-end 2012 and then contracted sharply in 2013 and has remained fairly steady since then. Although the contraction in financial corporate bonds has been partly offset by increased issuance from non-financial corporations, there has been little growth in the total amount of outstanding corporate bonds over the past five years. Much of the decline in financial corporate bonds outstanding can be attributed to lower leverage used by the banks post the global financial crisis. From year-end 2012 to March 2017, the amount of financial corporate bonds outstanding fell by EUR 712 billion, while the amount of non-financial corporate bonds outstanding increased by EUR 328 billion.

Figure 9 – Euro Area Corporate Bonds Outstanding of Financial and NFCs
Trillions of euros; year-end, 2007–2017*



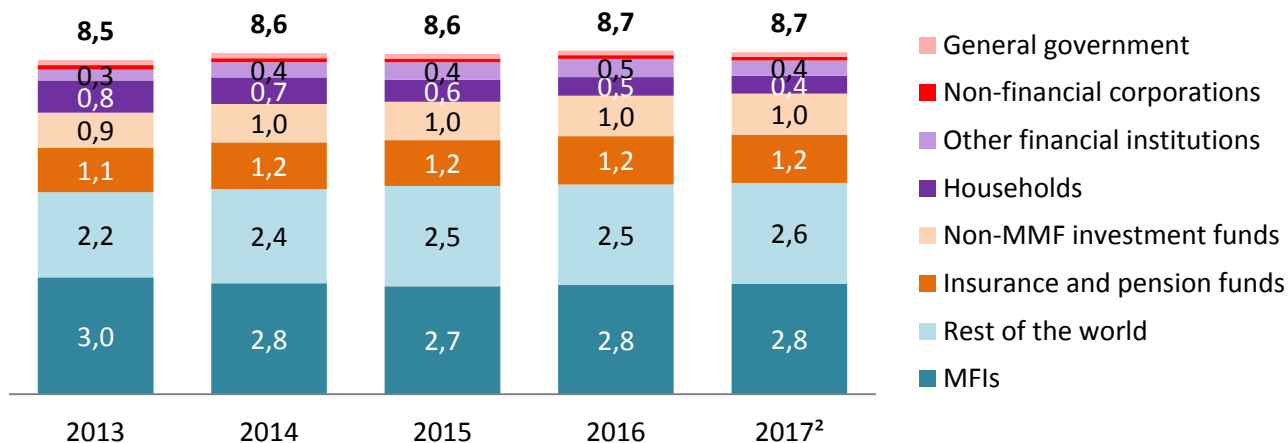
Source: European Central Bank Eurostat

*Data are as of 31 March 2017.

Note: Components may not add to the totals because of rounding.

The remainder of this section summarizes trends in the composition of the ownership of euro area corporate bonds from 2013 - when the ECB began collecting information on bond holdings by counterparty sector - to March 2017 (Figure 10).

Figure 10 – Euro Area Corporate Bonds Outstanding by Counterpart Sectors²⁰
Trillions of euros; year-end, 2013–2017*



Sources: European Central Bank; Eurostat and Statistical Data Warehouse who-to-whom detail

*Data are as of 31 March 2017

Note: Data for the general government and non-financial corporation sectors round to EUR 0.1 trillion for each year.

Monetary Financial Institutions (MFIs)

Although MFIs consistently have been the largest owners of euro area corporate bonds, they have tapered their holdings by EUR 166 billion, from nearly EUR 3.0 trillion at year-end 2013 to EUR 2.8 trillion as of March 2017 (*Figure 10*). This decline is entirely due to a EUR 211 billion drop from EUR 2.8 trillion at year-end 2013 to EUR 2.6 trillion as of March 2017 in their holdings of financial bonds. Euro area banks' exposure to non-financial corporate bonds is in fact limited, as they represent only 3.6 % of their corporate bonds' holdings. In addition to the EUR 75 billion in primarily non-financial corporate bonds held by the ECB through the CSPP, euro area banks held only EUR 100 billion in non-financial corporate bonds as of March 2017, down from EUR 130 billion at year-end 2013.

Rest of the World

In contrast, investors domiciled outside the euro area have been a significant source of demand for euro area corporate bonds. Holdings by the rest of the world, which would include sovereign wealth funds and non-euro area domiciled investment funds, rose by EUR 402 billion from EUR 2.2 trillion at year-end 2013 to EUR 2.6 trillion as of March 2017 (*Figure 10*). This increase was entirely due to a EUR 450 billion increase (from EUR 817 billion at year-end 2013 to EUR 1.3 trillion as of March 2017) in holdings of corporate bonds issued by euro area other (i.e., non-bank) financial institutions.²¹ With respect to bank-issued corporate bonds, investors outside the euro area collectively held EUR 1.1 trillion in bonds issued by euro area banks as of March 2017, down slightly (EUR 52 billion) from its

²⁰ Corporate bonds are represented by long-term debt securities issued by non-government entities. Data prior to Q4 2013 are not available in the who-to-whom detail dataset, and represent the sum of non-financial and financial corporations' long-term debt liabilities using the Eurostat data explorer.

²¹ An "other financial institution" is a corporation or quasi-corporation other than an insurance corporation and pension fund that is engaged mainly in financial intermediation by incurring liabilities in forms other than currency, deposits and/or close substitutes for deposits from institutional entities other than MFIs, in particular those engaged primarily in long-term financing, such as corporations engaged in financial leasing, financial vehicle corporations created to be holders of securitised assets, financial holding corporations, dealers in securities and derivatives (when dealing for their own account), venture capital corporations and development capital companies.

level at year-end 2013. Investors outside the euro area also held EUR 235 billion in euro area non-financial bonds as of March 2017, little changed from EUR 231 billion at year-end 2013.

Insurance Companies and Pension Funds

Insurance companies and pension funds have increased their holdings of euro area corporate bonds by EUR 99 billion from EUR 1.1 trillion at year-end 2013 to EUR 1.2 trillion as of March 2017 (*Figure 10*). This increase was entirely due to a EUR 103 billion increase to EUR 387 billion in holdings of euro area non-financial bonds. Insurance companies and pension fund holdings of euro area financial bonds fell slightly (EUR 12 billion) to EUR 805 billion as of March 2017.

Most insurance companies have a yield target that is expected to generate a specific stream of income. The level of the yield target often dictates the amount of risk the insurance company is willing to bear in its portfolio allocation. Given current targets, data from the European Insurance and Occupational Pensions Authority (EIOPA) show that as of year-end 2016, life and non-life insurance companies held a sizable portion of their investment portfolios in corporate bonds (*Figure 11*). For companies that have both life and non-life insurance lines of business, 25 % of their investment portfolios were held in corporate bonds, split roughly evenly between financial and non-financial bonds.²² Life-only insurance companies held 29 % of their investment portfolio in corporate bonds, with more weight on financial bonds. Non-life-only insurance companies held 27 % of their investment portfolio in corporate bonds with 20 % in financial bonds. The vast majority (90 %) of the corporate bonds held by insurance companies in the EIOPA dataset are issued by European corporate entities, with the remaining exposure to bonds issued by US corporations.

In addition, the EIOPA data show that investment funds, such as Undertakings for Collective Investment in Transferable Securities (UCITS) and Alternative Investment Funds (AIFs) are an important part of insurance companies' portfolios. For companies that have both life and non-life insurance lines of business, 13 % of their investment portfolio were held in investment funds. Life-only and non-life-only insurance companies allocated higher proportions to investment funds - 21 % and 19 % respectively.

Based on data published by JPMorgan, large euro area insurers appeared to have tilted their bond portfolios toward lower-rated investment grade bonds (*Figure 12*). From year-end 2011 to June 2016, these insurers, increased their allocation of AA-rated bonds from about 20 % to just under 30 % and BBB-rated bonds from just over 10 % to approximately 25 %, while lowering their allocations to super high-quality bonds (AAA-rated) by about half from nearly 40 % to roughly 20 %. Their allocations to non-investment grade or high-yield bonds remained relatively small, but did tick up over the 2011 - 2016 period.

The initial shift in credit quality of insurers' bond investments was likely related to the downgrade of France and Austria's sovereign debt from AAA to AA in early 2012. In addition, insurers may have responded to lower yields on high-quality government securities in the wake of the financial crisis. Insurers, seeking to maintain their yield targets, reallocated to lower-rated investment grade bonds with higher yields. In early 2015, the ECB implemented the CSPP which may have provided recent impetus for insurance companies to buy lower-rated investment grade corporate bonds as these yields are more attractive than yields on highly-rated sovereign bonds. Additionally, there is a lower supply

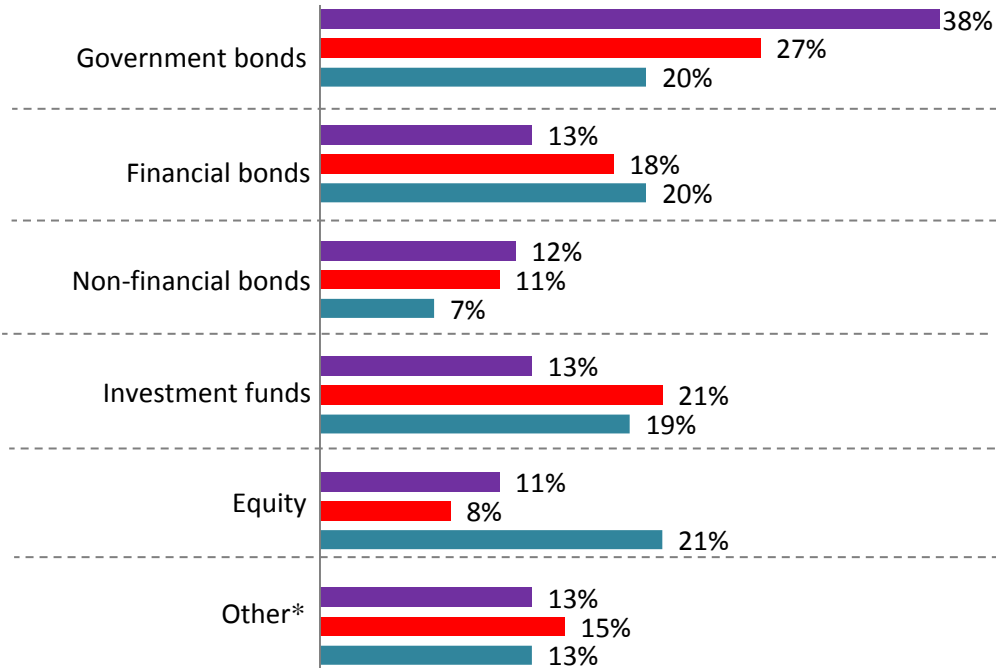
²² Investment assets of companies that have both life and non-life insurance lines of business account for two-thirds of industry investment assets.

of high quality corporate bonds in market place as most bank senior debt is not rated as highly as it was prior to the financial crisis.

Figure 11 – Portfolio Allocations of European Insurance Companies

Percent of investment assets for each insurance category, 31 December 2016

■ Both life and non-life ■ Life-only ■ Non-life-only

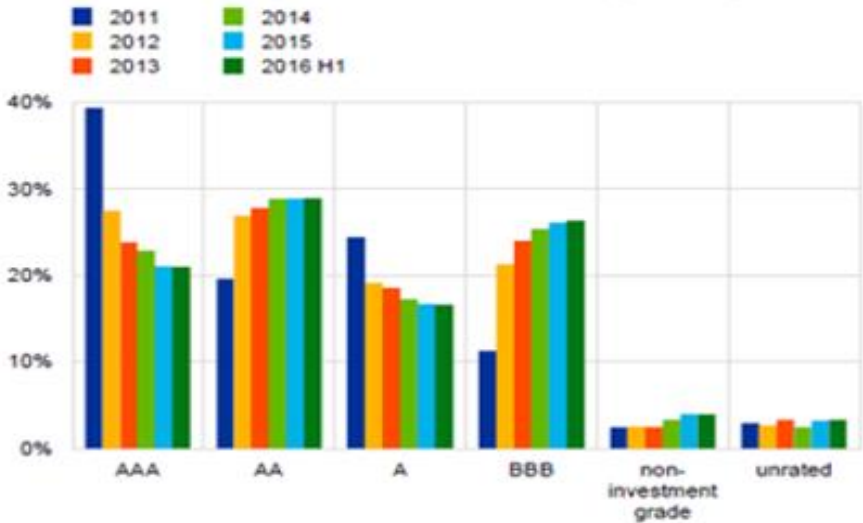


Source: EIOPA Financial Stability Report - June 2017 (Figure 5.6)

*Other includes structured notes, collateralised securities, cash and deposits, mortgages and loans, property, and other investments for a detailed breakdown of these investments, see EIOPA Financial Stability Report - June 2017 (Figure 5.6).

Figure 12 – Bond Investments of Selected Euro Area Insurers Split by Rating Category

Percentage of total investment portfolio, weighted average, 2011-2016:H2



Source: JPMorgan Cazenove, individual institutions’ financial reports and ECB calculations

Note: Based on data available as of November 2016 for 15 large euro area insurers and reinsurers.

Although the ECB counterparty data do not show insurance companies and pension funds separately, data available from EIOPA suggest that euro area occupational pension funds held at least EUR 287 billion in corporate bonds in 2015 (latest available) or about 17 % of their total investment assets.^{23, 24} Relative to 2007 (pre-crisis), euro area pension funds appear to have become more conservative by holding proportionately more fixed income securities, implying that some pension funds may be engaging in more asset-liability matching. In 2007, pension funds held EUR 135 billion (14 % of total assets) in corporate bonds, EUR 155 billion (16 % of total assets) in sovereign debt, and EUR 302 billion (31 %) in equity.

Box 3 - Impact of Solvency II on Investors

Insurance companies are natural buyers of long term debt (15 years and beyond) and theoretically need to match the duration of their liabilities with the one of their assets. Nevertheless, insurance companies are not so active in very long maturities, and the long-term part of the bond market in European corporate primary and secondary markets are lagging other markets such as the US and UK corporate bond markets and the EU sovereign market.

The valuation methodologies under the Solvency II framework are based on market-to-market models focused on volatility and which do not take into account the relatively low default risk associated with Investment Grade corporate bonds. These models introduce volatility in the balance sheet of insurance companies.

Indeed, Solvency II requirements that entered into force in 2016 for EU insurance companies impose capital requirements related to credit spreads on very long-term corporate debt instruments. As a result, the role of insurance companies as long-term investors is not sufficiently acknowledged. This is evidenced in the Table 5, where as an example the Solvency Capital Requirement (SCR) of a 20-year maturity corporate bond rated BBB is 30 % (which implies an extremely high default probability), which requires a very wide credit spread for this bond to be an attractive investment for an insurer. EU sovereign bonds, on the contrary, are exempted under the SCR of capital charge, regardless of the rating or tenor, which makes them much more attractive investments for insurance companies.

The fact that the current prudential requirements for corporate bonds are overstated for long-term investors creates disincentives to invest in a major asset class. It thus hinders the funding of the economy. For example: if an insurance company needs to invest its capital with a 10 % yearly return, the difference in spread that may be required between an A-rated corporate bond and a BBB-rated bond would be of 155 basis points per year, even though the average difference in price between a A-rated and a BBB-rated corporate bond in the market ranges between 30 and 45 basis points (in average). The same can be observed with tenors, as the curve gets longer.

Some stakeholders consider the SCR too restrictive and argue that Solvency II is rather tailored to buy-side or trading agents, who are more short-term oriented, than to the insurance sector. The main underlying arguments for this are the following: Solvency II capital requirements on bonds are based on extreme volatility measures under extreme conditions that are very rarely seen in the market.

²³ This estimate is a lower bound because the EIOPA data do not include occupational pension funds from Cyprus, Estonia, France, or Lithuania. Also, the amount of corporate bonds is estimated as the sum of “Debt and other fixed income securities—of which financial” and “Debt and other fixed income securities—of which other”, items 4.3 and 4.4, respectively on Table 4: Investment Assets of Occupational Pension Funds.

²⁴ These pension funds also held EUR 491 billion (29 % of total assets) in sovereign debt and EUR 441 billion (26 % of total assets) in equity.

Capital requirements therefore do not take into account a more long term view based on corporate sector defaults, not even peaks in moments of stress.

There is a disconnection between capital requirements and default probabilities.

This is due to a disconnection between corporate credit loss rates in the long term and the current capital requirements. Historical credit loss rates²⁵ from rated corporates are clearly lower than the capital requirements, even in the most risky assets (High Yield) and at the peak of the crisis. Such loss rates would historically not exceed 8 % (for the riskiest assets), when capital requirements on spread risk could reach more than 50 % in the same non-investment grade sector. In the case of investment grade bonds, the peak credit loss rates are clearly below 1 % in moments of stress, which does not compare to levels of capital of 30 % or 35 % that may be required for BBB bonds (for 20-year and 30-year corporate bonds).²⁶

Nevertheless it is allowed under Solvency II to use an assets-liabilities matching approach, provided certain conditions are met. Currently, the required yield that insurers need to match their liabilities is not offered on the market due to the low yield environment, therefore making this provision often ineffective.

Table 5 – Solvency II Capital Requirements for spread risk on bonds and loans

	<=5 years			5< and <=10 years			15< and <=20 years	< 20 years
	3 months	1 y	5 y	7 y	10 y	15 y	20 y	25 y
AAA Corporate bond	0,23%	0,90%	4,50%	5,50%	7,00%	9,50%	12,00%	14,50%
AA Corporate bond	0,28%	1,10%	5,50%	6,70%	8,50%	11,00%	13,50%	16,00%
A Corporate bond	0,35%	1,40%	7,00%	8,40%	10,50%	13,00%	15,50%	18,00%
BBB Corporate bond	0,63%	2,50%	12,50%	15,50%	20,00%	25,00%	30,00%	32,50%
BB Corporate bond	1,13%	4,50%	22,50%	27,50%	35,00%	44,00%	46,50%	49,10%
B Corporate bond	1,88%	7,50%	37,50%	45,90%	58,50%	61,00%	63,50%	66,00%
Non listed Corporate bond	0,75%	3,00%	15,00%	18,40%	23,50%	29,50%	35,50%	38,00%

The Expert Group recommends a recalibration or alleviation of Solvency II capital requirements for corporate bonds with long tenor. There should be a specific decrease of requirements for maturities of 15 years and beyond avoiding extreme jumps in ratings. The analysis should be focused in big jumps or steps in the current SCR requirements, such as jumps on rating from A to BBB and from 5 years to 30 years. The issue should be looked at in the context of forthcoming reviews of Solvency II. In addition, it also recommends the review of eligibility criteria of Matching Adjustment to determine whether broadening the eligibility of matching criteria is appropriate.

²⁵ Measured as probability of default multiplied by loss given default

²⁶ Source: "Annual Default Study: Corporate Default and Recovery Rates, 1920-2016", Moody's, 15 February 2017

Households, General Government, Non-Financial Corporations, and Other Financial Institutions

Euro area households, governments and NFCs are relatively small holders of euro area corporate bonds (*Figure 10*). In fact, households' direct holdings of euro area corporate bonds have declined substantially in the past several years as households increasingly appear to be using investment funds (discussed below) to access the corporate bond market. As of March 2017, households held EUR 449 billion in euro area corporate bonds (EUR 397 billion in financial bonds and EUR 48 billion in non-financial bonds) directly, down from EUR 814 billion (EUR 760 billion in financial bonds and EUR 53 billion in non-financial bonds) at year-end 2013.

Governments held EUR 115 billion in euro area corporate bonds (EUR 86 billion in financial bonds and EUR 25 billion in non-financial bonds), down somewhat from EUR 132 billion (EUR 111 billion in financial bonds and EUR 19 billion in non-financial bonds) at year-end 2013. NFCs held EUR 92 billion in euro area corporate bonds (EUR 70 billion in financial bonds and EUR 21 billion in non-financial bonds), down somewhat from EUR 113 billion (EUR 94 billion in financial bonds and EUR 19 billion in non-financial bonds) at year-end 2013. In contrast, euro area corporate bond holdings by other financial institutions have increased since year-end 2013 from EUR 275 billion (EUR 247 billion in financial bonds and EUR 26 billion in non-financial bonds) to EUR 391 billion (EUR 338 billion in financial bonds and EUR 46 billion in non-financial bonds) as of March 2017.

Non-MMF Investment Funds (UCITS²⁷ and AIFs²⁸)

As assets in bond investment funds have increased over the past several years, their holdings of euro area corporate bonds also have risen.²⁹ As of March 2017, non-MMF investment funds (UCITS and AIFs) held EUR 1.0 trillion in euro area corporate bonds (EUR 702 billion in financial bonds and EUR 324 billion in nonfinancial bonds), up from EUR 895 billion (EUR 659 billion in financial bonds and EUR 227 billion in nonfinancial bonds) at year-end 2013 (*Figure 10*).

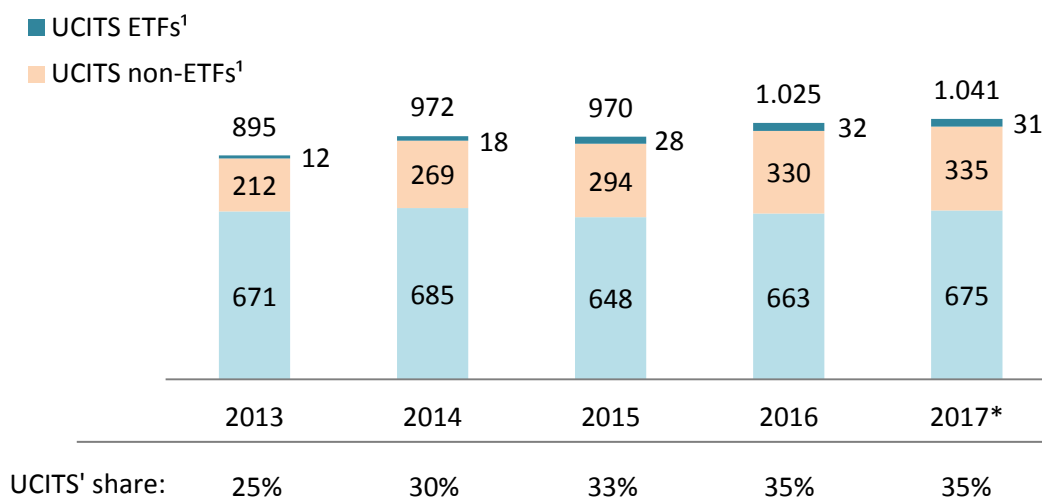
Within the non-MMF investment funds category, AIFs appear to be the largest holders of euro area corporate bonds (*Figure 13*) with an estimated EUR 675 billion, which was 65 % of non-MMF investment funds' holdings as of March 2017. UCITS held the remaining 35 % with UCITS mutual funds holding EUR 335 billion (32 %) and UCITS ETFs holding EUR 31 billion (3 %). In addition, UCITS estimated holdings of euro area corporate bonds have increased steadily from year-end 2013 with their share of non-MMF investment funds' holdings rising as well from 25 % at year-end 2013 to 35 % as of March 2017. In contrast, AIFs' holdings of euro area corporate bonds are estimated to have remained relatively constant from year-end 2013 to March 2017. As a result, their share of non-MMF investment funds' holdings declined 10 percentage point.

²⁷ Undertakings for Collective Investment in Transferrable Securities

²⁸ Alternative investment Funds

²⁹ According to the European Fund and Asset Management Association (EFAMA) European Quarterly Statistical Release, bond UCITS and AIFs had EUR 3.5 trillion in assets under management as of March 2017, up from EUR 3.1 trillion in March 2015 (first date EFAMA reported asset levels by investment breakdown for AIFs). These asset totals include all types of bond funds (sovereign, corporate, multi-sector, etc.)—specific detail on assets of bond UCITS and AIFs focused on euro area corporate bonds are not available.

Figure 13 - AIFs Hold About Two-Thirds of Non-MMF Investment Funds' Holdings of Euro Area Corporate Bonds (Billions of euros; year-end, 2013–2017*)



Sources: European Central Bank Who-to-Whom detail and calculations using data from Morningstar Direct

*Data are as of 31 March 2017.

Notes: ¹Represents corporate bond holdings of retail-available UCITS (non-ETFs and ETFs) with a Morningstar category that focuses on euro-denominated securities. Data exclude money market funds and funds that invest primarily in other funds.

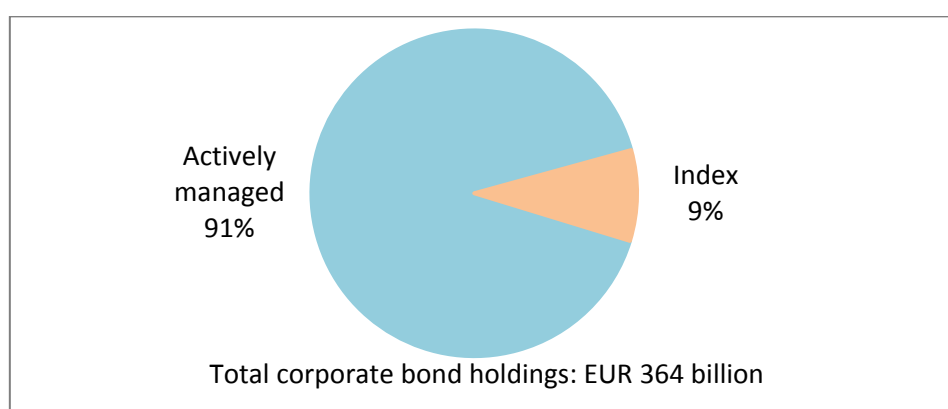
²AIFs are calculated as the residual of total euro area corporate bond holdings of non-MMF investment funds less UCITS' holdings of euro area corporate bonds. Because of the residual nature of the estimation, the AIFs category may include institutional-only funds authorised under UCITS.

The total is non-MMF investment funds' holdings of euro area corporate bonds from Figure 10.

2.1.4. What role do active and index regulated funds play in the euro area corporate bond market?

Actively managed UCITS held 91 % of UCITS' EUR 364 billion in euro area corporate bond holdings as of March 2017 (Figure 14). Although comparable data on the active/index split for AIFs are not available, it is widely believed that most of the euro area corporate bonds held by AIFs are also in actively managed funds, but the proportion of assets in index portfolios appears to be growing.

Figure 14 – Actively Managed Funds Hold Vast Majority of UCITS' Euro Area Corporate Bond Holdings (Billions of euros, 31 March 2017)



Source: Morningstar Direct

Note: Data represent the corporate bond holdings of retail-available UCITS with a Morningstar category that focuses on euro-denominated securities. Data exclude money market funds and funds that invest primarily in other funds.

Despite the relatively small proportion of euro area corporate bonds in index funds, some policymakers and market observers have raised concerns that the growth in bond index funds, especially those that invest significantly in corporate bonds, could cause a deterioration in the functioning of the European corporate bond markets (*see more specifically concerns raised on ETFs in section IV.b*).

To understand the discussion on why and how active and index funds could potentially influence the corporate bond markets, it is first necessary to understand the active/index allocation decision. It is not, as is often believed, a binary choice of one or the other, i.e. alpha³⁰ generation or not. In fact, there are three main considerations that lead to that decision.

1. Gross alpha expectation. If alpha expectations are high, this favours an active tilt; if neutral, this favours an index tilt. A key to highlight here is the expectations term, as alpha generation is not guaranteed.
2. Dispersion of fees. If the dispersion of fees is large, investors may gravitate toward the lower-end of the fee spectrum, which tends to be index funds. If the dispersion of fees is small, investors may gravitate towards active funds.
3. Tolerance for tracking error. If an investor has a higher tolerance for tracking error, they are better suited for some portion of an active allocation, while those with a lower tolerance are better suited towards passive. High tracking error means that the return on the fund can be significantly higher or lower than the benchmark index for the funds.

An investor combining the three factors listed above together will choose some mixture of active and index funds.

Also, it is not correct that index managers do not evaluate characteristics of individual bonds and simply replicate the index the fund is tracking by buying every security exactly as listed in the index. This strategy is used only for highly liquid markets with low transactions costs, such as large cap equity. In the corporate bond market, the transaction costs associated with purchasing every bond in the index would be a drag on performance and potentially increase the fund's tracking error. Instead, most index bond fund managers employ a stratified sampling approach – selecting bonds with characteristics (e.g. sector, rating, duration, etc.) that closely resemble those in the index. Index fund managers will engage in analysis to select individual bonds similar to active managers. For example, index fund managers when searching for bonds with certain characteristics will avoid bonds they believe are richly priced and pursue bonds they believe are cheaply priced within the group of bonds that fits in their stratified sampling technique.

Both active and index fund managers contribute to the price discovery process in the corporate bond market. Even in the case where index bond fund managers would not be appropriately evaluating bond prices, then active bond fund managers would capitalize on those opportunities and consistently outperform index bond funds. Consequently, investors would reallocate back towards actively managed bond funds. Although the split of assets between actively managed and index bond funds will fluctuate over time, the Expert Group believes that the allocation between the two has little impact on the functioning and price discovery process of the corporate bond markets.

³⁰ Alpha gauges the performance of an investment against an index or benchmark. Active managers "seeking alpha" aim at generating a return superior to an index or benchmark

2.1.5. *How do institutional and retail investors participate in the corporate bond markets?*

Institutional investors, such as banks, insurance companies, pension funds, and non-MMF investment funds engage directly in the corporate bond market by buying and selling bonds and accessing both the primary and secondary markets. Institutional investors will assess the value of a new issue and decide whether to place an order into the book with hopes of receiving an allocation. Often, allocations are less than the requested amount and there will be a flurry of secondary market activity in the newly issued bonds that dies down as the bonds are eventually bought by longer-term investors. A change in recent years is that demand has increased significantly in the primary markets. Primary markets serve as a liquidity point as investors can acquire larger blocks of securities more easily than in secondary markets. However the ability of participants to get their desired allocation of a new issue can be difficult as demand for bonds has increased in the context of easy monetary policies, including exceptional purchase programme policies. Because some asset managers have noted that demand for desirable credit outstrips supply in the primary market and availability for these bonds in the secondary markets is low, they are settling, at times, for lesser credits or lesser covenants or both.

Institutional investors also buy and sell bonds in the secondary markets based upon changes in perceived value that can stem from current and expected macroeconomic factors (such as market conditions, central bank monetary policy, inflation and economic growth) and current and expected company-specific factors (such as credit quality, cash flows, and business prospects).

Retail investors typically obtain their exposure to the corporate bond market through investments with one or more of these institutional players. However, some banks (particularly in Spain and Italy) appear to be selling fixed income securities, including corporate bonds, directly to their retail clients. Even though bond purchases by individual investors do occur, the majority of bonds are accessed via a pension or pooled vehicle rather than being purchased directly in the secondary market. These collective investment schemes have opened up the European corporate bond market typically dominated by institutional players on behalf of institutional accounts to retail investors, creating the potential for significant new demand for underlying corporate bonds.

- *To encourage more retail investment into corporate bonds, along with other investable assets, the Expert Group recommends that EU policymakers adopt and implement the pan-European Personal Pension Product (PEPP). Its take-up should be promoted by national and EU authorities, and national authorities should determine which tax breaks would be best suited to their respective national contexts.*
- *To support improved cross-border distribution of funds, the Expert Group recommends that EU policy makers support the convergence of the interpretation by Member States of UCITS and AIFMD's marketing rules for regulated investment funds in Europe. The Expert Group encourages the Commission to be ambitious when preparing its forthcoming proposal on the cross-border distribution of investment funds.*

2.1.6. *How much has the CSPP by the ECB tapped into the corporate bond market?*

As explained in Chapter 1, section II.2, on 8 June 2016 the Eurosystem started to make purchases under the CSPP of securities issued by non-bank corporations in both the primary and the secondary

market. The CSPP is part of the Eurosystem’s asset purchase programme (APP), under which purchases are intended to run until the end of December 2017, or beyond if necessary.

As of 6 October 2017, the CSPP held EUR 116.4 billion of non-bank corporate bonds.³¹ By 31 August 2017, 14.7 % of the purchases were made in the primary market and 85.3 % in the secondary market.

For more details on the ECB's CSPP, please refer to chapter 1, section II.2.

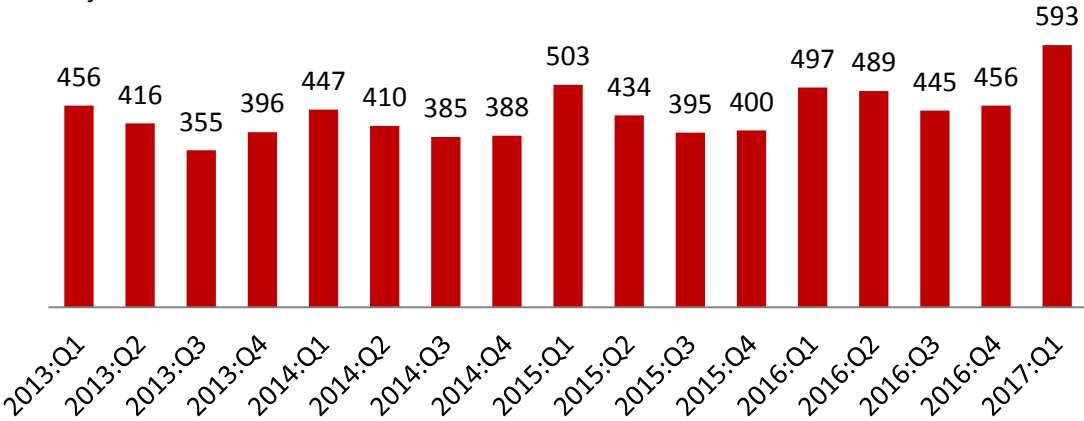
2.2. Trading/Price Discovery Model for the Demand Side

2.2.1. Overview of European corporate bond trading

There is no consolidated tape for fixed income trades in Europe³². As a result, a complete assessment of current and historical conditions in the European secondary market for corporate bonds is difficult. Nevertheless, a partial picture of European corporate bond trading activity is available from TRAX – a subsidiary of MarketAxess Holdings Inc. TRAX processes at least 65 % of all corporate bond transactions in Europe. Trading activity through TRAX generally has risen over the past several years. As shown in Figure 15, 688,000 European corporate bond transactions totalling EUR 593 billion (Panel A) occurred in the first quarter of 2017—the highest level of trading since 2013. In addition, average trade sizes conducted through TRAX (Panel C) also have risen consistently over the same period.

The Expert Group supports the proposal by the Commission to centralise data collection at ESMA level³³. A consolidated tape owned by ESMA should be created expeditiously to collect data on all eligible public and private corporate bonds. This should be accompanied by an easy to use interface accessible to all EU bond markets stakeholders at reasonable cost.

Figure 15 - TRAX European Corporate Bond Transactions, quarter-end Q1 2013 – Q1 2017
Panel A: Total traded volumes, billions of euros

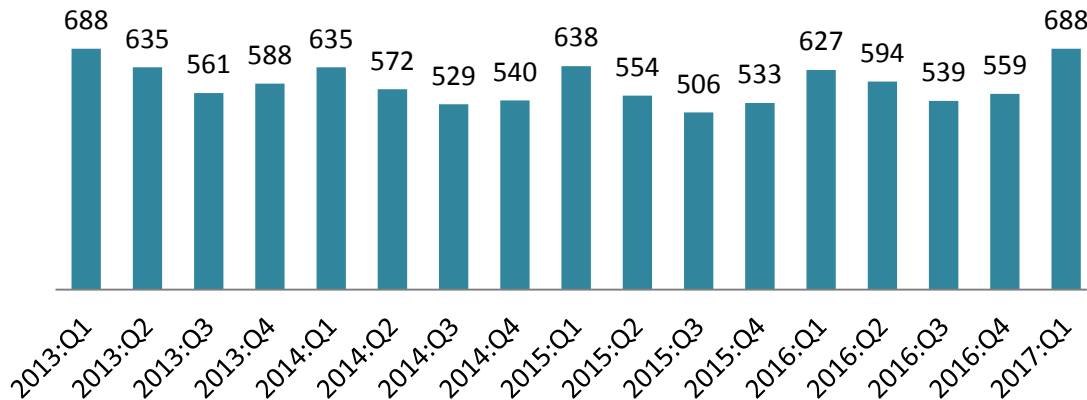


³¹ ECB website: <https://www.ecb.europa.eu/mopo/implement/omt/html/index.en.html>

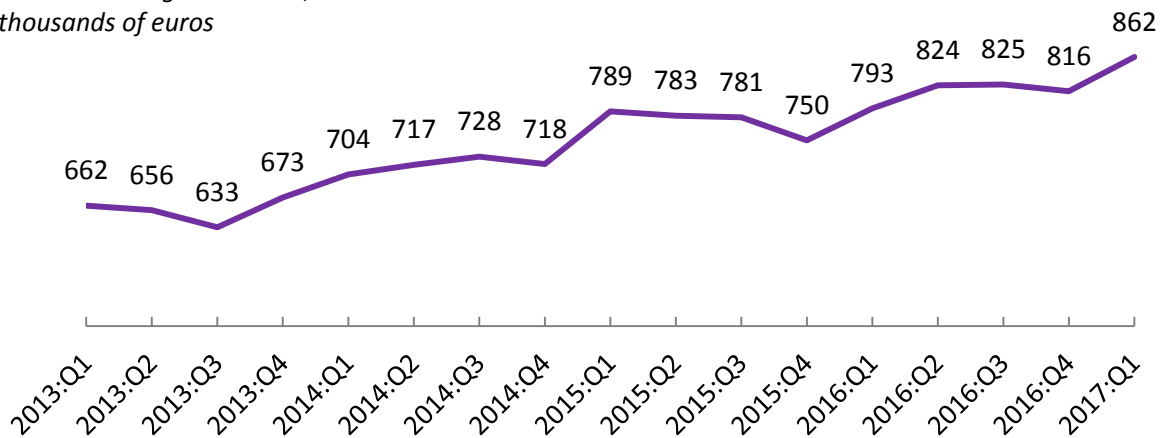
³² The Markets in Financial Instruments Directive (MiFID II) foresees that that a regime for consolidated tape providers starts in September 2019

³³ Commission proposal for a regulation on the review of the European Supervisory Authorities, COM(2017)536/948972

Panel B: Trade counts, thousands



Panel C: Average trade size, thousands of euros



Source: MarketAxess

2.2.2. How does the demand side acquire newly issued corporate bonds?

Investors acquire newly issued corporate bonds in two ways. The first way is through a syndicated issuance organized by one or more investment banks. The process is kicked off with the formal announcement of the deal in the early morning of the trading day. The announcement will typically include information such as the issuing entity, expected ratings, registration format, book runners, use of proceeds, tenor, and general price guidance. The final price of the deal and total size are not set until later in the process. After the announcement, investors will make their own assessments regarding the value of the prospective bond issuance, often referred to as the deal.

Investors consider various inputs when assessing the value of the deal. If the issuing entity is a new or relatively infrequent issuer, roadshows often will be conducted by the bank and company management. Potential investors will have a chance to receive an overview of the company and sometimes the structure of the deal. Frequent issuers typically forgo roadshows as most investors are familiar with the profile of the company.

On the day of the bond offering, credit research analysts will form a fundamental opinion of the company based upon current and past financial history, strength of management, and any other elements that will influence the ability of the issuer to make coupon payments and repay the principal

in the future. Traders and portfolio managers will form a relative value opinion. They will assess where the new issue is valued against current outstanding bonds of similar characteristics from both the current issuer and issuers with similar profiles. This relative value assessment is often done quickly, usually within a few hours after the announcement.

During the book building process, investors submit orders for how much of each deal they would like to purchase. The banks collect all of these orders and when sufficient demand is met, they close the book and provide final price terms and deal size. In recent years, this book building process has come under industry scrutiny. From the demand side perspective, one imperfection with the process can be observed in the fact that the initial price guidance often is cheaper than final price guidance. This reflects the fact that demand outstrips potential supply by a factor of two to three. Faced with excess demand, arrangers will frequently raise the price of the deal. When the book building is done at materially different levels than the final terms, it is difficult to understand the true demand and how to allocate the bonds. Post new issuance, secondary volumes will be higher as bonds find their way to long term holders.

Once the bonds are issued, investors engage in a flurry of secondary market trading in these bonds. Short-term investors will sell bonds held on their balance sheets to purchase the newly issued bond because it either offers better relative value or will be the most liquid “on the run”³⁴ issue for the issuer, therefore providing them with more flexibility to trade more frequently. Long-term investors, who are less active in secondary markets, will purchase the bonds with the intent of holding them to maturity or until there is a change in one or more of the factors that led them to initially purchase the bonds (e.g. credit quality, business prospects, interest rates, etc.).

The second way investors acquire new issues is through private placements. Investment banks will contact one or a small number of investors and arrange to place new bond issues directly with those investors. In general, both investors and issuers can benefit from these types of transactions. Investors pay a lower price for private placements to compensate for a lack of a liquid secondary market, and issuers pay lower transaction costs in terms of disclosures and registrations as these requirements are less strict when selling exclusively to sophisticated investors. Sophisticated investors are the only type of investors allowed to access the private placement market.

2.2.3. How are secondary market trades executed?

The first step in executing a trade is to ascertain the context of pricing a specific bond. Traders rely on prices communicated to them by dealers and venues, as well as on prices of comparable securities. For some buy side firms these prices are incorporated in their Order Management Systems (“OMS”). Others typically scan electronic platforms to start. The price and sizes are for the most part indicative only and therefore not immediately executable. Additionally, traders can look at other emails and Bloomberg messages with indicative price and size information.

Once traders have an idea of the price and the potential size of trade that the market can handle without noticeably moving the price in the market, they develop a trading strategy for execution. The two main strategies are competitive and negotiated execution:

- **Competitive execution** entails putting two or more brokers in competition to provide their best price for the size requested by the trader, with the best price winning the trade. This type

³⁴ An “on-the-run” security refers to the most recently issued – and therefore also the most liquid one.

of trading is typically used for smaller trades or highly liquid securities. Market nomenclature refers to this type of trading as Request For Quote (RFQ).

- **Negotiated trading** is when the trader picks a single broker and gives an order to execute a certain size at a certain price. Execution here is rarely immediate, but the advantage is that it allows a single broker to place the bonds with willing end holders without the fear of other participants finding out before the trade is completed. This type of trading is used for bigger size and is what the market refers to as “voice trading.”

In the competitive trading scenario, the investor would consider the outcome successful if they were to receive multiple firm levels (at least 3), within close proximity to one another (1-2 basis points). Such a situation is achieved many times in more liquid securities. However, we have increasingly observed scenarios where brokers may be unable or unwilling to execute at indicative levels. Below is an example of this situation.

Box 4 - Example of discrepancy between indicated and tradable prices

A portfolio manager wants to buy EUR 5 million Deutsche Bank 5 % 2020 EUR subordinated debt.

Indicative Bid/Offer prices by Dealer for
DB 5% 06/24/2020

Dealer	Bid Px	Offer Px	Bid Size	Offer Size	Bid Axe	Offer Axe
Bank A	110.059	110.218	1mm	1mm	5mm	5mm
Bank B	110.210	110.323	1mm	1mm		
Bank C	110.170	110.350	1mm	1mm	5mm	
Bank D	110.110	110.390	1mm	1mm		
Bank E	110.200	110.340	1mm	1mm	10mm	
Bank F	110.150	110.290	1mm	1mm		

The indicative price quotes show that market makers should be willing to provide liquidity in standard trading size (EU 1 million) at the given prices. Additional to that, most trading platforms show the dealers trading interest (axes).³⁵ Bank A listed above shows interest to buy and sell EUR 5 million in the specified bonds at a price of 110.218. The total value of this trade at this price would be EUR 5 510 900 (EUR 5 million*1.10218).

Response to electronic RFQ or phone call

Dealer	tradeable offer px
Bank A	110.738
Bank B	110.450
Bank F	not willing to price

However, when asking via an RFQ or phone call for an offer in EUR 5 million of the bonds, Bank A is only willing to trade at 110.738, not at 100.218. Bank B is showing the best tradeable price at 110.45.

³⁵ Broker and bank names have been removed to preserve confidentiality.

Bank F is not at all willing to price. At this new price, the total value of the EUR 5 million trade is EUR 5 522 500 (EUR 5 million*1.1045), which is EUR 11 600 (EUR 5 522 500 - EUR 5 510 900) higher than what was originally indicated as tradeable price. In addition, one bank that also was sent an RFQ was not in the end willing to trade, despite having shown an indication on the previous screen. This process usually does not end here with the trader accepting the revised price. The trader will counter or go back to the indications screen and start all over.

2.2.4. What are the advantages of the traditional trading model from the perspective of investors?

Increased transparency by banks and dealers has allowed buy-side firms to have greater control over their trading costs. Most banks and dealers sent out their trading interests (bids/offers and inventory), so that the buy-side has very detailed and specific information about potential trading opportunities. As a result, it is possible for buy-side firms to trade into bonds where banks and dealers have available inventory. This can reduce trading cost for buy-side firms.

For more details, please refer to Chapter 3 on Intermediation and market-Making.

2.2.5. What are the costs and challenges of the traditional trading model from the perspective of investors?

Banks and dealers have more limited balance sheet capacity now than prior to the financial crisis. In general, it is more difficult for investors to trade in large sizes. A large order that previously could have been executed immediately at relatively low trading cost now either takes longer to execute, or risks substantially higher market impact. A large order now is more likely to be split up into smaller orders that trade over a period of several days to minimize price impact. Traders that require immediate executions in large size now pay more in price impact because the cost of liquidity has risen post-crisis.

2.3. Impacts of Regulatory and Product Changes on the Corporate Bond Market from the perspective of investors

2.3.1. Have changes in regulatory policy contributed to the move from principal to agency trades?

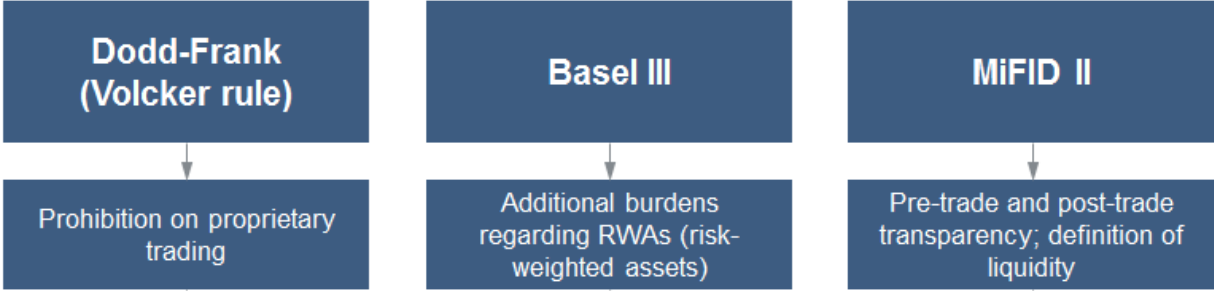
Most corporate bond markets are OTC, with trading typically occurring either between a dealer and customer or between two dealers. Historically, dealers often traded with customers on a principal basis, using their capital to carry a large inventory of bonds on their books³⁶. Since the financial crisis, the role of dealers in fixed income markets has been changing, with dealers reducing inventory and acting more frequently in an agency capacity.

A number of factors may explain why dealers have chosen to reduce their holdings of corporate bonds, but global regulatory changes in the wake of the financial crisis likely have played a role. The post-crisis reforms include various measures designed to promote financial resiliency and stability, including: (i) a US prohibition of proprietary trading by banks - known as the Volcker Rule; (ii)

³⁶ Dealers can fulfil client orders either by finding matches in existing supply and demand (agency model), or by stepping in as counterparty of their clients' trades by committing their own balance sheet capacity (market-making or principal trading). See Chapter 3 for more details.

modifications to bank capital requirements (Basel III); and (iii) mandatory pre-and post-trade transparency for fixed income market activities in Europe through the adoption of MiFID II. Although these reforms have contributed to creating a stronger financial system in some respects, there have been some collateral consequences to those reforms and many market participants, including investors, are still adjusting to the changing role of dealers in this new market environment.

Figure 16 – Post-crisis regulations and their impact on corporate bond markets



Dodd-Frank (Volcker rule)

The Volcker Rule restricts banks and their affiliates from engaging in certain activities, including proprietary trading. Although the Volcker Rule is a US regulation, it has a global reach due to the scope of the entities covered and the global nature of the banking business and the financial markets. The Volcker Rule’s restriction on proprietary trading has affected banks’ market making activities in fixed income instruments - including corporate bonds - by reducing banks’ ability to inventory these products or transact as principal in trades with clients.

Basel III

Basel III is an international regulatory accord on bank capital adequacy, stress testing and liquidity risk that aims to strengthen the requirements from the previous Basel standards. In addition, it introduces tighter funding requirements on liquid asset holdings. This new capital regime imposes high costs on holding certain instruments in inventory, especially corporate bonds, and could reduce banks’ ability to intermediate trades as principal.

See more details on the impact of Basel III on market-making activities in Chapter 3.

MiFID II Rules

Unlike the Volcker Rule and Basel III reforms, which apply directly to banks and their affiliates, MiFID II will impose new obligations on a broad range of firms, including buy-side firms, banks, and dealers when it takes effect in January 2018. The section below describes two MiFID II provisions that could have significant effects on fixed income markets: (i) enhanced pre- and post-trade transparency; and (ii) reforms addressing the provision of and payment for research.

Pre- and Post-Trade Transparency

MiFID II will require a much higher level of pre- and post-trade transparency for a broad range of financial instruments, and the impacts of enhanced transparency likely will be greatest for non-equity instruments, including corporate bonds. For investors, the increased transparency that accompanies MiFID II could improve available information, potentially reduce transaction costs, and facilitate more thorough trade costs analyses. Participants, however, may experience increased difficulty hedging and

decreased profitability. As a result, they might have less incentive to transact, which could reduce liquidity.

Research

In the pre-MiFID II environment, banks and brokers have distributed research to buy-side firms under a pricing model in which research was covered by the bid-/offer-spread when trading corporate bonds and was perceived as being provided without charge.

Under MiFID II, for investor protection and transparency reasons, execution and research payments must be separated and research must be separately paid for unless it can be considered a minor non-monetary benefit. It is unclear whether the bid/ask spreads will tighten as a result of the separation of research and execution costs. In any case, investors will have to pay for research either with their own resources or with “research payment accounts” funded by clients.

For more details on the impact of MiFID II rules on transparency and research, see Chapter 4 section II.1.

2.3.2. How have all these changes affected how the demand side trades in the markets?

The decrease in dealers' balance sheet usage has changed trades in the market place in the following ways. First, trade ticket sizes have gotten smaller. Investors are trading smaller sizes over a longer period of time to move into and out of positions as opposed to bigger block trading that would have been more common ten years ago. Second, investors are using primary markets to institute larger positions. Demand has substantially increased over the years. Finally, portfolio structures are beginning to barbell highly liquid corporates with less liquid private placements and are trading less of the off-the-run securities.

2.4. Alternative Sources of Liquidity for European Corporate Bonds

2.4.1. Why are alternative trading venues growing?

The development of new technology and the introduction of new trading protocols in recent years have changed the nature of trading in the fixed income markets by providing market participants, including demand side participants, with additional means to obtain more information about corporate bond pricing and trading interest, trade corporate bonds, and adapt to dealers' changing role in corporate bond markets. These new trading protocols can improve efficiency in the corporate bond markets by providing users with a more automated experience.

For example, although comparatively little trading occurs on exchanges or other organized venues, this aspect of market structure is changing somewhat with the rise of trading venues that facilitate corporate bond transactions, including some systems that offer all-to-all trading functionality, allowing end-holders (such as funds) to trade with other end-holders. It is estimated that there are 32 electronic trading platforms in fixed income in Europe.³⁷ These new trading venues are an increasingly important and growing source of liquidity for the corporate bond market. It is likely that the number of fixed income trading venues will decrease as the market place matures, but most demand side firms are onboarding to more than one venue and it is not clear which venues will emerge as market leaders.

³⁷ Source: ICMA ETP Mapping Directory

To support the development of a strong e-trading ecosystem, the Expert Group recommends that industry groups representing the buy side, the sell side and trading venues, including Fintech firms, issue guidance papers on good practices for electronic trading.

Market participants should benefit from some regulatory leniency when testing new models (regulatory sand boxes), in particular for best execution and transaction reporting.

2.4.2. Can bond ETFs provide an additional source of liquidity?

To provide a first point of reference, the vast majority of ETFs are UCITS structures and are thus required to adhere to the same regulatory standards as a registered fund. The only difference between ETFs and non-ETF UCITS is the role that intermediaries play in the buying or selling of securities to facilitate the creation / redemption process. An additional important point is that the observations below are in the context of large, diverse physical-based ETFs. Synthetic, leveraged and other esoteric structures are not addressed here.

Bond ETFs can provide benefits to investors and to the underlying bond market by allowing investors to efficiently and smoothly transfer risk amongst themselves.³⁸ Because ETFs trade continuously, their prices can reflect new information regarding the value of the underlying securities. Changes in bond ETF prices may help participants in the underlying corporate bond markets to assess market moves and changes in investor sentiment. Because ETFs trade on an exchange, their prices often react quickly to market news. As a result, bond ETFs can provide value as a price discovery tool for the underlying bond markets³⁹.

Although prices of bond ETFs can aid in the price discovery process for the underlying bond market, not every discrepancy between a bond ETF's price and its underlying securities implies that the prices of the underlying bonds will move toward the ETF's price. Bond ETF prices also are determined by the supply and demand for the bond ETF itself. For example, high demand for a bond ETF can push its price above the true value of the ETF's underlying bonds. In this case, market participants (authorized participants, liquidity providers, and proprietary trading firms) recognize this disconnect and engage in arbitrage so that the ETF's price once again is aligned with the underlying value of bonds held in the ETF. While not a perfect price discovery tool, it is a valuable contributor, similar to how credit default swaps are used.

Currently, bond ETFs account for a small share of the euro area corporate bond market. Based on data from Morningstar Direct, UCITS bond ETFs held EUR 31 billion of euro area corporate bonds or 0.4 % of euro area corporate bond outstanding (*Figure 13*). Nevertheless, this amount has grown rapidly from only EUR 12 billion at year-end 2013.

As ETFs, in general, have become more popular with investors, regulatory agencies in Europe have focused more attention on them to better understand any potential risks ETFs may pose to investors or the financial system. The French NCA AMF released a study focused on ETFs domiciled in France.⁴⁰ The paper's main findings showed that ETFs are currently not large enough to have a significant

³⁸ As part of its global initiative to support the development of domestic bond markets and increase the financial stability of emerging market economies, the World Bank partnered with Brazil to develop an Issuer-Driven Exchange Traded Fund Program (ID ETF). In the press release announcing the program, the World Bank stated that “*ETFs are known by investors to boast greater liquidity, price transparency and ease of trading than the individual assets of which they are composed.*”

³⁹ See Madhavan, A. and A. Sobczyk, Price Dynamics and Liquidity of Exchange-Traded Funds, *Journal of Investment Management*, Vol. 14, No. 2, (2016), pp. 1–17.

⁴⁰ ETFs: characteristics, overview and risk analysis – The case of the French market, 14 February 2017

impact on their underlying securities. Empirical analysis showed that equity ETF flows do not dictate price moves in the underlying French stocks and creations and redemptions of French equity ETFs are countercyclical, meaning that they do not amplify or magnify price movements in the underlying French equity market. The AMF, however, stated that concerns remained because an ETF's liquidity is partly dependent on the liquidity of its underlying securities and the ability of its authorized participants to conduct creations and redemptions. The AMF also expressed concern that ETFs could trade at discounted prices (relative to the underlying securities) during stress periods. In the end, the AMF stated that it would continue to monitor French ETF take-up rates to assess potential impacts on underlying market securities.

The Central Bank of Ireland (CBI) also issued a discussion paper on Irish-domiciled ETFs that, while acknowledging the benefits ETFs can provide, focuses on the regulatory challenges which may be raised by the growth of ETFs⁴¹. The paper provides a summary of recent research studies on the issue of ETFs and their impact on market liquidity. CBI's conclusion from analysing these papers is that "the impact of ETFs on market liquidity can vary significantly over different time horizons and in relation to different assets." CBI further states that "the matter is complicated by the need to differentiate between the impact of the ETF structure and the impact of the passive investment strategies" and calls for further academic work focused on European ETFs.

Both reports noted concerns that have been voiced by policymakers and market commentators regarding an "illusion" of liquidity that could add to instability in a stressed market. The hypothesis is that investors will rush to sell their bond ETF shares in the secondary market, only to find few buyers. Market makers, in turn, will passively accumulate the unwanted ETF shares, and then redeem them through authorized participants, who will exchange the shares for the underlying bonds. Authorized participants subsequently will sell these bonds, triggering further losses and a vicious cycle of redemptions, bond sales, and a downward spiral in bond prices.

Thus far, this scenario has not materialized. One reason may be that bond ETFs in Europe are not large enough to have such a deleterious effect on the underlying corporate bond market. This observation does not preclude the possibility of such a risk materializing should European corporate bond ETFs grow to account for a larger share of the market.

A counter example, however, is the experience of high-yield bond ETFs in the United States during December 2015, when market participants reassessed the risks of this sector and sent prices for many high-yield bonds tumbling.⁴² As investors sought to shed or gain high-yield exposure, depending on their risk appetites and expectations of future returns, bond ETFs provided them with an efficient means of transferring risk while limiting the impact on the underlying high-yield bond market. For the most part, when investors buy and sell shares of a bond ETF, only the shares change hands while the bonds that are contained within the portfolio remain untouched. In other words, secondary market trading of bond ETFs in this instance acted as a source of liquidity to the underlying bond market.

Figure 17 below shows daily secondary market volumes of US high-yield ETFs (orange-shaded region) and daily transaction volumes in high-yield bonds (blue shaded region) from 2 November to 18 December 2015. Daily trading in US high-yield bond ETFs averaged USD 1.3 billion during the five weeks before 8 December, while daily transaction volume on US high-yield bonds averaged USD 11.3 billion over the same period. Secondary market trading of high-yield bond ETFs, during this

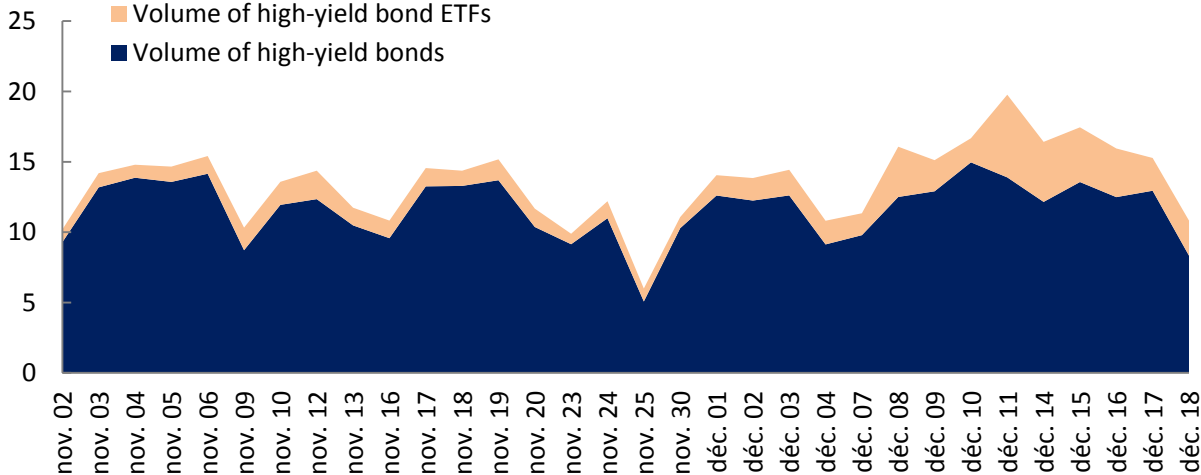
⁴¹ Exchange Traded Funds, Discussion paper 6, 15 May 2017

⁴² As of March 2017, US bond ETFs had \$465 billion in assets under management with US high-yield ETFs at \$57 billion

period of relative calm, added roughly 10 % (USD 1.3 billion/USD 11.3 billion) to daily liquidity in the high yield market.

Beginning of 8 December, however, trading in both US high-yield bonds and the respective US ETFs surged, as stresses emerged in the high-yield market. From Tuesday 8 December through Friday 18 December, average daily value traded of US high-yield bond ETFs jumped to USD 3.3 billion, while daily transaction volume in US high-yield bonds increased to USD 12.6 billion. During this stressed period, secondary market trading of US high-yield bond ETFs provided an additional 26 % (USD 3.3 billion/USD 12.6 billion) in daily liquidity to the US high-yield market.

Figure 17 – Secondary Market Trading of US High-Yield Bond ETFs Added Liquidity to US High-Yield Market (Billions of dollars, daily, November 2–December 18, 2015)

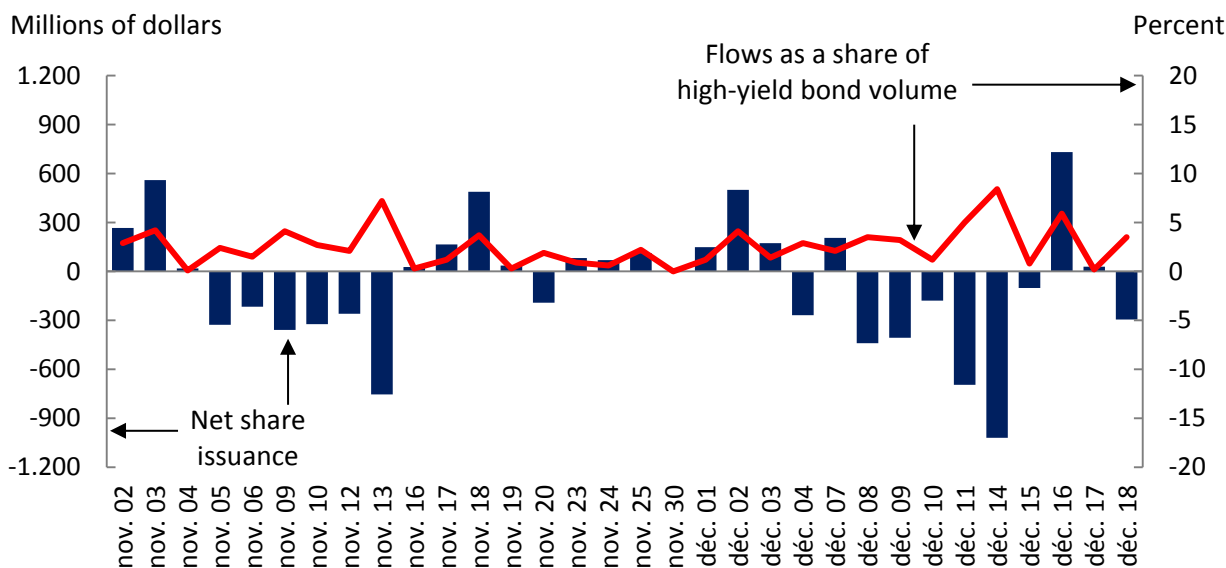


Sources: Investment Company Institute, Bloomberg, and FINRA TRACE

Note: Data exclude high-yield ETFs designated as floating-rate. Data also exclude Veteran's day and the Friday after Thanksgiving.

Even in the face of sharply declining prices, sellers of US high-yield bond ETFs found willing buyers in the secondary market and ETF shares were not redeemed *en masse* back to the funds. As shown in Figure 18, daily net redemptions of US high-yield bond ETFs (the blue bars) were modest. The largest daily net outflow – USD 1 billion on 14 December – accounted for only 8 % of trading in US high-yield bonds (the red line) on that day.

Figure 18 - US High-Yield Bond ETFs' Net Flows* Were a Small Share of Underlying US High-Yield Bond Volume (Daily, November 2–December 18, 2015)



Sources: Investment Company Institute and Bloomberg

*Net flows represent the net share issuance of high-yield bond ETFs.

Note: Data exclude high-yield ETFs designated as floating-rate. Data also exclude Veteran's day and the Friday after Thanksgiving.

The Expert Group believes that it would benefit market transparency and resilience if more corporate bond ETF trading activity took place on exchange. To this end, the European Commission and ESMA should review Member States' regulations and market practices to identify the obstacles that stand in the way of trading ETFs on exchange.

The Expert Group recommends that the European Commission evaluates the contribution of ETFs to price discovery and liquidity of the underlying assets.

CHAPTER 3 - INTERMEDIATION FUNCTION AND MARKET-MAKING

This chapter first describes the role and characteristics of the intermediation and market-making functions, their importance in corporate bond market liquidity and the market features that impact the provision of market-making services. The chapter then describes alternative models and new technology that have been developing as a response to a changing market environment. Lastly, the chapter explains the causes to the perceived liquidity squeeze in the European corporate bond market, from the perspective of intermediaries.

Liquidity is generally understood to mean market participants' ability to execute transactions in their desired size and time frame, with limited impact on market prices. Liquidity and price formation are fundamentally linked. The more liquid a market, the larger transaction volumes that can take place in defined price ranges. Conversely, the less liquid a market, the more impact on prices a marginal trade will have and the higher the liquidity premium will be. In turn, sharper price moves (volatility) and larger liquidity premia (bid-offer spread) can be detrimental to participation, further impacting liquidity. Liquidity, to some extent, is therefore pro-cyclical: increasing in times of market stability at increasingly lower per-transaction costs (as can be reflected in tighter bid/ask spreads or larger tradeable sizes at a given spread), and decreasing in times of market stress.

Market participants report that they have been experiencing a reduction in liquidity in normal times. Investors feel less able than previously to trade their desired size without materially impacting the price. However, until recently, studies using more academically based measures of liquidity had not conclusively corroborated those reports⁴³. Nevertheless, there is a growing body of evidence showing deterioration in market liquidity and pointing to the role of financial regulation amongst other factors⁴⁴.

3.1. Understanding Drivers of Liquidity Provision and Recent Developments in Market Making

3.1.1. Role and Characteristics of Market Making

The role of intermediation and market-making in the fixed income markets has historically been largely provided by banks and brokers ("sell-side"). Market makers provide prices to buy-side clients who need to buy or sell a security. If the client wishes to trade with immediate effect while the dealer

⁴³ <https://www.fca.org.uk/publications/research/new-evidence-liquidity-uk-corporate-bond-markets>

⁴⁴ "Dealer Balance Sheets and Bond Liquidity Provision," Tobias Adrian, Nina Boyarchenko, Or Shachar; Federal Reserve Bank of New York Staff Report No. 803; Dec. 2016; "Trends in Arbitrage-Based Measures of Bond Liquidity," Nina Boyarchenko, Pooja Gupta, and Jacqueline Yen; NY Fed Liberty Street Economic Blog; 1/10/17; "Credit Market Arbitrage and Regulatory Leverage," Nina Boyarchenko, Pooja Gupta, Nick Steele, and Jacqueline Yen; NY Fed Liberty Street Economic Blog; 1/11/17; "Gauging market dynamics using trade repository data: the case of the Swiss franc de-pegging" Olga Cielinska, Andreas Joseph, Ujwal Shreyas, John Tanner and Michalis Vasios Bank of England Financial Stability Paper No. 41 – January 2017; "Market liquidity after the financial crisis" Tobias Adrian, Michael Fleming, Or Shachar, Erik Vogt Federal Reserve Bank of New York Staff Report No. 796; Dec. 2016; "Liquidity in the UK Corporate Bond Market: evidence from trade data" Matteo Aquilina, Felix Suntheim Financial Conduct Authority (FCA) Occasional Paper 14; "Capital commitment and illiquidity in corporate bonds" Hendrik Bessembinder, Stacey Jacobsen, William Maxwell, Kumar Venkataraman; Carey School of Business and Cox School of Business 2016; "The Volcker Rule and Market-Making in times of stress" Jack Bao, Maureen O'Hara, Xing Zhou; Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board 2016; "Examination of liquidity of the secondary corporate bond markets" The Board of the IOSCO 2016.

does not have the corresponding opposite trade, the dealer takes a position and therefore puts capital at risk. The successful provision of market making services by the sell-side therefore depends, amongst other things, upon two factors: capital and information.

Capital is required to warehouse the position until the other side of the trade is found and bear any potential losses arising from price fluctuations in between. In this context, well-functioning ancillary markets like the repo market for financing both long and short positions and the Credit Default Swap (CDS) market for hedging have played an important role in allowing participants, in particular market makers, to risk manage these positions.

Information is any market intelligence that the dealer uses to assess where the off-setting position would go and at what price before taking a position. It can be brought about by a sales function or based on characteristics and trade information on similar securities or issuers. This information should be differentiated from publicly available information (e.g., news flow or research reports). More information generally supports the creation of participants' interest, thus making price formation more effective. Here, one needs to distinguish between descriptive public information (research, ratings, bond documentation) and information that can have a bearing on participants' willingness or ability to deploy capital to provide liquidity (e.g., post-trade transparency). Accurately calibrating dissemination of the latter is important, particularly as there are competing views on the impact of post-trade transparency on market liquidity⁴⁵.

The market making function has developed in response to the need for immediacy and predictability of execution by the buy-side, but also in recognition that fixed income (as an asset class generally, and here specifically, corporate bonds) is fundamentally illiquid – which is corroborated by the fact that about 5% of corporate bonds will be deemed liquid under ESMA's current MiFIR liquidity definitions⁴⁶. However, it should be noted that there is a scheduled phase-in for looser criteria to determine instruments that 'have a liquid market', which will increase the number of corporate bonds subject to the regulation's pre-trade and real-time post-trade reporting obligations.

The illiquidity of the corporate bond market is driven by, among other things: (i) a lack of homogeneity in the underlying instrument, (ii) the ability to have multiple instruments with different economic characteristics issued by the same obligor, and (iii) the richness and diversity of issuers - clearly, some names will be more liquid than others and some sub-sectors within the broad credit arena will trend towards high degrees of liquidity. The illiquidity is also a factor of the investor base that includes large buy-and-hold investors, as well as the concentration of buy-side. Lastly, much of the asset class is issued in either bespoke form, specific to one or a handful of investors (e.g., private placements of Medium Term Notes) and/or in small issue size, both factors that further complicate liquidity provision in the particular instrument.

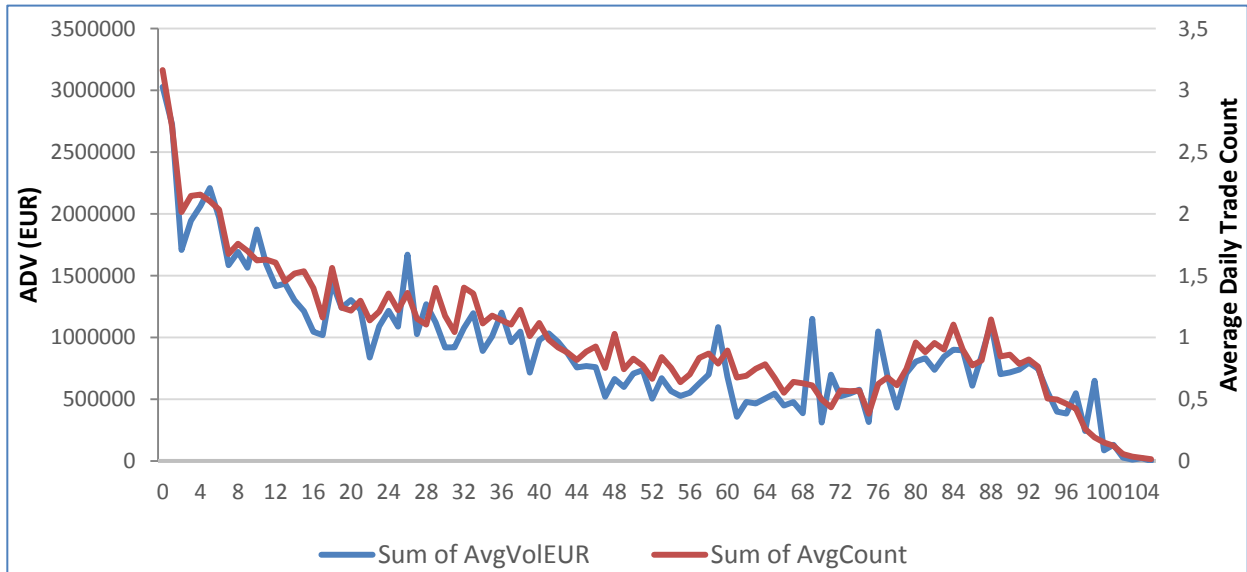
As a result, the corporate bond market has tended to have episodic liquidity that is most available immediately following a new issue (lasting a matter of days typically) and then again on specific news flows related to the issuer (*see Figure 19*).

⁴⁵ <http://economics.mit.edu/files/9018>

⁴⁶ Annex III of RTS 2 sets out the criteria for liquidity assessments of bonds. While the average daily number of trades in the first phase is fixed at 15, the number is gradually reduced to 10, 7 and 2 in phase 4, to determine whether an instrument has a liquid market.

Figure 19 – TRAX European Corporate Bonds Transactions Over the First 5 Months After Issuance

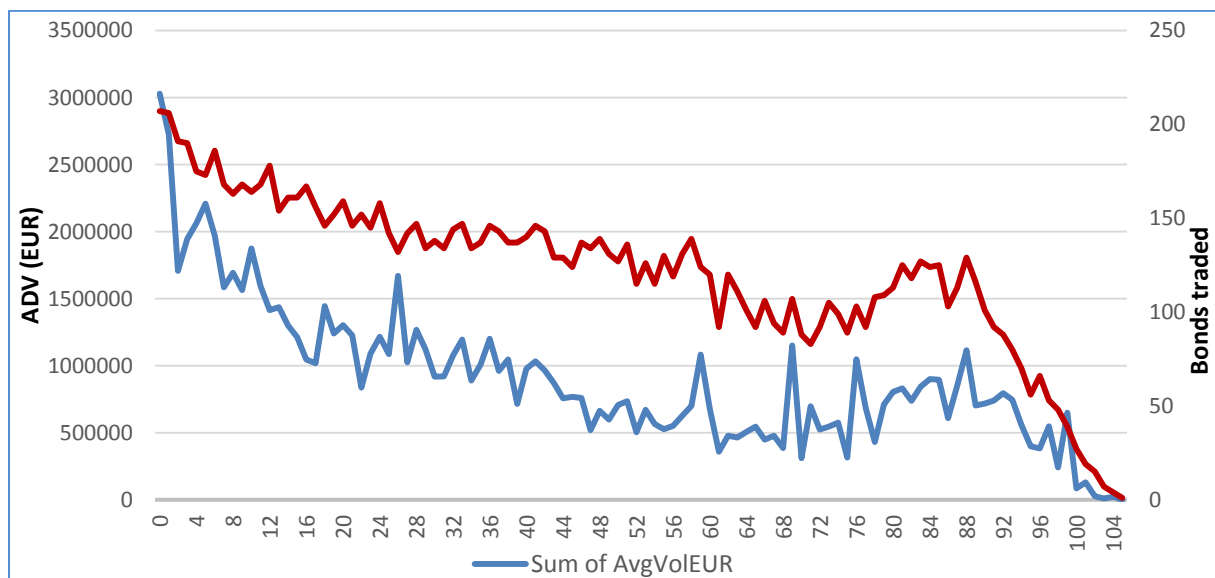
Panel A: Trade counts and trade volume



Source: TraxTraded data, New issuances September 2014, corporate bonds

Notes: Rhs (red line) shows the average number of trade counts per day. Lhs (blue line) shows the average volume traded each day. The figure shows that corporate bonds only trade above 2x per day for the first 5 days post issuance. This trade-count diminishes to zero within 100 days after issuance.

Panel B: Number of bonds trading and trade volume



Source: TraxTraded data, New issuances September 2014, corporate bonds

Note: Rhs (red line) shows the number of bonds that traded at least once per day from day 1 to day 105 after issuance. Lhs (blue line) shows the average volume traded each day.

For market makers, the illiquid nature of corporate bonds has historically tended to extend the time between taking a position and finding the offset.

3.1.2. *Behavioural Drivers for Market Making*

Dealers can fulfil client orders either by (i) finding matches in existing supply and demand (agency model), or (ii) stepping in as counterparty of their clients' trades by committing their own balance sheet capacity (market-making or principal trading). This has a direct impact on the revenue model for the intermediation and market-making function.

In the case of a pure agency model, the revenue is either a pre-agreed fee or, more usually, a spread (as described below). In the case of on-risk principal trading, the revenue is generated by the all-in (including accrued interest) price difference between the buy and the sell (or the converse as the case may be). This price difference encompasses (i) the bid-offer spread, (ii) the cost of holding the position (including financing costs), (iii) the cost of hedging the position, and (iv) any price fluctuations. Thus the revenue for a given trade is a complex calculation of a variety of factors including, but not limited to, carry cost, hedge costs, capital costs and bid-ask spreads.

It should be noted that the bid-offer spread in liquid products and fully functioning markets is usually narrow, but tends to widen in times of stress. Increasingly, however, there is a tendency for observable spreads to remain tighter even in times of stress due to the increased transparency in the market brought about largely by the increased use of electronic platforms. This transparency is often in smaller sizes but can be a useful point to start a dialogue between a buyer and a seller allowing parties to work up trades to larger sizes.

Two common challenges to liquidity provision are latent liquidity and adverse selection. Latent liquidity refers to the fact that block size⁴⁷ may transact at prices that are materially different to observable prices on standard sizes. As a corollary, liquidity may be available in sizes multiple times larger than observable volumes at price points that are away from observable prices. Accurately judging, or conversely misjudging, latent liquidity is a key determinant of one's ability to facilitate transactions on an at risk or risk-free basis. Secondly, adverse selection refers to the fact that a price maker (market maker) provides an option to trade to the price taker (investor). It is economical for the price taker to maximise the value of this option. Consequently, price makers will over time, all else being equal and without mitigating action, execute trades that are negatively biased against them. The ability to manage the risk arising from adverse selection is key to maintaining profitability and therefore to be able to provide liquidity reliably and consistently.

Additionally, the economics of a sell-side firm are influenced by the provision of related services along the value chain, most notably the role of new issue origination and the subsequent fee generation that this engenders. Market-making is a key element in the winning of new issue mandates as it informs bankers where to price the new issue. Buy-side participants also expect syndicate members to provide liquidity in the name that is brought to market as a necessary service without which they might be reluctant to buy. The existence of this chain of related services is often viewed as providing incentives to sell-side dealers to be consistent liquidity providers in normal as well as difficult market conditions.

On the cost side of the equation, systems, platforms and staff establish a fixed cost base. Additionally, the cost of capital also plays a significant role. This is a more prevailing factor in market-making than in a pure agency model, where capital is required only to cover operational losses.

⁴⁷ Block size in corporate bond trading is generally understood to be trades sizes of EUR 5 million or more.

3.1.3. Market Features Having an Impact on Market-Making Services

Features that contribute to the effective provision of market-making services centre on a handful of related factors: market confidence, numerous and diverse players, the availability of information, and the availability of efficient hedging markets.

Market confidence is important as liquidity is a pro-cyclical feature of markets and is present when markets are confident that the off-set position can be found without dramatic price movement from the point in time of the in-bound risk taking to its reversal. This confidence should not be understated as a key element in the ability of market participants to provide liquidity when necessary. This market confidence is or has been historically the result of a robust eco-system with numerous players of diverse views. Recently, the concentration of buy-side participants where large players have become larger, the rise of passive investment strategies and macro factors all have contributed to an environment with greater replication of positions and interests. Thus, as diversity of participants has reduced and concentration of Assets Under Management (AUM) has increased, the market's ability to withstand shocks on its own is deemed to have diminished. An example of this is the reduction of relative value participants (including bank proprietary desks, market-making desks and hedge funds) which has impacted the market's ability to take counter-cyclical action created by abnormal price distortions. However, this assertion remains untested, because central banks' purchase programmes have so far dampened market volatility even in the face of shocks.

The role of price **information** is interesting. While price information dissemination should facilitate accurate and fast price formation for small size, the timing and scope of that information provision can potentially have an adverse impact on the ability of liquidity providers to deploy capital⁴⁸. (*For more details on the impact of MiFID II pre- and post-trade transparency requirements, see Chapter 4 section III*).

One of the most critical features to enable a market-maker to provide core services is the presence of an **efficient and deep market in which to hedge positions**. For example, cash bond positions can be either funded and hedged in the repo markets⁴⁹ or hedged in the credit default swap market. Market makers rely on the ability to borrow securities in order to provide offer-side liquidity to their clients, not least because of the cost of holding inventory has increased as a result of post crisis regulation. Over the past few years, the supply of corporate bonds into the repo and securities lending market has markedly diminished. A number of regulatory and monetary forces that are impacting and reshaping the repo market are restricting the ability of bank repo desks to intermediate in the market. Holders of corporate bonds are becoming less inclined to lend them due to concern that they may not get their bonds back in the event that they sell the underlying position, creating settlement fails⁵⁰ and reputational risk with their counterparties. A recent study⁵¹ confirms the symbiotic relationship between a liquid and well-functioning repo or securities lending market for corporate bonds and the ability of market-makers to provide liquidity in the corporate bond secondary market.

⁴⁸ PwC Study "Impact of Bank Structural Reforms, Supplementary Report 2: Inventory of Bank Responses"

⁴⁹ ICMA 2015 "Ructions in the Repo Market: Monetary Easing or Regulatory Squeezing?" Speech by Yves Mersch, Member of the Executive Board of the ECB; GFF summit, Luxembourg; 26 January 2017; "Remaking the corporate bond market" Andy Hill, ICMA's 2nd study into the state and evolution of the European investment grade corporate bond secondary market; "Perspectives from the eye of the storm: the current state and future evolution of the European repo market".

⁵⁰ A "fail" refers to a transaction to which one has committed that cannot be executed

⁵¹ ICMA 2017, "The European Credit Repo Market: The cornerstone of corporate bond market liquidity"; <https://www.icmagroup.org/assets/documents/Regulatory/Repo/The-European-Credit-Repo-Market-June-2017-190917.pdf>

Credit Default Swaps (CDS) are a standardized and efficient instrument for insuring against the default of an underlying credit, and provide a useful means for participants to hedge the credit risk associated with long or short corporate bond positions. A well-functioning CDS market helps participants to hedge their positions and therefore provide more liquidity. Post-crisis bank capital regulation requirements on banks, particularly the Leverage Ratio (*see Chapter 3 section I.1 and Headline report section II.3*) and the Credit Valuation Adjustment (CVA) capital charge, have had a detrimental impact on the market, marked by the exit of key participants. Recently there has been a large decrease in volumes and notional amount outstanding as can be seen below.

Both the repo market and the CDS market have suffered severe liquidity constraints of their own over the past number of years, driven in part by the same factors that are affecting bond market liquidity.⁵² Without a functioning market for hedging and funding long or short positions, dealers find it difficult to manage their risk in a volatile market.

Box 5 – the importance of hedging and securities lending

The ability of intermediaries to offer liquidity and provide efficient and competitive pricing to their clients relies on their ability both to hedge and finance the positions they take onto their trading books (as well as the balance sheet capacity to hold the position).

With respect to hedging, bond traders must manage two distinctive risks: interest rate risk and credit risk. For many types of corporate bonds, the former is generally neutralised by hedging with a sovereign bond benchmark (usually the sovereign debt of the issuance currency, and the bond with the closest maturity). Hence, it is usual to quote investment grade corporate bonds in terms of the yield-spread against the sovereign benchmark bond, rather than as a price. In terms of the credit risk (i.e. the risk specific to the possibility of default of the bond), market-makers may look to use the single name credit default swap (SN-CDS) market, selling or buying protection on the issuer and debt seniority of the bond they are hedging. However, given that there may not be sufficient liquidity in this market, they may instead elect to use a CDS index to hedge against a generic market move in credit spread. Alternatively, they may choose to hedge the credit risk (and the interest rate risk) by offsetting the position against another corporate bond: usually the same credit (issuer) and seniority, or, potentially, the same issuer but another part of the capital structure (e.g. senior versus subordinated tranches).

From a financing perspective, the market-maker will rely on their repo desk to repo-out (lend) any long positions, and to reverse-in (borrow) bonds against any short positions in order to make good delivery on the sale. This will include any long or short bond positions used as hedges. The more efficient and liquid the repo market, the more confident the market-maker is to provide liquidity, and the better able to show competitive pricing (since the anticipated financing costs will form part of the bid-ask spread).

⁵² Closed For Business: a Post-Mortem of the European Repo Market Break-Down over the 2016 Year-End; <http://www.icmagroup.org/assets/documents/Regulatory/Repo/ICMA-ERCC-year-end-report-AndyHill-020317.pdf>

3.2. The Development of Alternative Models as a Response to a New Market Environment

3.2.1. Hybrid models

A number of traditional market-makers revenue models have been challenged following the regulatory and market changes that have taken place after the financial crisis. However, after a few years of adjustment, recent trends point to a recovery.⁵³ Nevertheless, other potential models can help to address any structural reduction in liquidity. The new market environment has brought a variety of responses from sell-side participants including adjusting practises (hybrid model), re-focusing on core expertise, streamlining and adapting their business models. Generally, sell-side firms continue to aim to differentiate themselves from full agency brokers, who typically cannot undertake any principal based transactions.

Following the financial crisis and the ensuing change in regulation and capital requirements, anecdotes have pointed to a shift from the traditional market-making role described above to one less dependent upon risk taking and more of a hybrid function. In these instances, market-makers begin a transaction “on risk” in order to win the ability to undertake the remainder of the transaction on a riskless principal basis (e.g., take EUR 5 million to work the remaining EUR 15 million). This hybrid approach between at risk and riskless principal trading is increasingly common for sell-side market participants. There has also been an increase in outright agency players attempting to facilitate market liquidity by matching buyers to sellers for a fee. The agency process of course fails to deliver the element of immediacy and predictability that the buy-side has traditionally required (and has hitherto been supplied).

Additionally, recent trends point to possible further fragmentation. While some dealers continue to provide a comprehensive product offering supported by risk capacity and balance sheet, other sell-side banks have narrowed their focus from being “global” liquidity providers to focusing on “core” markets or areas of expertise⁵⁴. Additionally, anecdotes point to certain dealers re-focusing their coverage onto reduced sets of accounts potentially leading to greater divergence between the treatment of large and small buy side participants.

However, these solutions only partially address the immediacy problem faced by most buy-side accounts. In response to new regulatory requirements, a shift has been observed in the composition of risk-free vs. at-risk trades since 2010. While about 16 % of block trades⁵⁵ had an almost immediate (within 15 minutes) offsetting transaction in 2010, those trades comprised 23 % of total block trades in 2015, implying a broking type arrangement whereby the dealer immediately matches buyer and seller. On the other hand, the fraction of block trades without an offset in five days – i.e., the risk stays in dealer’s inventories for a longer time – has declined, from 47 % to 36 %. Currently, 77 % of trades are at-risk and dealers are working hard to reduce this further⁵⁶. This indicates that low risk trades are increasing but also that at-risk trades are still the large majority of trades.

⁵³ Oliver Wyman 2017 expects six major drivers of value over the next three to five years including “Increasing capacity and revenues for the Wholesale Banks”

⁵⁴ PwC Study: “Impact of Bank Structural Reforms, Supplementary Report 2: Inventory of Bank Responses

⁵⁵ A block trade is an order or trade submitted for the sale or purchase of a large quantity of securities.

⁵⁶ Barclays Analyst Report on Fixed Income Liquidity, Matt Levine, June 2016; <http://www.businessinsider.com/barclays-on-bond-trading-liquidity-2016-6/#trading-is-focused-on-the-newest-bonds-1>

3.2.2. *The Increasing Role of Technology*

Technology also has a role to play. Electronic platforms have been around since the turn of the century but have recently proliferated in response to the perceived lack of liquidity as well as cost drivers. E-trading is, first and foremost, an efficiency tool that permits users to replicate their traditional voice trading via the use of Request For Quote (RFQ) protocols but to do so simultaneously to multiple dealers. They can also help foster a broader participation by enabling a wider reach to new or smaller players at small marginal cost. Protocols, other than the RFQ protocol, have been slow to gain traction. A Central Limit Order Book (CLOB) protocol⁵⁷ may gain traction with regard to the more liquid bonds but to date such protocol has suffered from insufficient live and actionable prices. Electronic means of execution increasingly play a more prominent role today. Electronification can contribute to reducing transaction costs and also help to promote greater participation in the corporate bond market. Electronic execution also makes pre and post-trade transparency simpler.

However, electronic execution does not necessarily in itself create more liquidity. Electronic trading is relatively less prevalent in the corporate bond market compared to other fixed income markets. Because of the heterogeneity of complexity of corporate bonds⁵⁸, electronic trading is less prominent in this asset class. It is estimated that 25 % of European corporate bond trades are fully electronically traded⁵⁹. However, these figures do not fully reflect the electronification of corporate bond markets, as bilateral trades relying upon voice confirmation often also benefit from some level of electronic communication – even though reported under MiFID I classification as bilateral. In any case, electronic trading of corporate bonds is clearly increasing, with the number of fully electronic transactions estimated to have tripled in size between October 2010 and May 2016⁶⁰. Importantly, market participants note that electronic trading is boosting the number of trades, but adding little depth for those that need to trade in size – most electronic trades are relatively small in size, with an estimated 85 % of electronic transactions being for trades with less than USD 1 million of notional value⁶¹. Electronic trading platforms can bring many positive effects, but they are unlikely to fully replace liquidity provision by dealers, in particular the ability to put capital at risk and provide immediacy. The Global Financial Markets Association (GFMA) is of the opinion that electronic trading can help efficiency but does not in itself create liquidity⁶². However, the contrary opinion can also be argued that liquidity is actually boosted (and efficiency increased) when different types of participants are brought together from different geographic regions to actively bridge distinct liquidity pools. Thus, when one adds the ability for all market participants (buy-side, sell-side and alternative players) to post and aggress the markets, then liquidity can be improved. This is of increasing importance as the gap between the amount of risk-capital available at the dealer banks and the size of AUM on the buy-side has grown. While this is a useful tool, it is like many things, a partial solution to the issue of liquidity, since: (i) buy-side participants are not used to undertaking the role of liquidity provider; (ii) often the directionality of one buy-side account is similar to another thus reducing the

⁵⁷ A Central Limit Order Book (or CLOB) is a trading method used by most equity exchanges globally. It is a transparent system that matches customer orders (e.g., bids and offers) on a “price time priority” basis. The highest bid order and the lowest offer order constitutes the best market in a given security. The functioning of a CLOB is dependent on a firmly executable price being available and transparent for a number of securities.

⁵⁸ E.g. different coupons, maturities, embedded options, covenants

⁵⁹ Source: "Drivers of Corporate bond markets Liquidity", Risk Control, November 2017

⁶⁰ Source: "Drivers of Corporate bond markets Liquidity", Risk Control, November 2017

⁶¹ Bank for International Settlements (2016): “Electronic Trading in Fixed Income Markets”, Markets Committee Study Group on Electronic Trading in Fixed Income Markets, January.

⁶² Global Financial Markets Association and Institute of International Finance Comments on IOSCO’s *Examination of Liquidity of the Secondary Corporate Bond Markets*, 26 October 2016

probability of a trade occurring in a timely fashion; and (iii) the challenges of latent liquidity and adverse selection are the same for any liquidity provider. A key input that could further facilitate the uptake of e-trading is reliable and transparent market information which facilitates price formation at the buy-side. This, in the view of some, could help buy-side accounts to become more comfortable with being price providers. It is also instructive to look at other fixed income markets like treasuries or foreign exchange. Despite broader electronic participation across a variety of protocols, liquidity challenges are observed in these products as well. This was evidenced most visibly in the “treasury flash crash”⁶³ or the Swiss Franc (CHF) unpegging episodes⁶⁴.

A “new generation” of e-solutions has also appeared, which are less focused on execution and post-trade efficiencies, but more on providing information to market participants to facilitate the matching of potential buyers and sellers. The current crop splits largely into two camps. One camp focuses on delivering inventory information from sell-side to buy-side. The other camp focuses on utilizing market information (actual trades, indications of interest, and inventory/position information) to point investors more effectively to the dealers who have been most active in a particular asset as well as providing a similar aggregation of internal information for the sell-side firm to make sense of their own sales-generated information. The most recent development in this arena has been the expansion of a type of execution management system that aggregates all platform liquidity into one space, permitting (at least theoretically) a buy-side participant to access the best price across multiple platforms.

When thinking about market structure, it is nevertheless important to take into account the specifics of corporate bond markets. After many years of evolving market structure, there is no evidence of a replacement for the capital deployment/temporary risk-taking aspect of market-making. Corporate bond markets are distinct from equities, commodities, foreign exchange and sovereign bond markets. The high degree of complexity and heterogeneity – many companies will often issue many different types of bonds, with varying interest rates, currencies and maturities – has so far made the market maker principal trading model indispensable in allowing investors to trade instruments and rebalance their debt portfolios⁶⁵.

The notable difference, however, between the various new entrants, agents and alternative liquidity providers is that none of them are set up to provide the crucial service of immediacy, which is the defining hallmark of the sell-side market maker.

3.3. Causes to the Perceived Liquidity Squeeze in the European Corporate Bond Market

There are many causes of the perceived liquidity squeeze in the European corporate bond market. Among the most visible are: (i) regulatory constraints (capital, restrictions on various activities, etc) that specifically impact banks; (ii) structural changes in participants, both banks and how they provide liquidity, as well as buy-side and the well reported concentration in AUM; (iii) the macro

⁶³ On 15 October 2014, US Treasuries and related markets experienced one of their largest intraday changes in yield in the past 25 years. Yields on 10-year bonds fell by 37 basis points from the previous day before recovering quickly.

⁶⁴ Between 2011 and 2014, the Swiss National Bank engaged in various episodes of pegging the CHF/EUR exchange rate to manage the appreciation of the currency. Each episode led to large movements in the FX rates. On January 15th, 2015, The SNB abandoned its puffing policy, leading to dramatic swings in the FX rates intraday.

⁶⁵ Global Financial Markets Association and Institute of International Finance Comments on IOSCO’s *Examination of Liquidity of the Secondary Corporate Bond Markets*, 26 October 2016

environment, both from a policy response perspective and also a macro rates perspective; (iv) the specifics of debt issuance generally and the potential for elements of standardization; and (v) the lack of confidence in outcomes. This section explores each of these.

3.3.1. Regulatory Constraints

Capital and liquidity requirements

Regulatory constraints have been notable in terms of increasing the outright cost of doing business. Banks are required to hold capital against inventory positions⁶⁶. According to a study by PwC and Tricumen, banks globally saw a reduction in credit assets of approximately 70% between 2011 and 2014, driven largely by an increase in risk-weighted capital charges in excess of 100%.⁶⁷ Additionally, there are restrictions on the type of activities that banks can undertake. The disappearance of proprietary trading has reduced the diversity of interests, which is detrimental to liquidity in normal times as well as in times of market stress.

Regulatory reform efforts since the financial crisis, in particular the Basel III framework, have aimed at making the financial system safer and more resilient. However, these regulations increase the cost of regulated institutions maintaining their balance sheets, therefore decreasing intermediation capacity, even during normal times. The collective impact of these new regulations on banks has led them to refocus their activity onto their specific strength where economics make sense and retrench from other areas. This has contributed to diminished liquidity in the market.

The key regulatory requirements driving the reduction in intermediation capacity are the Liquidity Coverage Ratio (LCR), the Net Stable Funding Ratio (NSFR), and the Leverage Ratio (LR). (*see Headline Report section II.3 for more details on the calculation and the impact of each of these ratios*)

- **LCR:** The Expert Group believes that requirement to meet this ratio could contribute to market volatility around reporting dates.
- **NSFR:** Increases the costs of short-term wholesale funding, with particular impact on repo markets. The impact from the NSFR on short-term repo is lower supply, reducing volumes and increasing the price.
- **LR:** A non-risk based capital requirement that increases the costs of low-margin, balance sheet intensive businesses, including funding positions through the credit repurchase agreement (repo) market and hedging positions through the credit default swap (CDS) market.

The reason for increased capital to be held by banks is, in principal, a good idea. However, it should be remembered that corporate bonds as an asset class had little to do with the 2007-2008 financial crisis and did not contribute to large-scale losses by banks. Rather, losses that most banks incurred were driven by, at the core, consumer credit (mortgages, credit cards, auto loans) and complex credit (Collateralised Debt Obligations (CDOs), synthetics). Consequently, a prudent policy would be one that recognizes this fact and is able to adjust accordingly.

In particular, the Expert Group believes that prudent policy should recognise the inherent benefits of liquidity provision by sell-side banks and offer capital breaks for that liquidity provision. This would need to be calibrated such that it did not have unintended consequences such as encouraging overly

⁶⁶ BIS (2013), "How Have Banks Adjusted to Higher Capital Requirements?"

⁶⁷ PwC Global Financial Markets Liquidity Study, p. 38-39

risky behaviour, but at the same time it should be tied to actual risk taking on behalf of buy-side accounts. This could be measured by time limits on the actual position taken, with capital being reduced for a defined period and then increased back to its original level after a suitable period. Such an approach would encourage the provision of immediacy services but not penalize a sell-side bank if it needed to hold the position for a reasonable period of time. Moreover, if bounded by time, it would not encourage large-scale risk taking unless the bank was confident of its ability to exit or willingness to underpin such risk taking with the original capital charge. In the view of the Expert Group, this proposed policy suggestion has the intended effect of promoting “responsible” risk warehousing by aligning capital charged with a speed of disposal, thereby limiting the large risk positions that were at the root of the financial crisis while encouraging (or more correctly, not penalizing) sell-side firms to provide necessary liquidity services to the larger market.

Lastly, harmonisation of the implementation of Basel standards globally is important to preserve liquidity in European markets and maintain the competitiveness of the EU financial sector.

The Expert Group recommends that EU authorities review the Basel capital and liquidity requirements, on the basis of a quantitative assessment of their impact on market-making and corporate bond liquidity. This quantitative impact assessment should be conducted across international banks with a defined mandate to make markets.

The following issues should be part of this Basel review:

- Adjusting both the haircuts and the inclusion amounts in the Basel Liquidity Coverage Ratio to reflect the minimal negative impact that corporate bonds had in the prior crisis; in particular, providing for a differentiated treatment in the calculation of the LCR for those assets designated as held on the trading book – i.e. adjusting both the haircuts and the inclusion amounts in the LCR calculation of those corporate bonds held on the trading book, which would take greater account of the higher expected turnover of such inventory*
- In connection with the liability side of the balance sheet, adjusting the factors applied in the Basel Net Stable Funding Ratio to corporate bonds and to inter-bank financing activities in repos and securities lending, to appropriately reflect their liquidity profile over a one-year period and support the provision of liquidity to corporate bond markets*
- With regard to the asset side of the balance sheet, either adjust the factors applied to the NSFR to more closely align the HQLA haircuts on corporate bonds with the price performance over the medium term (a one year period) used for such calculations or, in the alternative, remove corporate bonds designated as held on the trading book for market-making purposes from the calculation of the NSFR.*
- Amending the Basel III Leverage Ratio for the additional treatment for written credit derivatives to apply to contracts with a remaining term of less than one year. In so doing, banks would still be incentivized to match the maturity of protection buy and sells. However, it would not penalize mismatches that could materialize in the distant future, that there is ample time to manage. This recommendation applies to all credit derivatives and not only to corporate bonds credit derivatives.*

- *Setting up a specialist industry group to support policymakers negotiating international standards at Basel, and legislators when reviewing capital requirements for corporate bonds.*

CSDR mandatory buy-ins

The Central Securities Depositories Regulation (CSDR)⁶⁸ requires the mandatory execution of a buy-in process in the event of settlement fails. Buy-in mechanisms are already available to market participants in the European corporate bond markets (such as that provided for by the ICMA Secondary Markets Rules and Recommendations), however, their application is discretionary as they are designed to be a risk management tool to enforce delivery and to support market efficiency and stability. The design of the CSDR mandatory buy-in mechanism however creates additional risk for the defaulting seller, who is more likely to face a buy-in where it cannot cover or settle its sales.

The CSDR also creates additional risks for the non-defaulting party (in most cases, the investor) who may be forced into executing a buy-in they do not want to execute or into receiving cash compensation in replacement of the bonds that they thought they had purchased. In fact, investors purchase corporate bonds to meet certain investment criteria and mandates. While timely settlement of their purchases are important, so is the ability to find liquidity and competitive pricing, and accordingly investors are willing to accept an element of settlement risk as a trade-off for this. This trade-off will no longer be an option with mandatory buy-ins. Furthermore, investors currently are able to manage their settlement risk through established discretionary buy-in mechanisms, allowing them to execute buy-ins when they feel it is appropriate. Since a buy-in is a market transaction, the discretionary nature of existing buy-in mechanisms allows the non-defaulting party to select the most appropriate timing for execution, based on market conditions as well as their own assessment of the cause of the fail. Mandatory buy-ins will no longer afford them this discretion or ability to manage their own settlement and execution risk. Finally, the design of the mandatory buy-in regime provides that in the event that the buy-in is unsuccessful, the process will result in a cash compensation. This will mean that the investor's exposure to the underlying investment will be inadvertently revoked, and instead they will be paid compensation referenced to a price over which they have no control. This again undermines the ability for investors to manage their investment exposures, while creating additional market risks beyond their control.

In addition, the CSDR is likely to create a disincentive to market-makers from providing offer-side liquidity in bonds that they do not hold in inventory. Market-makers, as part of their liquidity provision function, are regularly required to offer bonds that they will not hold in inventory. In this scenario, the market-maker will borrow the bonds in the repo market until it is able to cover (i.e. buy-back) the short position. This creates a potential settlement risk in the event that the repo market is not liquid or the repo does not settle (which is beyond the control of the market-maker), which in turn could lead to a buy-in. In fact, the CSDR is also a disincentive to lenders of bonds (despite an exemption for short-dated repos), since they run the risk of being bought-in should their bonds not be returned on time to settle any subsequent sales in those bonds. Ultimately, the greater the risk of being bought-in, the less inclined the market-maker will be to provide offer-side liquidity. A mandatory buy-in regime significantly increases this risk to market-makers, which in turn is likely to impact both pricing and liquidity.

⁶⁸ Regulation on settlement and central securities depositories

The CSDR can also cause market disruption in the event of multiple buy-ins being triggered by a single fail and the asymmetry in the price differential process, which causes additional costs and risks for both sellers and principal intermediaries (who quite possibly are not even the cause of the original fail).

The Expert Group also points to flaws in the design of the mechanism as outlined in the CSDR. For example, there is an explicit asymmetry in the direction of the payment of the buy-in or reference price differential between the parties to the buy-in with respect to the original transaction price. This creates further, unquantifiable risks for liquidity providers, as well as for principal intermediaries who would be inadvertently penalized even where they are not the cause of the original fail.⁶⁹

The Expert Group therefore firmly believes that the mandatory buy-in regime outlined in CSDR will be a direct threat to the efficient and smooth functioning of the European corporate bond markets, and will have a very direct and adverse impact on secondary market liquidity. The Expert Group would further point the fact that, while reducing fails risk in the system is a key objective of overall market efficiency and stability, settlement rates for corporate bonds are already very high (around 97 % on intended settlement date). Meanwhile, a number of other, more market friendly initiatives could be pursued to help improve and maintain settlement efficiency rates, such as an appropriate and dynamic calibration of the CSDR cash penalty mechanism, as well as addressing settlement infrastructure issues such as improving settlement interoperability between Clearing Securities Depositories (CSDs). It should also be noted that discretionary buy-in mechanisms currently exist in the OTC bond markets, and that these appear to work effectively as a settlement-risk management tool in the event of fails.

The Expert Group recommends that the timing for the CSDR Mandatory buy-in regime, as foreseen in Article 7 of CSDR, be carefully managed to cushion its impact and provide space to review the provisions. Other less disruptive and more market-friendly initiatives should be investigated in order to improve and maintain settlement efficiency.

Pre- and post-trade transparency requirements under MiFID II

(See Chapter 4 section III for more details on pre- and post-trade transparency)

One of the regulatory developments that is meant to help price formation and thus encourage participation is MiFID II's pre- and post-trade transparency requirements. Pre-trade transparency, which presumably has been introduced to facilitate price formation, will (in the end) likely not have a material effect as approximately 95 % of the corporate bond universe will be outside of scope (at least initially). Additionally, the current interpretation of pre-trade transparency requirements are that it requires disclosure at the point of trade thus further minimizing potential negative consequences. The market view is bifurcated between larger and smaller participants as to whether post-trade transparency is an unalloyed benefit. Research on the impact of the introduction of Trace would imply that it has a dampening effect.⁷⁰ However, intuitively the use of post-trade information by non-traditional market makers to engage in price formation and engage in all-to-all trading could be beneficial. At the same time, market-makers argue that the post-trade information dissemination (depending on timing restraints) is a disincentive to capital deployment for liquidity provision. Moreover, the availability of post-trade information and some volume information can help to further calibrate liquidity metrics that could facilitate portfolio construction on the buy-side. The extent and timing of dissemination of post-trade information is also critical in determining the benefits and the

⁶⁹ ICMA, 2015, CSDR Mandatory Buy-In Impact Study; ICMA, 2016, CSDR Mandatory Buy-Ins: An Illustration of the Problems Arising from the Asymmetric Treatment of the Payment of the Buy-In or Cash Compensation Differential.

⁷⁰ <http://economics.mit.edu/files/9018>

risks associated with it. The US market has come to accept, largely, the Trace practice of masking the size of the transaction above USD 5 million, similar approaches as well as timing delays (currently between two days and four weeks) may prove to be beneficial to the European market as it adjusts to transparency.

3.3.2. Structural Changes in How Banks Provide Liquidity

Structural changes in the manner in which participant banks engage with market-making is best illustrated by the pull-back from large scale trading operations by many of the European regional banks. This has impacted liquidity, but perhaps not by as much as first perceived. Many of these banks have reverted to providing markets in a limited number of issues but are nevertheless providing liquidity. The reality is that market participants must work harder to find these regional participants when searching for liquidity. The role of regional banks should complement that of the full-scale players, but the key is to make sure that there are ample means for connecting these banks to clients. A further potential aid to this can be the broad connectivity that e-trading platforms provide along with efficient price discovery, which is already in progress but could still be extended further.

3.3.3. Constraints Caused by the Macro-Environment

The constraint on market liquidity caused by the macro environment is defined by two notable features: low interest rates and the impact of quantitative easing policies on asset availability (*see Chapter 1 Section 2.2. for more details on the quantitative easing policy by the ECB*). Both of these factors are likely, although not guaranteed, to be addressed with the passage of time and a normalization of the macro-environment. In the United States, a concerted move towards a greater normalization of the rates curve took place with the most recent rate increase by the Federal Reserve.

3.3.4. Heterogeneity of the Corporate Bond Markets

Another potential that impacts liquidity is the lack of homogeneity in the underlying market. One partial solution to this that has been suggested is a greater focus on standardization of issuance, the objective being a reduction in the number of outstanding issues and a greater focus on large, benchmark offerings. However, while such a solution may indeed increase the features of liquidity for those corporate obligors that are able to consolidate their issuance needs into fewer, larger benchmark sizes (and to re-tap those same issues at points when they need liquidity again), such approach can also add new problems to the mix. In particular, corporate treasurers would potentially lose flexibility to match their asset purchases and capital investment to their liabilities, or would create large maturity walls that require refinancing (or repayment) on a single date. Thus, the lack of homogeneity is more difficult to solve than at first glance. (*see Chapter 1 Section 1.1.7 for a more thorough discussion on standardisation*).

3.4. The importance of an efficient post-trade environment

The post-trade environment in Europe is highly fragmented. There are currently 17 Central Clearing Counterparty houses (CCPs) and over 30 EU Central Securities Depositories (CSDs). This is a barrier to efficiency across all asset classes. In fixed income in particular the fragmentation further inhibits the availability of deeper pools of liquidity and efficient risk mutualisation. The European Post-Trade Forum (EPTF)⁷¹ and the European Commission consultation on post-trade in a Capital Market Union

⁷¹ https://ec.europa.eu/info/sites/info/files/170515-eptf-report_en.pdf

are important policy development initiatives. However, the EPTF report does focus on the specific barriers and opportunities to clearing the fixed income market.

Enhancing the post-trade environment for fixed income is an important and extensive topic with substantial long-term potential benefits which could be unlocked. It therefore deserves a more comprehensive and exclusive level of policy scrutiny. This is a major strategic challenge for policymakers if they want to ensure that fixed income evolves closer to a liquid, transparent trading model more akin to the equity market. The current window is a unique opportunity to act and set standards that could serve as an example globally. Some estimates have put the cost of post trading in Europe as much as a third higher than in the United States, with 15% of collateral left idle⁷², highlighting the scale of the potential lost efficiency benefits which could otherwise be supporting liquidity in the secondary market (and thus a lower cost of capital in the primary market, supporting greater access to more diverse range of funding sources of financing for corporate issuers in the real economy).

3.4.1. *Barriers to fixed income clearing*

Whilst highly liquid fixed income securities such as sovereign debt and repos are increasingly able to take advantage of the benefits of clearing and settlement⁷³, only a very small proportion of corporate bonds are currently cleared through CCPs, due to the relatively illiquid nature of the market.⁷⁴ MiFID II transparency requirements will improve the visibility of liquidity required to provide CCP services (moving some way towards the US TRACE model) but this will not be sufficient to enable reasonable margin schemes to support default management. This is consistent with the analysis of the Expert Group concerning the multitude of corporate bonds and structures, which make it difficult to value them, as most are illiquid. A proliferation of different issues means there is less liquidity in each one of them. To be clearable, the first condition is liquidity in the event of a crisis. Greater standardisation and fewer, larger issues would support access to clearing (e.g. selected AA corporates akin to supranational and sovereign issuers).

At the same time, the EUR 887 trillion settlement industry⁷⁵ in Europe remains for now primarily a domestic practice, notably because CSDs were established on the basis of national law. In addition, the listing practices and needs of local investors, as well as national legal and regulatory concepts and traditions, have driven the development of domestic services. This has meant that greater cross border settlement has yet to become a reality. Potential efficiency gains could be realised, which would support liquidity in the secondary market.

Taken together, these barriers mean that the benefits of counterparty risk management, portfolio compression, netting of risk exposures and settlement optimisation are not generally available to corporate bonds. In turn, this reduces the potential to support greater liquidity in the secondary market. There is thus currently a negatively re-enforcing dynamic that corporate bonds are not generally clearable due to illiquidity but greater levels of clearing would have the potential to deliver significant efficiencies to traders and therefore support liquidity in the market. Whilst the open access requirements applicable from 2020 under MiFIR and the cross-border settlement provisions under CSDR and T2S are significant milestones in the evolution of the regulatory and systems framework,

⁷² DTCC quoting Clearstream/Accenture

⁷³ Monthly LCH volumes government repo and cash bonds clearing volumes are c. €13 trillion (Source: LCH)

⁷⁴ This is usually only possible as part of a basket such as the €GCPlus triparty repo service – see *Oversight of Payment Instruments and Financial Market Infrastructures, Banque de France* (Box 4, p19)

⁷⁵ Source: ESMA: Trends , Risks, Vulnerabilities No. 1, 2014

the benefits cannot be fully realised without the full commitment of market infrastructure to embrace the spirit of these reforms and deliver greater levels of choice for their customers.

3.4.2. Post-trade market infrastructure operating models

Whilst some open access models do exist, most post-trade infrastructures in Europe are operating closed ‘exclusive arrangement’ models which are not consistent with the objectives of MiFIR, CSDR and T2S to deliver significantly greater levels of competition (and thus efficiency and innovation) for the benefit of investors and issuers. These regulations were challenged by ‘exclusive arrangement’ infrastructures during their legislative phase because of (i) the potentially adverse consequences for their business models, which in part depend on bundling trading and post trading services together (in the case of CCPs) and (ii) a natural monopoly on domestic securities settlement (in the case of CSDs). As a result, the regulatory framework was designed with a number of complexities, implementation delays and uncertainties, allowing market infrastructure to postpone unduly taking action.

For example, in the case of CCPs on open access, there is already an inbuilt delay which can be requested and a series of criteria which trading venues and CCPs can use to deny requests for access. There are also other models emerging such as ‘preferred clearing’ which do not give true whole of market open access. Policy debates about open access can sometimes be conflated with interoperability, unduly raising issues of financial stability in the derivatives market. Fungibility between venues is not a necessary condition of open access, rather open access is about non-discriminatory access to trading and clearing infrastructures.

In addition, the vertical model is not only acting as a barrier to efficiencies. It also undermines the potential for innovations, as these are more easily developed in partnership with customers than imposed upon them. For example, despite the challenges of full clearing in the fixed income market, there is a more feasible potential for CCP services designed to simplify trade processing and settlement⁷⁶ in the bilateral derivatives market to be extended to more non-cleared fixed income trades. This would improve standardisation and efficiency without requiring legal novation. Non-cleared trades would follow similar operational processes to cleared trades (centralised processing, settlement netting and optimisation services). CCPs and trading venues should be encouraged to extend such services to the fixed income market.

In the case of CSDs, T2S has delivered a common platform but cross-border settlement is still not occurring in scale. There are also divergent market practices on corporate action processing and on the management of insolvency that hamper smooth cross border settlement (e.g. on the divergent tax treatment of coupon payments). This is partially explored by the European Post-trade Forum under their EPTF barrier 1. In addition, T2S is a phased process, and non T2S markets leave substantial legal uncertainties acting as a barrier to cross border transfers.

3.4.3. Conclusion

The fragmentation of the post-trade environment in Europe is a well-documented and discussed phenomenon. However, the specific implications for liquidity in the fixed income market generally, and corporate bond market in particular, are relatively unexplored despite the enormous potential liquidity benefits of dismantling barriers. While fixed income markets are fundamentally different from equity markets, improved post-trade efficiencies will go some way to provide opportunities for bond markets to evolve towards a more equity like trading model (venue based, transparent, efficient,

⁷⁶ E.g. LCH SwapAgent

innovative). Primarily, bonds are unclearable because they are illiquid but the lack of clearing denies the bond market a route to greater efficiencies that would support liquidity. At the same time, national barriers remain to more efficient and timely settlement, which also unduly hampers bond liquidity. This is likely to be accentuated by the introduction of the CSDR mandatory buy-in regime (see Chapter 3, Section III.1.3)..

Issuers, investor and liquidity providers are dependent on market infrastructure to provide means to help them manage their regulatory and capital requirements whilst providing ways to access liquidity, optimise asset use and selection and control costs. To deliver efficiencies and innovations which can support liquidity in the fixed income market and beyond, Europe's market infrastructure must demonstrate its commitment to building a new post-trade environment based on improved cross-border connectivity, competition, innovation and open access. Regulators should take steps to monitor the evolution of market structure in response to incoming regulations. Therefore, a full audit of market infrastructure readiness to deliver the crucial reforms enshrined in MiFIR access provisions, CSD-R and T2S would provide a welcome catalyst. This should be supported by specific official sector encouragement for infrastructure to apply post-trade efficiency innovations to the fixed income sector. Finally, a specific European Commission sponsored policy investigation process dedicated to identifying and removing barriers to greater clearing in the fixed income and corporate bond market specifically would add substantial value to broader post-trade policy development.

The Expert Group recommends that the European Commission (i) reports in 2018 on how barriers to greater fixed income clearing are being addressed, and (ii) identifies best practices.

CHAPTER 4 - SUPPORTING FUNCTIONS AND FUTURE MARKET INFRASTRUCTURES

For the interaction between the three main participants in corporate bond markets – issuers, investors and intermediaries - to function smoothly, a solid ecosystem around their activity is needed. Essential support functions include: book-building and market sounding, analytics and research, ratings, data, information, and an efficient legal framework.

4.1. Support to primary issuance

4.1.1. *Book-building and market sounding*

New issuances of corporate bonds typically follow a certain schedule:

1. The issuer appoints one bank or a syndicate of banks to manage the issuance of the bond. There are distinct roles to be filled within the syndicate, in particular: book runner (keeping track of incoming orders), issuing and paying agent (responsible for listing and payments), and documentation agent (drafting the documentation related to the issuance);
2. Based on the needs of the issuer, the bank / syndicate of banks advises the issuer on bond characteristics such as tenor, size, currency or coupon technique.
3. A road show is often conducted, during which the issuer and its bank syndicate communicate with potential investors about the characteristics of the issuance;
4. At launch date, the exact characteristics of the issuance are agreed with the issuer. The bank then starts taking in orders. In this "book building" process, the bank will fill the order book with customer orders up to (and often beyond) the targeted amount;
5. The 'book' is then 'closed' and the bond is 'free to trade'.

Typically, a successful issue increases in price a little after launch, making both the investors satisfied and the issuer comfortable that the launch was successful. This requires a fine-tuned pricing of the new issue – the price discovery process or “where the Bond clears”.

When the issuer is a known name which frequently issues corporate bonds and when there is an active secondary trading and hedging possibilities, the price discovery process is fairly simple. But when the issuer is smaller and seldom in the market, when the market is very local (small currency areas), or when the issuer's credit history is not very stable or long, finding the price where 'the issue clears' become more difficult. In such cases, the issuing group might choose to “sound” a few investors out about potential price levels and volume interest. In this market sounding process, the bank communicates information on the issuer and the foreseen issuance to potential investors to gauge their interest before issuing the bond.

4.1.2. The bond allocation process

This section complements Chapter 2 section II.2: "How the demand side acquires newly issued bonds".

Given the lack of depth in the secondary market, access to corporate bonds through the primary market is the best (if not only) way for investors to get a hold of bonds for a volume commensurate with their investment needs, and with reasonable immediacy. Yet, the primary allocation will have an impact on liquidity on secondary markets, as allocating bonds to a large scope of investors could help to increase liquidity on the secondary market. However, the primary allocation process needs to reconcile the objectives of three actors in this process: the issuer, the investors and the bank / syndicate of banks arranging the issuance.

- **For an issuer**, the primary allocation process must fulfill three specific objectives:
 - raise the amount of funds needed;
 - achieve the best pricing possible; and
 - secure an investor base that will invest in future issuances and guarantee their success.

Therefore, in the primary allocation process, issuers tend to serve in priority investors pursuing a buy and hold strategy (typically insurance companies and pension funds), followed by asset managers. Smaller investors and hedge funds would be allocated last or possibly not at all. This means that issuers hardly take into account secondary liquidity during the primary allocation process.

- The bank (or syndicate of banks) arranging the issuance proceed as follows:

For investment grade issues, the syndicate of banks carries out allocations following a pre-agreed set of rules (made available to market regulators):

- Allocation rules are set by investor type in order to warrant that no investor is positively or negatively discriminated (for instance, the syndicate of banks - taking into account issuer preferences – decide that all asset-managers would get x% of their indication of interest, insurance companies y%, hedge funds z%)
- During the allocation process through which all bonds must be sold to investors at the same price (Fixed Price Reoffer Rules), bonds are sold to investors based on the following process:
 - Take into account the issuer guidance if any (e.g. at best price regardless of the book quality; or at best price with best quality of book (e.g. geographical diversification, post-pricing spread performance)
 - Determine the issuing price /spread matching the issuer's guidance
 - Respect allocation rules
- Local regulators may be given access to each allocation decision process and primary book allocation, which must be kept on record by syndicate members.

For high yield bonds, only one bank (called the "lead-left") within the primary syndicate allocate bonds on a purely discretionary basis:

- Bonds are allocated at the same price, but:
- The lead-left bank may favor investors they do business with otherwise, and discriminate others;
- Secondary liquidity is hardly ever taken into account;
- No records or justification for the allocation are kept.

- Seen from the investor's side, real money and relative value investors tend to have a different approach:
 - "Real money" investors (typically pension funds, insurance companies and long-term asset managers):
 - tend to give their very best price in order to be certain to be allocated bonds;
 - order the amount they are really willing to invest in.
 - "Relative value players" (typically hedge funds and banks):
 - only invest in primary bonds if they offer some absolute or relative short-term performance potential; therefore the price of the order sent to the syndicate of banks tends to be lower;
 - may also inflate orders to maximize profit potential, as they use leverage as a way to maximize the invested amount.

Regulators should work with market professionals⁷⁷ to support the extension of transparent and fair allocation methods from the investment grade primary market to the high yield segment as appropriate. This will warrant a fairer access to primary liquidity for all borrowers and investors and a transparent and efficient price discover process.

Coordinated action between regulators and markets professionals should discourage and possibly penalize the artificial inflation of primary orders from all investors in a primary allocation process.

4.2. Support to investment decision: research and ratings

4.2.1. Research

There are three main sources of research on corporate bonds:

1. Internal research - known as buy-side research
2. External research - known as sell-side research
3. Independent research provider (e.g. Creditsights, Autonomous)

Buy-side research

Most asset managers and large institutional investors have a dedicated in-house research department, while some smaller players are often working around teams of manager-analyst. Credit analysts are usually specialised by sector and/or asset class (investment grade vs. high yield). Their analysis focuses on the issuer's fundamental characteristics as well as the specificities of each issue – e.g. structural or contractual subordination or covenants. Buy-side analysts also help fund managers construct and monitor their portfolios by providing fundamental analysis on issuer and sectors together with a range of metrics adapted to each of the fund's investment strategies (e.g. active management; buy & hold; multi-asset). The buy-side research is internal and cannot, for compliance reasons, be provided to end customers. The cost of the service is included in the commissions/fees payed by the end investors.

⁷⁷ Notably with self-regulated bodies such as the international Primary Market association (IPMA)

Sell-side research

Sell-side analysts also follow issuers and specific sectors. Typically, the number of issuers followed by a sell-side analyst is smaller than the number of issuers followed by a buy-side analyst. Sell-side analysts notably develop financial projections based on the company's estimates as well as their own analysis and expectations.

Given the smaller number of issuers' names followed, a sell-side analyst maintains a constant watch over the issuer, reviewing many sources of data and information to determine if he/she feels confident with his/her financial model or makes revisions based on new information. Sell-side analysts are expected to provide an unbiased opinion based on proprietary research on a security. They make recommendations on how they expect the bond to perform - usually recommending to "buy", "sell" or "hold" a bond -, and share expectations of upgrade or downgrade of the security by rating agencies. However, when a sell-side analyst makes a recommendation to buy or sell an issuer's securities, there is an inherent conflict of interest when this issuer is the client of the analyst's bank – which means that it pays fees to the banks for investment and/or banking services. Should a sell-side analyst make a negative recommendation, the bank may lose this client and the associated revenue. In addition, to be able to understand the strategy of an issuer, an analyst needs to have access to its management team. Should the analyst publish a negative recommendation, the company may limit or even deny this access, making the research more difficult.

Independent research provider

As a result of the development of the fixed income market and as a response to the potential conflict of interest issue, some independent credit analyst providers have appeared. Their role is to provide fundamental and quantitative analysis mainly to investors who cannot afford to employ in-house credit analysis resources. Independent analysts are typically remunerated through a subscription.

MiFID II - Impact on research

In the pre-MiFID II environment, banks and brokers were distributing research to buy-side firms under a pricing model in which research was covered by the bid/offer spread when trading securities. As a result, research was perceived as being provided without charge. This is the case for fixed income as well as equity research, which are largely provided by the sell-side. This is considered as a service provided in addition to trading or other financial services. MiFID II will substantially change this situation.

Under MiFID II, for investor protection and transparency reasons, execution and research payments must be separated and research must be separately paid for unless it can be considered a minor non-monetary benefit. Consequently, the sell-side needs to structure and price research as a separate service, unbundling it from the cost of execution, while the buy-side has to dedicate a specific budget to research. It is unclear whether the bid/ask spreads will tighten as a result of the separation of research and execution costs.

For asset managers, there will be two different approaches to finance research costs: (i) absorb the cost by paying it out of the firm's own resources; or (ii) pass the cost on to investors through higher fees – i.e. directly charge the client to fund a Research Payment Account (RPA)

Regardless of the approach asset managers take to finance research costs, they will have to: (i) publish their research procurement, (ii) record all research usage, (iii) demonstrate that the research is used and

qualitatively improves the investment process, and (iv) regularly assess whether research services are providing fair value.

Due to the current competitiveness of the asset management market, expectations are that the budget allocated to research will be limited and will not allow the current level of research coverage to be maintained. The risk is that the buy-side will choose global research players and sacrifice some “niche players”. This might lead to less diversity in terms of credit research. Consequences of this might include difficulties for some investment banks to maintain credit analyst teams, especially those providing research on some niche markets (e.g. small corporates, non-rated). This might also result in a narrowing of the research coverage penalizing small investors (structured around manager-analyst teams). This is expected to be in particular negative for smaller issuers, as investors' willingness to buy research will be affected by the market opportunities available - a disadvantage for smaller issuers having less securities in the market.

The negotiations between the buy-side and the sell-side – ongoing at the time of drafting of this report – are going in the direction of a limited budget for research. Research providers argue that the income generated will only cover a fraction of the actual cost of doing research.

Lastly, MiFID II will put some investors at a disadvantage, because some investors, such as public entities will not have to pay for research.

MiFID II – conflicting rules on research between EU and US

There is a significant complexity across the global research market with interconnected and sometimes contradictory regulations in different jurisdictions. MiFID II creates a particular issue for investment managers sourcing research from US brokers.

Firstly, the requirement that a MiFID firm pays a separately identifiable charge for research, whether directly or through a research payment account, raises issues for US brokers because the Investment Advisers Act requires a broker to register as an investment adviser if it receives a separate payment for research. Such registration would impose significant requirements and prohibitions on the broker. As a consequence, the access of firms subject to the MiFID II requirements to research from US brokers is expected to be severely restricted or stopped.

Secondly, because firms subject to MiFID II will need to separate payment for execution and research when other firms are not similarly required to do so, the cost of acquiring research - whether it is paid for by the investment manager directly or whether it is paid for by the client through the research payment account collection method - may be higher for EU asset managers and their clients, compared to firms that are not subject to the MiFID II requirements.

Thirdly, it is anticipated that the volume of research produced by brokers and third-party research providers will be reduced, particularly with respect to research on SMEs. Limited research on such companies will impact the information that is available to investors and may impact their investment decisions.

MiFID II research requirements are fundamentally different from the established global framework for payment for research. Compliance with these requirements raises significant issues under and conflicts with non-EU laws, in particular (but not only) US securities laws, for both non-EU brokers and global fund managers.

The Expert Group recommends that the European Commission closely monitors the impact of the MiFID II rules on the availability of research on the corporate bond market, in particular for small issuers: on the universe of corporate bonds covered by the research, the amount of research, the quality of the research, and the impact which potentially reduced/lower quality research could have on the interest by investor, the trading in these corporate bonds and on liquidity. Should this impact be found to be negative, the European Commission should take corrective action without delay.

4.2.2. Credit ratings

A credit rating is an important element in the investment process, and many investors require bonds to be rated, preferably by a Credit Rating Agency (CRA), in order to invest. A credit rating helps investors by assessing the credit risk and pricing in probability of default. In addition, many investors have specific requirements on absolute rating levels, which are often combined with concentration caps (limiting how much an individual fund/investor can be exposed to a particular rating level). This is notably due to the fact that regulation targeting, in particular, banks, insurance companies and pension funds, often refers to external ratings. Even though regulation of investment funds is not as prescriptive, regulation of asset managers' clients (insurers, pension funds, banks) is a constraint on the way asset managers can invest and manage portfolios. Lastly, purchases of securities by the ECB and eligibility as collateral at national central banks heavily rely on credit ratings.

Rating in almost all circumstances is paid for by the rated entity.

After concluding that CRAs failed to properly appreciate the risks in complex instruments which contributed to the 2007-2008 financial crisis", the EU decided to legislate, pursuing three objectives: (i) ensure high quality and sufficient transparency of credit ratings and rating methodologies; (ii) address the risk of over-reliance on credit ratings; (iii) address the risk of conflict of interest stemming from the remuneration model of credit rating agencies. However, even though CRAs were heavily criticised after the financial crisis, the Expert Group believes that their importance has actually increased.

Credit ratings offered by the three major international rating agencies Moody's, Standard & Poor and Fitch are often too expensive for small issuers. Besides, getting a rating represents an extensive information effort, as being rated requires the issuer to provide regularly data in the format prescribed by the rating agencies. This becomes a watershed between those who are and those who are not rated. Issues which benefit from a credit rating attract a much wider investor base and hence higher liquidity.

Some solutions have been considered:

- The cost of procuring a rating could be reduced if a number of CRAs entered the market. This would result in a more competitive rating industry. However, possible risks might be that (i) new CRAs might assign overly positive ratings in order to increase their business; and/or (ii) rated corporates go for "rating shopping", i.e. ask for a rating from the rating agency whose rating would be most favourable.
- Another possible solution would be the use of Robo-raters. However, the main challenge of a purely quantitative process is that it typically obtains sound results only during "normal" periods. Indeed, it is not clear how a quantitative process could assess a major change affecting the business of the corporation being rated (e.g. a M&A event, a drastic change in strategy or a significant technological change). A rating assigned by a CRA quantitative

assessment as well as a qualitative assessment – which is notably based on discussions and an historical relationship between the corporation and the agency.

- Putting aside the regulatory constraints and requirements, a strong internal credit risk assessment is a suitable solution for market participants which have reached a sufficient critical mass to absorb the associated costs. This credit assessment would notably rely on the provision of comparable/easy to access financial data at a pan-European level. A public institution could provide standardized financial data. The rationale for setting up such a service would be: (i) to break the competitive edge of the three major CRAs versus new entrants in terms of historical databases/sets of comparable data; (ii) to provide information to institutions which need to develop their own internal risk assessment at a reasonable cost.

In some Northern European countries, corporations having issued securities on capital markets without procuring rating services have sometimes been "shadow rated" by the investment bank that led the issuance. However, because these banks were not covered by the CRA Regulation and therefore not supervised by ESMA, this system of "shadow ratings" stopped.

The Expert Group recommends that the Commission explores different mechanisms that would enable smaller issuers that cannot afford expensive ratings to receive an independent and objective credit assessment. This would greatly enhance the ability of small and medium-sized issuers to reach a critical investor base and make bond issuance meaningful.

4.3. Data on the corporate bond market: pre- and post-trade transparency

4.3.1. Data on the corporate bond market and associated challenges

The European corporate bond market is, the second biggest globally behind the US market. However, its heterogeneity and the absence of a European trade reporting system similar to the US based TRACE ("Trade Reporting and Compliance Engine") make it difficult to obtain factual data. This is notably due to the fact that, in Europe, information is collected by the NCAs and then transferred to ESMA.

The lack of sound and comparable data is detrimental to market participants, whether issuers, investors or intermediaries, as sound data can help them intervene in corporate bond markets. It also makes it difficult for supervisors to fulfil their mandate. In addition, the lack of sound data does not help the formulation of robust legislation devoid of unintended consequences for the market while, on the other side, robust and comparable data could be used to better understand the impact of proposed policies on the market.

One of the provisions of the ESAs' review adopted by the Commission on 20 September 2017⁷⁸ foresees that ESMA will receive transaction data directly from market participants. The Expert Group supports this provision as it will enable ESMA to build significant market expertise, better use its supervisory powers and ensure a level playing field across the EU.

4.3.2. Pre- and post-trade transparency and transaction reporting under MiFID II

One of the regulatory developments aimed at helping price formation and thus encourage participation, is MiFID II pre- and post-trade transparency requirements. A key weakness exposed

⁷⁸ Commission proposal for a regulation on the review of the European Supervisory Authorities, COM(2017)536/9489721

during the course of the financial crisis of 2007-2008 was attributed to the lack of transparency of some financial markets. To address these issues, the G20 undertook a commitment to improve the requirements associated with trading transparency. As a result, the EU enhanced and modified certain obligations included in the existing MiFID legislative package, by means of a new Directive (MiFID II) and a new Regulation (MiFIR). Implementing measures will take the form of delegated acts and technical standards issued by the European Commission and the ESAs. MiFID II and MiFIR requirements aim to strengthen the trading and reporting transparency framework including where, in the European markets, trading takes place outside regulated markets - in so-called Over The Counter (OTC) transactions.

A well calibrated trade transparency regime can provide numerous benefits: (i) improve data quality; (ii) reduce information asymmetries; (iii) enhance price discovery; and (iv) increase market efficiency.

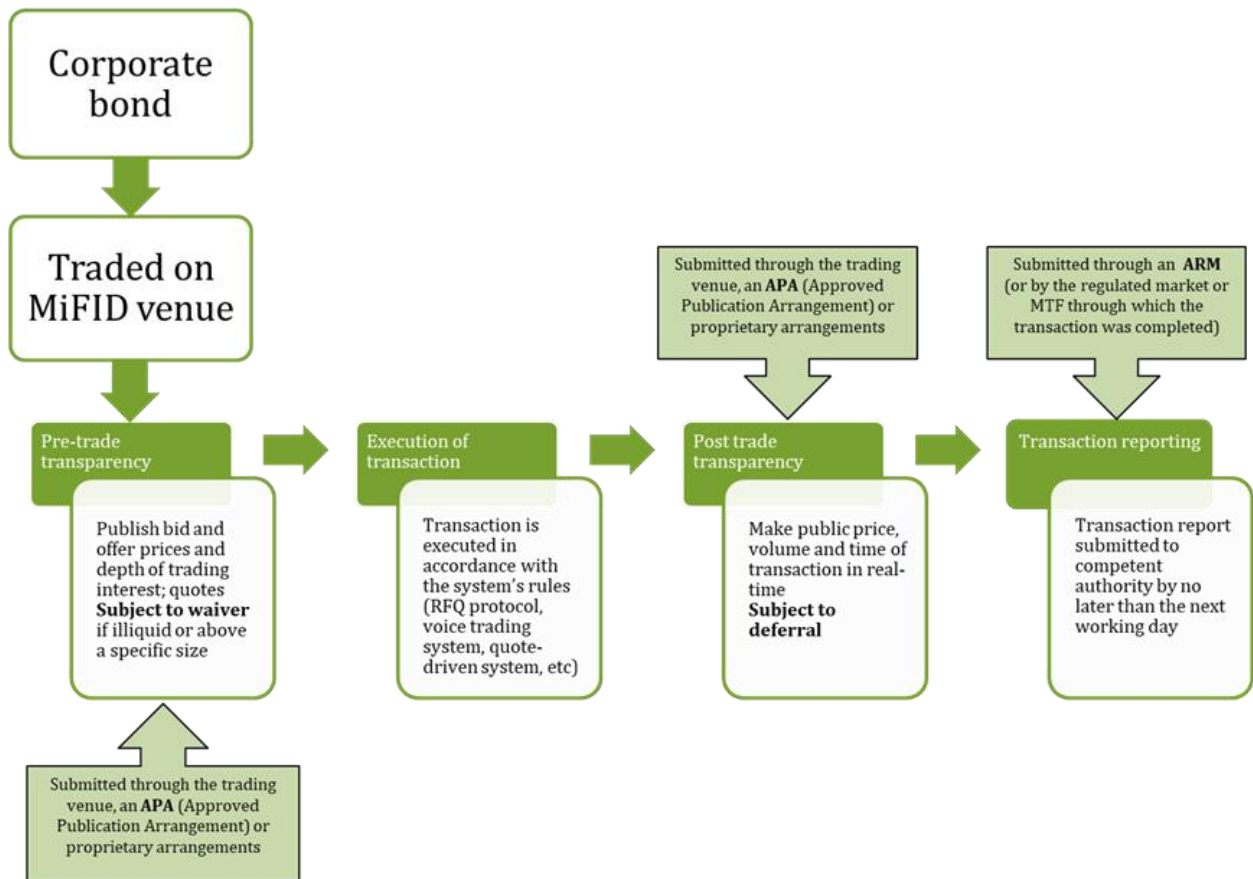
There are two key means to achieving transparency which serve two different objectives: (i) provide reliable information to market participants – issuers, investors and intermediaries, and (ii) facilitate supervision:

- pre- and post-trade transparency: disclosure of details of transactions pre-execution (e.g. price, volume) and post-execution (e.g. executed price, volume, counterparty)
- transaction reporting to the relevant authorities.

The pre- and post-trade transparency regime under MiFID II identifies four different types of execution venues in which financial instruments can be traded: (i) Regulated Markets (RM); (ii) Multilateral Trading Facilities (MTF); (iii) Organised Trading Facilities (OTF); and the status of (iv) Systematic Internaliser (SI) for entities trading in an organized, frequent, systematic and substantial basis in certain assets.

Under MiFID I, pre-trade transparency requirements applied to shares traded in a Regulated Market. MiFID II extends transparency requirements to the three other trading venues, and also applies them to bonds and structured finance products. Implementation of MiFID II starts 3rd January 2018.

Figure 20 - Trade Process under MiFID II/MiFIR



Source: AFME

Pre-trade transparency

Pre-trade transparency requirements introduced by MiFID II to facilitate price formation will initially (for the first year) not have a material effect, as approximately 95% of the corporate bond universe will be outside of scope as MiFID II goes live. This is due to the 4 year phased-in approach taken by the European Commission to protect liquidity in the early years of MiFID II.

Post-Trade Transparency

The market view is bifurcated between larger and smaller participants as to whether post-trade transparency is an unalloyed benefit. Research on the impact of the introduction of Trace in the US would imply that it has a dampening affect. However, intuitively, the use of post-trade information by non-traditional market makers to engage in price formation and engage in all-to-all trading could be beneficial. At the same time, market-makers argue that the post-trade information dissemination (depending on timing restraints) may be a disincentive to capital deployment for liquidity provision. Moreover, the availability of post-trade information and some volume information can help to further calibrate liquidity metrics that could facilitate portfolio construction on the buy-side. The extent and timing of dissemination of post-trade information can also be critical in determining the benefits and the risks associated with it. The US market has come to accept, largely, the Trace practice of masking the size of the transaction above USD 5 million, similar approaches as well as timing delays (deferrals which, depending on the option chosen can range between two days and four weeks) may prove to be beneficial to the European market as it adjusts to transparency.

While a meaningful transparency regime is meant to improve price discovery, increase competition and lower transaction costs, it may also result, for market makers, in an increased exposure to certain non-desired risks. An unintended consequence may therefore be the reduction of market-makers' capacity to provide liquidity at competitive prices.

Phased in implementation of MiFID II transparency requirements

A security is subject to pre- and/or post-trade transparency requirements under MiFID II if it is deemed "liquid". MiFID II foresees a phased-in implementation of its transparency regime in order to find the appropriate balance between liquidity and transparency. This phased-in approach will allow regulators to carefully monitor the implementation of the new transparency requirements, and adjust where necessary to mitigate possible negative effects on liquidity.

Under this phased in approach, the liquidity requirement that determines if a corporate bond is classed as liquid is progressively tightened from 15 trades a day in year 1 of MiFID II go live (3 January 2018), down to 2 trades a day in year 4.

Phase-in of Liquidity requirement:

Year 1 – 15 trades per day

Year 2 – 10 trades per day

Year 3 – 7 trades per day

Year 4 – 2 trades per day

The Size Specific To the Instrument (SSTI) threshold will also have a phase-in period over four years. It is important to note that trades above the relevant SSTI amount exposes liquidity providers to increased risk, and will thereby qualify for post-trade deferral and pre-trade transparency waivers. The actual SSTI amount is calculated on a quarterly basis.

Phase in of SSTI levels:

Year 1- 30th percentile

Year 2- 40th percentile

Year 3- 50th percentile

Year 4- 60th percentile

MiFID II foresees that an annual assessment will be performed (by 30 July each year) to establish if transparency requirements have had a negative effect on liquidity and determine if a move to the next phase is warranted. If a move is not warranted, the levels will stay the same until the next yearly assessment is made. This assessment will take into account the evolution of trading volumes, the impact on liquidity providers and 'any other relevant factors'.

Should the methodology for assessing liquidity not be solid, conclusions on the application of both pre-and post-trade transparency requirements may be ill-founded. The resulting move to the next phase with tighter liquidity requirements and higher SSTI thresholds could have a severe negative impact on the corporate bond market.

Inter alia, the methodology should address the following issues:

- ESMA's assessment of liquidity, as well as undue risk, will be based on historical data reflecting the current thresholds. For example, ESMA will at the end of Year 1 use data based on the 30th percentile SSTI threshold to determine whether to apply the next threshold level. While appropriate for assessing the current threshold, this backward-looking approach is not necessarily suitable to predict the impact of increasing the threshold. Once the step up to the new threshold has been made, it cannot be reversed
- The minimum number of trades per day needs to be based on pre-allocated trade data because this is reflective of actual rather than administrative trades.
- Although the majority of corporate bonds would likely not be captured by the 15 trades a day liquidity threshold, the proposed application of COFIA (Class of Financial Instrument Approach) for newly-issued corporate bonds could counteract this impact and mean these bonds might be incorrectly classed as liquid for up to 5.5 months

The Expert Group recommends that ESMA establish a specialist industry working group or consultations with experts from both the buy and sell side to help formulate a suitable methodology for the yearly assessment of corporate bond liquidity.

Assessment of the liquidity of newly issued bonds

The liquidity of a bond will be determined by calculating trading data over a quarter. During the first two years of implementation of MiFID II (i.e. until 31 December 2019), new issues will be deemed liquid when the issuance size exceeds EUR 1 billion⁷⁹. After these first two years, corporate bonds issued as part of an issuance exceeding EUR 500 million will be classed as liquid.

Because the liquidity determination calculations can only be completed once a full quarter's worth of trading data is available, depending on when a corporate bond is issued, there could be a maximum time frame of 5.5 months before the first liquidity assessment can be calculated. This means that a bond could be classed as liquid for 5.5 months before any assessment of its liquidity is performed.⁸⁰

However, analysis of trading in corporate bonds indicates that the most active trading period typically only lasts three weeks after issuance, after which liquidity diminishes drastically as bonds get "siloed" in portfolios of buy-and-hold investors. With the phased in approach to liquidity calibration, a corporate bond is classed as liquid if it trades 15 times a day from MiFID II go live to 15 May 2019, then 10 times the following year, 7 times the year after and 2 times from 16 May 2021.

This raises concerns around a possible concentration of bond issuance in an attempt to make this false positive period as short as possible.

Deferrals of post-trade transparency requirements

Acknowledging the necessity to calibrate the timing of the post-trade information disclosure in order not to dis-incentivise liquidity provision on the corporate bond markets, MiFID II gave NCAs some discretion in the implementation of post-trade transparency regimes. In particular, NCAs may apply deferrals for post-trade transparency requirements of between two days and four weeks.

⁷⁹ As per ESMA opinion – 2 May 2016 ESMA/2016/666

⁸⁰ Example: if a corporate bond is issued on 1 March, it will be subject to pre-trade transparency until 15 August, which is the first available calibration date to determine if an individual bond, using the Instrument by Instrument Approach (IBIA), has met the liquidity criteria.

The only NCA to have officially clarified via a policy statement how it will apply deferrals intends to offer the maximum permitted deferral time of T+4 weeks (i.e. the obligation to release information on the trade applies four weeks after the transaction) - when conditions for a deferral are met. At the time of writing of this report, other NCAs' approach remains unclear.

The harmonisation of full supplementary deferral regimes across the EU is essential, not just for corporate bonds, to ensure financial stability, allow hedging of risk, maintain liquidity and preserve a level-playing field across the EU for investment firms and investors.

In many illiquid markets (and most corporate bonds will initially be deemed illiquid), it can take weeks or months for liquidity providers to hedge or unwind their positions. The inability to de-risk before the size of a Large In Scale (LIS)⁸¹ or illiquid trade is made public will act as a significant deterrent to the provision of liquidity.

There is a concern that non-harmonisation of deferrals could lead to liquidity fragmentation, with trades qualifying for a deferral more likely to be traded in jurisdictions that offer the extended period, particularly those offering the 4-week supplementary deferral for volume.

This could lead to regulatory arbitrage and an uneven playing field between various jurisdictions, and penalise end-investors who should be able to access the same level of liquidity in each country.

Box 6 - Example of application of post-trade deferrals

An asset manager in scope of MiFID II residing in a T+2 jurisdiction sells an illiquid corporate bond to a dealer sitting in a jurisdiction that has granted a supplementary volume deferral of T+4 weeks. Assuming the dealer is not an SI for that bond, the asset manager is required to report T+2, therefore the volume traded is public information starting T+2.

As the dealer may not have been able to hedge/ unwind the trade by T+2, when the information becomes public, it will factor that into any price/spread quoted for clients sitting in T+2 reporting jurisdictions.

Some NCAs may be considering shorter deferral periods, because of the share of retail investors in their domestic markets. However, it is not clear why this should be a factor in the choice of the deferral regime chosen as trades with those counterparties, because of their smaller sizes, are unlikely to be eligible for deferrals (deferred publication is only authorised in respect of transactions that are Large In Scale (LIS), above a Size Specific To the Instrument (SSTI), or in illiquid instruments).

In addition, most retail trades will not be eligible for a deferral because ESMA has excluded trades below EUR 100 000 from the deferral threshold calculations. Therefore, the SSTI/LIS thresholds will mechanically be above EUR 100 000. Lastly, the 4-week supplementary deferral only relates to volume – not price which will be published at the latest T+2, ensuring transparency of pricing levels for retail investors.

- The Expert Group recommends that ESMA actively encourage NCAs to adopt similar deferral regimes across European jurisdictions in regard to post-trade transparency requirements. This would apply not only to corporate bonds but also to other financial instruments.

⁸¹ Large In Scale compared to normal market size

- *Delegated Regulation 2017/575 should be amended so that the obligation for execution venues to publish details of trades of all sizes is either (i) narrowed in scope and in depth of details provided⁸², or (ii) replaced by an obligation to report aggregated information. The Delegated Regulation could be amended to require the information to be reported at an aggregated level over three months, and to require the information to be published up to three months after the end of the quarter, instead of having to publish granular data for each individual trading day over a quarter. An alternative solution would be to keep the requirements as they are, but to require this information to be published only for instruments that are liquid and below a certain size⁸³.*

4.4. Supervisory and policy framework

The legislative, regulatory and supervisory framework also plays an important role in enabling market development and integration. In particular, a harmonised, stable and consistent framework is necessary to remove national barriers and support cross-border transactions.

4.4.1. Divergence in the transposition and implementation of EU legislation

EU Directives leave some level of discretion to national authorities in their implementation. In addition, some regulations – e.g. MiFIR on post-trade transparency - also leave room for interpretation by NCAs.⁸⁴ In addition, the state of transposition and implementation of EU regulations and directives depends on the capabilities and abilities of NCAs. Diverging transposition and implementation of EU legislation fragment corporate bond markets – among others – and lead to regulatory arbitrage.

4.4.2. Overlaps and inconsistencies in EU legislation

The financial crisis triggered the adoption of more than 40 new pieces of EU legislation to restore financial stability and market confidence. Overall, these reforms have made the financial system more stable and resilient. However, some frictions, overlap and other forms of unintended interaction between different rules are also having an impact. They result in additional and unnecessary burdens and costs for market participants. They also create uncertainty for market participants faced with inconsistent requirements, which increases compliance risk. In the corporate bond markets, these overlaps and inconsistencies between EU legislations are particularly harmful for market makers and impact their ability to provide liquidity.

⁸² Greater than or equal to LIS, SSTI and illiquid instruments should be excluded from the scope

⁸³ The Delegated Regulation should be amended to (i) also exclude illiquid instruments from being subject to the obligation to publish point-in-time information; and (ii) exclude SSTI, LIS and illiquid instrument trades from being subject to the daily aggregated reporting requirements.

⁸⁴ Example: As a result of diverging transpositions of CRD and BRRD at national level, the cost of holding inventory for market makers may vary from one Member State to another.

Box 7: Examples of inconsistent or overlapping EU capital markets rules

The following are examples of inconsistent or overlapping EU capital market rules having an impact on corporate bond markets:

- MiFID and MAR⁸⁵

These two pieces of legislation are inconsistent on transparency requirements for financial instruments that are admitted to trading on multilateral trading facilities (MTFs) or organised trading facilities (OTFs). They are not aligned in terms of scope or depth. Companies find it difficult to ascertain if they comply with MiFID transparency and, when they do, if they also comply with MAR.

Both MiFID and MAR have investor protection as one of their main objectives, and identify investment recommendations as an important area in this respect. However, definitions of "investment recommendations", "investment analysis" and "investment research" overlap in the two pieces of legislation, which creates confusion. This has a negative effect on the research that the sell-side can provide in order to increase transparency on the proposed investments.

- MiFID and EMIR⁸⁶

Requirements on customer classification differ between the two pieces of legislation.

Transaction reporting requirements are not consistent, which leads to duplications in reporting.

- MiFID and SFTR⁸⁷ and EMIR

All of these pieces of legislation contain reporting obligations which have the purpose to (a) monitor market abuses and (b) monitor financial stability. There are significant overlaps between them, and different aspects are captured by a patchwork of rules. It would be more efficient to determine the information needed by regulators and supervisors and consolidate all the reporting requirements in one single piece of legislation.

- MiFID and PRIIPs

There are several inconsistencies between these two pieces of legislation: on information that potential investors are entitled to obtain ("cumulative cost effects" in MiFID as opposed to "scenario analysis" in PRIIPs); different requirements concerning different target markets; different definitions concerning packaged transactions (where two or more legs of a transaction are executed simultaneously as a single transaction).

- MiFID and General Data Protection Regulation

Requirements on data that must be saved under MiFID are inconsistent with the GDPR⁸⁸ provisions on the records that sell-side firms are allowed to keep.

⁸⁵ Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC (MAR)

⁸⁶ Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories

⁸⁷ Regulation (EU) 2015/2365 of the European Parliament and of the Council of 25 November 2015 on transparency of securities financing transactions and of reuse and amending Regulation (EU) No 648/2012 (SFTR)

The Expert Group recommends:

- *Further harmonising rules affecting corporate bond markets and strengthening convergence of supervisory outcomes. The Commission should, together with ESMA, assess the state of transposition and implementation of relevant regulations and directives in all EU Member States. They should assess the difficulties that some Member States may encounter in implementing the rules, also in consultation with market players. In case of delayed implementation, the Commission should require Member States to justify such delays. In case of divergent implementation of the rules, ESMA should foster more convergence of national approaches, in close cooperation with national competent authorities (e.g. on reporting and transparency requirements, or other rules affecting corporate bond markets).*
- *Streamlining and consolidating overlapping and inconsistent rules and reporting requirements affecting corporate bond markets. Building on the results of the Call for Evidence, and in close consultation with market players, the Commission should continue working on addressing overlaps and inconsistencies one by one by. ESMA should explore, in cooperation with national competent authorities, how existing reporting requirements could be streamlined.*
- *Setting up a specialist industry group.⁸⁹ This forum would bring together industry practitioners and investors, and would provide input and advice to the national, European and international authorities on how to adapt the legislative, regulatory and supervisory framework for the development and integration of European corporate bond markets on a continuous basis.*
- *Ensuring adequate training of supervisors and regulators in regards to corporate bonds. Member States should invest appropriate resources in building capacity of national authorities to regulate and supervise corporate bond markets. Their efforts should be supported by the European Commission and ESMA through dialogue and technical assistance.*

4.4.3. Insolvency Laws

The current fragmentation of national insolvency frameworks across the EU, by increasing uncertainty for investors, discourages cross-border investments in bonds issued by EU corporates. Depending on the jurisdiction, creditors involved in insolvency disputes may receive different rights, debtors may be subject to different obligations and debtors' protection schemes may be widely different. The length of the insolvency process has a deep impact on the appetite that investors may have for bonds issued under some jurisdictions.

A well-functioning insolvency framework is a fundamental element of the investment environment, since it enhances transparency and certainty of the market in which investors operate. While the EU corporate bond market has a cross-border dimension when considering the pool of potential investors and the issuer base, un-harmonised insolvency frameworks make it more difficult for investors to assess efficiently the risks. This increases the cost of investing. Reducing differences between national frameworks is therefore important.

⁸⁸ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (GDPR)

⁸⁹ This specialist Expert Group would notably (i) advise ESMA on a suitable methodology for the yearly assessment of corporate bond liquidity (See Main report, recommendation in section 2.5.3) and (ii) support policymakers negotiating international standards at Basel and legislators when reviewing capital requirements for corporate bonds

The European Commission's proposal on preventive restructuring frameworks, second chance and measures to increase the efficiency of restructuring, insolvency and discharge procedures⁹⁰ goes in this direction. It aims at increasing the level of legal certainty by harmonising national restructuring procedures. By defining common rules on the use of early restructuring frameworks, allowing entrepreneurs to benefit from a second chance and reducing the length and costs of legal procedures, the directive will reduce insolvency-related barriers to EU cross-border investment.

The Expert Group strongly support the European Commission's proposal on preventive restructuring, second chance and measures to increase the efficiency of restructuring, insolvency and discharge procedures. Furthermore, as per insolvency law, the Expert Group recommends:

- the EU harmonisation of (i) ranking of creditors and (ii) the definition of what triggers an insolvency;*
- national measures to increase the transparency of / sharing information about the position of investors in the ranking of creditors under their national law (and the possible maximum timing to recover value)⁹¹.*

⁹⁰ Proposal for a Directive of the European Parliament and of the Council on preventive restructuring frameworks, second chance and measures to increase the efficiency of restructuring, insolvency and discharge procedures and amending Directive 2012/30/EU - COM/2016/0723 final

⁹¹ As has already been done in the BRRD in case of banks failure/resolution

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LIST OF ABBREVIATIONS

AIFMD	Alternative Investment Fund Managers Directive
AMF	Autorité des Marchés Financiers
APP	Asset Purchase Programme
ASF	Available Stable Funding
ATS	Alternative Trading System
AUM	Assets Under Management
BME	Bolsas y Mercados Españoles
CBI	Central Bank of Ireland
CBPP3	Third Covered Bond Purchase Programme
CCP	Central Clearing Counterparty house
CDS	Credit Default Swap
CHF	Swiss Franc
CLOB	Central Limit Order Book
CMU	Capital Markets Union
COFIA	Class of Financial Instrument Approach
CPP	Central Counterparty Clearinghouse
CRA	Credit Rating Agency
CRAR	Credit Rating Agency Regulation
CRR/CRD	Capital Requirement Regulation/Directive
CSD	Central Securities Depository
CSDR	Central Securities Depositories Regulation
CSPP	Corporate Sector Purchase Programme
CVA	Credit Valuation Adjustment
ECB	European Central Bank
EG	Expert Group
EIOPA	European Insurance and Occupational Pensions Authority
EMIR	European Market Infrastructure Regulation
EPTF	European Post-Trade Forum
ESMA	European Securities and Markets Authority
ESA	European Supervisory Authority
ETF	Exchange Traded Fund
EU	European Union
EUR	Euro

FI	Fixed Income
GAAP	Generally Accepted Accounting Principles
GBP	British Pound
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GFMA	Global Financial Markets Association
HCSF	High Council for Financial Stability
HQLA	High Quality Liquid Asset
HY	High Yield
IPO	Initial Public Offering
LCR	Liquidity Coverage Ratio
LIS	Large In Scale
LR	Leverage Ratio
M&A	Merger and Acquisitions
MAR/MAD	Market Abuse Regulation/Directive
MFI	Monetary Financial Institution
MiFID/MiFIR	Markets in Financial Instruments Directive/Regulation
MMF	Money-Market Fund
NCA	National Competent Authority
NSFR	Net Stable Funding Ratio
OMS	Order Management System
OTC	Over the Counter
PEPP	Pan-European Personal Pension Product
PLN	Polish Zloty
PSPP	Public Sector Purchase Programme
RFQ	Request For Quote
RSF	Required Stable Funding
SEC	US Securities and Exchange Commission
SCR	Solvency Capital Requirements
SME	Small and Medium-sized Enterprise
SNB	Swiss National Bank
SN-CDS	Single Name Credit Default Swap
SPV	Spzial Purpose Vehicle
SSD	Schuldscheindarlehen
SSTI	Size Specific to The Instrument

T2S	Target 2 Securities
TRACE	Trade Reporting And Compliance Engine
UCITS	Undertakings for the Collective Investment of Transferable Securities
US	United States
WHT	Withholding Tax
WSE	Warsaw Stock Exchange

