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# Corporate Bonds, Bondholders and Corporate Governance

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# Corporate Bonds, Bondholders and Corporate Governance

by
Serdar Çelik, Gül Demirtaş and Mats Isaksson*

**Abstract**

Worldwide, primary corporate bond markets have become an increasingly important source of financing for non-financial companies. This trend is coupled with a relative decrease in traditional bank lending to non-financial companies and low levels of bond interest rates. Just as shareholders, bondholders can play an important role in corporate governance. They can use both exit and voice. This report provides a comprehensive global overview of all corporate bond issues since 2000 and experiences of governance engagement by bondholders. The report builds on issue level data for more than 100,000 individual bond issues in 108 jurisdictions between 2000 and 2013. Data is provided with respect to the type of issues and numerous bond characteristics, such as country of origin, investment grade, maturity, covenants and conditions for redemption. The report also analyses trends in secondary bond markets, including market liquidity, the role of market makers and the relatively slow introduction of electronic trading systems. In order to analyse trends over time with respect to governance, we provide detailed time series data on the use and relative importance of 15 different categories of covenants. By constructing an overall "covenant protection index" we suggest that bond investors in their search for yield have overall traded governance rights for higher expected returns. This shift also seems to be associated with higher risk-taking. We also conclude that the degree of governance engagement primarily is linked to the business model of the bond investor. We end the report with a discussion about the scope for institutional changes that may build a larger community of truly informed and motivated bond investors.

Approved by Adrian Blundell-Wignall, Director, OECD Directorate for Financial and Enterprise Affairs

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## PART I. INTRODUCTION AND MAIN FINDINGS

Worldwide, corporate bond markets have become an increasingly important source of corporate finance, especially for non-financial companies. It is therefore important that policy makers, regulators and market participants have access to a comprehensive empirical overview of corporate bond market developments and an analysis of the structural issues that accompany these trends. The description, data and analysis provided in this report, are intended to serve this need.

In order to capture quantitative as well as qualitative trends, the report builds on a unique dataset of more than 100,000 individual bond issues in 108 different countries between 2000 and 2013.[1] Using this issue-level data, our main findings are the following:

- After 2008, non-financial companies have raised USD 6.9 trillion through corporate bond issues.
- In 2013 they raised a record USD 1.6 trillion. This was more than what financial companies raised in the bond market in the same year.
- Reducing debt and re-financing were the two main reasons that non-financial companies mentioned for issuing bonds.
- Since 2000, the share of non-investment grade bonds has increased from 4% to 18% of all corporate bond proceeds.
- Today, companies from the People's Republic of China (China) are the largest issuer of corporate bonds through private placements.[2]
- The average maturity of United States (US) investment grade bonds issued by non-financial companies was 13.4 years in 2013. This was 5.7 years longer than the same figure for other OECD countries and 8.4 years longer than that for non-OECD countries.
- The bulk of the trading takes place during the first few days after the issue. After the first several months, the long-term annual average turnover is around 25%.
- Of all bonds traded in the US, the 50 most traded bonds in 2012 traded on an average of only 90 times a day.
- The contracts of non-investment grade bonds today have only half of the covenants for investor protection that they had 10 years ago.
- Recent hedge fund activism has triggered a new wave of discussions about the role of bondholders in corporate governance.

It is important to note that the increase in the use of corporate bond markets since 2000 is primarily attributable to an increased use by non-financial companies. From an annual average of USD 730 billion before the 2008 financial crisis, they raised USD 1.6 trillion in

[1] Key definitions and the methodology for collection, classification and processing of primary market data, secondary market data and covenant information are presented in Box 2.1 in Part II.

[2] Rule 144A issues of the US are not included in the private placement figures. They are considered under the public corporate bonds category following general industry practice.

2013. This trend is accompanied by an increase also in the number of non-financial companies that use primary bond markets every year; from about 1 250 before the crisis to over 2 500 today. Two major factors seem to have influenced this development: First, there was a decrease in bank lending to non-financial companies, due to so-called deleveraging. Second, the increase in bond issues is linked to historically low levels of bond interest rates.

While companies from the OECD economies remain the largest and most frequent group of issuers, the strongest increase in corporate bond issues by non-financial companies has come from outside the OECD area. In 2013 there were more companies from non-OECD economies issuing corporate bonds than from the United States. Of particular interest is the surge in private placements of bonds by Chinese companies after the financial crisis. In 2013 Chinese companies received 41% of all money raised through corporate bond private placements in the world.

The increase in bond issues has been accompanied by a gradual shift in the corporate bond characteristics. There has been an overall increase in the amount of non-investment grade bonds, fixed-interest bonds and callable bonds. These are changes that tilt conditions in favour of the bond issuers. Moreover, our issue-level data on bond covenants reveals that bondholders over time have come to accept less stringent covenants in a number of key areas, including dividend restrictions. When we construct an overall “covenant protection index” based on a sample of around 13 000 US bonds, the “weakening” of covenants is confirmed also at the aggregate level. Taken together, these developments suggest that bond investors in their search for yield in a low interest environment have traded governance rights and protections for higher expected returns. This shift also seems to be associated with increased risk taking, since the credit quality and default rate of US non-investment grade bonds have remained relatively stable.

The availability of bonds as a source of corporate finance requires that the secondary bond markets are fit for purpose. As a basis for such an analysis it is important to understand that the vast majority of corporate bond trades are executed over the counter. Electronic trading, which entirely dominates the stock markets, is relatively limited. The traditional voice- or message-based system in corporate bond markets is possible partly because the volume of trading is low, with the bulk of the trading taking place during the first few days after the bond is first issued. Within approximately two months of the bond issue trading activity drops significantly to eventually reach a long-term annual average turnover of around 25%. When we analyse US data we find that the 50 most traded bonds in 2012, traded on an average of only 90 times. And this is up from about 30 times a day in 2007 and about 60 times a day in 2011. This together with an apparent decrease in dealers’ corporate bond inventories has given rise to a discussion about insufficient liquidity in the bond market.

With respect to trading activity in corporate bond markets, it is important to understand the very character of corporate bonds and the investment strategies of those who buy them on a large scale. The core characteristics of a bond with a par value that is paid back at maturity and regular payments up to the maturity of the bond make it a suitable instrument for long term liability matching. And with assets held for that purpose there is little reason to increase transaction and intermediation costs by frequent trading. A parallel case of relatively low turnover in the stock market is the “hold forever” stocks that are characterized by an explicit and time-tested dividend payment policy. Against this background it seems plausible that the relatively low trading volumes themselves may have less to do with the absence of sophisticated computer-supported trading and reporting techniques but more to do with the characteristics of the bond instrument as such. In addition, most market participants cite sell-side limitations and one-way investor behaviour as major sources of eroded liquidity in

recent years. And the decrease of primary dealer inventories may be the effect of regulatory changes, which make it more costly to carry out the market maker function.

With respect to monitoring and corporate governance engagement, bondholders, like shareholders, have the possibility to both exit and voice. As opposed to shareholders who can exercise ongoing influence, bondholders typically use their voice only at specific events: when the bond contract is established and in the case of default. With respect to engagement at the time of establishing the bond contract we know very little. Additionally, in most cases, the process is probably carried out without any direct involvement of future bondholders. What is known is that the buyers of non-investment grade bonds over the years typically have come to accept bonds with fewer protective covenants.

More remarkable is the recent trend of aggressive interpretation of established bond covenants. This kind of bondholder activism is typically carried out by hedge funds who engage specialists to identify actual or potential covenant defaults, file a default notice even upon a minor covenant violation and then negotiate a consent payment or more favourable bond terms. This kind of bondholder engagement, aiming at windfall gains, is a departure from the traditional role of large institutional bondholders who usually limit their engagement to governing the risk and participating in restructurings and recovery of losses. These differences in governance engagement among institutional investors with different business models have their parallel among shareholders where some of the largest institutional owners typically apply passive investment strategies coupled with limited shareholder engagement, while physical persons with large holdings and truly actively managed hedge funds tend to be more actively engaged in corporate governance.

With respect to corporate bonds, bondholders and corporate governance engagement, it remains to be seen if larger and more mature bond markets will develop a middle ground between total passivity and aggressive activism. In an era of non-bank financial intermediation, the formation of such a community of informed and motivated financiers may be of particular importance for supporting the critical segment of medium-sized growth companies.

## PART II. ACCESS TO CAPITAL AND PRIMARY CORPORATE BOND MARKETS

This part of the report provides a comprehensive empirical overview of the global corporate bond markets as a source of corporate financing during the period 2000-2013. We start by providing a detailed empirical overview of the amount of money that corporations have raised by issuing bonds as well as the total number and nationality of companies that have used corporate bonds as a source of funding. We then show the absolute and relative importance of different types of corporate bonds and the trends with respect to maturity. Part II ends with a discussion about the perceived increase in risk appetite among investors and the explanations for the recent surge in corporate bond issuance, particularly by non-financial companies.

### 2.1. Trends in global primary corporate bond markets[3]

Figure 1 summarizes the overall trend in the global primary corporate bond market during the period 2000 to 2013. For both financial and non-financial companies, the figure shows the total *amount of money* raised through bond issues as well as the total *number of companies* that have issued bonds. From the beginning of the century until the 2008 financial crisis, there is an upward trend in the total annual *amount of money* raised through corporate bond issues worldwide; from USD 1.9 trillion in 2000 to USD 3.1 trillion in 2007. After a marked decrease in 2008, the primary corporate bond market rapidly regained momentum and in 2012, the value of corporate bond issues was again at its immediate pre-crisis level.

A closer look at the data reveals that the *increase* in money raised through corporate bond issues since 2008 is exclusively attributable to non-financial companies. Between 2000 and 2007 non-financial companies raised 31% of the total amount worldwide. Since 2008 however, their share of annual total proceeds from corporate bond issues has on average been 46%. This is a significant shift and in 2013, non-financial firms actually raised more money through corporate bond issues than financial firms.

A second important development is that the increase in money raised by non-financial companies after 2008 has been accompanied by a 77 percent increase in the *number of companies* that issued bonds. In 2006 a total of 2,323 companies worldwide issued

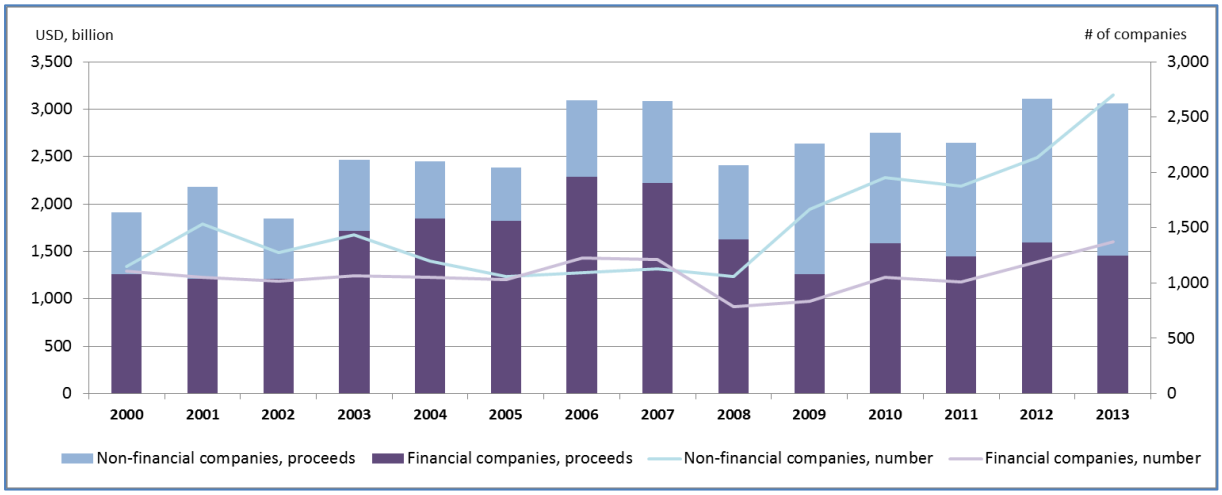
[3] For the purposes of this study, convertible bonds and preferred shares are excluded from the analyses. Convertible bonds give the holder the option –and in rare cases the obligation- to convert the bond into the issuer's stock at predetermined dates and based on a specified conversion ratio. Preferred shares can be viewed as hybrid instruments, which have both debt- and equity-like features. They usually offer a fixed dividend rate, have priority over common stock in dividend payments, provide no voting rights and rank below bonds but are senior to common stock. The money raised through publicly issued convertible bonds and preferred shares remains relatively limited as of 2013; amounting to USD 111 billion and USD 38 billion, respectively. These convertible bond issues were made by 477 companies and preferred share issues by 127 companies. Both of these markets are clearly dominated by advanced country firms, which make up 80% of convertible bond issuance and 96% of preferred shares issuance as of 2013. On the other hand, the two markets differ with respect to the share of non-financial companies. In 2013, issuance by non-financial companies constituted 71% and 28% of the funds raised through convertible bonds and preferred shares, respectively.

corporate bonds. In 2013 their number had risen to 4,073. In Figure 1 we can also see that the increase in the total number of issuers is primarily attributable to a fairly steep surge in the number of non-financial companies that issue bonds. Non-financial companies as a share of the total number of issuers increased from an average of 53% in the period 2000-2007 to 64% during the period 2008-2013.

It is important to note that the number of companies that issue bonds in a given year does not correspond to the number of bond issues (deals/offerings) in the same year. The reason is that one company may undertake more than one bond issue in the same year. For instance, the number of corporate bond deals recorded in our dataset for 2013 is 9,085. When the different tranches of the same deal are consolidated into one offering, the total number of offerings is 7,535. If the offerings are assigned to specific companies we find that several companies made more than one offering during the year and that the total number of individual companies that issued bonds in 2013 is 4,073. In sum, the data allows us to identify 9,085 deals in 2013 distributed over 7,535 offerings by a total of 4,073 different companies (issuers).

**Figure 1. Trends in global primary corporate bond markets**

Number of issuers and the total amount of issuance by financial and non-financial companies (2013 USD, billions)




*Source*: OECD calculations, see Box 2.1. for details.

In Figure 2 below we have divided the non-financial issuers into three main groups; (1) issuers from OECD countries, except US; (2) issuers from the United States; and (3) issuers from non-OECD jurisdictions.

In line with our observation in Figure 1, we first note that the annual average of total proceeds raised by non-financial companies has increased by almost 75% over the last 6 years compared to the period 2000-2007, from USD 730 billion to USD 1,274 billion. The largest increase is by companies from non-OECD economies who increased their average annual proceeds from USD 50 billion in the period 2000-2007 to USD 173 billion during the post financial crisis period. As a result, their share of global proceeds increased from 3% in 2000 to 17% in 2013. This increase was primarily offset by a relative decrease by US companies from 48% to 41%, while the share raised by non-financial companies from OECD countries except US remained stable at 46%.

**Box 2.1. Methodology**

**Primary Market Data**

Primary corporate bond market data (Part II) are based on original OECD calculations using data obtained from Thomson Reuters ThomsonOne New Issues Database, an international deal-level database on new issues of corporate bonds. The database provides a detailed set of information for each corporate bond issue, including the identity, nationality and sector of the issuer; the type, interest rate structure, maturity date and rating category of the bond, the amount of and use of proceeds obtained from the issue.

Prior to any exclusion, the database covers 212,301 observations in the period from January 2000 to December 2013. From this initial set, the deals that were registered but were not consummated (28,819), sukuk bonds (2,304), private placements (44,565; excluding Rule 144A transactions in the United States), convertible bonds (6,816), preferred shares (2,132) and bonds with an original maturity less than 1 year (8,668) or an issue size less than USD 1 million (902) have been excluded. After eliminating observations with improper or missing fields (1,734), our dataset covers 116,361 bond issues from 108 countries. When tranches under the same bond package are counted as a single issue, this figure reduces to 100,234.

Given that a significant portion of bonds are issued internationally, it is not possible to assign such issues to a certain country of issue. For this reason, the country breakdown was carried out based on the domicile country of the issuer. Issuance amounts are in 2013 USD adjusted by US GDP deflator.

**Secondary Market Data**

The analysis on secondary market data (Part III) is performed based on original OECD calculations using data from NASD TRACE (Trade Reporting and Compliance Engine) database. The database covers US secondary market transactions in publicly traded TRACE-eligible securities except for transactions that are effected pursuant to Rule 144A.

The version of TRACE used is more comprehensive than the publicly available data and includes all the transactions that, at the time of reporting, were not subject to dissemination and provides the actual trade size of large transactions, which is capped at certain values in the public database. Due to its broader coverage, this comprehensive version has an 18-month lag. Therefore, the dataset covers the period from January 2005 to December 2012.

A complicated procedure was performed to clean the secondary market data. Observations with improper or missing fields, primary market transactions, transactions involving equity-linked corporate debt, and duplicate entries due to subsequent cancellations, corrections or reversals; agency trades, or due to reporting done by both sides of the trade (interdealer buys) were eliminated. In the elimination of duplicate entries, the method used by Asquith et al. (2013) was closely followed with a few deviations aimed at increasing the precision of elimination. Because the TRACE system went through a major change on February 6, 2012, the method of Asquith et al. (2013) was further adapted to take account of this change. Of the 94,207,443 records in the initial dataset for the period from January 2005 to December 2012, almost 40% were eliminated with these exclusions, resulting in a final dataset of 58,701,217 individual transactions.

**Covenant Data**

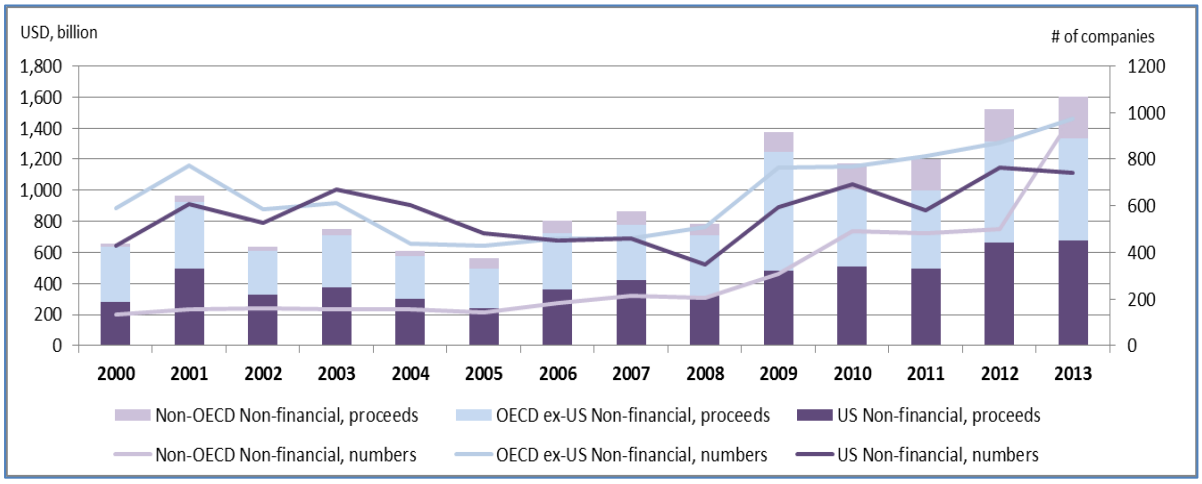
The analysis on covenants (Part IV) is based on original OECD calculations performed on data obtained from Mergent Fixed Investment Securities Database (FISD), a database providing issue-level covenant data for publicly-offered bonds in the US.

The initial dataset has 246,222 observations, covering issues from January 2000 to June 30, 2013. Of these 246,222 observations, only 25,684 are corporate bonds and of those only 15,183 have covenant data available. Further exclusion of convertible bonds, private placements (excluding Rule 144A transactions), issues with missing data, and bonds with original maturity less than 1 year leads to a final dataset of 13,071 bonds.

The 34 covenant variables in the dataset are matched to the 15 covenant groups defined in Billett, King and Mauer (2007). If a bond had at least one covenant that belongs to a certain covenant group, it was considered to have that covenant type.

Figure 2 also shows an increase after 2008 in the *number* of non-financial companies that have used corporate bonds as a means of external finance. This increase is present for all the three groups of economies. Second, we note that the largest increase in the number of non-financial issuers is in non-OECD economies. In 2013 there were actually more non-financial companies from non-OECD economies issuing corporate bonds than from the US.

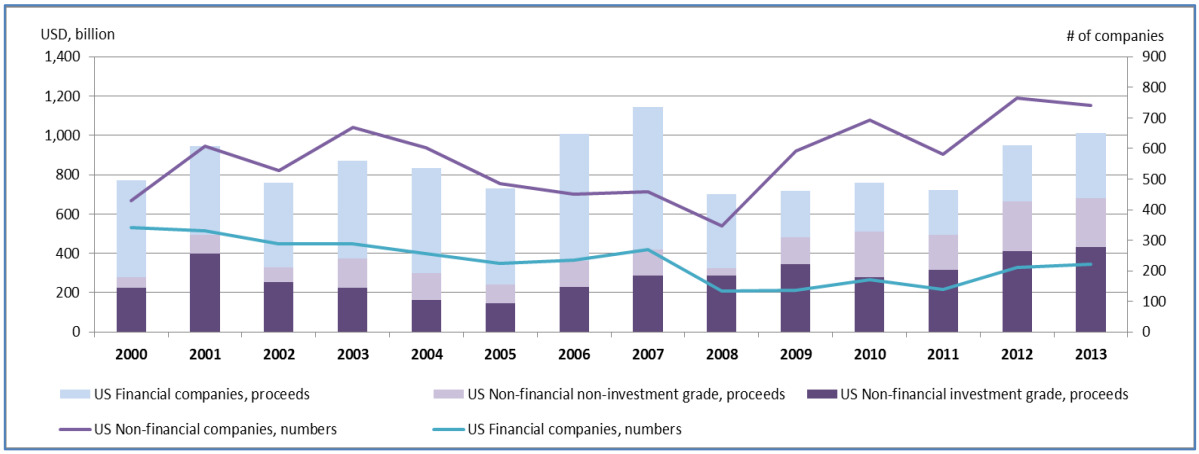
**Figure 2. Global corporate bond issuance by non-financial companies**
Number of issuers and the total amount of issuance (2013 USD, billions)




*Source*: OECD calculations, see Box 2.1. for details.

Despite the decrease in the relative share of global corporate bond proceeds raised by US companies, they continue to be the largest issuers of corporate bond. As shown in Figure 3, the total amount of funds raised by financial and non-financial companies combined was slightly over USD 1 trillion and accounted for 33% of the global volume in 2013.

**Figure 3. Corporate bond issuance by US companies**
Number of issuers and the total amount of issuance by companies domiciled in the US from financial and non-financial sectors (2013 USD, billions)




*Source*: OECD calculations, see Box 2.1. for details.

While US companies still have to reach the immediate pre-crisis level, the overall trend in term of bond issues is broadly aligned with the global tendency since 2000 shown in Figure 1. A closer look at Figure 3 reveals an interesting development with respect to the amount of

money raised by financial and non-financial companies, respectively. Until 2009, the value of bond issues by US non-financial companies on average accounted for 40% of the total annual amount issued. In 2009 this share jumped to 67% where it remained throughout 2013. This shift is the result of both an absolute increase in the amount of money raised by non-financial firms and a decrease in the absolute amount of money raised by financial firms; from USD 725 billion in 2007 to USD 331 billion in 2013.

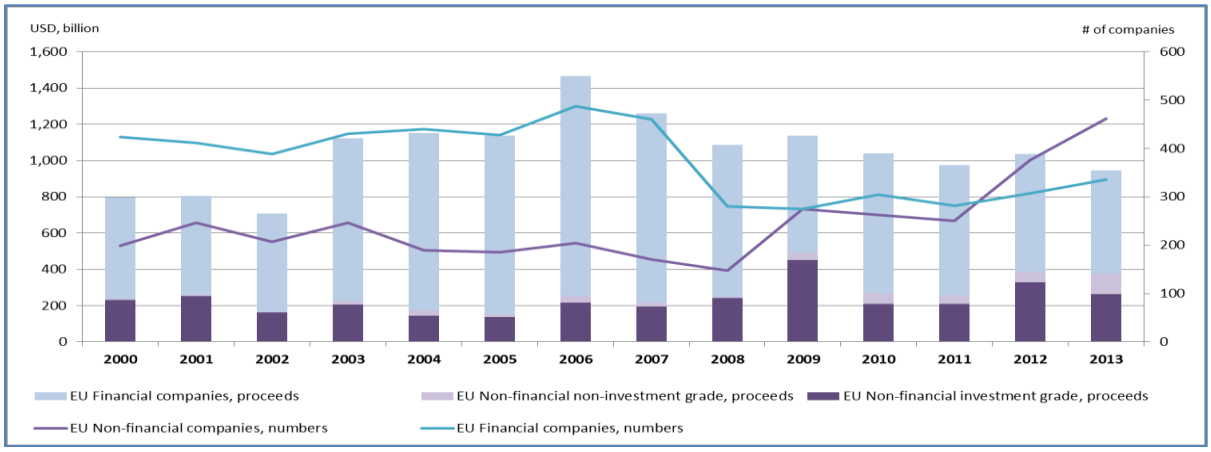
For non-financial companies, Figure 3 also shows a breakdown into investment grade and non-investment grade bonds. This reveals that between 2007 and 2013, the issue of investment grade bonds by non-financial companies increased by about 50% from USD 288 billion to USD 432 billion. During the same period however, their issuing of non-investment grade bonds increased by almost 100% from USD 131 billion to USD 247 billion.

Not shown in the figure – but still of interest – is that since 2010, the *number* of companies issuing non-investment grade bonds has exceeded the number of companies that issue investment grade bonds. Out of 740 US non-financial companies that issued corporate bonds in 2013, 400 issued non-investment grade bonds.

Figure 4 provides the corresponding data for companies from the European Union (EU) and reveals a similar trend with an increased relative importance of non-financial companies as issuers of corporate bonds. During the two year prior to the 2008 financial crisis, non-financial firms accounted for about 17% of the total amount raised through corporate bond issues. In subsequent years, their use of corporate bonds nearly doubled while the issues by financial firms dropped by more than 50%. In 2013, non-financial firms accounted for 40% of the total value raised by EU companies. While this represents a considerable increase compared to the time before 2008, it is still well below the share of US non-financial companies who in 2013 received about two thirds of all money raised through corporate bond issues. Also for EU non-financial companies we note a considerable increase in the use of non-investment grade bonds. These were practically non-existing in Europe before the 2008 financial crisis but accounted for about 12% of the total amount in 2013.

**Figure 4. Corporate bond issuance by EU companies**

Number of issuers and the total amount of issuance by companies domiciled in the EU from financial and non-financial sectors (2013 USD, billions)




*Source*: OECD calculations, see Box 2.1. for details.

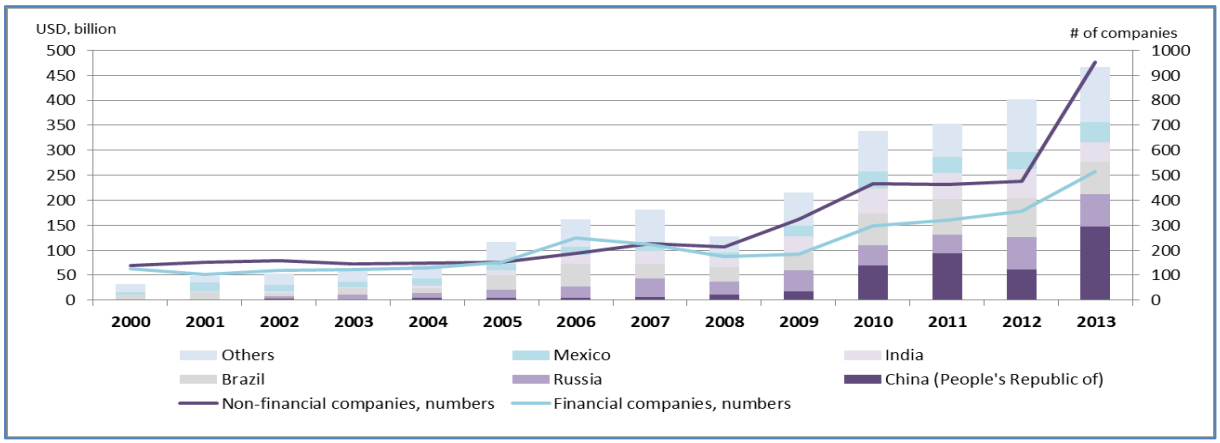
Within the EU there has also been a shift in the relative importance of corporate bond issues between companies from different countries. Notably, the relative amount of funds raised by German companies decreased from 41% of the EU total in 2000 to 19% in 2013. This was

primarily the result of an absolute decrease in German corporate bond issuance from USD 329 billion to USD 180 billion. While the share for companies in the United Kingdom (UK) remained fairly stable between 2000 and 2013 ranging between 15 and 20%[4], the shares of money raised by companies from France increased from 10% to 21%; by companies from Spain from 6% to 9% and by companies from Italy from 5% to 10% of the EU total.

Figure 5 reveals that the pattern in bond issuance by emerging market companies is quite different from that in the US and EU. Except for a drop in 2008, there is a clear, monotonic and fairly steep increase. Between 2000 and 2013, the total amount of money raised through bond issues by companies from emerging markets increased almost 15 times, reaching USD 467 billion. Both financial and non-financial firms contributed to this increase and their relative shares of total issues remained roughly unchanged during the period, with financial firms raising about 45% of all money and non-financial firms around 55%.

**Figure 5. Corporate bond issuance by emerging market companies**

Number of issuers and the total amount of issuance by financial and non-financial companies domiciled in the emerging markets (2013 USD, billions)




*Source*: OECD calculations, see Box 2.1. for details.

Figure 5 also shows that the use of corporate bonds in emerging markets is dominated by companies from China, Russian Federation, Brazil, India and Mexico who as a group raised USD 356 billion in 2013 through corporate bond issues. This is an increase by 271% compared to what they raised in 2008. Chinese companies represent the largest increase in both absolute and relative terms. From a nascent corporate bond market with annual average proceeds of about USD 3 billion prior to 2008, Chinese companies raised almost USD 150 billion in 2013.

## 2.2. Private bond placements

Although this report primarily focuses on publicly issued corporate bonds, issues by private placement, where bonds are issued only to a selected group of investors, also merit attention. Figure 6 presents the global trend in private bond placements during the period from 2000 to 2013[5]. Barely passing the USD 100 billion mark in the first years of the 2000s, the proceeds from private bond placements steeply increased after 2002 to reach USD 434

[4] With the exception of 2008; 26%.

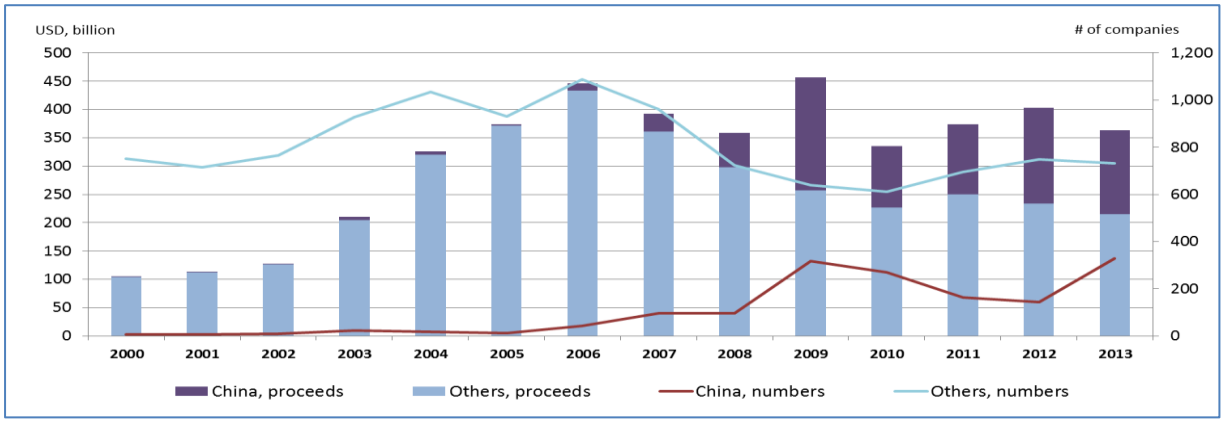
[5] The criteria used to identify private placements are the same as those described in Box 2.1, except for the exclusion of public corporate bonds.

billion in 2006. Except for the peak year of 2009, annual private bond placements stayed in the USD 300 to 400 billion range in the years that followed. In 2013 the total amount was about USD 350 billion.

Issuance by non-financial companies as a share of the total amount raised through private bond placements has been between 25 and 50%. In 2013 it was 49%. It is worth noting that private bond placement market is almost exclusively reserved for investment grade bonds. The share of non-investment grade bonds in the total amount raised through private bond placements has never exceeded 3% in the period considered and was only 0.75% in 2013.

**Figure 6. Trends in global and Chinese private bond placements**

Number of issuers and the total amount of issuance by companies domiciled in China and other countries (2013 USD, billions)




*Source*: OECD calculations, see Box 2.1. for details.

As of 2013, China was the dominant market for private placements with a 41% share of total issuance. Other countries with a sizeable share of the global market are Australia (13%) and the United States (10%)[6].

Corporate bond issuance in China consists of public bonds, enterprise bonds, medium-term notes (MTNs) and private placement bonds. Enterprise bonds are those issued by state owned enterprises and traded in the interbank market[7] and securities exchanges. MTNs are issued by non-financial companies and traded only in the interbank market. The dramatic increase in Chinese private bond issuance that is shown in Figure 6 is primarily explained by the introduction of the MTN program in 2008 by the central bank. This program became popular among Chinese companies due to its simplified issuance process, which relied on a registration system rather than an approval system. A further move to broaden the corporate bond market came in 2011 when the National Association of Financial Market Institutional

[6] It should be noted that Rule 144A issues of the United States are not included in the private placement figures. They are considered under the public corporate bonds category following general industry practice.

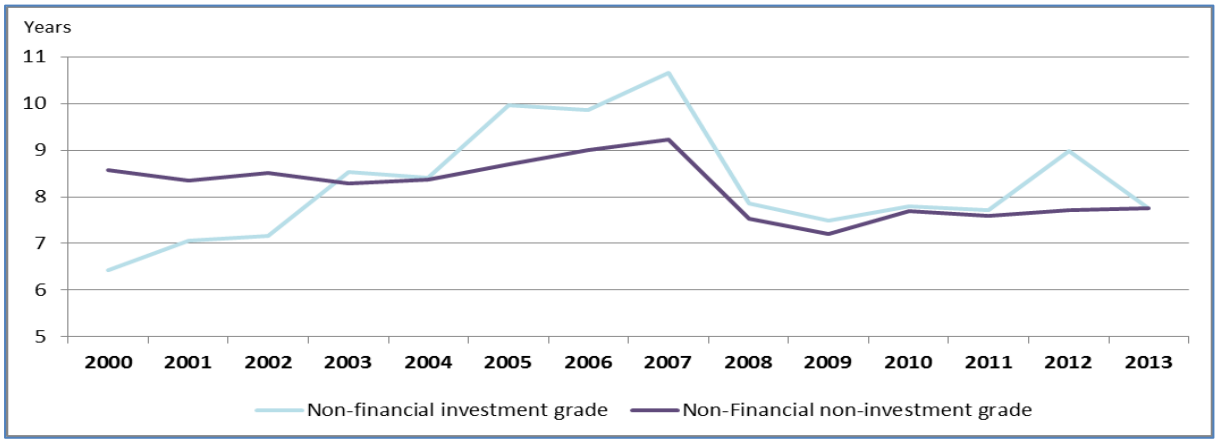
[7] Entry to the interbank market is restricted to institutional investors. There are 3 different classes of accounts. Class A accounts are used by banks, Class B accounts are used by non-bank financial institutions and Class C accounts are assigned to non-financial companies. However, a wealthy individual can gain access to this market by setting up a firm and obtaining a Class C account. This practice by individuals formed the basis for the illegal transactions that Chinese regulators started investigating in April 2013, which led to the arrest of executives at some financial companies (Yuzhe et al., 2013).

Investors (NAFMII) introduced private placement bonds, which could be circulated only among sophisticated institutional investors (Ming, 2011; Liu, 2014).

### 2.3. Trends in average maturities

Figure 7 below tracks the equal-weighted average maturities[8] of corporate bonds issued by non-financial companies globally. The maturities of investment grade and non-investment grade bonds are shown separately. Starting with an average maturity of around 6 years, the average maturity for investment grade corporate bonds increased successively until the 2008 financial crisis. In conjunction with the financial crisis we see a marked shortening of average maturity, which in 2013 was about 8 years. The average maturity for non-investment grade bonds also experienced a clear drop at the time of the 2008 financial crisis from 9 to about 7 years. In 2013, the average maturity for non-investment grade bonds was about the same as for investment grade bonds, around 8 years.

**Figure 7. Global trends in average maturity for corporate bonds issued by non-financial firms**




*Source*: OECD calculations, see Box 2.1. for details.

In Figure 8, the average maturities for investment grade bonds that are issued by non-financial companies are shown for three broad groups of countries. The data reveals that the average maturity for investment grade bonds issued by non-financial companies in the US has always been longer than for bonds issued by companies in the rest of the world. In 2013 for example, the figure shows that investment grade bonds issued by non-financial companies in the US had an average maturity of about 13.5 years (the full height of the bar). This is 5.7 years longer than the average maturity for bonds that are issued by companies from other OECD countries, which had an average maturity of about 7.8 years. This is in turn was 2.7 years longer than bonds issued by companies from non-OECD countries which had an average maturity of 5.1 years. This means that the total difference in average maturity between investment grade bonds issued by companies in the United States and those issued by companies from non-OECD countries in 2013 was 8.4 years.

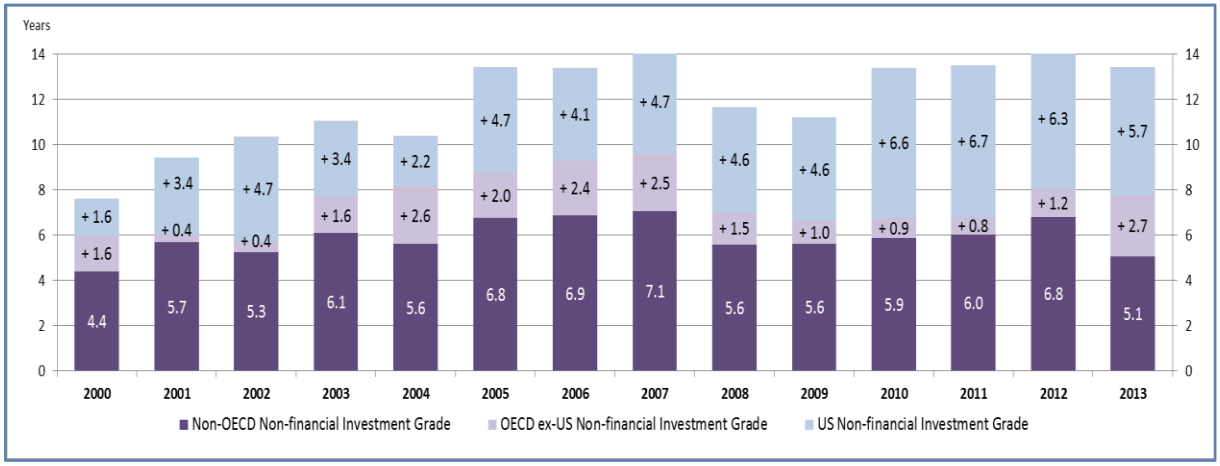
The figure also illustrates that the average maturity for issuers from the US has increased quite considerably over the period from 7.6 years in 2000 to an average of about 13 years in 2013. Also the difference in average maturity between the US and other OECD countries has increased from just 1.6 years in 2000 to an average of 6.3 years after 2009.

[8] We have used equal-weighted averages (non-value weighted simple average) to mitigate the size bias in the sample.

As mentioned above, the average maturity for investment grade bonds issued by companies in non-OECD countries was 5.1 years in 2013. This is below their historical average and certainly represents a drop compared to 2006, 2007 and 2012 when their average maturity was almost 7 years. The difference in maturity compared to bonds issued by companies from OECD countries except the US has been relatively small, since the 2008 financial crisis, around 1 year. The exception is 2013 when the difference increased to 2.7 years.

As a comparison it can be noted that the average maturity of bank loans in developed economies is estimated to be 4.2 years and in emerging economies 2.8 years (Group of Thirty, 2013). Hence, corporate bonds have considerably longer maturity than bank loans in both developed and emerging economies.

**Figure 8. Global trends in average maturities for investment grade bonds issued by non-financial companies**




*Source*: OECD calculations, see Box 2.1. for details.

## 2.4. Investors taking on more risks

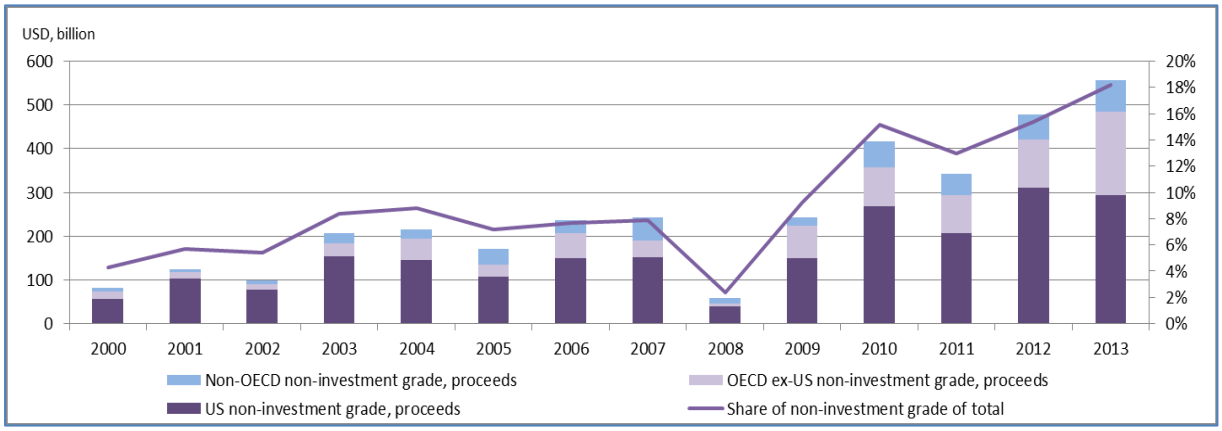
In recent years, some commentators have raised concerns that investors in corporate bonds have been taking too much risk and that they have not been adequately pricing the risks involved. The expression '*dash for trash'* that was used for primary corporate bond markets has also been referred to as '*dash for anything'* (Rodrigues and Bolger, 2014). Based on primary corporate bond data, we can identify three parallel developments that may have triggered these concerns.

The first development is a significant increase in the issuing of non-investment grade bonds. Figure 9 shows the total amount of money raised through the issuing of non-investment grade bonds by companies from US, OECD except US and non-OECD, respectively. It also shows the value of non-investment grade bonds as a percentage of the total value of corporate bond issues.

Globally, the use of non-investment grade bonds increased from USD 82 billion in 2000 to USD 556 billion in 2013. That is an increase by almost 600%. While US companies are the single largest group of issuers of non-investment grade bonds with about USD 300 billion in 2013, there is an absolute increase in non-investment grade bond issues also in the other country groups. This increase in absolute terms is also reflected in an increase in the relative global share of non-investment grade bonds, which has seen a steady increase. From

representing about 4% of the total value of the primary corporate bond market in 2000, non-investment grade bonds in 2013 represented 18% of all money raised by the use of corporate bonds.

**Figure 9. The total amount and share of non-investment grade bonds**

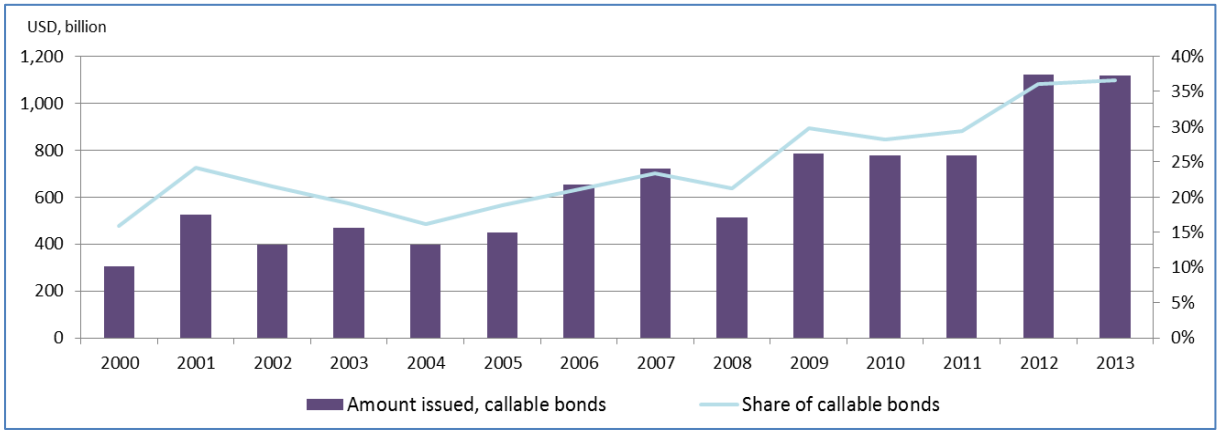



*Source*: OECD calculations, see Box 2.1. for details.

According to a Standard and Poor's study (Standard and Poor's, 2012), there has historically been a clear correlation between ratings and corporate default rates. The highest annual default rate for investment grade issuers during the period from 2000 to 2011 was 0.41% (that was in 2002 and 2008), while the record annual default rate for non-investment grade issuers was over 9% (in 2001, 2002 and 2009).

The growing volume of non-investment grade bonds in combination with the pricing of these bonds points to an increase in investors' risk appetite. In July 2014, the Chair of United States Federal Reserve stated that "[i]n some sectors, such as lower-rated corporate debt, valuations appear stretched and issuance has been brisk" (Yellen, 2014). The statement was followed by a flight out of the non-investment grade bond sector (Rodrigues, 2014).

**Figure 10. The total amount and share of callable bonds**



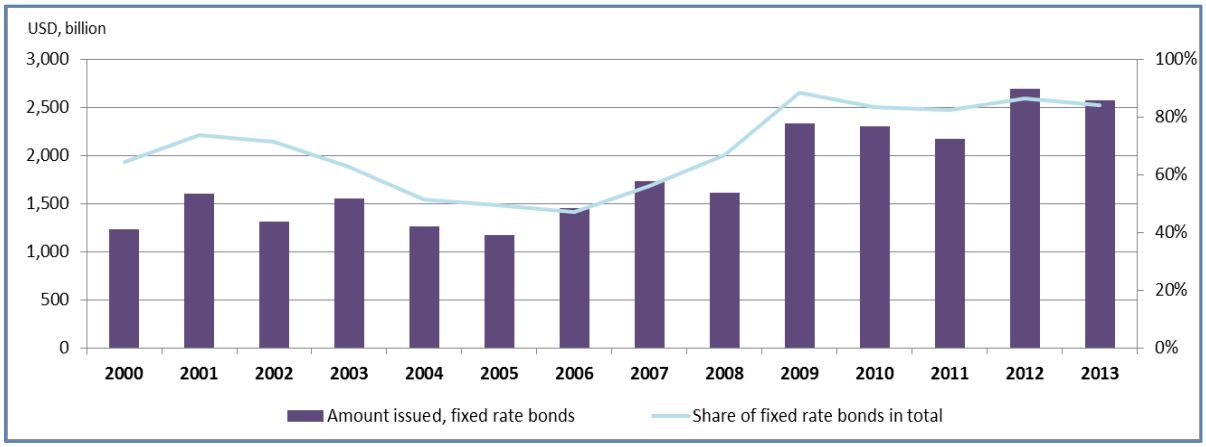

*Source*: OECD calculations, see Box 2.1. for details.

Data provided in Figure 10 shows a second important development, namely the maturity terms affiliated with callable bonds. A callable bond gives the issuer the option to redeem the bond prior to maturity. This is typically to the advantage of the issuer, since it makes cheaper

refinancing of the debt possible if interest rates go down. For the bondholder such a unilateral redemption means that the redeemed money in a lower interest rate environment can only be re-invested at a lower risk adjusted rate of return. According to Figure 10, both the total amount and the relative share of callable bonds have increased considerably, particularly in the years following the 2008 financial crisis. The value of callable bonds giving the issuer a right to redeem the bond prior to maturity as a share of all corporate bonds issued in 2012 and 2013 exceeded 36% compared to 16% in 2000.

The third development is a shift from floating- to fixed-rate bonds. Figure 11 below shows that prior to the 2008 financial crisis, the amount and share of fixed-rate corporate bonds were fairly stable. After the 2008 financial crisis however, the portion of fixed-rate bonds has increased quite considerably and has for the last 5 years been between 80 and 89%. In the current low interest rate environment, a fixed coupon bond can be considered favourable to the issuers rather than the investors.

**Figure 11. The total amount and share of fixed coupon bonds**

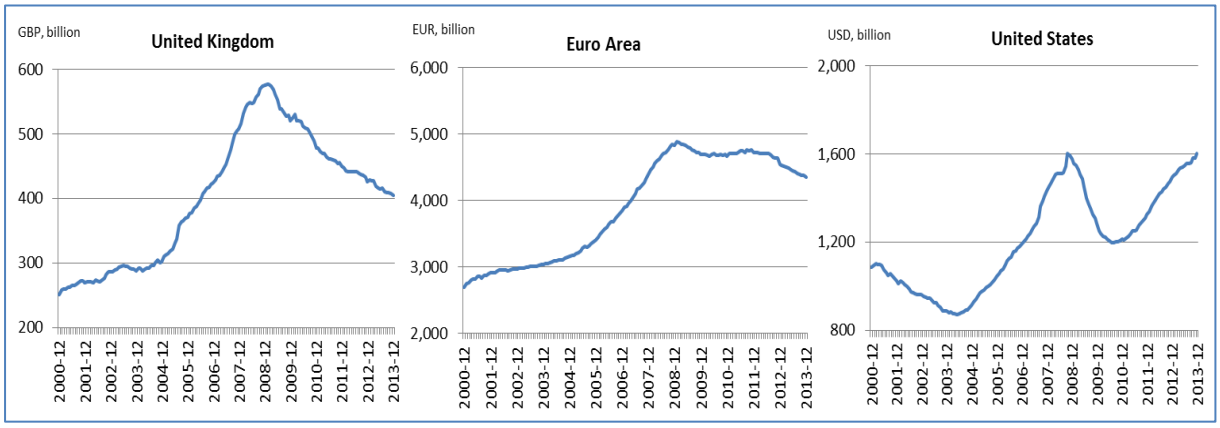



*Source*: OECD calculations, see Box 2.1. for details.

### 2.5. Explanations for recent trends in primary bond market

As discussed above, a prominent feature of the primary corporate bond market since 2008 has been the increased amount of money raised by non-financial companies. Globally, their share increased from 31% during the period 2000-2007 to 46% during the period 2008-2013. In 2013 issues by non-financial companies reached USD 1.6 trillion and were actually larger than issues by financial companies. Two major developments have been suggested to explain this trend. First, the fall in bank lending to non-financial companies and second, historically low interest rates.

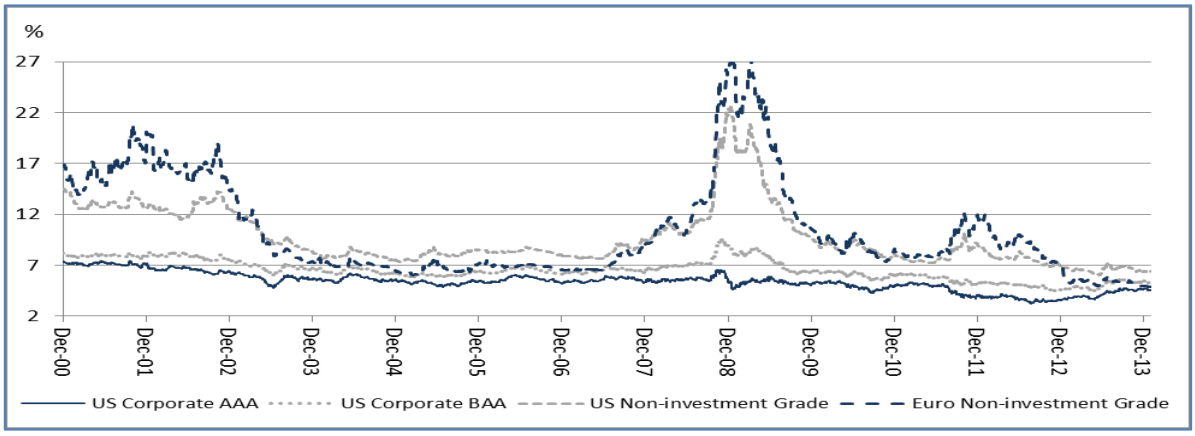
**Figure 12. Bank lending to non-financial corporate sector (amount outstanding)**




*Source*: Bank of England, European Central Bank, United States Federal Reserve

Figure 12 shows the total outstanding amount of bank loans to non-financial sector in the UK, the Euro Area and the US. In the aftermath of the financial crisis, there has been a steady decrease in total outstanding amount of bank lending to non-financial companies both in the UK and the Euro Area. In the UK, the outstanding lending decreased by 32% from GBP 577 billion in 2009 to GBP 397 billion at the end of 2013. During the same years, the decrease in the Euro Area was 12%. In the US, the sharp decrease in 2008 has been followed by a consistent increase, which in 2013 reached the immediate pre-crisis level of about USD 1.6 trillion. The deleveraging period following the financial crisis, particularly by European banks, has resulted in a reduced exposure to the non-financial corporate sector.

**Figure 13. Yields on corporate bonds**



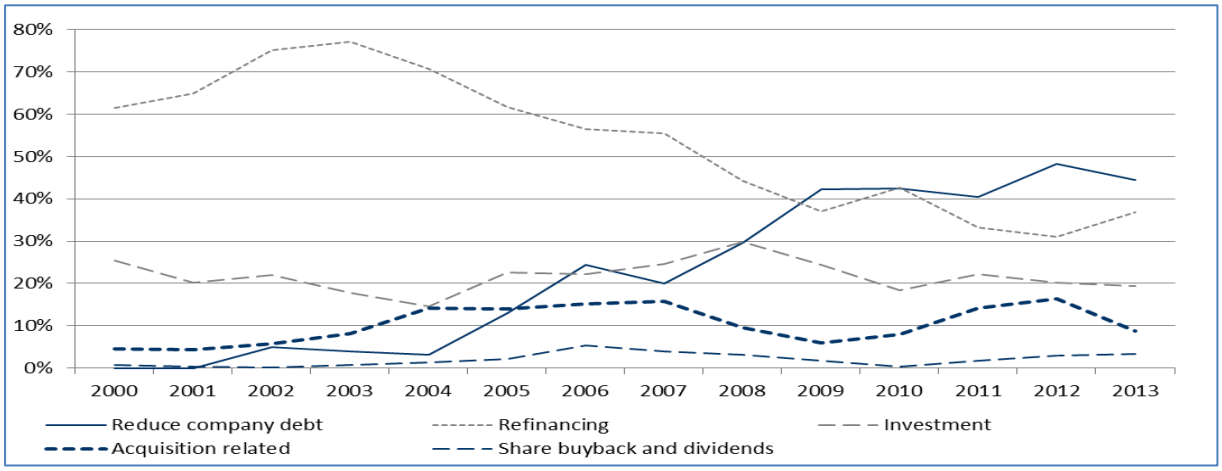

*Source*: Factset; Moody's AAA Corporate Bond Yield, Moody's BAA Corporate Bond Yield, BofA Merrill Lynch U.S. High Yield, BofA Merrill Lynch Euro High Yield

At the same time, the cost of corporate bond financing has fallen to low levels. As shown in Figure 13, Moody's US AAA corporate bond index was 4.57 at the end of 2013 compared to 7.36 at the beginning of 2000. Similarly, the rate for BAA investment grade corporate bonds was 8.18 at the beginning of the period and 5.37 at the end. Despite reaching very high levels during the financial turmoil with over 20 percent, yield on non-investment grade corporate bonds has generally experienced lower levels compared to the pre-crisis period.

The impact of reduced bank lending on the non-financial corporate sector and the low interest rate environment can be observed in Figure 14. Based on a sample of almost 13,000 issues, the figure summarises the use of proceeds from corporate bonds as stated in the issuers' documentation related to the bond issue. The two main uses of the funds raised were reducing debt and refinancing.

Between 2009 and 2013, on average 44% of the companies stated that one reason why they issued a bond was to reduce the company debt. In order to benefit from low interest rates, companies have replaced their existing debt with cheaper borrowing through corporate bonds. Refinancing was mentioned on average by 36% of the companies as a reason of issuing bonds. Refinancing covers not only the outstanding corporate bonds but also other debt, including loans from banks and other financial institutions. In fact, since the outstanding amount of corporate bonds issued by non-financial firms was quite low in the pre-crisis period, it is reasonable to assume that a significant part of the refinancing was attributable to retiring bank loans and other debts, rather than outstanding corporate bonds.

**Figure 14. Use of corporate bond proceeds by non-financial companies (% of total issues)**




*Notes*: Different entries in the database in the use of proceeds field were grouped into 5 main categories. Use of proceeds fields with the generic statement "General Corporate Purposes" were excluded. Since issuers may report more than one area for a given bond, sums may exceed 100%.

*Source:* OECD calculations, see Box 2.1. for details.

It is worth noting that the increased use of external sources of market based financing after the 2008 crisis can also be observed with respect to secondary public offerings (SPO) by non-financial companies. Data presented in Isaksson and Çelik (2013) shows that already listed companies raised record levels of equity capital through secondary public offerings in the two years following the financial crisis. It is not unreasonable to assume that some of this was to compensate for a relative decrease in traditional lending as shown in Figure 12 above.

At the same time, we have also seen a sharp decrease in initial public offerings and an increase in share buybacks by listed companies in OECD countries. Blundell-Wignall and Roulet (2013) argues that the cost of equity has moved upwards and the non-investment grade bonds' yield in the United States was less than the earnings yield on equities in the S&P500 for the first time in history at the end of 2013. Against this background, they suggest that since the wedge between the cost of equity capital and debt has widened sharply over the last 14 years, the incentive to issue debt and retire equity has significantly increased.

It is also important to note that corporate tax planning may play a role in the decision to issue bonds. First, there has been a long-standing advantage of debt financing over equity financing which increases the relative cost of equity over debt. Another important effect of tax is related to companies' use of offshore accounts for corporate cash. An interesting case is the USD 17 billion bond issuance by Apple in 2013, which at the same time had more than USD 140 billion in cash. According to Bloomberg, however, since a large part of the cash was outside the United States (USD 102.3 billion) and bringing it back would result in a tax liability, Apple raised money through a bond issue to buyback its shares.[9]

[9] Bloomberg (2013), *Apple Raises $17 Billion in Record Corporate Bond Sale*, 30 April

## PART III. THE STRUCTURE AND FUNCTIONING OF SECONDARY CORPORATE BOND MARKETS

In Part II, we provided data showing how non-financial companies in both developed and emerging economies during the last five years, increasingly have used corporate bonds as a way to raise capital. Both the amount of money raised and the number of companies issuing corporate bonds have increased. In sum, we have experienced a more active primary market for corporate bonds worldwide.

In financial theory it is generally argued that the size and functioning of primary markets for financial instruments is closely linked to the quality of the secondary market where the value of the instruments that have been issued are subject to continuous market evaluation and trade. Particular emphasis is placed on the quality of price discovery, which is seen as a prerequisite for investor confidence and allocative efficiency.

The quality of secondary capital markets is influenced by a number of different factors. In stock markets for example, rapid technological advancements and a number of regulatory initiatives have in many ways re-shaped the way in which secondary markets function by creating a more complex trading environment, new trading practices including algorithmic trading, the emergence of new stock-related instruments and increased fragmentation of stock trading venues. A systemic overview of these developments and their possible impact on the functioning of stock markets and corporate governance can be found in Isaksson and Çelik (2013). An illustration of how particular reforms with respect to trading practices and tick size may have influenced SMEs' access to public equity markets is provided in Weild, Kim and Newport (2013).

Considering the growing importance of corporate bond markets as a source of funding also for non-financial companies, the purpose of this part of the report is to describe key characteristics of secondary corporate bond markets and identify recent structural changes that may have an impact on the quality of secondary markets.

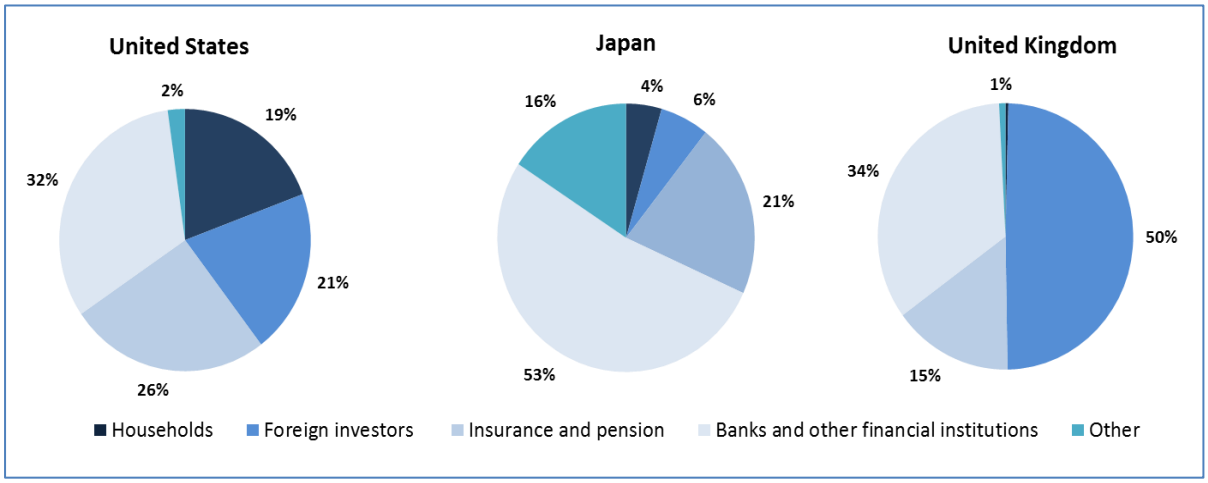
Section 3.1 provides a short overview of the investor base for corporate bonds. Based on secondary market trading data, Section 3.2 describes the prevalent form of trading practices and the role of OTC markets and electronic trading in corporate bond markets. Section 3.3 addresses liquidity in bond markets with a link to the recent developments in the United States and European markets. Part III ends with a discussion on pre- and post-trade price transparency in secondary corporate bond markets in Section 3.4.

### 3.1. The investor base for corporate bonds

Based on flow of funds data for the US, Japan and the UK, Figure 15 below shows how the outstanding stock of corporate bonds was distributed between different investor categories at the end of 2013. In the US, households held 19% of all corporate bonds and the remaining 81% was held by institutional investors, banks and other legal entities. Traditional institutional investors (defined as pension funds, insurance companies and investment funds) together held 44% of the total outstanding amount. It is important to note that households in the US also invest in corporate bonds via bond funds, including exchange traded funds (ETFs). Both bond funds' and hybrid ETFs' holdings of corporate bonds have increased significantly over the last few years; from USD 28 billion in 2008 to USD 175

billion in 2013. The Royal Bank of Scotland (RBS) estimates that when their holdings through bond funds are taken into account, retail investors own 37 percent of the US corporate bond market (Alloway, 2014).

**Figure 15. Corporate bond investors in the US, Japan and the UK (2013)**




*Notes*: US data include US financial and non-financial corporate bonds and non-US financial and non-financial corporate bonds. Japan data include external securities issued by Japan residents. UK data include long-term debt securities issued by UK MFIs and other UK residents.

*Source*: United States, Financial Accounts, L.212 Corporate and Foreign Bonds, Federal Reserve; Japan, Flow of Funds, Financial Assets and Liabilities, Bank of Japan; United Kingdom, The Blue Book, Chapter 14: Flow of Funds, Office for National Statistics.

While retail investors' share in corporate bond holdings is significantly lower than their portion of equity (2013: 37%) in the US, they still play a much larger role than retail investors in other countries. In Japan, for instance, only 5% of the total outstanding amount of corporate bonds was held by households at the end of 2013. Direct retail participation was almost non-existent in the UK corporate bond market. In Japan, the largest investors by far were the banks and other financial institutions, including the financial institutions for small businesses, with 53% of the total amount. While banks and other financial institutions were the largest domestic investors in the UK, almost half of the corporate bonds issued by UK companies were held by non-UK investors at the end of 2013.

A survey by IOSCO (2011) on corporate bond markets in 36 emerging market economies shows that institutional investors have also been the dominant investors in corporate bonds in emerging market economies. The share of retail investors was 9% in 2010 and banks and other financial institutions were the largest investor group with a share of 27% in total.

### 3.2. Secondary market structure and trading practices

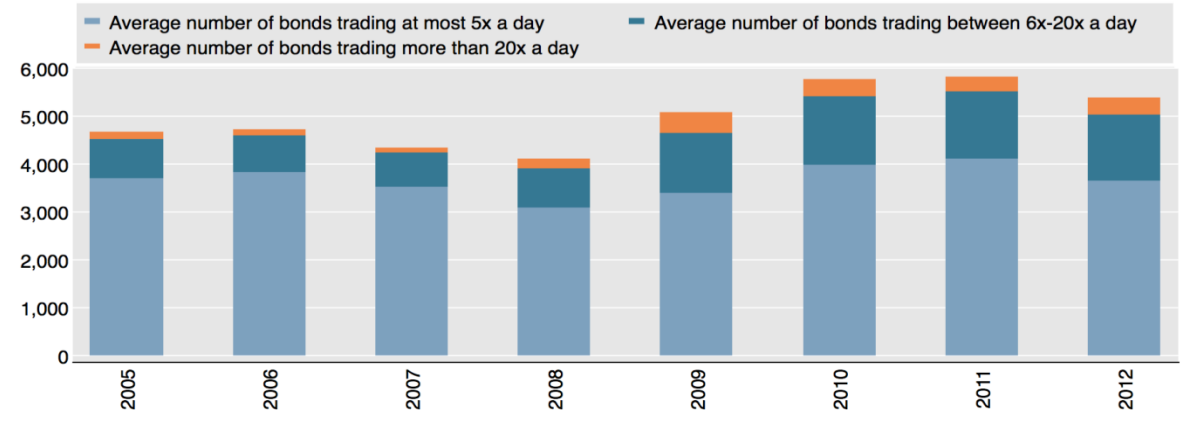
The secondary market for corporate bonds has traditionally been an over-the-counter market with dealers playing a central role. In a typical trade, an investor wishing to buy a corporate bond calls one or several dealer banks. After receiving the banks' price offers for the desired trade, the investor will choose the dealer with the best offer. That dealer will then source the bond from its own inventory or, by using the inter-dealer market, find another dealer who has the bond. Similarly, when the investor wants to sell a bond; the dealer would either buy the bond and add it to its own inventory with the intention of reselling it at a profit at a later stage or find a third party buyer before executing the deal.

Although electronic trading platforms have existed for some time in the corporate bond market, they have only recently started to increase their market share to material levels. According to research by TABB Group and the Securities Industry and Financial Markets Association (SIFMA), the percentage of corporate bond trades executed over electronic platforms reached 14% in 2012, up from 5% in late 2008 (Burne, 2013). Likewise, a 2012 Greenwich Associates survey found that electronic trading in US investment grade corporate bonds increased from 10% in 2011 to 14% in 2012. In Europe, where use of the electronic platforms is more common, electronic trading increased from 22% to 29% over the same period (McKinsey & Company and Greenwich Associates, 2013). Another way of looking at these numbers is that more than 85% of the bond trading in the US and more than 70% in Europe take place on OTC markets where dealers play an important role.

According to IOSCO (2011), corporate bond trades in emerging markets are split evenly between the OTC and the exchange-traded markets. Out of the 36 countries surveyed, Korea has the largest OTC market, followed by India and Brazil. The three countries with the largest exchange-traded bond markets are South Africa, Colombia and China, respectively. This high reliance on exchanges can partly be attributed to the fact that some jurisdictions require institutional investors to execute all their trades on the exchange. IOSCO (2011) also notes the possibility that the share of OTC trades could be underestimated since many emerging market countries do not report OTC trades.

While a company typically has one or two classes of shares outstanding in the equity market, the same firm may at any point in time have tens or hundreds of outstanding bond series. Given the existence of many different outstanding bonds, it is structurally difficult to find a counterparty that is willing to trade the specific bond that one wants to trade. MarketAxess estimates that out of 41,000 US corporate bonds that were outstanding in June 2013, only about 6,400 traded on an average day (Sedgwick, 2013). Our own calculations presented in Figure 16 shows that as of 2012, the average number of unique bonds that trade on a given day has never exceeded 6,000. And among those bonds that actually do trade, less than 5% trade more than 20 times a day, and only about 28% trade more than 5 times a day.

**Figure 16. Corporate bond liquidity**

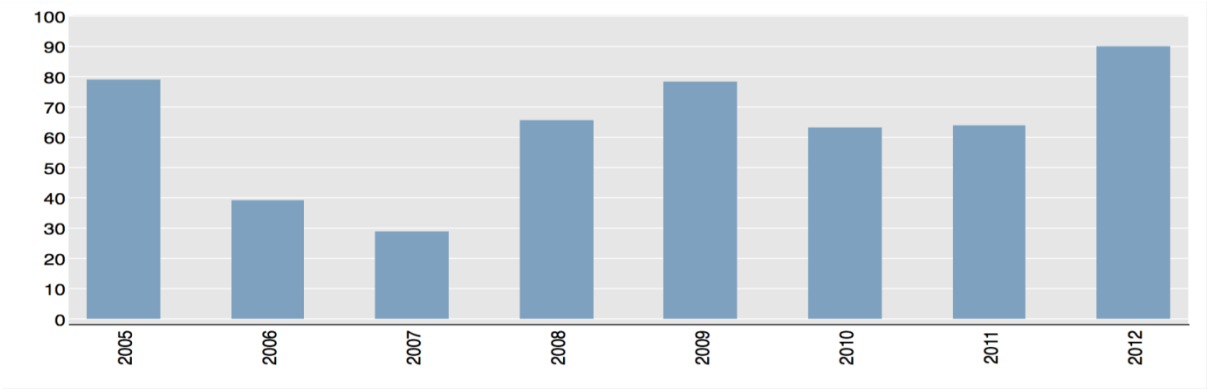



*Source*: OECD calculations, see Box 2.1 for details.

If we limit the analysis to the most traded corporate bonds we can see from Figure 17 that the average daily number of trades in 2012 was only about 90. In 2011 it was 63 and in 2007 the most traded corporate bonds traded on average 29 times per day. Given the fairly

infrequent trading on a given day, it is considered to be hard to find a counterparty willing to take the other side of a trade.

**Figure 17. Average number of trades per day for the most traded corporate bonds**

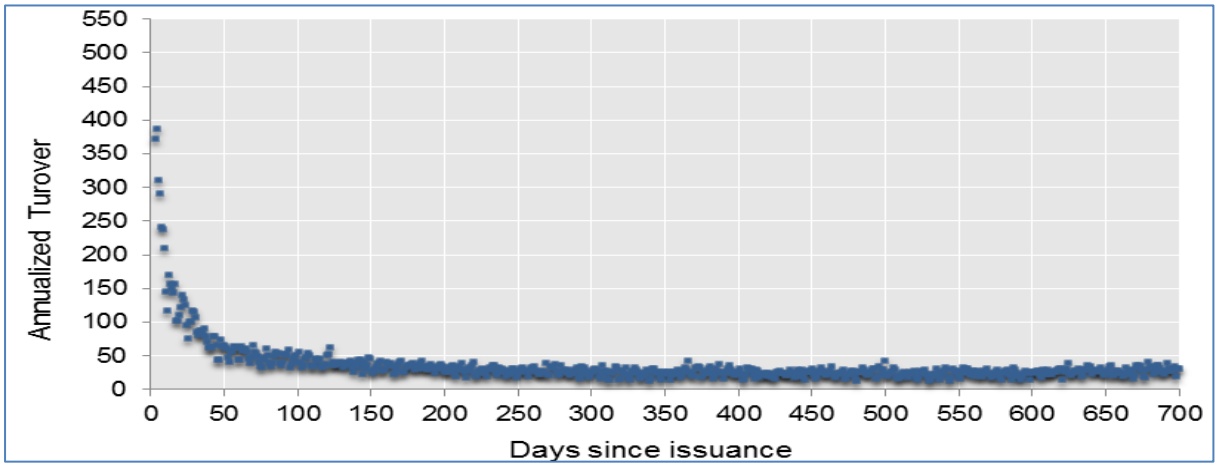



*Notes*: Most traded corporate bonds are those that are among the top 50 in terms of both trade count and total value traded.

*Source*: OECD calculations, see Box 2.1. for details.

Another interesting characteristic of corporate bonds is that their trading volume is closely related to their age. In the first few days that follow the issue the bond trades quite frequently as market participants try to gain exposure to the new issues. But as Figure 18 illustrates, this activity quickly drops off in the first month following the issuance. Nevertheless, new issues are considered "on-the-run" and continue to trade more frequently compared to the rest of the market for some time before they reach a steady level of annual turnover of around 25%.

**Figure 18. Annualized turnover by days since issuance**



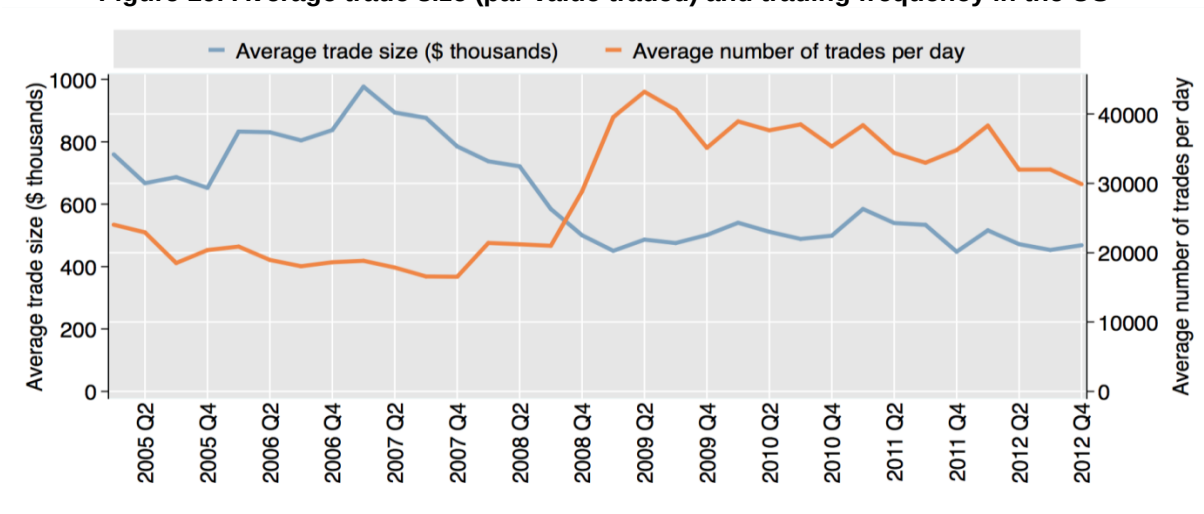

*Notes*: The graph covers the trades in the period between January 1, 2011 to December 31, 2012, on bonds issued after January 1, 2009. Bonds whose outstanding amount can change over the life of the bond have been excluded[10]. For each age group, the most frequently traded bonds (i.e. daily turnover in the top 1 percentile) were removed. Due to the high trading volume in the first three days of issuance, these three days are not plotted on the graph.

*Source*: OECD calculations, see Box 2.1. for details.

[10] The figure remains broadly the same when bonds callable or puttable prior to the December 31, 2012 cut-off date are not excluded.

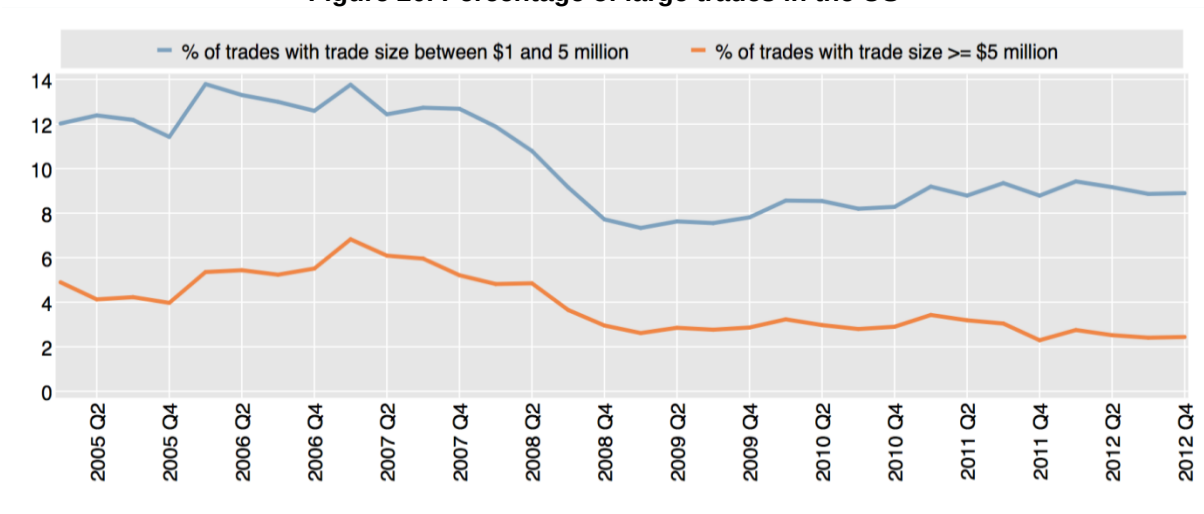
The first effect of increased electronic trading in bond markets was a sharp decrease in average trade sizes and an increase in trading frequency. According to TRACE data provided in Figure 19, average trade size in the US decreased from around USD 1 million in the first quarter of 2007 to USD 450,000 in the first quarter of 2009 where it has remained relatively constant. Correspondingly, the average number of trades more than doubled from around 16,000 at year-end 2007 up to around 33,000 in 2012. Percentage of large trades has also decreased significantly in the post-crisis era (see Figure 20).

**Figure 19. Average trade size (par value traded) and trading frequency in the US**




*Source*: OECD calculations, see Box 2.1. for details.

**Figure 20. Percentage of large trades in the US**




*Source*: OECD calculations, see Box 2.1. for details.

### 3.3. The liquidity issue

There has been a long-standing discussion on the liquidity in corporate bond markets. Part of the reason is that more than 30% of corporate bonds in the US do not trade even once in a given year (McKinsey & Company and Greenwich Associates, 2013). Only around 16% of the bonds trade on an average day and less than 1% trade more than 20 times a day. The recent surge in corporate bond issuance by non-financial firms globally and the massive bond market sell-off in the summer of 2013 after the United States Federal Reserve's signal that it might taper off its bond-buying program in the near future have given new impetus to the discussion.

Another important development with respect to the liquidity discussion is the regulatory initiatives that were taken in the wake of the financial crisis, such as Basel III and the Volcker Rule. In addition, technological advancements that allow profound changes in the functioning of financial markets are increasingly being discussed in the context of corporate bond markets, particularly with regard to multiple attempts to enhance electronic trading.

Before going into any analysis of the impact of these developments and recent changes, it is important to describe some key characteristics of corporate bonds that are likely to influence the character and activity in secondary corporate bond markets.

#### 3.3.1. The nature of corporate bonds

Equity markets are increasingly characterized by passive investment strategies and the use of largely indexed investment vehicles, such as mutual funds and exchange traded funds (ETFs). Refraining from intermediation and transaction costs is a strong motive behind the "buy and hold strategies" which is a classical passive investment strategy. An investor who has a long term focus and does not try to beat the market average (e.g. asset-liability matching) tends to buy a security and hold for a long time, avoiding costs that are related to frequent trading.

The main characteristics of a standard corporate bond with a par value that is paid back at maturity and regular payments up to the maturity of the bond makes it a suitable instrument for such strategies. Investing in corporate bonds and holding them for a long time make it possible to decrease the transaction and intermediation costs and at the same time receive regular returns based on a pre-defined set of criteria. As the return is generally pre-defined with a link to a benchmark, there is no need to trade the bond to receive returns and the par value.

A parallel case for limited trading can be made for stocks that are known to have steady and predictable dividend payments. A study by Banerjee *et al.* (2007) found that the stocks of companies that pay more cash dividends are less traded compared to stocks that pay less. The tendency of investors to hold the stocks longer when the company has an explicit and time tested dividend payment policy can also be illustrated by the lists of "the best dividend stocks to hold forever" that are issued.[11]

Another important characteristic that affects liquidity of corporate bonds is the opportunity for issuers to adjust the terms of a given bond according to their preferences and needs at the time of issue. A firm's ability to issue bonds with different terms means that there is a great variety of bonds. As we will discuss in Part IV, there are strong similarities among bonds in

[11] One example; Street Authority, *3 Steps For Finding The Best Dividend Stocks To Hold Forever*, http://www.nasdaq.com

terms of contractual obligations and covenant conditions. So, the main aspects that are claimed to impede more frequent trading are differences in size and maturities. These differences may also be appreciated by investors seeking to match their liability structures.

The asset management firm BlackRock has argued that standardisation of corporate bonds is the way to go. If firms were to issue bonds with similar sizes and maturities at pre-scheduled times, this would cut down the “jungle of bonds” and would ease matching sellers with buyers (Prager et al., 2013). Standardisation is also expected to reduce financing and issuance costs for issuers and decrease transaction costs for investors (Novick et al., 2014). On the other hand it is argued that bond standardisation would decrease issuers’ flexibility in timing the market and increase the risk of facing maturity walls.

### 3.3.2. The role of dealers

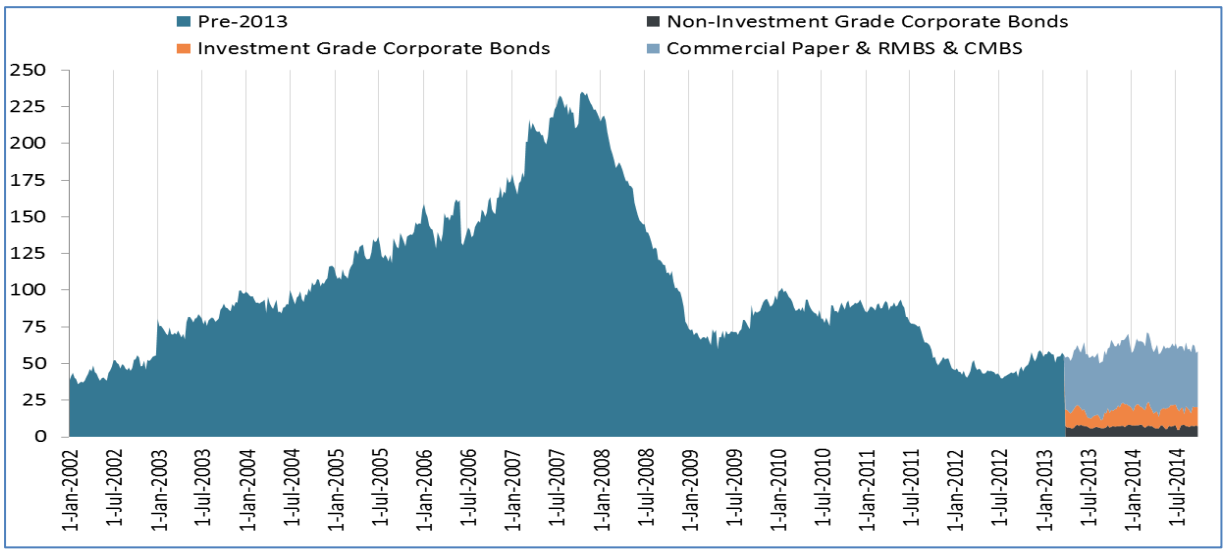
As illustrated in Section 3.2., most of the trading activity in corporate bond markets occurs in over-the-counter markets (more than 85% in the US and 70% in Europe). A prerequisite for this market model to work efficiently, for example in terms of price formation and liquidity, is that dealers are willing and able to play their role as intermediaries, which includes holding a sufficient inventory. While dealer banks traditionally have been ready to bear the inventory risk in return for the profits they make on bid-ask spreads, there are some concerns that they have been increasingly reluctant in doing so since the 2008 financial crisis.

Data from Federal Reserve Bank of New York in Figure 21 show that primary dealer aggregate bond inventories in the US have fallen by almost 75% from around USD 235 billion in October 2007 to USD 58 billion at the end of September 2014. However, since the New York FED has broken down the data into corporate and non-corporate bonds only after April 2013, it is inaccurate to draw conclusions about dealers’ corporate bond inventories over a longer period based only on the aggregate numbers. According to the new data classification provided by New York FED, 35% (or USD 20 billion) of the total inventories consisted of corporate bonds in September 2014.

Goldman Sachs analysts have reverse engineered the longer term trend with respect to corporate bond inventories based on SEC filings and found that dealer corporate bond inventories reached their peak at about USD 38 billion in 2006 (Alloway, 2013). Compared with the data provided by the New York FED, this corresponds to a 47% decline in corporate bond inventories between 2006 and September 2014.

Even if dealer inventories for corporate bonds may have fallen less than those for other bonds, a 47% drop is still significant. Commentators have pointed at two partly related explanations behind the reduction of corporate bond inventories since the 2008 financial crisis. The first is a lower risk tolerance among dealers and the second is the effects of new regulations. In terms of regulation there are two initiatives that are often referred to. First Basel III, the new global regulation to enhance capital standards for banks, has discouraged banks from holding onto corporate bonds since their higher risk level requires more capital to be set aside. Second, the so-called Volcker rule, which is part of the United States Dodd-Frank financial reform package restricts banks in trading for their own accounts. Although banks are required to fully comply with the Volcker rule only by April 2015, it is argued that they have already taken steps to adjust their activities in anticipation of its implementation.

**Figure 21. Primary dealer inventories in the United States (USD, billions)**




*Source*: New York Fed

While the estimates above refer to the decrease in inventory among primary dealers in the US, it is unlikely that this trend is limited to the US. The Basel Committee on Banking Supervision expects all its members to move forward with the adoption of the Basel III guidelines. And within the EU, the guidelines already became part of the legal framework in July 2013 in the form of the Capital Requirements Directive IV package. Furthermore, in January 2014, the European Commission proposed new rules to prevent the largest banks from engaging in proprietary trading. These rules would also empower supervisors to require large banks to separate certain risky trading activities from their retail business (European Commission, 2014). At the time, the proposal's potential negative impact on banks' market making activity in the corporate bond market caused concern among market participants (Lewis, 2014). Indeed, the fact that trading in EU government bonds is exempt from the proposed rules indicates that the regulators may recognize the mechanisms that underpinned these concerns.

Evidence from Riaz et al. (2014) suggests that the liquidity conditions may be more severe for investment grade bond markets in EU and the UK than in the US. Compared to the US, the average bid-ask spread on investment grade bonds in 2013-2014 was twice as large for GBP-denominated bonds and six times as large for EUR-denominated corporate bonds. Furthermore, the intermediation industry in corporate bond markets is more concentrated in EU and the UK than it is in the US. Based on MarketAxess data, the authors report that while the top five dealers' trading volume accounted for 50% in GBP-denominated investment grade bonds and 43% in EUR-denominated investment grade bonds, their share in the US markets was 33%.

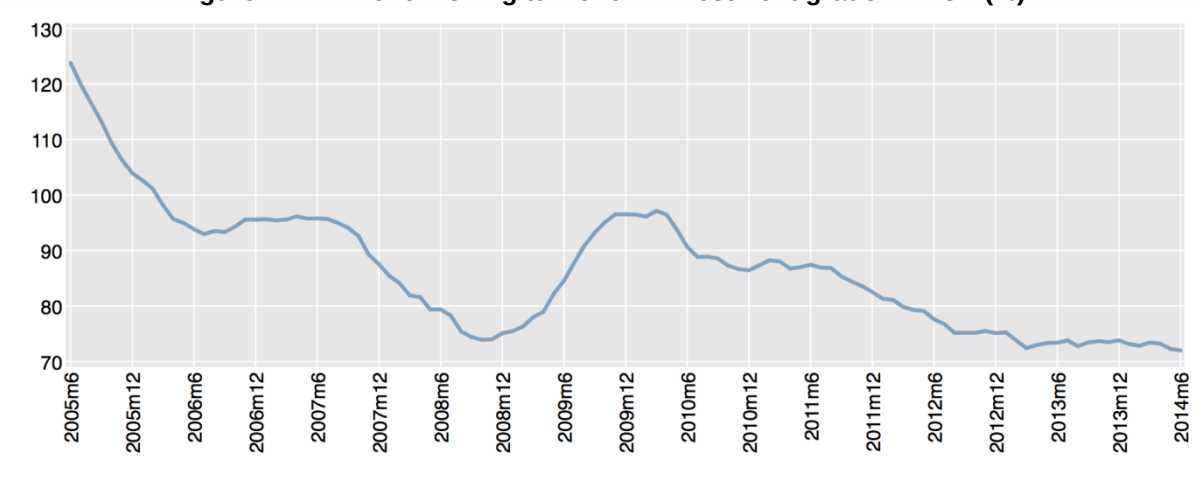
The role of dealers in secondary bond markets and the liquidity issue attracted special attention following the massive bond sell-off in the summer of 2013. The so-called "taper tantrum" was triggered by the United States Federal Reserve's signal that it might taper off its bond-buying program in the near future. As bond investors tried to offload their bond holdings all at the same time, the prices dropped dramatically, resulting in further sell-offs.

The yield on 10-year United States Treasury notes increased from 1.63% to 2.74% over the period from May 2 to July 5, 2013 (Adrian and Fleming, 2013).[12]

A study by Federal Reserve Bank of New York researchers finds that, in line with the industry belief, dealers' reluctance to supply liquidity amplified the sharp rise in rates and volatility during the taper tantrum (Adrian et al., 2013). The significant decrease in dealers' market making activity between May and July 2013 is also reflected in a decrease in their net positions. A similar trend was also observed regarding the net corporate bond inventories for the same period from USD 22 billion in May to USD 13 billion in July 2013.

Having observed the impact of a major sell-off on corporate bond prices with the taper tantrum, United States Fed officials started considering whether to impose exit fees on bond funds into which retail investors have channelled more than USD 1 trillion since 2009. There are concerns that the bond funds are becoming shadow banks, since investors can withdraw money on demand when in fact the underlying assets are highly illiquid. This liquidity mismatch makes bond funds prone to runs. Exit fees are expected to help reduce the liquidity of investors' claim (Braithwaite et al., 2014). Similar concerns over corporate bond funds have been expressed by The Financial Conduct Authority of the United Kingdom (Dunkley, 2014).

**Figure 22. 12-month rolling turnover - Investment grade TRACE (%)**




*Source*: MarketAxesss Research

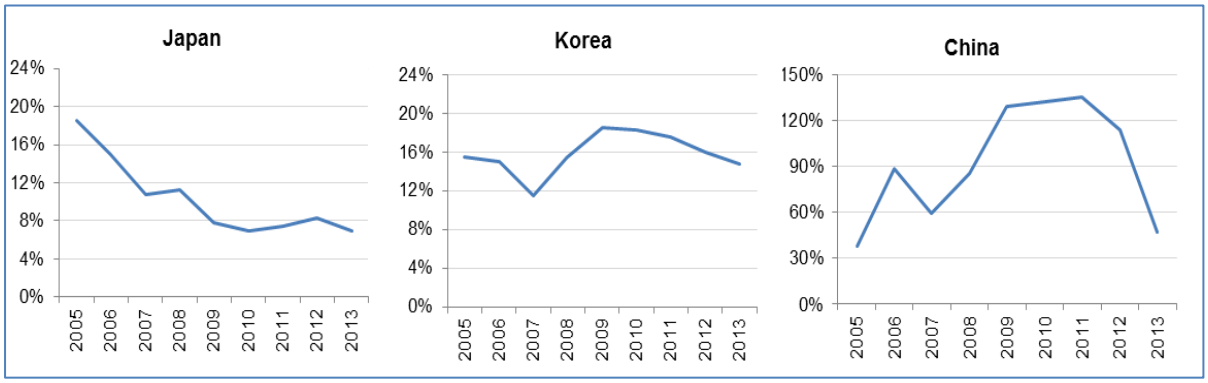
Corporate bond investors had concerns about dealers' decreasing role in the secondary bond market, even before the event in the summer 2013. In the spring of 2013, McKinsey & Company and Greenwich Associates conducted a survey of 117 institutional corporate bond investors in the US and Europe (McKinsey & Company and Greenwich Associates, 2013). Only 30 percent of the survey participants indicated that they had seen some improvement in corporate bond liquidity in the 18 months preceding the survey. Figure 22 reveals that liquidity, as illustrated by turnover of investment grade US corporate bonds, actually declined during this 18-month period and has stayed relatively steady since then at a level even below its 2008 "crisis" level. Of those who believed that liquidity eroded during the period, over 80% cited sell-side limitations (e.g. decreased appetite of dealers to facilitate block trades, drop-off in proprietary trading and market exits by some large investment banks) as

[12] In addition, bond ETFs, which aim to provide easy access to and exit from the bond markets, failed this turbulence as some ETF sponsors suspended redemption orders or offered to meet the orders only in exchange for the underlying securities, not cash (Alloway and Massoudi, 2013).

explanation. Additionally, 80% of European investors and 50% of US investors cited one-way investor behaviour (i.e. all investors trying to buy or sell at the same time) as a cause for eroded liquidity.

Evidence from Japan, Korea and China in Figure 23 below, reveals that a declining level of liquidity is not confined to the US. Japan has been experiencing a clear decrease in corporate bond turnover ratios since 2005. In Korea turnover ratios started to fall in 2009. The sharp decline in Chinese corporate bond turnover in 2013 is attributable to the regulatory investigations on illegal transactions in the interbank bond market, which led the regulators to suspend opening of and trading on Class C accounts in the interbank market (Hong, 2013; Liu, 2014). Although Asian figures are not directly comparable with those of US due to the use of different data sources, the figures still suggest that turnover ratios are significantly lower in Japan and Korea compared to the US.

**Figure 23. Corporate bond turnover ratios in Asian countries**




*Notes*: The yearly values correspond to the average of quarterly ratios provided in Asian Bonds Online. Asian Bonds Online reports turnover ratios for local currency bonds. Repurchase transactions are excluded. Data from China cover corporate bonds that trade on the interbank market, Shenzhen Stock Exchange and Shanghai Stock Exchange. Japanese data include straight bonds, asset-backed bonds, convertible bonds, bank debentures, and yen-denominated bonds issued by non-residents. Data from Korea cover special public bonds issued by state owned enterprises, financial debentures, and other corporate issues.

*Source:* Asian Bonds Online

One explanation for this difference is the limited supply of corporate bonds in emerging markets, which means that institutional investors, once they acquire a quality corporate bond, have strong incentives to hold it to maturity. Moreover, the limited bond supply coupled with a low trading interest significantly discourages market participants from providing two-way price quotations, exacerbating the liquidity problem (IOSCO, 2011).

### 3.3.3. Electronic trading

The relative reluctance among dealers to intermediate trades in corporate bond markets after 2008 has resulted in a search for trading practices beyond traditional over-the-counter markets. As mentioned above, the share of electronic trading in corporate bond market has increased from 10% in 2011 to 14% in 2012 in the US and from 22% to 29% in Europe (McKinsey & Company and Greenwich Associates, 2013).

As electronic trading is gaining ground there is also competition between the different types of electronic trading platforms. The platforms available in the market differ with respect to three main aspects: (1) the method by which the trades are executed; crossing trades,

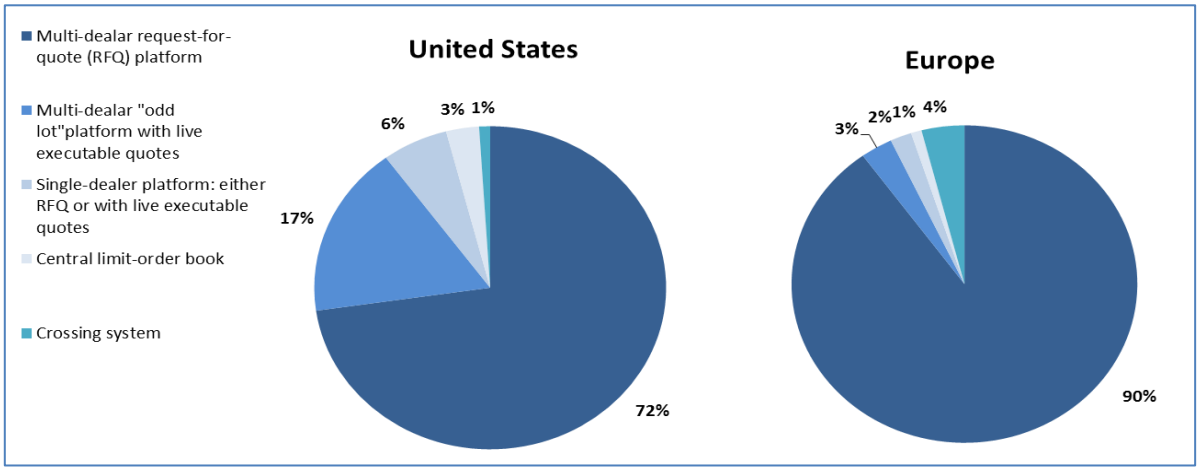
request for quote (RFQ) and central limit order book (2) the links that the platform establishes; interdealer, dealer-to-client (multiple- or single-dealer platforms), client-to-client or all-to-all and finally (3) the trade size: institutional or retail.

Some dealers, partly with an ambition to keep their market share, developed platforms that bring together institutional investors willing to trade a selection of corporate bonds during certain pre-scheduled time windows, in a process called “crossing trades”. The dealer can also step in and fill orders that cannot be matched. Hence, these platforms carry the features of both client-to-client and single-dealer platforms. Price Improvement Network of UBS, GSessions of Goldman Sachs and Bond Pool of Morgan Stanley constitute examples for these platforms. Interestingly, BlackRock, an asset management firm, also attempted to offer a crossing system, named Aladdin Trading Network.

However, none of the above initiatives were successful at reaching a meaningful market share: BlackRock abandoned the plan to allow its clients to trade corporate bonds on Aladdin Trading Network in April 2013 by announcing that it would instead offer its clients access to the MarketAxess platform and Goldman shelved GSessions in February 2014. Scott-Quinn and Cano (2013) argue that when there is no multilateral market price to be used as a benchmark, it is difficult to determine the price for a bilateral exchange between two buy-side participants, which could be considered fair to both parties and by the regulator. They identify this pricing difficulty as a reason for the failure of these systems. Figure 24 shows that the share of crossing systems is quite low at 1% and 4% of the total electronic trading in the US and the Europe, respectively.

Single-dealer electronic platforms serve as a simple alternative to calling up a dealer on the phone. These platforms have also failed to gain widespread popularity: their share in the United States is 6% and in Europe only 2%. The lack of interest in these platforms has frequently been attributed to the fiduciary duty of institutional investors to execute orders on terms that are most favourable to the client (the so-called best execution obligation). Claiming that this duty has been fulfilled by getting a quote from a single dealer would not be credible.

**Figure 24. Survey results: Share of types of platforms in e-trading volume (%)**




*Notes:* In total, 109 institutional investors responded to the survey, 34 in the US and 75 in Europe. Averages are not weighted by investors’ trading volumes.

*Source*: McKinsey & Company and Greenwich Associates (2013), “Corporate Bond E-Trading: Same Game, New Playing Field”.

This may also be the reason why multi-dealer platforms are by far the most popular platforms in the market. The Request-for-Quote-based multi-dealer platforms (RFQ) allow the investors to send their requests stating their desired size and direction to a list of dealers and get competitive quotes, which remain firm for a limited period of time. These platforms are actually a computerized version of the traditional voice-based trading, the major difference being not having to get quotes sequentially from each dealer but all at once. MarketAxess, Tradeweb, MTS Credit and Bloomberg are the dominant multi-dealer platforms offering RFQ-based execution. In 2013, MarketAxess with operations both in the United States and Europe, started to offer an all-to-all functionality, in which all platform participants can send their orders not only to the dealers but to the entire network of dealers and investors. Given that institutional investors now hold a significant portion of all bonds, platforms with an all-to-all functionality can be expected to increase market liquidity by expanding the network of potential trading counterparties. In a recent report, BlackRock has cited the creation of more all-to-all venues as one of the potential remedies for the "broken" secondary trading environment for corporate bonds (Novick et al., 2014). Figure 24 indicates that multi-dealer RFQ platforms dominate electronic trading both in the US and in Europe with 72% and 90% of the electronic market, respectively.

The fact that RFQ-based multi-dealer platforms do not radically change the way the business is done but only make the trading workflow more efficient[13] has been cited by some as the key to their relative success (Thomases, 2013). However, in recent years the industry has seen some proliferation of platforms offering quite a different model, which could potentially change the way business is done, namely an order book model with firm and executable orders and anonymous all-to-all trading, much like a stock exchange. These platforms can be targeted to institutional investors (e.g. Bonds.com, Vega-Chi, NYSE BondMatch) or retail investors (e.g. BondDesk, EuroTLX and LSE Order Book for Retail Bonds). Although the market share of these platforms in the e-trading volume is quite low - 3% in the US and 1% in Europe according to Figure 24 – these platforms have come into the spotlight as some of them were recently acquired by larger players: Tradeweb acquired BondDesk and Borsa Italiana acquired a majority stake in EuroTLX in September 2013 while a unit of London Stock Exchange's MTS Group acquired Bonds.com in March 2014. However, the McKinsey & Company and Greenwich Associates survey of spring 2013 reveals that less than only 3 percent of respondents in the US and 10 percent in Europe were enthusiastic about the prospects for central limit-order book systems.

There is some evidence that the move from voice-based trading towards electronic trading has benefited investors with a reduction of bid-ask spreads. The dark blue line in Figure 25 represents the average bid-ask spread for the US secondary corporate bond market as a whole and the light blue line below plots the average bid-ask spread just for electronic trades on the MarketAxess platform[14]. The gap between the two lines represents the saving in bid-ask spread achieved through electronic trading.

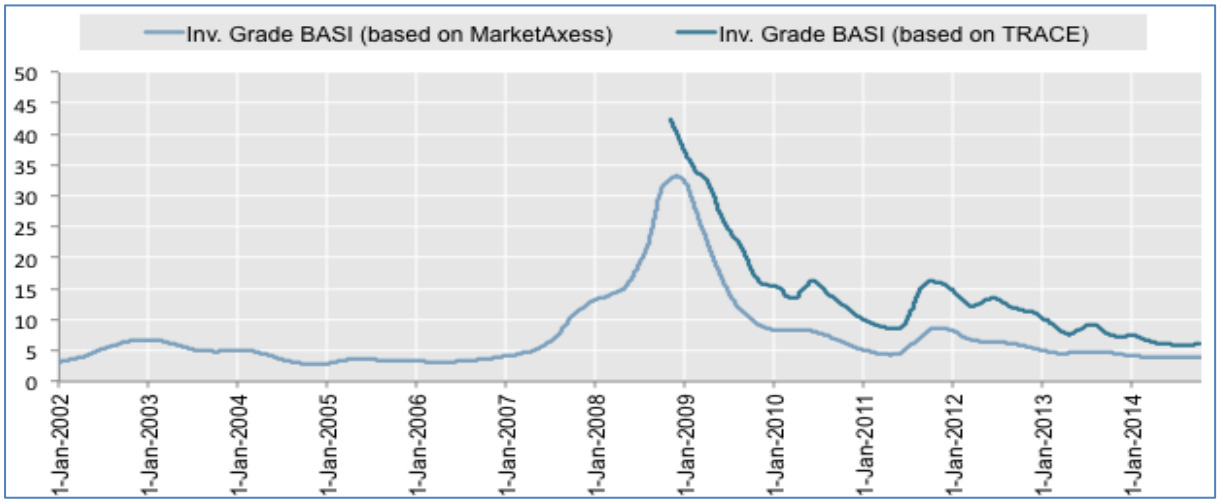
Although a proliferation of electronic platforms may have benefited the investors in terms of bid-ask spreads, the existence of too many platforms may cause harmful liquidity

[13] Despite the increased efficiency that RFQ-based platforms offer, they still have some weaknesses. Perrotra (2014) reports that on average, (i) 80% of the dealers queried for a quote do not return a response, (ii) investors who receive a response do not act 20 to 25% of the time and (iii) more than 50% of "offers wanted in competition" do not receive a response from any of the dealers queried.

[14] For a discussion of how the bid-ask spread index (BASI) is calculated, see the white paper provided by MarketAxess on http://www.marketaxess.com/pdfs/research/marketaxess-bid-ask-spread-index-BASI.pdf.

fragmentation which can add to the illiquidity innate to bond trading. The recent acquisitions of smaller trading venues and technology firms' attempts to aggregate all of the trading venues[15] into a single solution (Schmerken, 2013) may lead a consolidation of the market.

**Figure 25. Bid-ask spread index**




*Source*: MarketAxess Research

Despite the expansion in the number of electronic platforms, it has recently been noted by the SEC that the primary objective of these platforms appears to be to make the traditional method of trading more efficient for secondary market intermediaries. For this reason, they have not reached their full potential in generating benefits for investors by, for instance, making pre-trade pricing information more broadly available, lowering search costs and increasing price competition especially for retail investors. To partially fill this gap, the US regulator has taken steps to develop rules to disclose markups (i.e. the dealers' compensation) in riskless capital transactions for corporate bonds. It is expected that the disclosure of markups will deter overcharging by dealers[16].

In light of the experiences from public equity markets, a word of caution about electronic trading and the role of dealers in corporate bond markets is necessary. Analysing the developments in the US equity markets over the last two decades, Weild *et al.* (2013) concluded that a primary determinant of long-term sustainability of IPO markets is the relative size of aftermarket economic incentives. They claim that with a decrease in tick size and spreads in the US stock market, the incentives for intermediaries to bring small and medium size companies to the market and support liquidity in their stocks has decreased dramatically. As a consequence, there have been fewer IPOs by small and mid-sized companies in the US over the last decade. Although the reduction of bid-ask spreads with the use of electronic trading would offer considerable benefits to corporate bond investors, it is also important to analyse the impacts of changes in market structure on the functioning of the market.

[15] As of June 2013, it is estimated that between the United States and Europe, a total of 30 corporate bond trading venue initiatives are underway (Schmerken, 2013).

[16] See the speech of SEC Chair Mary Jo White, dated June 20, 2014 and titled "Intermediation in the Modern Securities Markets: Putting Technology and Competition to Work for Investors". Available at http://www.sec.gov/News/Speech/Detail/Speech/1370542122012

### 3.4. Transparency in the secondary corporate bond market

A market is considered to have *pre-trade transparency* if investors have access to information about buying and selling interest before trading, and *post-trade transparency* if details on recently completed trades are disseminated to the public. Since corporate bond markets traditionally have been over-the-counter markets with highly fragmented market activity, achieving transparency in trading activity requires a centralised mechanism.

A notable example of a centralised post-trade transparency system is the so-called Trade Reporting and Compliance Engine (TRACE) in the US. In July 2002, all dealers regulated by the National Association of Securities Dealers (NASD) started reporting their over-the-counter trades in eligible corporate bonds to TRACE. Although dealers were required to report all of their secondary market trades starting from day one, not all trades were disseminated to public. On a phased basis, the scope of the TRACE-eligibility list expanded and the 75-minute time lag between trade execution and dissemination shortened. With the start of the final phase in February 2005, TRACE reached full coverage of corporate bonds and in January 2006 the time lag was eliminated. Only high volume transactions of very illiquid bonds were disseminated with a time delay, in order not to show the dealer's hand to the market. The phased-in approach provided reporting parties to adapt to the system and allowed regulatory authorities to study the impact of post-trade transparency on market liquidity.

In the EU, post-trade transparency requirements are mainly limited to public bonds. Many of the EU member states have required exchanges and multilateral trading facilities (MTFs) to set up a transparency regime to ensure fair and orderly trading of exchange-listed bonds. In this regard, some information about prices and quantities of realized trades are usually published or at least disclosed to market participants. On the other hand, for unlisted bonds that are submitted to trading on an MTF, the MTF operator often publishes or discloses to market participants sufficient amount of information about buying and selling interests to allow the agents to form an investment judgment. However, in many of the EU countries there are no transparency requirements for bonds that are admitted to trading on an exchange or on an MTF but are traded out of those platforms or for bonds that are not admitted to trading on any of these platforms (CESR, 2008).

In November 2006, the European Commission (EC) requested technical advice from the Committee of European Securities Regulators (CESR) regarding the extension of MiFID transparency requirements to non-equity markets and CESR started a consultation process. This and subsequent consultation rounds shed light on market participants' view on potential benefits and disadvantages of increasing transparency standards in the corporate bond market.

The majority of respondents to CESR consultation papers did not believe that there was a lack of pre-trade transparency in the institutional end of the market. Institutional investors are able to access significant amount of pre-trade information through third party data vendors, by requesting competitive quotes through electronic trading platforms or by calling or messaging a succession of dealers. As mentioned above, there are no mandated post-trade transparency arrangements for bonds other than those that are admitted to trading on exchanges or MTFs. However, institutional investors have access to summary post-trade data made available to them by data vendors or MTFs.

In contrast, there is a consensus on the lower accessibility of both pre- and post-trade information by retail investors. Some argue that this problem would not be material since retail investors constitute a low percentage of the total volume and since they typically enter

the market via an intermediary who is charged with the duty of best execution (ICMA, 2005). On the other hand, apparently with reference to the Parmalat scandal, IOSCO (2005) stated: "*...in at least one recent financial scandal, it has been alleged that some institutional investors suspected that financial problems with the issuer existed and, accordingly, liquidated their positions in the issuer's debt securities*". Due to the lack of transparency in the market, the doubts of institutional investors did not get incorporated into the bond price, leaving uninformed investors with a disadvantage (Jopson, 2005).

Some market participants believe that increased post-trade transparency may help them in valuing corporate bonds in their portfolio. Given that the industry increasingly depends on model-based valuations, making market-based data available might strengthen the soundness of bond valuations. Cici et al. (2011) investigate the dispersion of valuations of identical corporate bonds by different mutual funds for the period from 1995 to 2006 and their findings are indeed consistent with the view that TRACE contributed to better pricing precision throughout the period.

There is much controversy about the effect of increased transparency on market liquidity. A slight majority of respondents to CESR consultation paper believed that increased post-trade information would provide greater certainty around bond prices and valuations, which could help restore investor confidence and maintain market liquidity in times of distress (CESR, 2010). Based on a theoretical model, Pagano and Röell (1996) find that greater transparency generally improves market liquidity by reducing trading costs for uninformed investors. Based on National Association of Insurance Commissioners (NAIC) data, Besseminder et al. (2006) report that trade execution costs for insurance companies fell by 50% for TRACE-eligible bonds and 20% for nondisseminated bonds, suggesting a spillover effect of transparency. Similarly, Edwards et al. (2007) and Goldstein et al. (2007) provide evidence based on TRACE data that transaction costs are lower for transparent bonds compared to nondisseminated bonds.

There is a common concern among European corporate bond market participants that too much transparency may harm the already-weak liquidity by decreasing dealers' willingness to commit their capital to intermediate trades. When a dealer bank adds bonds to its inventory as a result of a trade, it usually intends to offload these bonds in the inter-dealer market. If the price and quantity of the initial trade is publicly known, other dealers may use this information against the dealer when bargaining on the price. Whereas Goldstein et al. (2007) find no impact of transparency on daily trading volume or number of transactions per day, a recent study by Asquith et al. (2013) implies that these concerns are not without merit at least at the illiquid, high-risk end of the corporate bond market. Their findings indicate that although transparency causes a decline in price dispersion for all bonds, it also leads to a significant decrease in trading activity for illiquid, non-investment grade bonds. For this group of bonds, TRACE reduces trading activity (measured by volume / issue size) by 41% in the 90 days following the dissemination of trade information.

After considering the industry feedback, CESR concluded that the net effect of increased transparency could be expected to be positive. In its final advice to EC, the committee recommended the implementation of post-trade transparency with a phased-in approach similar to TRACE. The committee also determined that there is an unlevel playing field with respect to providing pre-trade transparency for corporate bonds and recommended that a mandatory harmonized pre-trade transparency regime be introduced for exchanges and MTFs (CESR, 2010). In April 2014, the European Parliament approved MiFID II, and with it, the extension of transparency rules to corporate bonds. The specifics of the transparency regime will be determined following the European Securities and Markets Authority's (ESMA) technical advice in December 2014.

## PART IV. THE LEGAL AND CONTRACTUAL FRAMEWORK FOR CORPORATE BONDS

In Part III, we discussed the functioning of secondary corporate bond markets, which is one of the factors that influence the willingness and ability of corporations to finance themselves through corporate bond issues. The functioning of secondary markets also influences the willingness and ability of investors to buy corporate bonds.

Other factors that influence the “supply and demand” for corporate bonds is the legal and contractual framework, which establishes the allocation of rights and responsibilities between the corporation and the bondholders. This legal and contractual framework includes two main components. First, there is a general mandatory legal framework that is focused on lender protection, insolvency procedures, disclosure requirements and insider trading. Second, there are the bond specific contractual conditions (the indenture), which also list any covenant that may govern the issuer and the associated formulas that define whether the issuer is in line with the covenants.

A separate factor of significant importance to the conditions under which companies can raise money through bonds and the conditions under which investors will buy the bonds is the bond rating. The boldest expression of this is the common classification of corporate bonds into “investment grade” and “non-investment grade”. The rating is not formally part of the contractual structure but is carried out by a third party rating company on behalf of the issuing company.

In Section 4.1., we first provide an overview of the most important mandatory provisions that influence the role of corporate bonds as a vehicle for corporate finance. We then, in Section 4.2. describe the general structure and function of the bond contract itself (the indenture). Using our dataset we take a special look at the use of covenants. And for the period 2000-2013 we use 13,071 unique bond issues to identify the most frequently used covenants and how they have developed in absolute and relative importance over time. Based on this data we also construct and trace a “covenant protection index” for US corporate bonds. The overview is primarily based on conditions in the US and the EU, which accounted for about three quarters of the total amount of corporate bonds issued between 2000 and 2013.

### 4.1. The legal and regulatory framework

A corporate bond is a debt obligation. The company is the borrower and the investor is the creditor. The duties of issuers and the rights of the bondholder are covered by a number of general laws and regulation that establish the relation between borrowers and creditors. Most important is perhaps company law and insolvency regulation, which often complement each other. The provisions and the interplay between company law and insolvency regulation varies across jurisdictions but core elements, in addition to disclosure, include capital requirements, the timing and duties with respect to initiating an insolvency process, the process for recovery and; the identification and order of priority for different categories of debt. While some of these general rules apply to all creditors, bondholders, like other large and long term creditors, may through specific contractual arrangements influence the terms on which they provide the credit, for example with respect to priority (seniority) in the case of default.

Since bonds represent a special kind of loan that is divided into discrete securities that can be bought by a broad set of investors and then be traded in a secondary market, they are

also subject to various forms of securities regulations, targeting “debt securities”. There are also legal and regulatory requirements that are more specific to corporate bonds. These regulations cover three main areas 1) the issuing of the bond offer (the prospectus); 2) disclosure requirements for outstanding bonds, and; 3) trading rules on secondary markets.

#### 4.1.1. The prospectus

In today’s capital markets, the generally accepted securities offering regime is based on a public disclosure system, where the prospectus plays a central role. The prospectus, which is submitted to the securities regulator for review, contains the main financial and non-financial information of the issuer and the key characteristics of the security that the issuer wants to offer to the public. In particular, a corporate bond prospectus and its supplements contain information on the company’s financial situation, risk factors, purpose of the issue (use of proceeds) and a description of the main characteristics of the bond including provisions included in the bond indenture.

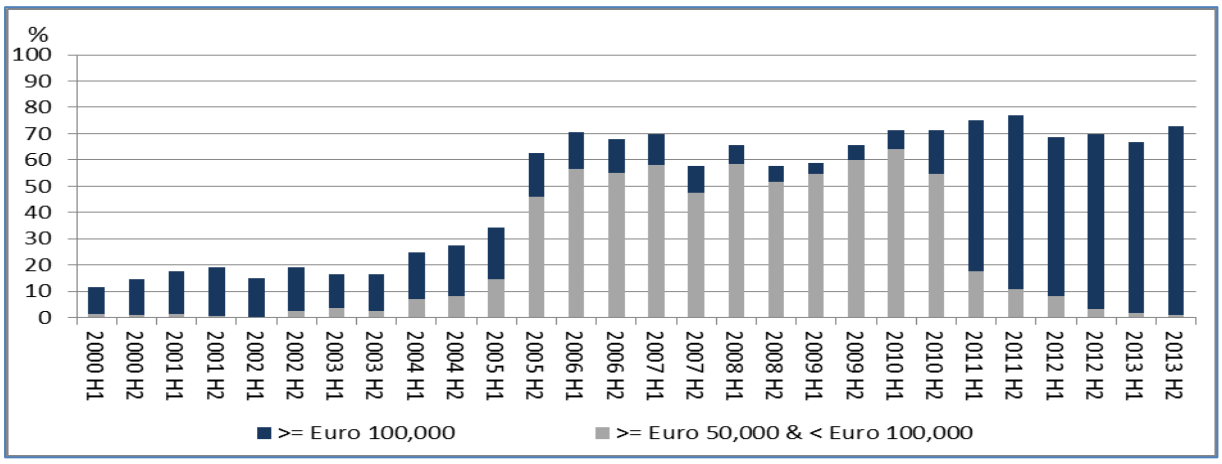
In EU, the conditions and disclosure requirements with respect to corporate bond issues are established in the EU Prospectus Directive (2003/71/EC), which became effective in July 2005 and, as of today, has been revised five times. The Directive stipulates that once a prospectus is approved by the relevant authority in one member state, it serves as a “passport” that allows the issuer to offer the bond publicly also in other member states.

The Prospectus Directive has a “building blocks” approach, which is intended to provide investors with a level of information and protection that is tailored to their circumstances and the character of the bond issue. This means, for example, that a prospectus is required only for bond issues with a denomination per unit of *less than* EUR 100,000. Bonds that are issued with a denomination per unit of EUR 100,000 or more are exempt from providing a prospectus. Before 2011, this cut-off amount was EUR 50,000.

The Prospectus Directive also allows exemptions from the duty of providing a prospectus if: (i) the offer is made only to qualified investors or (ii) the offer is made to a very limited number of persons other than qualified investors or (iii) the offer is made to investors who acquire securities for a total amount of at least EUR 100,000 per investor or (iv) if the total value of the offer is less than EUR 100,000 over any 12-month period.

Not surprisingly, the prospectus exemption for bonds with a denomination of first EUR 50,000 and later EUR 100,000 made many issuers denominate their units at these levels or more. Figure 26 below, shows the percentage of bonds listed on the EU exchanges with denominations between EUR 50,000 and EUR 100,000 and greater than and equal to EUR 100,000. Prior to 2005, less than 30% of bonds listed in the EU exchanges had denominations per unit above the EUR 50,000 threshold. With the publication of the Prospectus Directive in late 2003, this share slowly began to increase and when the directive came into force in July 2005, it suddenly jumped to 63%. Following the increase of the threshold to EUR 100,000 in 2011, there was a similar jump for bonds above the new threshold. In sum, between 60-70% of bonds listed in EU exchanges each year are exempt from presenting a prospectus due to the denomination size criterion.

**Figure 26. Percentage of EU bonds with a denomination of at least Euro 50 000 and Euro 100 000**




*Source*: OECD calculations, see Box 2.1. for details

The London and Luxembourg stock exchanges offered another alternative to issuers that wanted to avoid the prospectus requirement. They both established euro-bond markets in the form of the Professional Securities Market in London and the Euro MTF in Luxembourg. These markets are classified as exchange-regulated markets and do not fall within the MiFID definition of a 'regulated market'. As a consequence, corporate bonds that are traded on these venues are not subject to the requirements under the Prospectus Directive. Neither are they subject to the requirements of the EU Transparency Directives discussed in Section 4.1.2 below.

Under the Unites States Securities Act of 1933, offers to issue corporate bonds should be registered with the SEC. In contrast to the EU directive, the US does not make any distinction between prospectus requirements for equity and debt issuers, but grants some exemptions from presenting a prospectus. Subject to certain conditions, small public offerings[17], intrastate offerings, offers and sales made outside the US and private offerings are exempted from SEC registration.

If a bond is not registered, the SEC rules, in principle, stipulate that it may not be sold in the marketplace before a minimum holding period of either 6 months or 1 year. However, Rule 144A, enacted in 1990, permits the resale of unregistered securities to qualified institutional buyers (QIBs) without observing any minimum holding period and without having to register the security. This was an important exemption that gave issuers access to a large pool of investors, who no longer had to worry about any minimum holding period. When non-US firms offer their bonds in the US, they typically do so under Rule 144A.

### 4.1.2. Periodic and ongoing disclosure

In the EU, the requirements for periodic and ongoing disclosure for bond issuers are defined in the Transparency Directive (2004/109/EC). The directive requires that issuers of corporate bonds that are admitted to trading on a regulated market shall disclose (i) an annual financial

[17] Regulation D exemptions; Rule 504 gives an exemption for an offer up to USD one million of securities in a 12-month period. Rule 505 gives an exemption for an offer up to USD five million in any 12-month period to an unlimited number of accredited investors and up to 35 persons that are not accredited investors.

report comprising audited financial statements and a management report, and; (ii) half-yearly financial reports comprising a condensed set of financial statements and an interim management report.

Parallel to the exemption from the Prospectus Directive, issuers of bonds with a denomination per unit of Euro 50,000 or more are exempted from the requirements of the Transparency Directive.[18]

A review by IOSCO (2011) of corporate bond markets in emerging market economies indicated that most jurisdictions require fairly comprehensive disclosures at issuance as well as on a continuous basis for public offers and less stringent disclosures for private placements. Many jurisdictions apply regulations designed for public equity markets to corporate bond markets, which, in turn, tend to set high standards. Although the range of information required is comprehensive, the accuracy, quality and timeliness of the information may not be sufficient to help investors in making informed decisions. This is cited as an impediment by investors in corporate bonds. In addition, the lack of alternative issuance options (e.g. shelf registrations, fast-track public offers), long waiting time for regulatory approval and high issuance fees among other factors discourage potential issuers from tapping the corporate bond market.

#### 4.1.3. Market abuse

The United States has a leading position in prohibition of market abuse through the Securities Exchange Act of 1934. In the rest of the world, market abuse regulation was, with few exceptions, non-existent prior to 1980s (Newkirk and Robertson, 1998). The United States authorities are also considered to be more “aggressive” at enforcing the rules compared to their counterparts in other jurisdictions (Masters and Binham, 2012).

Although all EU members are subject to the same high-level rules under the Market Abuse Directive (2003/6/EC) which came into effect in October 2004, there may still exist different levels of enforcement among member states. ESMA (2012) reports the annual number of market abuse cases transmitted by each member state’s competent authority to judicial authorities over the period from 2008 to 2010. The figures differ widely between countries: While Germany and Sweden transmitted more than 50 cases to judicial authorities for criminal proceedings each year, Ireland, Malta, Slovakia and the United Kingdom did not transmit any cases in the period. The ESMA (2012) report does not differentiate between cases related to equity and those related to corporate bond markets. But the level of enforcement may be poorer in the corporate bond markets due to the relative opaqueness of secondary markets.

Since the Market Abuse Directive did not harmonize the criminal sanctions for insider trading and market manipulation, wrongdoers can avoid sanctions by taking advantage of differences in national laws. Moreover, the coverage of the Market Abuse Directive was limited to securities admitted to trading on a regulated market, including corporate bonds. A new framework for market abuse, the so-called MAD II, was published in the EU Official Journal in June 2014 and will enter into force in July 2016. The main objective of MAD II is to eliminate the room for regulatory arbitrage and to expand the coverage of the directive to include securities traded OTC, on multilateral trading facilities or organised trading facilities. The new regulation also introduces minimum sanctions, including prison sentences for serious crimes.

[18] EUR 50,000 threshold in the Transparency Directive was not changed after the amendment in Prospectus Directive that increased the denomination level for exemption to EUR 100,000.

## 4.2. The bond contract

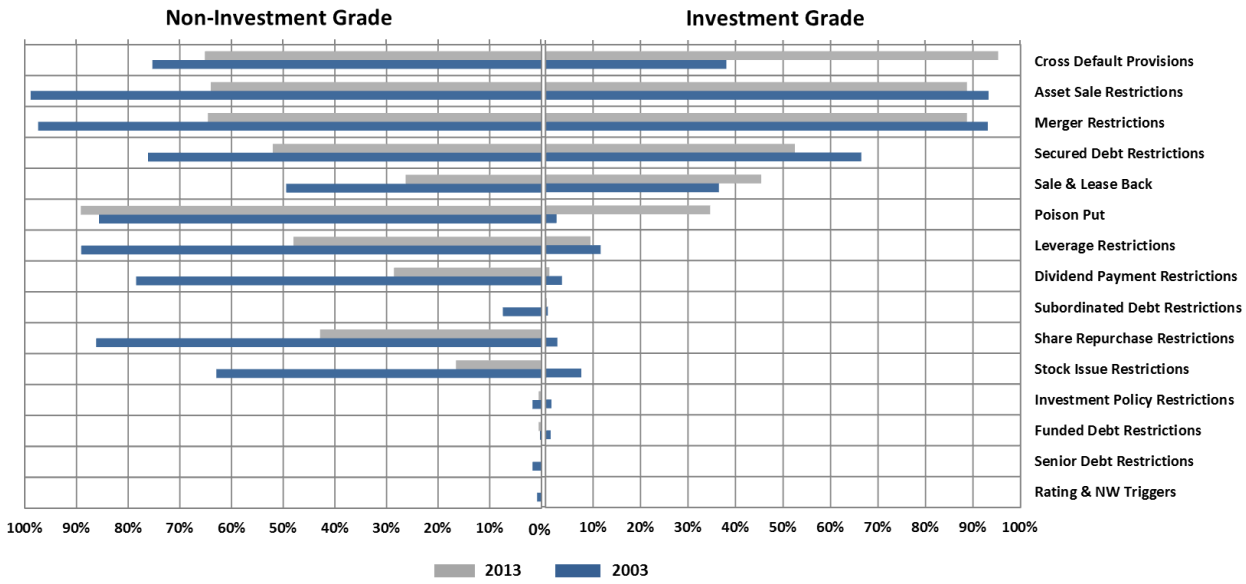
The bond indenture is a contract that contains the main features of the bond, including any restrictive conditions (covenants). A standard bond indenture includes provisions on redemption options, definition of default and remedies, duties and responsibilities of the trustee, maturity, interest payment method and covenants and related enforcement of issuer's obligation.

From a corporate governance perspective, covenants in the bond contract that restrict pay-out, financing and investment policies of issuers play a key role in identifying bondholders' rights and enforcement power. In Section 4.2.1., we review the different types of covenants that are used in bond indentures and the conflict of interest that they attempt to address. Based on a sample of 13,071 unique bond issues during the period 2000-2013 obtained from the Mergent FISD database, we are able to provide an overall view of the frequency with which different covenants are used in the US and the trend over time. Using the same data, Section 4.2.2. presents an overall covenant protection index based on Billett et al. (2007) to track the quality of bondholder protection over the same period.

### 4.2.1. The use of covenants

Figure 27 summarises the covenants that existed in US corporate bond indentures for the years 2003 and 2013 respectively. The figure shows the percentage of all indentures that include a certain covenant. Investment and non-investment grade bonds are shown separately and differences can be compared. We have grouped different covenant types in the dataset into 15 covenant groups following Billett et al. (2007). Detailed data for the entire time period is presented in Annex 1.

**Figure 27. Changes in covenants in the United States, 2003-2013 (%)**




*Source*: OECD calculations, see Box 2.1. for details

In Figure 27 we can identify three main groups of covenants; (1) covenants that are frequently used both in investment grade and non-investment grade indentures, (2) covenants that are frequently used only in non-investment grade indentures and (3) those that are not commonly used in either category of corporate bonds.

In the group of covenants that were frequently used in indentures for both categories of bonds, indirect restrictions on investment activities such as *asset sale and merger covenants* were very common both in 2003 and 2013. Restrictions on asset sales may permit asset sales only up to a certain amount and/or may require that the proceeds be used only for purposes specified in the bond indenture (e.g. to retire the bond issue or purchase new fixed assets). Asset sale covenants attempt to reduce the likelihood of withdrawal of assets from the firm to the detriment of bondholders and to ameliorate the risk-shifting problem by specifying the areas in which sale proceeds may be used. These covenants are among the most frequent covenants in the US bond market as shown in Figure 27. In 2003 on average more than 90% of investment and non-investment grade bonds had asset sale covenants. After the 2008 crisis, this figure declined considerably, possibly because some issuers managed to break away from these covenants by taking advantage of the bond bull market. Interestingly, although the percentage of investment grade bonds having an asset sale covenant increased back to almost 90% in 2013, it remained at 64% for non-investment grade bonds.

For the extreme case of a sale of all (or substantially all) assets to an acquirer, a merger restriction covenant may require that the combined entity assume all the outstanding debt and continue to comply with the bond indenture. The use of merger restriction covenant, as reported in Annex 1, is highly correlated with the use of the asset sale covenant. In practice, the concept of "substantially all" assets is ambiguous. This ambiguity allowed First Data in 2006 to spin off its Western Union subsidiary, which accounted for 50% of overall cash flow, without having to transfer or redeem its bonds (Moody's, 2006).

Another common covenant in the bond contract is the *cross-default or cross-acceleratio*n provision, which triggers default or acceleration of payments when any other debt of the issuer moves into default or is accelerated. This covenant assures bondholders that they will not be left behind in the case of bankruptcy. In the United States, there has been an increase in the frequency with which these triggers are included in the investment grade bond indenture. In 2003, 38% of all investment grade corporate bonds in our sample had cross-default or cross-acceleration covenants. In 2013 the share of investment grade bonds with these covenants had increased to 95%. Over the same period, the presence of cross-default or cross-acceleration covenants for non-investment grade bonds decreased by 10 percentage points.

Issuance of additional debt reduces the standing of existing bonds with same or lower priority. Issuers try to control for this potential claim dilution, by restricting the issuance of senior debt. Despite a fall after the financial crisis, *secured debt restrictions* (i.e. negative pledge covenants) are still frequently used in both investment and non-investment grade bond indentures. 67% of investment grade and 76% of non-investment grade bond indentures included this covenant in 2003. In 2013 it was included in 52% of all issues for both investment and non-investment grade bonds. It is important to note that the negative pledge provision generally refers only to "traded debt" in Europe and as a consequence offers weak protection for bondholders (Moody's, 2006).

Another way to protect existing bondholders from claim dilution is to include covenants on *sale and leaseback* transactions in the indenture. A sale and leaseback transaction is a means of raising capital in which a firm sells an asset to a counterparty that leases the asset back to the firm in exchange for receiving payments from the firm for a fixed period of time. Because this transaction creates an additional and secured claim on the firm's assets, it reduces the value of existing bonds. While this covenant was less common in non-investment grade bonds in 2013 in comparison to 2003, it has increased from 37% to 45% in investment grade indentures.

*Poison puts* give the bondholders the option to sell back their bonds at a premium when there is a "change-in-control event". These covenants are generally used to protect bondholders from losses that they may incur in case of a leveraged buyout. Evidence from the data shows that poison puts are almost always included in non-investment grade bond indentures. For investment grade bonds, the presence of poison puts significantly increased with the increased frequency of leveraged buyouts starting from 2005 and has stayed around 40% since then. Moody's (2006) states that poison puts tend to be cyclical and often lag the leveraged buyout activity from which they are meant to protect the bondholders. Furthermore, especially in Europe a poison put requires two triggers: a change in ownership and a subsequent rating reduction. Moody's (2006) argues that such double triggers may leave bondholders unprotected if the rating has already been reduced prior to the change-in-control event. In other cases, the poison put may only be triggered in the event of a "hostile" takeover, which renders bondholders unprotected in the case of "friendly" takeovers.

According to Figure 27, the second group of covenants that are common only in non-investment grade bond indentures are leverage restrictions, dividend payment and share repurchase restrictions, and stock issue restrictions.

Similar to secured debt covenants, *leverage restrictions* limit a firm's ability to issue any kind of additional debt. These covenants usually impose limits on the dollar amount of debt outstanding or require that the firm maintain certain pre-defined ratios. As reported in Figure 27, such covenants have lost popularity in the United States over the 2003-2013 period. As of 2013, about 48% of non-investment grade corporate bonds have a leverage-restricting covenant compared to almost 90% in 2003.

Two related covenants that are mainly included in non-investment grade bond indentures are *dividend and share repurchase restrictions* that limit payments to stockholders. They were almost omnipresent in 2003. However, from levels around 90% in 2003, limits on dividend payments fell to 29% and limits on share repurchases to 43% in 2013.

Bond covenants may also be used to restrict the issuance of additional common or preferred stock by the issuer or by its subsidiaries, reflecting a concern of bondholders about deviations from the absolute priority rule. Although *stock issuance covenants* were observed in around 63% of non-investment grade corporate bonds issued in 2003, their popularity has declined after 2005. As of 2013, only 17% of non-investment grade bonds in our dataset had a stock issuance covenant.

Five covenant types; subordinated debt restrictions; funded debt restrictions; investment policy restrictions; senior debt restrictions and rating or net worth triggers were uncommon both for the investment and non-investment grade bond indentures throughout the period.

### 4.2.2. Overall covenant quality over time

It is argued that the quest for yield by investors in a time of low interest rates has allowed firms to issue bonds with less stringent covenants. This has raised concerns about a "covenant bubble". In 2013, Moody's (2013) observed that the credit quality of non-investment grade companies in the United States had remained relatively stable in the previous 5 years and that the weakening in covenants is attributable to the quest for yield, and not to a higher credit quality. In addition to an overall loosening of covenants, Moody's (2013) warns that the normal negative relation between covenant quality and bond ratings has broken down in recent years. It appears that the covenant package of a bond, which

should be tied to corporate fundamentals and bond characteristics, has now become more a function of market conditions.

Rating agencies and commentators have been warning investors that they may be taking risks that they are not compensated for. For example, the issuers of so-called “covenant-lite bonds” may be less likely to default since it is less likely to breach looser covenants. But once they actually do default, the recovery rate will probably be lower since the firm’s financial condition is allowed to deteriorate for a longer period of time. Moody’s (2013) reports that senior unsecured covenant-lite bonds have a recovery rate of 43% and the recovery rate for senior subordinated covenant-lite bonds is only 23.1%.

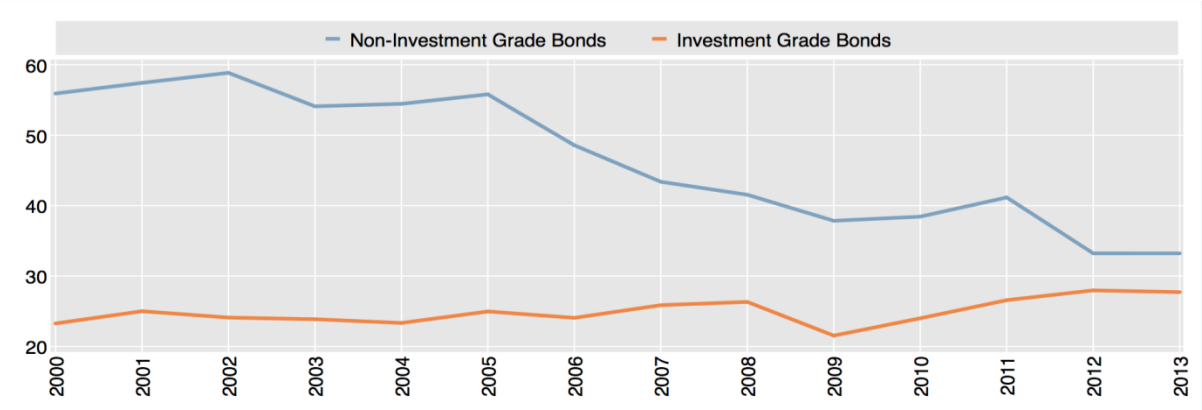
To track the covenant quality of each bond and the overall covenant quality over time, Moody’s developed a covenant quality index in January 2011. The rating agency defines a set of key covenants and rates the quality of each key covenant found in the bond indenture. They also assign a rating for the covenant package as a whole. In February 2014, Moody’s covenant quality index for North American non-investment grade bonds moved to its lowest level ever. The index moved from 3.84 in January to 4.36 in February where 5 denotes the weakest protection for bondholders and 1 the strongest (Alloway and Rodrigues, 2014). Moreover, non-investment grade covenant-lite bonds accounted for more than 19% of bond issuance in the first quarter of 2014, which is almost triple their share during the same period in 2011. Given that yields for non-investment grade bonds are near record lows, it is argued that a weakening of covenants may lead to problems in the future (Santibanez, 2014).

To see the overall trend in covenant quality over the years we used our dataset to create a covenant protection index, mainly based on the method developed by Billett et al. (2007). For each covenant type listed in Figure 27, we generate a binary variable, which is equal to 1 if the covenant type is available in the bond indenture. We then sum the binary variables, divide by 15 and multiply by 100 to create an index that ranges from 0 to 100, with 100 denoting the highest possible protection for bondholders. It should be noted that this index provides only a rough measure of covenant quality, since the measure changes based only on the existence or non-existence of a given covenant. Therefore the index cannot account for the changes in the level of protection a given covenant may provide depending on how it is worded[19].

Figure 28 shows that for investment grade bonds, the index moves in a narrow band between 21 and 28%. However, for non-investment grade bonds the index declines significantly throughout the period. After reaching a peak of 59% in 2002, the index almost monotonically declines to 33% in 2013. The trends remain similar if we split up the non-investment grade and investment-grade bond samples into short-term and long-term sub-samples. The convergence in the covenant quality of investment grade and non-investment grade bonds supports the notion of a weakening negative relation between ratings and covenant quality. Amid the high degree of liquidity, a favourable credit environment and the race for yield, it appears that investors have lost some of their interest in asking for protection.

[19] Murfin (2012) creates a more granular measure of covenant strictness that also takes into account the initial covenant slack and the covariance between different covenants in the contract. The initial covenant slack measures the distance between the accounting numbers of the borrower as of the establishment of the contract and what is required by the covenant considered. The greater the distance, the harder it is to breach the covenant. The covariance between different covenants is also important since contracting over accounting ratios independent from each other makes a covenant violation more likely. While Murfin (2012) applies this strictness measure on loan contracts, it would be interesting to expand his case to bond contracts.

**Figure 28. Covenant protection index for non-investment and investment grade bonds in the United States**




*Source*: OECD calculations, see Box 2.1. for details

Even if the covenant protection index was at the highest possible level, it would not necessarily mean that the bondholders are adequately protected. Covenants are useless if they cannot be enforced. In a typical contract, an 'independent trustee' is assigned to represent bondholders and to enforce the covenants as their agent. While the specifics of how the trustee will perform this duty can vary from contract to contract, a general framework is provided by regulatory and legal authorities (e.g. the Trust Indenture Act of 1939 in the US, German Debt Securities Act of 2009, etc.). This framework within which covenants are enforced will be discussed in Part V below.

## PART V. THE ROLE OF BONDHOLDERS IN MONITORING AND CORPORATE GOVERNANCE

In Part II of this report we provided data that showed a marked increase in the use of corporate bonds by non-financial companies in both developed and emerging economies during the last five years. Thereafter, we discussed the structure and functioning of secondary bond markets and the issue of bond market liquidity. In Part IV we analysed the key elements of the regulatory framework for corporate bonds and the bond contract that defines the bondholders' rights and enforcement powers, particularly covenants. Based on a covenant dataset, we suggested that investors in their search for yield in a low interest environment have traded governance rights for higher expected returns.

However, the regulatory, legal and contractual framework for corporate bonds is not the only factor that influences the character and degree of monitoring and corporate governance engagement by bond investors. At least as important for predicting differences in engagement between different bondholders are differences in terms of their business model with respect to issues such as liability structure, investment strategy and portfolio structure (Çelik and Isaksson, 2013).

Based on the framework provided in Part IV on bond contracts and covenants, this part starts with a discussion about the role of default mechanism and trustees in the enforcement of bondholder rights. Section 5.2. describes recent trends in enforcement, with a particular focus on aggressive interpretation of bond covenants. Section 5.3. discusses bondholders' willingness to enforce their rights and Section 5.4. addresses bondholder engagement in special cases of restructuring.

### 5.1. Default, the role of the trustee and enforcement

#### 5.1.1. Default and the role of trustees

A prerequisite for bondholders to get a voice in the governance of the company is the threat of an imminent default or the actual occurrence of a default. A default on the part of the issuer takes place when a covenant in the indenture is violated or when the issuer fails to make the interest or principal payments. In the case of a failure to make a required payment, the default is obvious. However, because of the opacity of the information needed to determine compliance with a covenant and the sometimes ambiguous nature of covenants, it is less straightforward to detect a default that follows from the breach of a covenant.[20]

The responsibility for detecting or facilitating the detection of possible breaches of covenants falls (at least in theory) partly on the trustee. The minimum duties of an indenture trustee in

[20] Consider the restrictions that require the surviving entity to assume all the outstanding debt of the issuer once all or "substantially all" assets of the issuer are transferred to another entity. Violation of this covenant is hard to prove since one needs detailed information on the value of assets transferred and assets that remain. Furthermore, because the actual percentage that corresponds to "substantially all" assets is ambiguous, even if one has all the relevant data, it is not straightforward to decide whether the transaction constitutes a covenant breach (Kahan and Rock (2009)).

the US are detailed in the Trust Indenture Act of 1939 (TIA). Prior to default, the trustee is, according to TIA, responsible only for carrying out the purely administrative tasks that are outlined in the indenture (e.g. reviewing documents submitted by the issuer, transmitting periodic reports to bondholders, enabling communication between bondholders upon request etc.).

In Germany and in the UK, the appointment of a bondholder representative remains optional. In Germany, the bondholder representative can be appointed pre-issue by the issuer or post-issue by a bondholders' meeting, which usually takes place only upon default (Allen, 2012).

The main channel through which the trustee can detect a covenant breach is by reviewing the annual compliance certificate submitted by the issuer. However, this compliance certificate may be hard to verify for an outsider, since the issuers are not required to provide any calculations that prove their stated compliance with covenants (Kahan and Rock, 2009). Furthermore, the trustee is not expected to investigate the accuracy of the information presented in the compliance certificate and can in the absence of bad faith assume that the conclusions drawn by the issuer are correct. As a consequence, the trustee does not have any incentive to reveal an actual or potential default before the issuer openly declares it in the compliance certificate. Under these conditions, a technical default may go unnoticed by bondholders for several months since the issuer delivers the compliance certificate only annually and within 105 days after the end of each fiscal year, whereafter the trustee has 90 days to give a notice of default to the bondholders[21].

Although the TIA duly prohibits relieving the trustee from liability for its own negligent action or its own wilful misconduct, this rule does not apply to pre-default situations in which the trustee negligently failed to act but the action was not explicitly required by the indenture (Lev, 1999). This exemption from liability further encourages the trustee to remain inactive prior to default.

Another rule which reinforces the low expectations with respect to trustee engagement in the pre-default period is that TIA does not require the elimination of any conflicts of interest that may exist between the trustee and the bondholders unless there is an actual default. Since banks generally serve as trustees, this rule may allow a trustee to also be a lender to the issuer. In case of financial distress in the borrowing company, the creditor-trustee may have strong incentives to first secure its own claims before protecting the bondholders' investment (Lev, 1999).

The passivity of the trustee in the pre-default period is not confined to the United States. Canada Business Corporations Act (1985) also allows the trustee to rely on whatever the issuer declares in the annual certificates of compliance. The Australian Corporations Act (2001) however, goes one step further and requires the trustee "to exercise reasonable diligence to ascertain whether the borrower or any guarantor has committed any breach of the terms of the debentures". Nevertheless, the Australian Securities and Investments Commission has expressed some disappointment with the engagement level of trustees and noted in a 2007 report that "it appears that the trustees' role has not been used to its full extent in the past" in Australia (ASIC, 2007). Hence, encouraging a more pro-active role for the trustees in the law has not necessarily translated into practice.

The limited pre-default trustee responsibilities, which are prevalent worldwide, is described by the United States District Court for the Southern District of Texas in Newby v. Enron

[21] The time limits are those proposed by the Revised Model Simplified Indenture (2000).

Corp. as “Until the event of default occurs, the trustee has virtually no obligations towards the bondholders...” (Kaplan and Hebbeln, 2009).

### 5.1.2. Enforcement of bondholder rights

Once a default materializes and is made known to the trustee and to the bondholders, a complicated enforcement procedure begins. A simplified representation of this procedure in the United States is shown in Figure 29. For any remedial action to be taken, the default must first turn into an “event of default”. Bankruptcy and the failure to pay the principal automatically lead to an event of default. The non-payment of interest turns into an event of default only if the due amount is not paid within the grace period (e.g. 30 days according to the Revised Model Simplified Indenture (2000)).

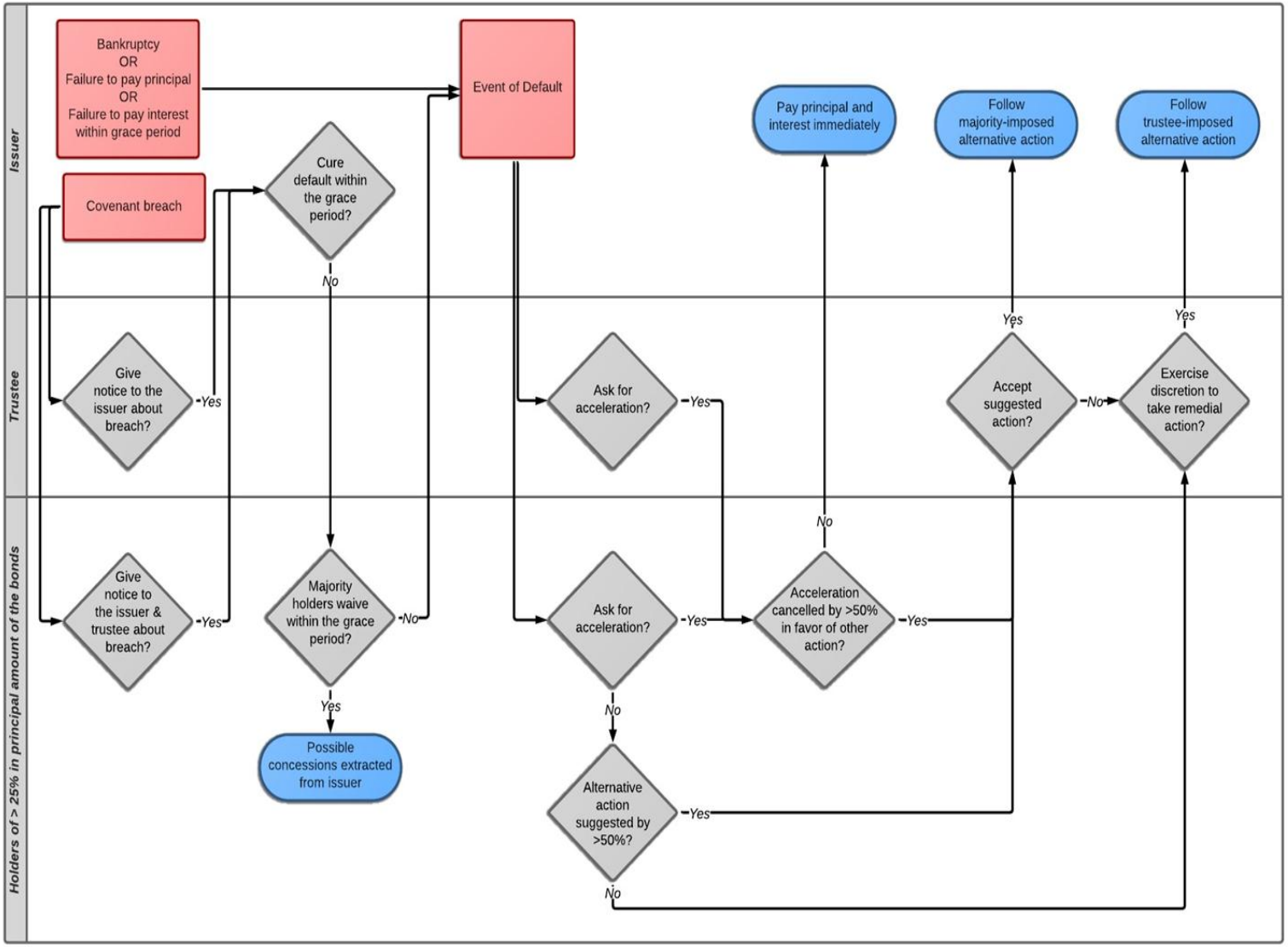
A covenant breach leads to an event of default only if the trustee or the holders of at least 25% in principal amount gives notice to the issuer about the covenant breach, if the breach is not cured within the grace period (e.g. 60 days according to the Revised Model Simplified Indenture (2000)) and if a majority bondholders do not waive the default. In exchange of such a waiver, the consenting bondholders or the bondholders overall may extract concessions from the issuer.

Once the default converts into an event of default, the trustee or the holders of at least 25% of the principal can accelerate the debt, making it immediately payable. If acceleration is not the preferred course of action, the trustee holds the power to follow any alternative remedies to collect the payment that is due or to enforce issuer’s compliance with covenants. These alternative remedies may involve lawsuits against the issuer, providing waivers conditional on an improvement in the financial health of the issuer, the inclusion of additional covenants, increased interest rates or concession fees. What underpins the bondholders’ bargaining power in this situation is the threat of acceleration.

Although the TIA gives the trustee the power to follow any alternative remedy that it deems appropriate, the holders of a majority of the principal has the ultimate power to direct the trustee to follow a certain route of action. The trustee may refuse to follow the action imposed by the majority only if it is against the law or the indenture, if it would unduly harm other bondholders, if it could make the trustee liable for which no satisfactory indemnification is provided. However, because the TIA protects the trustee with respect to any action taken in accordance with the direction of the majority, trustees have little incentive to exercise discretionary judgment and follow a remedy other than that suggested by the majority.

If the trustee does not cooperate with bondholders in imposing a certain action, the bondholders can bring their own lawsuit against the issuer, subject to the no-action clause. According to the no-action clause, holders of at least 25% of the outstanding bonds have to request the trustee to follow a chosen remedy, offer the trustee satisfactory indemnity and wait for 15 or 30 days for the trustee to start the suit before they can bring the suit themselves (Revised Model Simplified Indenture, 2000).

**Figure 29. Corporate bond default and enforcement scheme in the United States**



Under the enforcement scheme outlined in Figure 29 above, there is no apparent obstacle that prevents the trustee to actively protect and enforce bondholder rights in case of a default. In practice however, the trustee has little incentive to get actively involved in the process and use its independent judgment to enforce bondholder rights. First, the excessive indemnification of the trustee may encourage it to adopt a passive attitude. The TIA, for instance, exempts the trustee from liability only for grossly negligent actions or its own wilful misconduct. The blanket indemnity offered for majority-imposed actions further encourages the trustee to wait for majority guidance. Second, in many jurisdictions, the trustee is appointed and compensated by the issuer. In this setting, the trustee's interest in future appointments and continuing its relationship with the issuer may hamper its ability to act as an active and faithful representative of the bondholders. Third, the fixed fee structure does not provide an incentive to maximize the value of the bonds. Finally, as discussed above, as long as it is not aware of a covenant violation, the trustee has virtually no obligation towards the bondholders. However, upon becoming aware of a violation, it is expected to comply with the prudent man standard and has to carry out additional tasks. To avoid these additional responsibilities, the trustee has a disincentive to closely monitor the issuer and promptly detect a default (Amihud et al., 1999 and Kahan and Rock, 2009).

Overall, the trustees' best response to this incentive structure is often to stay put and wait for the bondholders to initiate any enforcement action. Indeed, Allen (2012) reports that a common behaviour of bondholder representatives, irrespective of jurisdiction, is to limit their activities to administrative tasks and to act on the instructions of the bondholders rather than exercising independent judgment, due to their concerns about professional liability.

Given a passive trustee, US regulation requires at least 25% of the bondholders to mobilize the trustee to enforce their rights. If the holdings of this group exceed 50%, the trustee is generally obligated to follow the group's directions. Given the large issue size of corporate bonds and the dominance of diversified portfolio strategies among bond investors, exceeding these thresholds may be a challenge. However, since corporate bonds are mainly held by institutional investors, co-operation among them may resolve this problem. For instance, in addition to industry initiatives that facilitate ongoing co-operation, there have been many examples of event-driven co-operation among equity holders with small holdings in an individual company. Similar to the equity markets, the challenge for corporate bond markets is probably not primarily to gather the necessary number of bondholders but rather their incentives to act and to act in concert.

### 5.2. Recent trends in enforcement

A recent phenomenon among some bondholders is an aggressive interpretation and enforcement of bond covenants. This approach first got attention in mid-2000s when many public companies had to delay the filing of their financial statements with the SEC because of the extensive regulatory scrutiny over the practice of options backdating. This delay in filing with the SEC led to a delay in transmitting the financial reports to the indenture trustees, which resulted in the violation of the timely reporting covenant. As a consequence, a single bondholder or a group of bondholders with holdings of more than 25% of the bonds gave a notice of default to the issuer. If the default could not be cured within the grace period, the bondholders either immediately accelerated the bonds or used the threat of acceleration to secure consent fees in exchange for waivers, to renegotiate the rate and frequency of interest payments and to strengthen bond covenants.

In the first judicial ruling between a late filer and its bondholders, the New York State Supreme Court decided in September 2006 that BearingPoint, Inc. breached the timely filing covenant of its USD 175 million of convertible notes, when it failed to report its financial

reports on time. Based on this ruling, the parties made a deal, in which BearingPoint agreed to increase the interest rate on the bonds in exchange for the waiver of financial reporting requirements until an agreed-upon date and the discontinuation of the lawsuit[22]. This bondholder action was initiated by three hedge funds, which together held a majority of the BearingPoint notes.

Kaplan and Hebbeln (2009) state that the surge in the enforcement of breaches of the timely reporting covenant has been followed by claims over other covenant violations[23]. One example is the default notice that Spectrum Brands Inc. received from three hedge funds in January 2007, claiming a breach of the covenants that limit the issuance of new senior or secured debt. The bondholders claimed that Spectrum's incurrence of indebtedness under its Revolving Credit Facility led to a default relating to the incurrence of additional debt and incurrence of liens. Within two months after the notice, 2 of the 3 hedge funds increased their holdings to reach a majority position and agreed to enter into an agreement. In exchange for the hedge funds' waiver of the default, Spectrum offered to exchange the original bonds for bonds that had significantly higher interest rates. The default claim initiative turned out to be quite profitable for the hedge funds, since the bonds' value increased from 94% of par in January to 100.25% of par when the agreement was announced (Kahan and Rock, 2009).

In the case of Spectrum, the exchange offer was made to all bondholders, so the activism of the hedge funds generated benefits for all. Some indentures require all bondholders to face equal opportunities to give consent and receive consent payments (Kahan and Rock, 2009). In other cases however, it is possible for a majority of bondholders and issuers to structure consent solicitations and exchange offers that maximize the value only for themselves, usually at the expense of minority bondholders. Consent solicitations allow the issuer to get majority bondholders' approval to make amendments to the indenture or to waive actual or possible defaults. In exchange for the consent, the issuer offers the consenting bondholders attractive fees. Another way that the issuer can amend the indenture or get waiver for defaults or potential defaults is by making an exclusive exchange offer where the majority bondholders tender their bonds for new bonds and in return give consent to the issuer for the desired changes in the bonds of which they are trading out.

According to Kaplan and Hebbeln (2009), privately negotiated exchange offers and/or consent solicitations have increasingly gained prevalence as funds have reached, either individually or jointly, a majority position in a given bond. Issuers naturally prefer to deal separately with a group of bondholders since inviting all bondholders to the table would require to pay more for concessions or exchange offers. The trustee, who is supposed to represent all bondholders, may indeed refrain from following the majority's directions by arguing that minority holders would be harmed. However, in the presence of an indemnity for all majority-imposed actions, the trustee has little incentive to go against the majority decision. In a recent lawsuit filed by the minority holders of USD 3.6 billion of bonds issued by OGX Oleo e Gas Participações, the plaintiffs alleged that the indenture trustee favoured majority bondholders when restructuring the Brazilian oil company's debt. The lawsuit stated that OGX, the trustee and majority bondholders agreed on a deal, whereby the majority

[22] See the 8-K form filed with the SEC by BearingPoint, Inc. on November 7, 2006.

[23] Other covenants that became a centre of controversy include: (i) change in control provisions which usually require the issuer to redeem bonds at a premium, (ii) covenants limiting the issuance of new senior or secured debt, (iii) covenants limiting the ability of the issuer to sell substantially all of its assets, unless the surviving company assumes the outstanding obligation and (iv) covenants limiting redemptions or requiring a premium to be paid for redeeming bonds prior to maturity (Kaplan and Hebbeln (2009)).

investors would provide the issuer with additional funding in return for the right to purchase more equity at a discount. As a result, minority bondholders were to recover 10.5% of their principal, while majority investors would recover 36% (Chan, 2014). Despite objections, the Brazilian court approved the original restructuring plan (Magalhaes, 2014).

One possible response to the recent activist behaviour of hedge funds in the enforcement of bond indentures may be a loosening of covenants. In particular, numerous bondholder actions taken on the basis of the late filing covenant have led the issuers to rephrase this provision in order to avoid such disputes in the future. In some recent indentures, a late filing of financial statements never constitutes an event of default, but may only lead to an increase in interest rates. In others, the increased interest payment is the only remedy available for a fixed initial period. If the breach is not cured or waived thereafter, the bondholders have the right to accelerate (Bennett, 2008). Given this development, the weakening of covenants documented in Part IV may partly be interpreted as a response to increased hedge fund activism.

### 5.3. Institutional investors as bondholders

Since the enforcement mechanisms and procedures discussed in Section 5.1 have remained largely intact it is not plausible to attribute changes in bondholder activism to any changes in the regulatory framework. Rather, it is closely linked to the emergence of hedge funds whose very business model is to specialize in indenture enforcement and profitable settlements.

In the period from 2004 to 2009, Kahan and Rock (2009) identify 42 companies that faced bondholder activism due to late filing of their financials. In the 6 cases where they could determine the identity of the activist bondholder, they were always hedge funds. In another study, for the period from 1994 to 2009, Gao et al. (2011) identify late filings of companies with outstanding bonds. According to Table 1, which is replicated from Gao et al. (2011), up to 2004, only two of the 844 late filings caused bondholders to present a notice of default. Assuming a grace period of 60 days as recommended in Revised Model Simplified Indenture (2000), 69 of these late filings could have led to an event of default if bondholders had taken action. In contrast, of the 1004 late filings that took place from 2004 to 2007, 302 led to a delay of more than 60 days and 78 triggered a notice of default, pointing to a clear rise in bondholder enforcement "activism"[24]. The trend in Table 1 largely coincides with the trend in the overall level of hedge fund activity in capital markets.

Before hedge funds entered the scene, "*there used to be a kind of brotherhood of bond investors, where you didn't want to be the guy who turned the kid in to the teacher because he wasn't wearing a shirt with a collar"*, as Kirk Davenport, a partner at a New York law firm puts it (Lattman and Richardson, 2006). This accommodating behaviour of traditional bond investors, such as insurance companies, mutual funds and pension funds, is not because they cannot overcome the barriers to enforcement. If hedge funds, with much smaller assets under management, can overcome those barriers, traditional institutional investors can certainly do so as well. Nor is their passive attitude explained by a "cosy" relationship with the issuers. Again, their attitude and approach is mainly an outcome of their business model. These institutions are not organised to detect technical defaults and to opportunistically take short term advantage of them.

[24] After 2007, activism based on delay in financial reporting fell out of favor because the courts always ruled in favor of the issuers after the Federal District Court for the Southern District of Texas ruled on June 13, 2007 in favor of the issuer in *Cyberonics, Inc. v. Wells Fargo Bank N.A.* case (Gao et al., 2011).

**Table 1. Trend in late filings and issues of default notice**

| Year | Number of Late Filings with Bonds Outstanding | Number of Late Filings with Bonds Outstanding with Delay > 60 days | Number of Late Filings Triggering Default Notice | Percentage of Late Filings Triggering Default Notice |
|---|---|---|---|---|
| 1994 | 22 | 0 | 0 | 0 |
| 1995 | 24 | 0 | 0 | 0 |
| 1996 | 39 | 1 | 0 | 0 |
| 1997 | 61 | 3 | 0 | 0 |
| 1998 | 77 | 4 | 0 | 0 |
| 1999 | 108 | 7 | 0 | 0 |
| 2000 | 103 | 12 | 0 | 0 |
| 2001 | 119 | 12 | 1 | 8 |
| 2002 | 135 | 7 | 0 | 0 |
| 2003 | 156 | 23 | 1 | 4 |
| 2004 | 164 | 42 | 5 | 12 |
| 2005 | 312 | 79 | 20 | 25 |
| 2006 | 309 | 116 | 41 | 35 |
| 2007 | 219 | 65 | 12 | 18 |
| 2008 | 156 | 21 | 1 | 5 |
| 2009 | 116 | 12 | 0 | 0 |

Source: Gao et al. (2011), Table 1.

Instead, the primary investment objective of insurance companies is to fulfil future claims of their policyholders. Hence, their investment strategy is designed to match assets and liabilities with respect to their relative duration and liquidity structure. According to NAIC data presented in Table 2, the portfolio composition of the US insurance industry is heavily tilted towards bonds, which constitute almost 70% of their portfolio. Around half of the bond portfolio consists of corporate bonds and approximately 95% of the portfolio is investment grade. NAIC (2011) argues that corporate bonds represent an attractive instrument for insurance companies with respect to matching assets to liabilities, appetite for volatility and liquidity risk.

Note that the portfolio composition of insurance companies has stayed remarkably constant over the years, despite changes in economic conditions. Table 2 also shows that even the industry breakdown of corporate bond investments has remained almost intact over the last three years. This is consistent with an asset-class approach to portfolio management, whereby the insurance company asset managers try to track certain pre-defined ratios assigned to each asset class. Besides, given the nature of insurance companies' liability structure, they tend to rely on a buy-and-hold strategy. With such a business model, insurance company asset managers are not incentivized to identify and enforce a covenant breach in order to make a windfall profit. They are more likely to have a portfolio management approach that accommodates the fact that a certain portion of their bond portfolio will default each year.

Mutual funds, which are the other dominant institutional investors in the bond market, offer their investors a relatively liquid investment vehicle and the ability to reach high diversification even with a small individual investment. The mutual fund's asset composition and the fund's investment strategy are declared in the fund prospectus, which binds the fund

managers in their investment decisions. The directors of a mutual fund are expected to ensure that the fund is managed in the best interest of its investors.

Since a passive index investment strategy typically outperforms active investment strategies, mainly because of low transaction costs and broader diversification, mutual funds may credibly argue that the pursuit of a passive strategy leads to the best results for their investors. As a result, the business model of a typical mutual fund, which includes a liquid liability structure, a highly diversified portfolio, a flat fee structure and a passive investment strategy, rationally leads to a low engagement by institutional investors as argued by Çelik and Isaksson (2013). As a consequence, mutual funds are unlikely agents for enforcing bondholder rights. While active engagement is rare among traditional institutional investors, Kahan and Rock (2009) argue that the instances when they actually do engage primarily relate to recovering losses from significant decreases in bond value.

In contrast, the hedge funds' reason for existence is often to be active. The business model of such specialised hedge funds is not to reduce losses but to generate substantial short term gains. Consistent with this notion, Gao et al. (2011) document a significant increase in the trading frequency of corporate bonds before their issuers receive a default notice for late filing, hinting that hedge funds acquire most of their holdings just prior to their engagement. In pursuit of their strategy, hedge funds hire specialists who can identify actual and potential defaults by deeply analysing the bond indentures, who can estimate the chances of winning a certain claim and who are given the monetary incentives to adequately carry out these tasks (Kahan and Rock, 2009). Given this business model, hedge funds manage to overcome the enforcement barriers discussed in Section 5.1.2, which presumably led to an improvement over the under-enforcement problem of the past. However, their enforcement decision tree is not free from problems as will be discussed in the next section.

Given the concerns about the role of bondholders in enforcement, whether it be because of the collective action problem, the barriers to enforcement or the incentive problems discussed above, some have argued for a more powerful trustee. For instance, Amihud et al. (2009) suggest the appointment of a "supertrustee", with the duty and power to actively monitor, renegotiate and enforce bond covenants, with access to confidential company information and an incentive-based compensation. On the other hand, the procedural rights of bondholders are proposed to be weakened by giving the supertrustee the exclusive authority to renegotiate and enforce covenants and by precluding bondholders from directing the supertrustee to take a certain enforcement action. Although the idea of a powerful trustee may seem appealing, introducing one more layer between the ultimate bondholder and the issuer may create its own set of agency conflicts and so may not necessarily improve the current state of affairs.

**Table 2. Insurance industry investment portfolio composition in the United States**

| | 2005 | 2008 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|
| **Total Assets (USD mil)** | 4,328,289 | 4,624,049 | 5,022,781 | 5,228,561 | 5,350,753 | 5,539,891 |
| ***Asset composition*** | | | | | | |
| Bonds | 71% | 68% | 70% | 69% | 68% | 68% |
| Preferred Stocks | 1% | 2% | 1% | 0% | 0% | 0% |
| Common Stocks | 10% | 9% | 10% | 11% | 11% | 12% |
| Mortgages | 7% | 7% | 6% | 6% | 7% | 7% |
| Real Estate | 1% | 1% | 1% | 1% | 1% | 1% |
| Cash & Short-term Investments | 4% | 6% | 4% | 4% | 4% | 4% |
| Other | 6% | 7% | 8% | 9% | 9% | 9% |
| ***Bond Type Distribution*** | | | | | | |
| Corporate Bonds | 44% | 43% | 49% | 50% | 52% | 53% |
| Other Bonds | 56% | 57% | 51% | 50% | 48% | 47% |
| ***Bond Rating Distribution*** | | | | | | |
| Investment Grade | - | - | - | 94% | 94% | 95% |
| Non-Investment Grade | - | - | - | 6% | 6% | 5% |
| ***Industry Breakdown of Corporate Bonds*** | | | | | | |
| Financials | - | - | - | 25% | 24% | 23% |
| Utilities | - | - | - | 14% | 14% | 14% |
| Energy | - | - | - | 11% | 12% | 12% |
| Industrials | - | - | - | 9% | 9% | 10% |
| Consumer Staples | - | - | - | 9% | 9% | 9% |
| Communications | - | - | - | 8% | 8% | 8% |
| Health Care | - | - | - | 6% | 7% | 7% |
| Materials | - | - | - | 7% | 7% | 7% |
| Consumer Discretionary | - | - | - | 6% | 6% | 7% |
| Technology | - | - | - | 3% | 3% | 3% |
| Other | - | - | - | 1% | 1% | 1% |

*Source*: NAIC, Capital Markets Weekly Special Reports related to insurance industry investment portfolio asset mixes for the years 2010-2014.

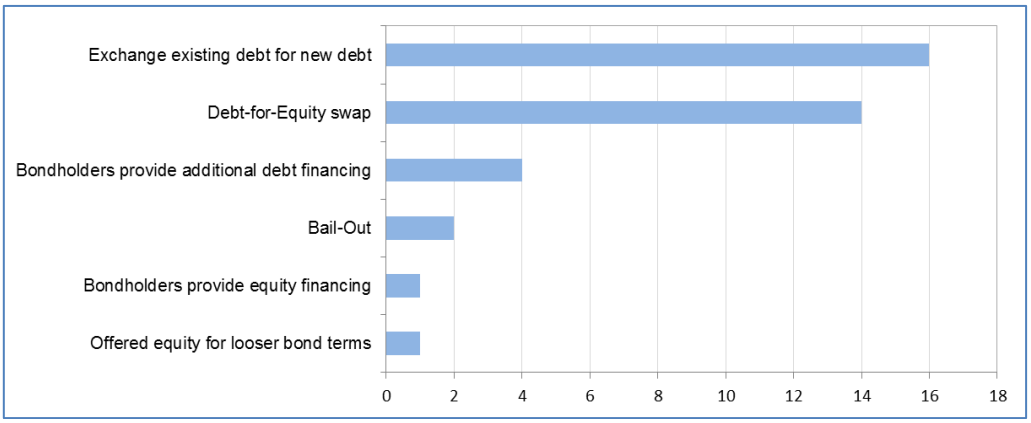
### 5.4. Engagement through restructurings

The discussion up to now suggests that the indenture trustee has little incentive to detect a default and is inclined to wait for guidance from majority bondholders. At the same time, the bondholders' willingness to enforce their rights depends primarily on their business model, which leads to under enforcement by traditional institutional investors and aggressive enforcement by hedge funds. However, an instance when all categories of bond investors and the indenture trustee are all expected and typically motivated to be active is during restructuring negotiations.

Since the restructuring process may have a significant impact on the amount and terms of bondholders' claims (e.g. through partial write-off of debts, a debt-for-equity swap or an exchange of existing bonds with new bonds), bondholders have strong incentives to be actively involved in the negotiations. Their involvement is also encouraged by law, since the approval of the restructuring plan is subject to the support of a minimum percentage of bondholders.

With an intention to provide a general understanding of restructuring events, we have identified 26 cases that occurred during the first 10 months of 2014.[25]. In 11 of these cases the restructuring talks were triggered as a result of an actual payment default and in the remaining cases they were initiated to avoid a potential failure to meet required payments or a covenant breach. Although a payment default normally gives the bondholders the right to immediately accelerate the payment of the outstanding, bondholders in our sample did not exercise this right. The explanation is that immediate acceleration may neither be financially optimal, nor feasible if the issuer files for creditor protection or bankruptcy. 19 issuers in the dataset filed for bankruptcy when restructuring was underway.

**Figure 30. Outcomes of restructuring negotiations**




*Source*: Manually extracted data from ProQuest newspapers and newswires databases. The dataset covers the restructuring negotiations which were completed in the first 10 months of 2014. A given restructuring event may belong to more than one categories.

Figure 30 presents the final outcome of the renegotiation process from the perspective of bondholders. In 23 cases, existing bonds were exchanged for other securities. In 14 cases the technique was a debt-for-equity swap; in 16 cases it was an exchange of bonds for new debt; and in 4 cases, the bondholders injected additional funding in the form of debt or equity. One restructuring case involved payment deferrals in exchange for a share in the company. Finally, 2 cases involved a government bailout of bondholders.

An important observation from Figure 30 is that the restructuring process does not put an end to the bondholder – issuer relationship. Rather, it marks a new start. After the restructuring, the bondholders typically have a greater say in the governance of the firm either through their shareholdings[26] or through the stricter terms they require on new bonds

[25] We have conducted keyword searches in the ProQuest newspapers and newswires databases over the first 10 months of 2014. The search revealed that a total of 26 corporate bond issuers have reached an agreement with their bondholders in the period considered. The resulting dataset includes restructurings of 12 companies from the United States, 2 from China, 2 from Germany and one each from 10 different countries. The inclusion of a restructuring event in the dataset is conditional on it being covered by the media. This requirement may create a bias towards companies with a larger size and those operating in developed countries. However, the wide coverage of the ProQuest database with 1456 newspapers and 242 wire feeds from all over the world, may ameliorate this problem. On the other hand, the dataset may not represent the whole population since its comprehensiveness depends on the use of proper keywords.

[26] In our sample, bondholders often reach majority shareholdings as a result of a debt-for-equity swap.

or loans. Sachs (2012) argues, with reference to anecdotal evidence from two European companies, that it is with this mechanism that constructive bondholders through informed engagement can create value for financially distressed companies and put them on the right track.

There is evidence from recent negotiations between bondholders and issuers that bondholders tend to tighten their grip on issuers in times of financial distress. The bondholders of Plaza Centers N.V., a developer of shopping and entertainment centres, agreed on a restructuring plan, which required a deferral of all principal payments by a period of 1 to 4.5 years. In return, the bondholders would receive 13% of the company's shares and the interest rate on the bonds would be increased by 1.5 percentage points. Furthermore, the bond indenture would include more stringent covenants, involving restrictions on investments, payouts and financing as well as on the use of sale and financing proceeds. In addition, quarterly financial statements were to be published as long as the bonds were outstanding. With the plan, bondholders' influence over the company strengthened both through the new equity stake and the tightening of covenants[27].

The anticipation of a restructuring may encourage bondholders to sell their bonds to investors who specialise in distressed-debt, mainly private equity firms and hedge funds. Some institutions specialised in distressed-debt investment aim to accumulate troubled assets and then to negotiate a restructuring plan that will pay off the investment. Other distressed-debt investors follow a strategy known as "loan to own", in which they buy the debt with an intention to take control of the troubled company through a debt-for-equity swap (Glazer, 2014).

[27] See the Restructuring Plan published by Plaza Centers N.V. on its website at the address http://www.plazacenters.com/downloads/debt_restructuring/2014_05_27_Amended_Restructuring_Plan_including_annexes.pdf.

# ANNEX 1

## Table A.1. Frequency of different types of covenants

| | | | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of Observations | All | 946 | 1041 | 851 | 986 | 915 | 864 | 803 | 951 | 694 | 936 | 1047 | 1176 | 1305 | 556 |
| | | Non-Inv. Grade | 282 | 287 | 254 | 348 | 459 | 385 | 312 | 345 | 164 | 250 | 467 | 466 | 485 | 175 |
| | | Investment Grade | 664 | 754 | 597 | 638 | 456 | 479 | 491 | 606 | 530 | 686 | 580 | 710 | 820 | 381 |
| Restrictions on Payouts | Dividend Payment Restrictions | All | 24.0% | 24.4% | 26.7% | 29.9% | 44.3% | 40.7% | 26.0% | 22.6% | 14.8% | 13.2% | 23.7% | 21.8% | 13.2% | 9.5% |
| | | Non-Inv. Grade | 75.5% | 81.5% | 86.2% | 78.4% | 81.9% | 83.9% | 65.1% | 58.3% | 59.1% | 44.8% | 50.5% | 53.9% | 33.4% | 28.6% |
| | | Investment Grade | 2.1% | 2.7% | 1.3% | 3.4% | 6.4% | 6.1% | 1.2% | 2.3% | 1.1% | 1.7% | 2.1% | 0.7% | 1.2% | 0.8% |
| | Share Repurchase Restrictions | All | 30.4% | 27.4% | 30.2% | 32.0% | 43.6% | 39.1% | 26.4% | 22.6% | 14.0% | 13.9% | 24.9% | 25.4% | 16.2% | 13.5% |
| | | Non-Inv. Grade | 87.6% | 87.8% | 90.9% | 86.2% | 84.5% | 86.2% | 67.3% | 60.9% | 57.3% | 48.8% | 53.5% | 63.3% | 43.3% | 42.9% |
| | | Investment Grade | 6.2% | 4.4% | 4.4% | 2.5% | 2.4% | 1.3% | 0.4% | 0.8% | 0.6% | 1.2% | 1.9% | 0.6% | 0.2% | 0.0% |
| Restrictions on Financing Activities | Funded Debt Restrictions | All | 1.2% | 1.1% | 0.6% | 0.8% | 0.4% | 0.3% | 0.2% | 1.6% | 0.6% | 0.4% | 0.0% | 0.3% | 0.5% | 0.2% |
| | | Non-Inv. Grade | 0.0% | 0.3% | 0.0% | 0.3% | 0.2% | 0.0% | 0.3% | 1.4% | 0.6% | 0.4% | 0.0% | 0.0% | 0.2% | 0.6% |
| | | Investment Grade | 1.7% | 1.3% | 0.8% | 1.1% | 0.7% | 0.6% | 0.2% | 1.7% | 0.6% | 0.4% | 0.0% | 0.6% | 0.7% | 0.0% |
| | Subordinated Debt Restrictions | All | 3.3% | 7.9% | 10.7% | 2.9% | 0.1% | 0.7% | 1.0% | 0.8% | 1.0% | 0.6% | 0.0% | 0.6% | 1.0% | 0.2% |
| | | Non-Inv. Grade | 11.0% | 27.5% | 35.8% | 7.5% | 0.0% | 0.8% | 1.6% | 1.7% | 1.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | | Investment Grade | 0.0% | 0.4% | 0.0% | 0.5% | 0.2% | 0.6% | 0.6% | 0.3% | 0.9% | 0.9% | 0.0% | 1.0% | 1.6% | 0.3% |
| | Senior Debt Restrictions | All | 0.5% | 0.4% | 0.1% | 0.7% | 0.0% | 0.1% | 0.0% | 0.4% | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% |
| | | Non-Inv. Grade | 1.8% | 1.0% | 0.0% | 1.7% | 0.0% | 0.0% | 0.0% | 1.2% | 0.0% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% |
| | | Investment Grade | 0.0% | 0.1% | 0.2% | 0.2% | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| | Secured Debt Restrictions | All | 65.5% | 73.1% | 69.1% | 69.9% | 63.5% | 72.9% | 66.9% | 62.7% | 68.7% | 56.0% | 51.5% | 53.1% | 50.2% | 52.3% |
| | | Non-Inv. Grade | 77.7% | 71.1% | 73.6% | 76.1% | 71.7% | 87.5% | 78.5% | 66.4% | 67.7% | 53.6% | 52.9% | 56.9% | 44.9% | 52.0% |
| | | Investment Grade | 60.4% | 73.9% | 67.2% | 66.5% | 55.3% | 61.2% | 59.5% | 60.6% | 69.1% | 56.9% | 50.3% | 50.7% | 53.3% | 52.5% |
| | Leverage Restrictions | All | 37.2% | 34.7% | 36.2% | 38.9% | 52.2% | 49.0% | 37.2% | 30.9% | 20.5% | 19.0% | 30.8% | 32.5% | 24.8% | 21.6% |
| | | Non-Inv. Grade | 90.8% | 91.3% | 92.9% | 89.1% | 88.9% | 88.3% | 72.4% | 64.3% | 61.0% | 53.6% | 56.1% | 64.6% | 48.2% | 48.0% |
| | | Investment Grade | 14.5% | 13.1% | 12.1% | 11.6% | 15.4% | 17.3% | 14.9% | 11.9% | 7.9% | 6.4% | 10.3% | 11.4% | 10.9% | 9.4% |
| | Sale & Lease Back | All | 35.4% | 37.5% | 38.2% | 41.1% | 35.4% | 36.8% | 39.6% | 36.0% | 40.8% | 40.4% | 35.7% | 35.0% | 37.0% | 39.4% |
| | | Non-Inv. Grade | 48.9% | 40.8% | 45.3% | 49.4% | 42.7% | 44.4% | 47.1% | 27.2% | 17.7% | 29.2% | 28.9% | 23.0% | 21.9% | 26.3% |
| | | Investment Grade | 29.7% | 36.2% | 35.2% | 36.5% | 28.1% | 30.7% | 34.8% | 40.9% | 47.9% | 44.5% | 41.2% | 43.0% | 46.0% | 45.4% |
| | Stock Issue Restrictions | All | 21.5% | 21.4% | 23.9% | 27.1% | 41.0% | 36.8% | 24.8% | 21.1% | 13.4% | 9.3% | 15.3% | 15.9% | 8.8% | 5.2% |
| | | Non-Inv. Grade | 62.1% | 66.6% | 66.1% | 62.9% | 69.9% | 70.1% | 52.6% | 49.3% | 47.6% | 30.8% | 31.3% | 39.7% | 23.3% | 16.6% |
| | | Investment Grade | 4.2% | 4.2% | 5.9% | 7.5% | 11.8% | 10.0% | 7.1% | 5.1% | 2.8% | 1.5% | 2.4% | 0.3% | 0.2% | 0.0% |
| Event-driven Covenants | Rating & NW Triggers | All | 0.8% | 3.0% | 2.0% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% |
| | | Non-Inv. Grade | 1.4% | 5.2% | 4.7% | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | | Investment Grade | 0.6% | 2.1% | 0.8% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.3% | 0.0% | 0.0% |
| | Cross Default Provisions | All | 62.8% | 60.8% | 56.1% | 51.2% | 72.0% | 75.3% | 64.5% | 63.0% | 61.5% | 53.4% | 71.2% | 82.5% | 79.2% | 85.8% |
| | | Non-Inv. Grade | 94.3% | 95.8% | 94.9% | 75.3% | 91.9% | 89.9% | 73.1% | 70.4% | 74.4% | 64.0% | 67.9% | 72.7% | 62.7% | 65.1% |
| | | Investment Grade | 49.4% | 47.5% | 39.5% | 38.1% | 52.0% | 63.7% | 59.1% | 58.7% | 57.5% | 49.6% | 73.8% | 88.9% | 88.9% | 95.3% |
| | Poison Put | All | 30.9% | 27.8% | 29.4% | 31.7% | 45.2% | 40.7% | 36.6% | 58.5% | 49.1% | 54.6% | 65.1% | 59.4% | 60.3% | 51.8% |
| | | Non-Inv. Grade | 91.8% | 88.5% | 92.9% | 85.6% | 88.2% | 87.8% | 81.4% | 92.2% | 82.3% | 88.8% | 90.8% | 91.4% | 91.1% | 89.1% |
| | | Investment Grade | 5.0% | 4.6% | 2.3% | 2.4% | 2.0% | 2.9% | 8.1% | 39.3% | 38.9% | 42.1% | 44.5% | 38.5% | 42.1% | 34.6% |
| Restrictions on Investment Activities and Asset Sales | Asset Sale Restrictions | All | 89.5% | 93.6% | 96.7% | 95.2% | 93.1% | 93.5% | 88.8% | 81.3% | 81.7% | 61.0% | 67.5% | 79.6% | 78.7% | 80.9% |
| | | Non-Inv. Grade | 95.4% | 99.0% | 98.4% | 98.9% | 98.5% | 98.4% | 91.7% | 78.3% | 75.0% | 66.8% | 67.7% | 76.8% | 64.5% | 64.0% |
| | | Investment Grade | 87.0% | 91.5% | 96.0% | 93.3% | 87.7% | 89.6% | 87.0% | 83.0% | 83.8% | 58.9% | 67.4% | 81.4% | 87.1% | 88.7% |
| | Investment Policy Restrictions | All | 4.1% | 3.6% | 1.9% | 1.4% | 0.8% | 1.6% | 2.0% | 0.3% | 1.0% | 5.6% | 4.4% | 0.0% | 0.6% | 0.2% |
| | | Non-Inv. Grade | 8.5% | 7.3% | 3.9% | 1.7% | 1.5% | 2.1% | 5.1% | 0.9% | 4.3% | 20.8% | 9.6% | 0.0% | 1.4% | 0.6% |
| | | Investment Grade | 2.3% | 2.1% | 1.0% | 1.3% | 0.0% | 1.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% | 0.0% | 0.1% | 0.0% |
| | Merger Restrictions | All | 87.7% | 92.7% | 95.4% | 94.6% | 92.5% | 92.8% | 89.7% | 81.5% | 81.7% | 60.7% | 66.5% | 78.9% | 78.3% | 81.1% |
| | | Non-Inv. Grade | 91.8% | 97.6% | 96.9% | 97.4% | 96.7% | 97.4% | 92.3% | 78.3% | 75.0% | 65.6% | 67.2% | 75.1% | 63.3% | 64.6% |
| | | Investment Grade | 86.0% | 90.8% | 94.8% | 93.1% | 88.2% | 89.1% | 88.0% | 83.3% | 83.8% | 58.9% | 65.9% | 81.4% | 87.2% | 88.7% |

## REFERENCES


Adrian, T. and M. Fleming (2013), "The Recent Bond Market Selloff in Historical Perspective", 5 August, *http://libertystreeteconomics.newyorkfed.org/2013/08/the-recent-bond-market-selloff-in-historical-perspective.html.*

Adrian, T., M. Fleming, J. Goldberg, M. Lewis, F. Natalucci and J. Wu (2013), "Dealer Balance Sheet Capacity and Market Liquidity during the 2013 Selloff in Fixed-Income Markets", 16 October, *http://libertystreeteconomics.newyorkfed.org/2013/10/dealer-balance-sheet-capacity-and-market-liquidity-during-the-2013-selloff-in-fixed-income-markets.html.*

Allen, J.G. (2012), "More than a Matter of Trust: The German Debt Securities Act 2009 in International Perspective", *Capital Markets Law Journal*, Vol. 7, No. 1, pp. 55-85.

Alloway, T. (2012), "Banks Tout Idea of Sharing Bond Data", *Financial Times*, 22 November.

Alloway, T. (2013), "Digging into Dealer Inventories", *Financial Times*, 11 September.

Alloway, T. (2014), "Fears Grow over Steep Decline in Bond Market Liquidity", *Financial Times,* 24 July.

Alloway, T. and A. Massoudi (2013), "ETFs Under Scrutiny in Market Turbulence", *Financial Times,* 27 June.

Alloway, T. and V. Rodrigues (2014), "Strong Demand for 'Junk' Bonds Erodes Investor Protection", *Financial Times,* 12 March.

Amihud, Y., K. Garbade, and M. Kahan (1999), "A New Governance Structure for Corporate Bonds", *Stanford Law Review,* Vol. 51, No. 3, pp. 447-492.

ASIC (2007), "Debentures – Improving Disclosure for Retail Investors".

Asquith, P. and T.A. Wizman (1990), "Event Risk, Covenants, and Bondholder Returns in Leveraged Buyouts", *Journal of Financial Economics,* Vol. 27, No. 1, pp. 195-213.

Asquith, P., T. Covert and P. Pathak (2013), "The Effects of Mandatory Transparency in Financial Market Design: Evidence from the Corporate Bond Market", National Bureau of Economic Research Working Paper, No. 19417.

Banerjee, S., V. A. Gatches and P. A. Spindt (2007), "Stock Market Liquidity and Firm Dividend Policy", *Journal of Financial and Quantitative Analysis*, Vol. 42, No. 2, June 2007, pp. 369–398

Bennett, B.C. (2008), "Reflections on Indenture Remedies and Investor Protection", *Insights: The Corporate & Securities Law Advisor,* Vol. 22, No. 2, Feb. 2008, pp. 1-13.

Barley, R. (2014), "Senior Bondholders Keep Dodging Bullets", *The Wall Street Journal,* 4 August.

Bessembinder, H., W. Maxwell and K. Venkataraman (2006), "Market Transparency, Liquidity Externalities, and Institutional Trading Costs in Corporate Bonds", *Journal of Financial Economics*, Vol. *82,* No. 2, pp. 251-288.

Billett, M.T., T.D. King and D.C. Mauer (2007), "Growth Opportunities and the Choice of Leverage, Debt Maturity, and Covenants", *The Journal of Finance*, Vol. 62, No. 2, pp. 697-730.

Blundell-Wignall, A. and C. Roulet (2013), "Long-term investment, the cost of capital and the dividend and buyback puzzle", *OECD Journal: Financial Market Trends*, Volume 2013 – Issue 1

Braithwaite, T., A. Tracey, and M. Mackenzie (2014), "Fed Looks at Exit Fees on Bond Funds", *Financial Times,* 16 June.

Burne, K. (2013), "Electronic Bond Trading Steps to Fore", *The Wall Street Journal*, 15 April.

Çelik, S. and M. Isaksson (2013), "Institutional Investors as Owners: Who Are They and What Do They Do?", *OECD Corporate Governance Working Papers*, No. 11, OECD Publishing. http://dx.doi.org/10.1787/5k3v1dvmfk42-en

CESR (2008), "Transparency of Corporate Bond, Structured Finance Product and Credit Derivatives Markets: Consultation Paper", Ref: CESR/08-1014, Paris.

CESR (2010), “CESR Technical Advice to the European Commission in the Context of the MiFID Review: Non-equity Markets Transparency”, Ref: CESR/10-799, Paris.

Chan (2014), Deutsche Bank Sued over Óleo e Gás Funding Deal”, *The Telegraph,* 31 May.

Chen, L., D.A. Lesmond and J. Wei (2007) “Corporate Yield Spreads and Bond Liquidity”, *The Journal of Finance*, Vol. 62, No. 1, pp. 119-149.

Cici, G., S. Gibson and J.J. Merrick Jr. (2011), “Missing the Marks? Dispersion in Corporate Bond Valuations across Mutual Funds”, *Journal of Financial Economics*, Vol. 101, No. 1, pp. 206-226.

Dunkley, E. (2014), “Watchdog Sounds Alarm over Corporate Bond Funds”, *Financial Times,* 29 July.

Edwards, A. K., L.E. Harris, and M.S. Piwowar, (2007), "Corporate Bond Market Transaction Costs and Transparency", *The Journal of Finance,* Vol. 62, No.3, pp. 1421-1451.

ESMA (2012), “Actual Use of Sanctioning Powers under MAD”, *http://www.esma.europa.eu/content/Actual-use-sanctioning-powers-under-MAD*.

European Commission (2014), “Structural Reform of the EU Banking Sector”, press release, 29 January, *http://europa.eu/rapid/press-release_IP-14-85_en.htm.*

Gao, Y., Y. Gao, and A. Smith (2011), “Enforcement of Bondholders’ Rights and Delay in Financial Reporting”, Unpublished Working Paper.

Glazer, E. (2014), “Investors Breathe Life into European Banks' Bad Loans”, *Wall Street Journal,* 30 March.

Goldstein, M.A., E.S. Hotchkiss, and E.R. Sirri (2007). “Transparency and Liquidity: A Controlled Experiment on Corporate Bonds”, *Review of Financial Studies*, Vol. 20, No. 2, pp. 235-273.

Group of Thirty (2013), *Long-term Finance and Economic Growth, http://www.group30.org/images/PDF/Long-term_Finance_hi-res.pdf*

Hong, C. (2013), “China Suspends Bond Trading for Class C Investors – Notice”, *Reuters,* 8 May.

ICMA (2005), “ICMA / ISDA / SIFMA / LIBA / EHYA / ESF / BBA Joint Response to CESR Consultation Paper CESR/08-1014”, *http://www.icmagroup.org/assets/documents/Regulatory/BMT/Final%20response%20to%20CESR’s_19Dec2008.pdf.*

IOSCO (2005), “Strengthening Capital Markets against Financial Fraud”, Technical Committee of the International Organization of Securities Commission, IOSCO, Madrid.

IOSCO (2011), “Development of Corporate Bond Markets in the Emerging Markets”, Emerging Markets Committee of the International Organization of Securities Commission in colloboration with the World Bank Group, IOSCO, Madrid.

Isaksson, M. ve S. Çelik (2013), “Who Cares? Corporate Governance in Today's Equity Markets”, *OECD Corporate Governance Working Papers*, No. 8, OECD Publishing.

Jopson,B. (2005), “Regulators Call For Transparency in Bond Trading”, *Financial Times,* 28 February.

Kahan, M., and E. Rock (2009), “Hedge Fund Activism in the Enforcement of Bondholder Rights”, *Northwestern University Law Review,* Vol. 103, No. 1, pp. 281-322.

Kaplan, H.L., and M.F. Hebbeln (2009), “The Anglo-American Indenture - Covenant Enforcement and Bond Defaults - U.S. Experience and Lessons from Canada and The U.K.”, *http://apps.americanbar.org/buslaw/newsletter/0081/materials/pp1.pdf.*

Lattman, P., and K. Richardson, (2006), “Hedge Funds Play Hardball with Firms Filing Late Financials”, *The Wall Street Journal,* 29 August.

Lev, E. (1999), “The Indenture Trustee: Does It Really Protect Bondholders?”, *University of Miami Business Law Review*, Vol. 8.

Lewis, S. (2014), "Banking Structural Reform: A Step too Far", *http://www.afme.eu/uploadedFiles/Content/About/AFME_Blog/View%20from%20AFME_Feb%202014(2).pdf.*

Liu, B. (2014), "China Onshore Bond Compendium", Standard Chartered Bank (HK) Limited, *https://research.standardchartered.com/configuration/ROW%20Documents/China_onshore_bond_compendium_2014_29_04_14_07_34.pdf.*

Magalhaes, L. (2014), "Court Clears OGX Restructuring Plan", *Wall Street Journal,* 13 June.

Masters, B. and C. Binham (2012), "US Better Placed to Crack Down on Libor", *Financial Times,* 28 June.

McKinsey & Company and Greenwich Associates (2013), "Corporate Bond E-Trading: Same Game, New Playing Field".

Ming, W. (2011), "China Allows Firms to Sell Bonds via Private Placement", *The Wall Street Journal,* May 3.

Moody's (2006), "Request for Comment on Moody's Indenture Covenant Research & Assessment Framework", Moody's Investors Service.

Moody's (2013), "Signs of a 'Covenant Bubble' Suggest Future Risks for Investors", Moody's Investors Service, *http://online.wsj.com/public/resources/documents/CovenantQualityMay2013.pdf.*

Murfin, J. (2012), "The Supply-Side Determinants of Loan Contract Strictness", The Journal of Finance, Vol. 67, No. 5, pp. 1565-1601.

NAIC (2011), "Analysis of Insurance Industry Investment Portfolio Mixes", *http://www.naic.org/capital_markets_archive/110819.htm.*

Newkirk, T.C. and M.A. Robertson (1998), "Insider Trading – A U.S. Perspective", *16th International Symposium on Economic Crime Jesus College*, Cambridge, England.

Novick, B., R. Prager, S. VedBrat, K. Riaz, J. Medero, A. Rosenblum (2014), "Corporate Bond Market Structure: The Time for Reform is Now", BlackRock Investment Institute, *http://www.blackrock.com/corporate/en-us/literature/whitepaper/viewpoint-corporate-bond-market-structure-september-2014.pdf.*

Pagano, M., and A. Röell (1996), "Transparency and Liquidity: A Comparison of Auction and Dealer Markets with Informed Trading", *The Journal of Finance*, Vol. 51 No. 2, pp. 579-611.

Perrotta, A.J. (2014), "Bond Liquidity Crisis Lurks as the Market Is Lulled", *Tabb Forum,* October 7, *http://tabbforum.com/opinions/bond-liquidity-crisis-lurks-as-the-market-is-lulled.*

Prager, R., K. Riaz, S. Vedbrat, E.C. Watt (2013), "Setting New Standards: The Liquidity Challenge II", BlackRock Investment Institute, *http://www.blackrock.com/investing/literature/whitepaper/setting-new-standards-us-version.pdf.*

Revised Model Simplified Indenture, (2000), *The Business Lawyer*, Vol. 55, No.3, pp. 1115-1226.

Riaz, K., R. Prager, R. Kahn, S. Vedbrat, E. Fishwick and E.C. Watt (2014), "The Liquidity Challenge: Exploring and Exploiting (Il)liquidity", BlackRock Investment Institute, https://www.blackrock.com/corporate/en-ch/literature/whitepaper/bii-the-liquidity-challenge-international-version.pdf.

Rodrigues, V. (2014), "Junk Stabilises after recent sell-off", *Financial Times,* 14 August.

Rodrigues, V. and A. Bolger (2014), "Junk Bond Fever Hits New High with Jumbo Numericable Deal", *Financial Times,* 25 April.

Sachs, Daniel (2012), "The Impact of an Emerging European Corporate Bond Market on Corporate Governance", in OECD, *Corporate Governance, Value Creation and Growth: The Bridge between Finance and Enterprise*, OECD Publishing.

Santibanez, M. (2014), "High-yield Lite Fuels Fears", *Reuters,* 30 May.

Schmerken, I. (2013), “The Big Shift: Overhauling Corporate Bond Trading”, 6 May, *http://www.wallstreetandtech.com/trading-technology/the-big-shift-overhauling-corporate-bond-trading/d/d-id/1268180.*

Scott-Quinn, B. and D. Cano (2013), “Role of the Buy-side in Pricing and Liquidity Provision in European Corporate Bond Trading”, ICMA Centre.

Sedgwick, A. (2013), “How (in)frequently do bonds trade?”, 26 June, *http://www.marketaxess.com/research/blog/single.php?permalink=How-(in)frequently-do-bonds-trade-2013-06-26*.

Standard and Poor’s (2012), *2011 Annual Global Corporate Default Study And Rating Transitions* http://www.standardandpoors.com/ratings/articles/en/us/?articleType=HTML&assetID=1245330814766

Thomases, J. (2013), “The Lost Generation of Corporate Bond Platforms”, 31 May, *http://www.waterstechnology.com/waters/feature/2271755/corporate-bonds-the-lost-generation.*

Weild, D., E. Kim and L. Newport (2013), “Making Stock Markets Work to Support Economic Growth: Implications for Governments, Regulators, Stock Exchanges, Corporate Issuers and their Investors”, *OECD Corporate Governance Working Papers*, No. 10, OECD Publishing.

Yellen, J. L., (2014), *Semiannual Monetary Policy Report to the Congress*, 15 July, http://federalreserve.gov/newsevents/testimony/yellen20140715a.htm

Yuzhe, Z., L. Huawei, Z. Fei, W. Shenlu and Z. Bing (2013), “Cracking Down on Bond Market’s Knotty Traders”, 24 April, *http://english.caixin.com/2013-04-24/100519286.html.*

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