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Does the Type of Debt Matter? Stock Market Perception in Europe



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Does the Type of Debt Matter? Stock Market Perception in Europe

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Abstract

We study the effect of bank loan and bond announcements on borrower's stock price. We apply an event study methodology on a sample of companies from 17 European countries and find that debt announcement generates a positive stock market reaction. However, our main conclusion is that the issuance of a loan exerts a significantly stronger reaction than does the issuance of a bond. This finding supports the hypothesis that loan issuance has a positive certification effect. The analysis of determinants of abnormal returns following debt announcements shows a positive impact of financial development and a negative effect of the Eurozone crisis.

JEL Codes: G14, G20.

Keywords: corporate bonds, syndicated loans, event study, stock returns, Europe.

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I. Introduction

In Europe, corporate financing decisions are characterized by two main features: a much more prominent role of debt financing relative to the US¹ and firms' increasing use of syndicated loans and corporate bonds. While bank bilateral loans are still dominant, companies have used both of these types of large debt financing to a considerably greater extent in the last decade (Figure 1).

Both features raise major questions for value creation. The first is whether debt financing is associated with higher market valuation. One might ask how a dominant share of debt in the capital structure influences the stock market valuation of a company. The second issue concerns the impact of type of debt on market valuation. Namely, the issuance of syndicated loans and bonds can have different effects on stock market price. As a consequence, the choice of debt instrument may be influenced by the expected stock market reaction. Our purpose in this paper is to examine the stock market reaction to bond and syndicated loan announcements using a large sample of firms from developed European countries.²

We contribute to the literature in two ways. First, our study provides information on the stock market reaction to bank loan and bond announcements for a large and recent sample of major European companies. To our knowledge, no study has ever compared the stock market reactions following bond versus loan announcements in Europe. This lack of evidence is somewhat surprising, as both types of debt serve as substitutes for firms for large debt financing (Altunbas et al., 2010). Extensive research has generally found that loan announcements have positive impacts on stock returns in contrast to the insignificant or negative responses of stock market investors to announcements of bond issuance. However all studies, with the notable exception of the seminal paper by James (1987) based on US data, have considered only one type of debt, which makes the comparison of results for different types of debt across samples difficult. Our study aims to fill this gap in the literature.

At the same time we contribute to the literature focusing on the broader issue of the uniqueness of bank loans by Fama (1985) and James (1987), among others. While this question is generally investigated by looking at the abnormal returns generated by loan

¹ According to the World Bank, the ratios of domestic credit provided by the banking sector to GDP and of total value of stocks traded to GDP were 156.5% and 58.3% respectively in the EU in 2011, compared with 232.5% and 205.1% respectively in the US.

² Our sample includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

announcements, we aim to complete the picture by also looking at their returns in comparison with bond announcements. In other words, we also test the uniqueness of bank loans relative to the other form of debt.

Second, our work examines the determinants of the abnormal returns generated by debt issue announcements for major European countries. We investigate whether the characteristics of the issue, the issuing firm, and the country matter for the stock returns. From this perspective, the European focus is of particular interest, as it allows one to consider cross-country differences and avoids the bias of results being influenced by the framework of one single country.

The literature provides conflicting predictions on the stock market reaction to debt issue announcements. On the one hand, the issuance of debt can be considered as a positive signal, as it solves adverse selection resulting from information asymmetries between firm insiders and outsiders (Leland and Pyle, 1977; Ross, 1977). In addition, the issuance of debt reduces the moral hazard behavior of managers by increasing the pressure on managers to perform (Jensen, 1986) and the personal costs of managers related to a firm's bankruptcy (Grossman and Hart, 1982). Hence the signaling and disciplinary roles of debt can be considered positive for the performance of the issuing firm and could be anticipated to lead to a positive reaction by stock market investors. On the other hand, the issuance of debt enhances the agency costs between shareholders and debtholders by increasing shareholders' incentive to take actions at the expense of debtholders. This divergence of interests can lead to asset substitution or underinvestment (Jensen and Meckling, 1976; Myers, 1977), which may be perceived negatively by stock market investors. In addition, the issuance of new debt enhances the probability of bankruptcy of the firm and the expected loss for stockholders. All in all, these different hypotheses can play different roles depending on the characteristics of the issue, the issuer, and the country.

Two opposing hypotheses may predict different stock market reactions to bond and syndicated loan issues. On the one hand, syndicated loans should be perceived more positively by stock markets, as they are associated with valuable bank monitoring. As pointed out by Diamond (1984), Ramakrishnan and Thakor (1984) and Fama (1985), banks have information advantages in information production relative to outside investors that enable them to more closely monitor debt contracts. This certification effect would then lead to better perceptions by the stock markets. In addition, the cost of a loan is generally considered lower than the cost of a bond (Altunbas et al., 2010), which should also contribute to a more positive reaction to a loan announcement, as lower financial costs are associated with lower

probability of bankruptcy. On the other hand, bonds may benefit from an enhanced perception of stock markets, as they are seen to be harder to renegotiate. It is more difficult to renegotiate with a multitude of bondholders than with a small group of lenders (Bolton and Scharfstein, 1996). As a consequence, only borrowers with a low probability of financial distress would issue bonds. These different hypotheses may also depend on the characteristics of the issuance process. For instance, the certification role of the bank loan, which is expected to contribute to higher stock returns following loan announcement, might be stronger in countries with well-managed banks.

To investigate stock market reaction to debt issue announcements, we apply an event study methodology to measure the abnormal returns. We consider a sample of 7,136 issues by 2,258 companies from 17 European countries during the period between 1999 and 2012. We test the different hypotheses about debt issue announcements with event study reactions, with cross-sectional regressions controlling for borrower, debt issue, and country characteristics.

The results of our paper have important implications regarding the reliance on loans and bonds as financing sources of firms. First, a more favorable stock market reaction for one type of debt would argue for its wider use from the stockholders' perspective and would provide an incentive for expanded use of it in the future. Second, the implementation of the new Basel III banking regulation is expected to reduce bank lending (Angelini et al., 2011). As Europe is much more dependent on bank finance than the US, the economic effects should be stronger for European companies and are expected to notably increase the issuance of corporate bonds.

The rest of the article is structured as follows. Section 2 reviews the literature and discusses testable hypotheses. Section 3 presents the sample and the methodology. Section 4 discusses the results, and Section 5 presents our conclusions.

II. Literature review

We review the literature dealing with the impact of debt issue announcements on stock returns. We start by summarizing the empirical findings of this literature. Next, we outline the hypotheses on stock market reactions to these announcements.

II.1 Debt issue announcements and stock returns

Our research ties into several strands of existing literature. The first strand deals with stock market reactions to bank debt announcements. Starting with the seminal works of Mikkelsen and Partch (1986) and James (1987), research in this area has generally found a

positive impact of bank debt announcements on stock prices. James (1987) examines the stock price responses to bank loan announcements and to other types of debt, including bonds. He finds a positive stock market reaction to bank loan announcements whereas the market reaction is not significant for issues of other types of debt. A common explanation is that banks play a unique role as information providers to capital markets in the sense that banks possess a competitive advantage in evaluating borrowers. Thus, obtaining a bank loan is considered to be a positive signal of the prospective borrower's creditworthiness.

Lummer and McConnell (1989) extend this analysis by distinguishing between new bank loans and loan renewals for US borrowers. They find positive and significant abnormal returns only for loan renewals, confirming that loan renewal serves as a certification of the quality of the borrower. Aintablian and Roberts (2000) confirm more positive effects for loan renewals in their analysis of Canadian bank loan announcements. In addition to loan renewals other characteristics are found to contribute to larger abnormal returns. Slovin et al. (1992) show that the positive impact of bank announcements concerns primarily small firms. Furthermore, as evidenced by Billett et al. (1995), higher quality lenders contribute to larger abnormal borrower returns. Mosebach (1999) confirms a positive reaction not only for the borrowing firm but also for a bank that has granted a line of credit. More recent results based on Japanese data suggest that the positive valuation effect of bank loan announcements for borrowing firms is mainly due to a wealth transfer from lending banks (Kang and Liu, 2008). The lending bank origin also matters. Using a sample of bank loans to US firms Ongena and Roscovan (2013) find that investors' reaction to loan announcements is the largest for foreign lending banks. This suggests that more competitive and skilled banks are valued more than banks that have easier access to private information about the firms.

The second strand of literature concerns the impact of syndicated loan announcements. It confirms a positive stock market reaction. Preece and Mullineaux (1996) show that contractual flexibility, i.e. the capacity to renegotiate a loan agreement, complements monitoring and thus each is regarded as a source of positive market reaction to bank loans. In large syndicates, the capacity to renegotiate decreases, which is confirmed by the observed negative relationship between abnormal returns and syndicate size. Gasbarro et al. (2004) find positive share price responses to revolving credit announcements but a negative market response for term loans.

The third strand deals with bond issue announcements and obtains mixed results. Eckbo (1986) analyzes stock market reactions to corporate debt offerings and finds that straight debt offerings lead to non-positive reactions and that convertible debt offerings result in

significantly negative effects. Long-run effects of both straight and convertible debt offerings on borrowers' stock performance are found to be negative (Spiess and Affleck-Graves, 1999). Miller and Puthenpurackal (2005) show that stock prices react positively to the announcement of a global bond issuance while comparable domestic and eurobond issues do not generate significant stock market reaction.

In addition to these studies on stock market reaction, our work is also related to Altunbas et al. (2010), which examines the financial characteristics that influence the choices of European firms between raising funds through a syndicated loan market or a corporate bond market. Larger, more profitable and highly leveraged firms with less growth potential are found to prefer syndicated loans over bonds.

II.2 Hypotheses

Previous studies of stock market reaction to debt issue announcements provide evidence of different reactions. We consider two hypotheses to explain the positive reaction of stock markets.

First, the issuance of debt is a positive signal, helping to solve the adverse selection which results from information asymmetries between firm insiders and outsiders. Indeed, debt is used by high-quality firms to show their quality (Leland and Pyle, 1977). Notably, Ross (1977) advanced the idea that a high-quality firm can issue more debt than a low-quality firm, because the issuance of debt leads to a higher probability of default due to debt-servicing costs. Such an outcome can be very costly to firm insiders. Thus, debt is perceived as a credible signal for the quality of a firm. This signaling role is especially important in countries with greater ex ante information asymmetries.

Second, agency costs resulting from conflicts of interest between shareholders and managers can be reduced through issuance of debt. The problem is the moral hazard behavior on the part of managers when their objectives differ from those of the firm. Bad managers can waste the firm's resources or deliberately minimize their efforts instead of focusing on increasing firm value. Debt financing increases the pressure on managers to perform (i.e. stop wasting company resources and increase their efforts) by restricting the "free cash-flow" at the disposal of managers (Jensen, 1986). Debt implies interest payment obligations that must be satisfied by managers; they might face bankruptcy if their firm's debt obligations are not met. Grossman and Hart (1982) further argue that debt financing provides a strong incentive

for managers to perform in the firm's interests, as otherwise they face personal costs related to the firm's bankruptcy. As a consequence, the issuance of debt can be considered a positive signal for firm performance and is likely to lead to a positive stock market reaction.

The theoretical counterargument as to why we might expect stock markets to react negatively to debt issue events is based on the agency costs resulting from the conflicts of interest between shareholders and debtholders. Shareholders are tempted to take actions that benefit themselves at the expense of debtholders and do not maximize firm value. This divergence of interests manifests itself in two forms of moral hazard. First, it gives incentives to shareholders to invest in riskier projects than those preferred by debtholders (Jensen and Meckling, 1976). Such "asset substitution" comes from the asymmetry of gains for shareholders. Second, as demonstrated by Myers (1977), conflicts between shareholders and debtholders lead to underinvestment. Thus, the agency costs resulting from conflicts of interest between shareholders and debtholders suggest that greater debt may enhance moral hazard behavior that can be perceived negatively by stock markets.

In addition, the issuance of new debt can lead to a negative stock market reaction as greater leverage is associated with higher probability of bankruptcy for the issuer. As a consequence, stockholders may react negatively to an increase of their expected loss.

Several arguments can be provided to support the expectations of different reactions of stock markets to different types of debt. Following Altunbas et al. (2010), syndicated loans are expected to be perceived more positively by stock markets, as the cost of a loan is generally considered lower than the cost of a bond. Furthermore, as syndicated loans are associated with valuable bank monitoring, this certification effect would lead to a better perception by stock markets. On the other hand, stock market investors can have a better perception of bonds relative to loans, as these financing instruments are more difficult to renegotiate. Indeed the number of creditors for a bond is much larger than for a loan in which a small group of banks is generally involved. Hence, we would expect that only firms with lower chances of financial difficulty would rely on bonds.

III. Methodology and data

In this section, we first present the methodology used to compute abnormal returns and for the subsequent univariate and multivariate analyses. Then we describe the data collection and management process and provide some descriptive statistics.

III.1 Methodology

We use a standard event study methodology to compute the abnormal returns of listed companies that issued debt (bond or loan) in order to investigate the stock market reaction to debt issue announcements.

First, the event date needs to be identified. We consider the debt issue announcement date from the Bloomberg Professional Terminal Server (Bloomberg) as the event day, i.e. day 0. We exclude all contaminated dates, i.e. dates when another major event for the issuing company occurs (such as an earnings call, a sales release, or an analysts', investors' or shareholders' meeting) two days before and two days after day 0. We also drop all the clustered announcements when different events for the same company are within a range of two days because we cannot isolate the company's return in such cases. This conservative procedure is necessary even if it considerably reduces the sample size.

Second, we need to apply a suitable method to estimate the abnormal returns in a multi-event and multi-country setting. Companies can have several consecutive debt issuances, which may be in different countries. We follow Fuller et al. (2002) for the multi-event aspect and estimate abnormal returns using a modified market model defined as $AR_i = R_i - R_m$, where R_i is the return on company i and R_m is the capitalization-weighted market index return³. For the multi-country setting, we rely on Campbell et al. (2010) who show that the use of local currency national market indexes is sufficient. Therefore, we use the main stock market index for each country in our sample as a proxy for the market index return⁴.

We next compute the three-day cumulative abnormal returns CAR (-1, 1) and investigate several issue, issuer, and country characteristics that can affect abnormal returns. The following regression is estimated:

$$CAR_i = \alpha + \beta \times Debt\ type_i + \gamma \times Other\ issue\ variables_i \\ + \delta \times Issuer\ variables_j + \theta \times Country\ variables_k + \lambda \times Controls + \varepsilon_i$$

³ Brown and Warner (1980, 1985) show that for short-window event studies, weighting the market return by the firm's beta does not significantly improve the estimation.

⁴ The main stock market indexes are: ATX Index (Austria), BEL 20 Index (Belgium), OMX Copenhagen 20 Index (Denmark), IBEX 35 Index (Spain), OMX Helsinki 25 Index (Finland), CAC 40 Index (France), Athens Stock Exchange General Index (Greece), Irish Stock Exchange Overall Index (Ireland), FTSE MIB Index (Italy), Luxembourg LuxX Index (Luxembourg), AEX Index (Netherlands), OBX Price Index (Norway), Portugal PSI 20 Index (Portugal), OMX Stockholm 30 Index (Sweden), Swiss Market Index (Switzerland), FTSE 100 Index (United Kingdom).

We use OLS regressions with robust standard errors clustered at the issue level. We test several specifications, including various combinations of explanatory variables. We also control for currency, industry sector, country and year fixed effects in each regression.

III.2 Description of the sample

In order to test empirically our hypotheses, we use data on debt issue announcements (bonds and loans), issuers' balance sheet variables and stock prices, stock indices, and country characteristics.

We begin by extracting all available information on loans and bonds from the Bloomberg Professional Terminal Server (Bloomberg hereafter) using the LSRC <GO> function for all non-financial companies from 1/1/1999 until 31/12/2012 for 17 major Western European countries. The initial dataset contains information on debt issues such as the announcement date, the amount, the maturity and the issuer's industry sector, country and ticker. Next we use the tickers to pull stock market information and balance sheet variables from Factset. Finally, we obtain information regarding the issuer's country from the Global Financial Development Database (World Bank) and legal variables from Djankov et al. (2007).

Owing to our conservative procedure for the identification of events and availability of stock market prices data, we end up with a final sample of 7,136 debt issues (of which 54% are loans and 46% are bonds) by 2,258 companies. The time span of our sample runs from January 1999 to December 2012.

In the multivariate analysis for cumulative abnormal returns, we consider several explanatory variables. The key explanatory variable is the dummy variable *Loan*, equal to one if the debt instrument is a loan or zero if it is a bond. We take into account various characteristics of the issue, the firm, or the country. All variables are described in the appendix.

At the issue level, we consider the amount and maturity of the debt issue with $\log(\textit{Amount})$ defined as the natural logarithm of the issue amount in million \$ and *Maturity* as the number of years for which the debt is issued. We also consider variables related to other possible debt issues of the same company. We account for the number of debt issues by a company in a given year (*Max.issues*) via the dummy variable *Bond & loan*, equal to one if a company issues at least one loan and at least one bond during the same year and zero otherwise, and the dummy variable *Loan before bond*, equal to one if a company has issued a

loan the year before a bond issue and zero otherwise. We also include three variables at the firm level to consider size, indebtedness, and profitability. These three variables summarize the financial situation of the issuer, which may influence the stock market reaction to debt issue announcements. Size of firm is measured by $\log(\text{Sales})$, defined as the natural logarithm of sales of the issuer in million of dollars. Indebtedness of the firm is measured by the debt to equity ratio (*Debt to equity*), and profitability is measured by the ratio of EBIT to total assets (*Ebit to assets*).

At the country level, we consider variables relating to financial development, legal institutions, and banking structure, all of which can influence stock market reactions to bond and loan announcements. Financial development is considered by including *Stock market* and *Private Credit*, which are the ratios (to GDP) of total stock market capitalization and of private credit by deposit money banks and other financial institutions. Legal environment is accounted for by average creditor rights index (*Creditor rights*) and the legal origin with a dummy variable equal to one if it is French (*French law*). Banking structure is taken into account by including three variables. *Bank Z-score*, defined as the weighted mean (based on banks' total assets) of the z-scores of a country's individual banks, controls for financial stability. *Bank concentration* is defined as the market share of the three largest commercial banks in assets. We also include the importance (for GDP) of credit to government and to state-owned enterprises (*Credit to Gov. & SOE*). Finally, we add a dummy variable to take into account the Eurozone crisis (*EZ crisis*), as the crisis period may influence the behavior of stock market investors.

Figure 2 displays the evolution of the number of debt issuance by firms and the percentage breakdown of bond and loan issues by year over the sample period. We observe a cyclical trend in debt issuance closely following the business cycle, with an issuance peak in 2005 (600 debt issues), then a bottom in 2008 (less than 450 issues), and again a top in 2012 with 650 issues. The breakdown between bonds and loans also follows a cyclical pattern. Loan issues are more frequent between 2004 and 2008 while more bonds are issued before 2004. Table 1 provides descriptive statistics by country. We observe an important heterogeneity in loan vs. bond issuance. For instance, the ratios of loans to bonds issuance are equal to 20/80 and 85/15 in Austria and in Greece respectively. This observation suggests an influence of country characteristics on the choice of debt.

Descriptive statistics for all variables can be found in Table 2. More than half of the debt issues in the sample are loans (54%). The average amount and maturity are 955 million dollars and 6 years. The maximum number of issues in a year is almost three, with far more

for bonds than for loans (4 vs. 1.3). Almost 40% of firms have issued a bond and a loan in a given year but only 19% of companies have issued a loan the year before a bond issue. Issuing firms are large, in terms of both total assets and sales (28 billion dollars and 15 billion dollars on average respectively) with large standard deviations for these variables. They are highly leveraged (debt to equity ratio 152% on average) and are profitable (average Ebit to assets 6%). Finally we observe that the sample includes only countries with high levels of financial development with stock market and private credit to GDP ratios above 100% on average, with rather concentrated banking industries (almost 70%) but not risky, considering the mean bank Z-score of 14. The average creditor protection index equals two and, due to sample composition, half of countries are governed by French law.

Table 3 provides several statistics by debt type. The average loan amount is almost five times larger than the average for bonds (1.45 billion dollars vs 0.37 billion dollars) although the latter has a longer maturity (8 vs. 5 years). Furthermore, bonds are issued more often than loans. Half of the firms issuing bonds have issued both types of debt in a given year while only one out of three that issued loans has done that. Only 6% of firms issuing loans have issued a loan the year before issuing a bond. Also, firms issuing bonds are much larger, in terms of both total assets and sales, while the other firm characteristics are similar. There are no important differences regarding country characteristics, with the notable exceptions for creditor rights and legal origin: firms issuing loans are in countries with slightly better creditor protection but less often in a French law environment.

IV. Results

We provide results of the event study for the stock market reaction to the announcement of loans and bonds in the first subsection. Multivariate estimations are provided afterwards. Finally, we provide additional estimations and robustness tests.

IV.1 Abnormal returns around debt announcements

We present summary statistics for cumulative abnormal returns (CAR) around debt announcements for a variety of event windows. We report the percentage of positive CARs, the mean, the median, the standard deviation, and the minimum and maximum CAR. We also give the t-statistic for the significance of CARs to see if the CARs are significantly different from zero on average.

In Table 4, we first consider all the debt announcements in order to investigate how stock market investors react to debt announcements. We observe that CARs are positive and significant for all event windows. On average, CARs range between 0.38% and 0.65%, depending on the event window. Hence the results support a positive stock market reaction to debt announcements in Europe. This conclusion accords with the view that debt is perceived as a positive signal by stock market investors. We can explain this finding by the signaling and disciplinary roles of debt, as it solves the adverse selection problem and reduces the moral hazard behavior of managers.

This conclusion is of interest for European companies, as it supports the view that issuing debt contributes to enhancing shareholders wealth. It is of particular importance for these companies, given the limited development of stock markets and the dominance of debt in their financial structures.

In Table 5, we consider the CAR by type of debt, to examine whether the stock market reaction differs for the different debt instruments. We see again that on average all CARs are positive and significant, meaning that both types of debt contribute to higher stock market valuations. We do not find that one type of debt is perceived as a negative signal by stock market investors.

However the key finding is that CARs are significantly higher for loans than for bonds, confirmed also by the statistical test. This result is significant for all event windows. The comparison of mean CARs also confirms this result with CARs ranging between 0.59% and 0.10% for loans, and between 0.13% and 0.24% for bonds. Furthermore, we observe that the percentage of positive CARs is over 50% for loans but below 50% for bonds for all event windows.

Our findings support the view that stock prices react more positively to the issuance of a loan than a bond. This conclusion accords with the certification role of bank loans. In addition, the cost of a loan may also help to explain this result, as it is considered to be lower for bonds, so that the preference for loans can be interpreted as a rational decision when considering the future of the issuer. This has major implications, as it suggests that firms should rely more on loans than on bonds when considering large debt financing instruments.

IV.2 Multivariate analysis

We now turn to the multivariate analysis: cumulative abnormal returns are regressed on a set of explanatory variables. The analysis of stock market reactions has led to two main

findings: a positive stock-market reaction following debt issuance, and a larger stock market reaction to loan issuance than to bond issuance. However, both of these findings could be influenced by characteristics of the issue, the issuer, or the country. As a consequence, we have to control for these variables by performing regressions.

The dependent variable is the cumulative abnormal return over the (-1,1) event window. We take into account various characteristics of the issue, the issuer, or the country. The key explanatory variable is the dummy variable *Loan*, equal to one if the debt instrument is a loan or zero if it is a bond, as we want to assess whether the stock market reaction is significantly different for loan versus bond issuance. Table 6 reports the results of OLS regressions with standard errors clustered at the debt issue level. We test different specifications of the set of explanatory variables to check the sensitivity of our results. We start with a first specification adding to *Loan* only variables related to the specific issue (*log(Amount)* and *Maturity*) in column (1). We gradually add other variables related to the issue (*Max. issues*, *Bond & loan*, *Loan before bond*) in column (2) and issuer characteristics (*log(Sales)*, *Debt to equity*, *Ebit to assets*) in column (3). We further present the estimations including all country variables (*Stock market*, *Private credit*, *Bank concentration*, *Bank Z-score*, *Credit to Gov. & SOE*, *Creditor rights*, *French law*) without or with the dummy variable controlling for the Eurozone crisis (*EZ crisis*) respectively in columns (4) and (5).

Two main findings stand out. First, we observe the positive and significant coefficient of the *Loan* variable in all estimations. As this result corroborates the analysis of CARs performed before, it means that it is not influenced by the presence of control variables at the issue, issuer, country, or time period level. This suggests that stock market investors have a more positive reaction following a loan issuance than a bond issuance.

Second, a few significant results stand out concerning the tested characteristics for the issue, the issuer, and the country. This finding suggests that the stock market reaction to debt issuance is not affected by most of these characteristics, which is in line with the relevant literature. At the issue and the issuer level, only the amount issued, the number of debt issues and the ratio of debt to equity are significant in some estimations. The amount is significantly negative in both estimations with country variables. The variables *Max.issues* and *Debt to equity* have negative coefficients in some specifications without country variables. For these three significant variables, the result can similarly be explained by the fact that, even if debt issuance is positively perceived by stock market investors, an excessive level of indebtedness is perceived negatively by these agents. In other words, to obtain debt is a positive signal but

to have large indebtedness is a negative signal, as it enhances the chances of bankruptcy and can hamper the possibilities for firms to obtain new debt financing in the future.

At the country level, we find interestingly that *Private Credit* and *Bank Z-score* exert a positive and significant influence on the CAR. We can interpret both of these results by considering their impact in particular for the issuance of loans. The result for *Bank Z-score* can be explained by the fact that a higher value means greater financial stability and hence better risk management by banks for the country. As a consequence, to obtain debt in such a country is a better signal, as a better *Bank Z-score* enhances the value of bank monitoring.

Regarding the result for *Private Credit*, this indicator measures financial development. In line with Godlewski and Weill (2011), we assume that it proxies for information asymmetries in the lending relationship, as greater value of *Private Credit* is associated with better knowledge and learning skills of bank employees in the risk analysis of loans. As a consequence, the positive coefficient for *Private Credit* indicates that the perception of lower information asymmetries in the lending relationship enhances the positive signal of a loan announcement.

It is of interest to observe that the development of stock markets does not influence the stock market reaction and also that the legal institutions do not matter, as seen in the lack of significance for *Creditor rights* and *French law*.

Finally, we find a negative and significant impact for *EZ crisis*. This suggests that debt announcements in Europe have generated lower CARs since the beginning of the Eurozone crisis. This result could be explained by the fact that the greater bankruptcy risk induced by the crisis has reduced the disciplinary role of debt for managers and has enhanced the negative effect of debt issuance associated with such risk.

IV.3 Additional estimations

We find evidence in favor of a better perception of the issuance of a syndicated loan relative to a bond by stock market investors. This result is seen by comparing abnormal returns across the two types of events as well as in the multivariate analysis controlling for the potential influence of other variables. An additional question is whether this result is influenced by the characteristics of the issue, the issuer, the country, or the time period. Namely, the reasons why a loan is perceived more positively than a bond are the certification role of the bank loan and the lower cost of the loan. As a consequence, the different perception for loan issuance can vary with the factors influencing both these reasons such as

the level of financial development or the legal institutions. To examine this question, we add interaction terms between *Loan* and the characteristics of the issue, the issuer, and the country in the estimations to check if the overall impact of the *Loan* variable changes according to the characteristic. These interaction terms are added one at a time. Several findings are noteworthy.

First, only a few significant results stand out concerning the interaction terms. In other words, the finding of a better stock market reaction for loan issuance than for bond issuance is not greatly affected by the different characteristics. Second, the interaction term is only significant with one issue variable: the amount. It is negative, meaning that a greater amount of the debt issuance reduces the advantage in stock returns following a loan issuance. We can interpret this result so that a greater amount is associated with higher chances of bankruptcy for the firm, as it increases the indebtedness of the firm. It can then enhance the value of the bond through better renegotiation possibilities.

Third, we observe significant interaction terms with two issuer variables: size, and debt ratio. The interaction term with size is negative. As size proxies the risk of bankruptcy of the issuer, the certification role of the bank loan may have a lower value for stock market investors when issuers are larger. The interaction term with the debt ratio is positive, which means that stock market investors ascribe more value for loan issuance relative to bond issuance for firms with greater indebtedness. We can interpret this result in different ways. On the one hand, banks can be expected to provide better monitoring when firms are already indebted. On the other hand, a firm with a high debt ratio, upon receiving a loan, obtains greater certification value for the bank loan, as a larger debt ratio means a greater risk for the bank.

Fourth, two country variables influence the relation between *Loan* and the abnormal returns: *Bank Z-score* and *Credit to Govt & SOE*. The interaction term with *Bank Z-score* is significantly positive, which is in line with the fact that better financial stability associated with better bank management enhances the certification value of the bank loan relative to bonds. The interaction term with *Credit to Govt & SOE* is significantly negative, which accords with the view that a higher level of credit to state entities can be associated with a lower value for the monitoring of a bank loan. This can indeed be interpreted as an indicator of the intervention of the state in the lending decisions, meaning that these decisions are not strictly based on the creditworthiness of the borrower. This interpretation is in line with the finding that state bank lending can be politically motivated (Sapienza, 2004; Dinc, 2005).

IV.4 Robustness tests

We check the robustness of our finding that a loan announcement exerts a more positive stock reaction than a bond announcement in different ways. The results of the robustness tests are displayed in Table 8.

First, we test the estimations on different event windows, as the event window can influence the results. Instead of the (-1,1) event window, we consider symmetric and asymmetric event windows (0,0), (-2,2), (-2,0), and (0,2). We still obtain our main result with a significant and positive coefficient for the *Loan* variable in all estimations.

Second, we redo estimations for the sample excluding UK issuers. This country has the largest number of observations, accounting for about 24% of the sample. We need to make sure that this country does not influence our findings. Our main conclusion is not affected by this exclusion, as we still find that loan issuance generates a greater stock market reaction than bond issuance.

Third, we consider subsamples of issues based on the fact that the variable *Bond & Loan* is equal to zero or one. This variable informs on the at least one loan issuance and one bond issuance in the same year. It helps in assessing the relevance of the impact of loan issuance relative to bond issuance. We observe that *Loan* is significantly positive for the subsample in which *Bond & Loan* is equal to zero but not for the other subsample. In other words, the stock market reaction is more positive following a loan announcement only for firms that do not issue bonds in the same year. This finding supports the view of the certification role of the loan, as such issuance is more highly valued for companies that do not also tap the bond markets.

Fourth, we perform estimations on subperiods by considering alternatively the periods before and during the Eurozone crisis. We observe that *Loan* is significantly positive before the crisis, but not during the crisis. We thus observe that the stock market reaction was only significantly different for a loan and a bond announcement before the crisis. This finding can be interpreted in two ways, both related to changes for European banks. Either the cost of a loan has increased with the crisis that entails banking difficulties in many European countries. As a consequence, the better perception of stock market investors as to a cheaper debt instrument has been affected by this evolution. Or these difficulties may have influenced the better perception of bank loans by stock market investors. Hence the certification role of the bank loan would have been weakened by the crisis.

V. Conclusion

In this paper, we examine the stock market reaction to bond and syndicated loan announcements using an event study methodology on a large sample of companies from 17 major European countries.

We obtain several findings. First, we find that a debt issue announcement generates a positive stock market reaction. We attribute this result to the signaling and disciplinary roles of debt, as it solves the adverse selection problem and reduces the moral hazard behavior of managers. Second, we provide evidence of a more positive stock market reaction for loan issuance than for bond issuance. This result is observed in univariate and multivariate analyses controlling for issue, issuer, and country characteristics. We explain this finding by the certification role of the bank loan and the lower cost of a loan. We then provide support for the view of the uniqueness of bank loans. Third, we obtain limited support for the influence of the characteristics of the issue, the issuer, and the country, on stock market reaction following debt issuance. Overall abnormal returns are positively influenced by financial development and hampered by the Eurozone crisis.

Our results have major implications for financing decisions of European companies. Issuing debt contributes to enhancing shareholders wealth in Europe. Firms should rely more on loans than on bonds as debt financing instruments. The better stock market reaction to loan issuance could then contribute to an expansion of the syndicated loan markets in European countries in the future. However the implementation of the new Basel III banking regulation could hamper bank lending and thus limit possibilities for the use of loans relative to bonds.

References

1. Aintablian, S. and Roberts, G.S., 2000. A Note on Market Response to Corporate Loan Announcements in Canada. *Journal of Banking and Finance* 24, 381-393.
2. Altunbas, Y., Kara, A. and Marques-Ibanez, D., 2010. Large Debt Financing: Syndicated Loans versus Corporate Bonds. *European Journal of Finance* 16(5), 437-458.
3. Angelini, P., Clerc, L., Curdia, V., Gambacorta, L., Gerali, A., Locarno, A., Motto, R., Roeger, W., Van den Heuvel, S. and J. Vlček, 2011. Basel III: Long-Term Impact on Economic Performance and Fluctuations, BIS Working Papers, n°338, BIS.
4. Armitage, S., 1995. Banks' Information about Borrowers: The Stock Market Response to Syndicated Loan Announcements in the UK. *Applied Financial Economics*, 5(6), 449-59.
5. Billett, M. T., Flannery, M. J., and Garfinkel, J.A., 1995. The Effect of Lender Identity on a Borrowing Firm's Equity Return. *Journal of Finance*, 50, 699-718.
6. Bolton, P., Scharfstein, D., 1996. Optimal Debt Structure and the Number of Creditors. *Journal of Political Economy*, 104(1), 1-25.
7. Brown, S.J. and Warner, J.B. (1980). Measuring Security Price Performance. *Journal of Financial Economics* 8(3), 205-58.
8. Brown, S.J. and Warner, J.B. (1985). Using Daily Stock Returns : The Case of Event Studies. *Journal of Financial Economics* 14(1), 3-31.
9. Campbell, J., Polk, C. and T. Vuolteenaho (2010). Growth or Glamour? Fundamentals and Systematic Risk in Stock Returns. *Review of Financial Studies* 23, 305-344.
10. Diamond, D., 1984. Financial Intermediation and Delegated Monitoring. *Review of Economic Studies* 51, 393-414.
11. Dinc, S., 2005. Politicians and Banks: Political Influences on Government-Owned Banks in Emerging Countries. *Journal of Financial Economics* 77, 453-479.
12. Djankov, S., McLiesh, C. and Shleifer, A., 2007. Private Credit in 127 Countries. *Journal of Financial Economics* 84, 299-329.
13. Eckbo, E., 1986. Valuation Effects of Corporate Debt Offerings. *Journal of Financial Economics*, 15, 119-152.
14. Fama, E., 1985. What's Different About Banks? *Journal of Monetary Economics* 15(1), 29-39.
15. Fuller, K., Netter, J. and Stegemoller, M., 2002. What Do Returns to Acquiring Firms Tell Us? Evidence from Firms That Make Many Acquisitions. *Journal of Finance* 57(4), 1763-1769.
16. Gasbarro, D., Le, K., Schwebach, R. and Zumwalt, J., 2004. Syndicated Loan Announcements and Borrower Value. *Journal of Financial Research*, 27(1), 133-141.
17. Godlewski, C. and Weill, L., 2011. Does Collateral Help Mitigate Adverse Selection? A Cross-Country Analysis. *Journal of Financial Services Research*, 40(1), 49-78.
18. Grossman, S., Hart, O., 1982. Corporate Financial Structure and Managerial Incentives. in: J. McCall, *The Economics of Information and Uncertainty* (University of Chicago Press, Chicago).
20. James, C., 1987. Some Evidence on the Uniqueness of Bank Loans. *Journal of Financial Economics*, 19(2), 217-235.
21. Jensen, M., 1986, Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers, *American Economic Association Papers and Proceedings* 76, 323-329.
22. Jensen, M., Meckling, W., 1976, Theory of the Firm: Managerial Behavior, Agency Costs, and Capital Structure, *Journal of Financial Economics* 76, 323-339.

23. Kang, J., Liu, W., 2008. Bank Incentives and Suboptimal Lending Decisions: Evidence from the Valuation Effect of Bank Loan Announcements in Japan, *Journal of Banking & Finance*, 32 (6), 915-929.
24. Leland, H., Pyle D., 1977. Information Asymmetries, Financial Structure and Financial Intermediation. *Journal of Finance* 32, 371-387.
25. Lummer, S. and McConnell, J., 1989. Further Evidence on the Bank Lending Process and the Capital-Market Response to Bank Loan Agreements. *Journal of Financial Economics*, 25(1), 99-122.
26. Mikkelsen, W. and Partch, M., 1986. Valuation Effects of Security Offerings and the Issuance Process. *Journal of Financial Economics* 15, 31-60.
27. Miller, D. and Puthenpurackal, J., 2005. Security Fungibility and the Cost of Capital: Evidence from Global Bonds. *Journal of Financial and Quantitative Analysis*, 40(4), 849-872.
28. Mosebach, M., 1999. Market response to banks granting lines of credit. *Journal of Banking and Finance*, 23, 1707 -1723.
29. Myers, S., 1977. Determinants of Corporate Borrowing. *Journal of Financial Economics*, 5, 147-175.
30. Ongena, S. and Roscovan, V., 2013. Bank Loan Announcements and Borrower Stock Returns: Does Bank Origin Matter? *International Review of Finance* 13(2), 137-159.
31. Preece, D. and Mullineaux, D.J., 1996. Monitoring, Loan Renegotiability, and Firm Value: The Role of Lending Syndicates. *Journal of Banking & Finance*, 20(3), 577-593.
32. Ramakrishnan, R. and Thakor, A., 1984. Information Reliability and a Theory of Financial Intermediation. *Review of Economic Studies* 51(3), 415-432.
33. Ross, S., 1977, The Determination of Financial Structure: The Incentive Signalling Approach, *Bell Journal of Economics* 8, 23-40.
34. Sapienza, P., 2004. The Effects of Government Ownership on Bank Lending. *Journal of Financial Economics* 72, 357-384.
35. Slovin, M.B., Johnson, S.A. and Glascock, J.K., 1992. Firm Size and the Information Content of Bank Loan Announcements. *Journal of Banking and Finance*, 16, 1057-1071.
36. Spiess, D. and Affleck-Graves, J., 1999. The Long-Run Performance of Stock Returns following Debt Offerings. *Journal of Financial Economics*, 54(1), 45-73.

Appendix

Definitions of variables

Issue level (source: Bloomberg)

Loan = 1 if the debt issue is a bank loan

Amount = Amount of the debt issue (\$mln)

Maturity = Maturity of the debt issue (years)

Max. issues = Number of debt issues by company by year

Bond & loan=1 if a company issues at least one loan and at least one bond during the same year

Loan before bond = 1 if a company has issued a loan the year before a bond issue

Firm level (source: Factset)

Sales = Total sales (\$mln)

Debt to equity = Total debt to total equity (%)

Ebit to assets = Earnings before income and taxes to total assets (%)

Country level (source: Global Financial Development Database and Djankov et al. 2007)

Stock market = Total value of all listed shares in a stock market as a percentage of GDP (%)

Private credit = Private credit by deposit money banks and other financial institutions to GDP (%)

French law = 1 if legal origin is French

Creditor rights = Average creditor rights index

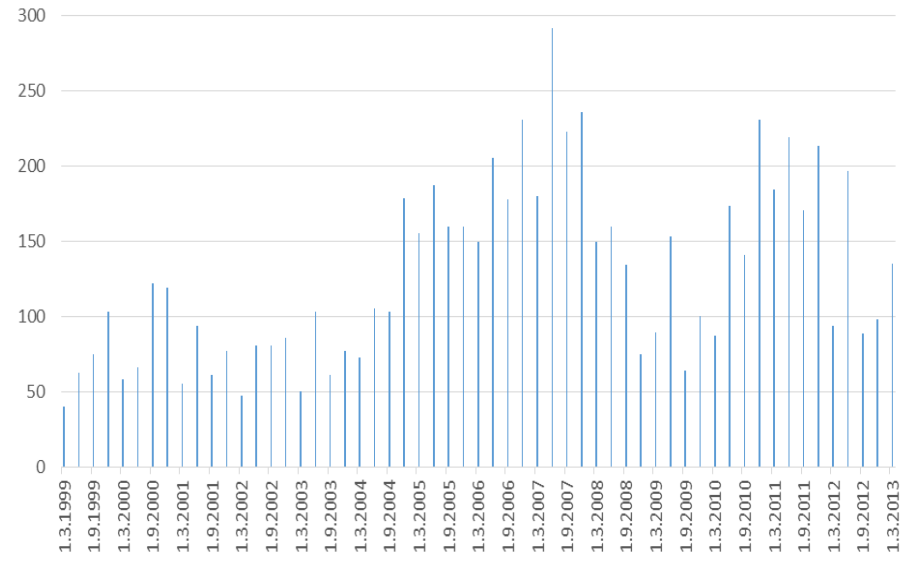
Bank Z-score = Weighted average (based on banks' total assets) of the z-scores of a country's individual banks (Z-score compares a bank's buffers - capitalization and returns - with the volatility of those returns)

Bank concentration = Assets of three largest commercial banks as a share of total commercial banking assets (%)

Credit to Gov. & SOE = Credit to government and state-owned enterprises to GDP (%)

EZ crisis = 1 if loan or bond announcement occurs after May 2010

Figure 1
Signed international syndicated credit facilities in Europe (bln. USD)



Source: BIS

Note: sample of countries includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Figure 2
Number of issues and bonds vs. loans breakdown by year

This figure displays the evolution of the number of debt issue by firms (red line, RHS) and the percentage breakdown of bond and loan issues (blue and green bars, LHS) by year over the period 1/1/1999 – 31/12/2012 in the sample. For instance, in 2005 there were almost 600 debt issues of which more than 30% were bonds and less than 70% were loans.

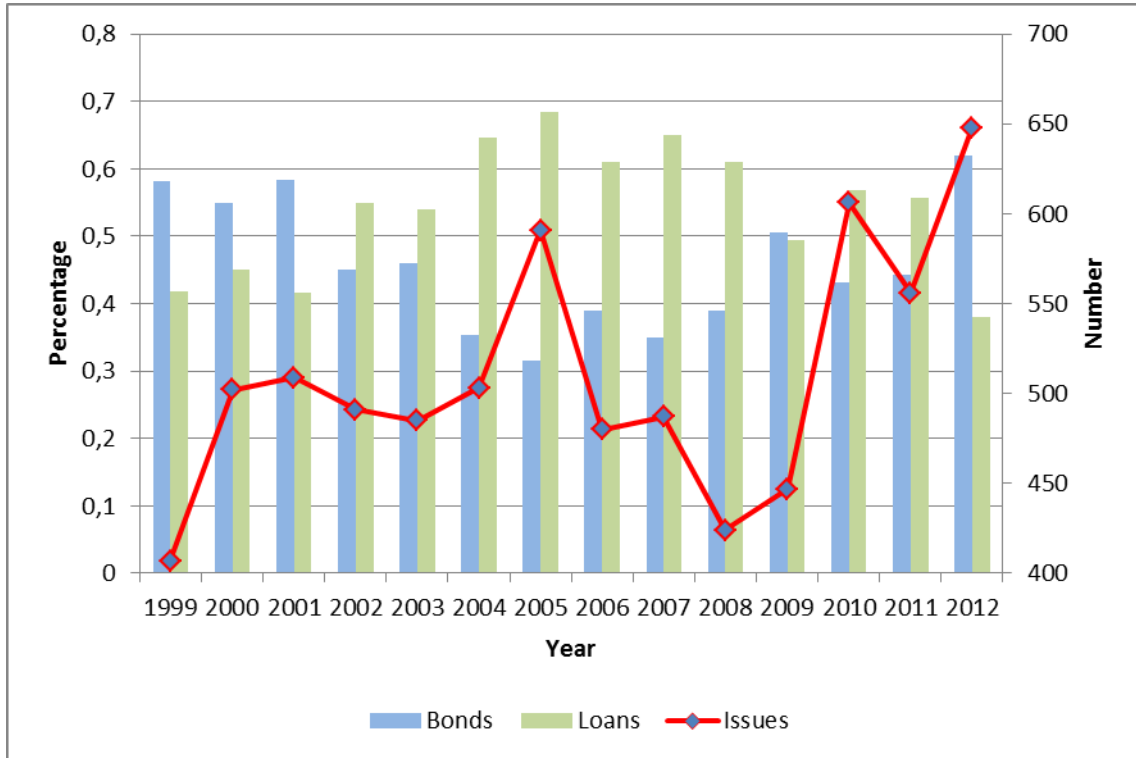


Table 1
Descriptive statistics by firm's country

This table provides the number of issues, sample percentage, breakdown by loans and bonds, and the number of issuers by firms' country in the sample.

Country	Issues	Perc.	Loans	Bonds	Issuers
Austria	114	1.60%	21.93%	78.07%	47
Belgium	203	2.84%	38.42%	61.58%	63
Denmark	82	1.15%	59.76%	40.24%	26
Finland	275	3.85%	46.18%	53.82%	64
France	1538	21.55%	41.09%	58.91%	330
Germany	148	2.07%	39.19%	60.81%	33
Greece	103	1.44%	85.44%	14.56%	57
Ireland	95	1.33%	80.00%	20.00%	51
Italy	348	4.88%	62.64%	37.36%	118
Luxembourg	261	3.66%	26.82%	73.18%	100
Netherlands	690	9.67%	34.35%	65.65%	208
Norway	232	3.25%	56.03%	43.97%	93
Portugal	104	1.46%	22.12%	77.88%	28
Spain	396	5.55%	75.25%	24.75%	101
Sweden	624	8.74%	29.01%	70.99%	110
Switzerland	182	2.55%	74.18%	25.82%	100
United Kingdom	1741	24.40%	82.37%	17.63%	729
Total	7136				2258

Table 2
Descriptive statistics for all variables

This table provides main descriptive statistics for all variables (issue, firm and country level respectively). All variables are defined in the appendix.

Variable	Obs.	Mean	Std. Dev.
<i>Issue level</i>			
Loan	7,136	0.54	0.50
Amount	7,119	955	15,700
Maturity	5,422	5.99	4.66
Max. issues	7,136	2.84	3.86
Bond & loan	7,136	0.39	0.49
Loan before bond	7,136	0.19	0.39
<i>Firm level</i>			
Sales	6,538	14,800.00	22,200.00
Debt to equity	6,395	1.52	1.93
Ebit to assets	6,417	0.06	0.06
<i>Country level</i>			
Stock market	6,488	1.00	0.44
Private credit	6,067	1.27	0.42
Bank concentration	6,463	0.67	0.20
Bank Z score	6,477	14.12	6.44
Credit to Gov. & SOE	5,862	0.13	0.08
Creditor rights	6,255	2.03	1.52
French law	6,255	0.50	0.50

Table 3
Descriptive statistics for all variables by debt type

This table provides main descriptive statistics for all variables (issue, firm and country level respectively) by debt type (Loan vs. Bond). All variables are defined in the appendix.

Variable	<i>Loan</i>		<i>Bond</i>	
	Mean	Std. Dev.	Mean	Std. Dev.
<i>Issue level</i>				
Amount	1,450.00	21,200.00	370.00	462.00
Maturity	4.93	3.35	7.92	5.93
Max. issues	1.58	1.90	4.32	4.92
Bond & loan	0.30	0.46	0.49	0.50
Loan before bond	0.06	0.24	0.33	0.47
<i>Firm level</i>				
Sales	8,050.00	15,300.00	22,400.00	26,000.00
Debt to equity	1.44	2.06	1.60	1.77
Ebit to assets	0.06	0.06	0.05	0.06
<i>Country level</i>				
Stock market	1.05	0.47	0.95	0.40
Private credit	1.34	0.42	1.17	0.39
Bank concentration	0.64	0.19	0.71	0.19
Bank Z score	13.14	6.46	15.36	6.19
Credit to Gov & SOE	0.12	0.09	0.14	0.08
Creditor rights	2.36	1.53	1.59	1.38
French law	0.42	0.49	0.60	0.49

Table 4
Cumulative abnormal returns for any debt announcement

This table gives the percentage of positive CARs, average CARs, T statistics, and standard deviation, median, minimum and maximum of CARs for nine different event windows. ***, **, and * indicate average CAR statistically different from 0 at the 1%, 5%, and 10% confidence levels, respectively. The total number of debt issue announcements is 7,136.

Variable	Perc. Pos.	Mean	T-stat	Std. Dev.	Median	Min	Max
CAR (0,0)	0.5055	0.0038	10.86***	0.0299	0.0002	-0.0479	0.0933
CAR (-1,1)	0.5070	0.0056	9.52***	0.0497	0.0005	-0.0866	0.1500
CAR (-2,2)	0.5011	0.0065	9.06***	0.0608	0.0001	-0.1052	0.1787
CAR (0,1)	0.5034	0.0052	10.48***	0.0422	0.0002	-0.0682	0.1324
CAR (0,2)	0.5090	0.0059	9.90***	0.0499	0.0001	-0.0830	0.1527
CAR (-1,0)	0.5118	0.0048	9.93***	0.0408	0.0006	-0.0698	0.1250
CAR (-2,0)	0.5029	0.0052	9.24***	0.0473	0.0007	-0.0811	0.1394
CAR (-1,2)	0.5011	0.0064	9.59***	0.0559	0.0003	-0.0957	0.1684
CAR (-2,1)	0.5041	0.0057	8.88***	0.0546	0.0002	-0.0957	0.1598

Table 5
Cumulative abnormal returns by debt type

This table gives the percentage of positive CARs, average CARs, T statistics, standard deviation, and median of CARs for nine different event windows by type of debt (Loans vs. Bonds). The last column shows the T statistic for the average CARs difference test by event window. ***, **, and * indicate average CAR or difference of average CARs statistically different from 0 at the 1%, 5%, and 10% confidence levels, respectively. The number of debt issue announcements is 3,859 for loans and 3,277 for bonds.

Variable	<i>Loans</i>					<i>Bonds</i>					Dif. T-stat
	Perc. Pos.	Mean	T-stat	Std. Dev.	Median	Perc. Pos.	Mean	T-stat	Std. Dev.	Median	
CAR (0,0)	0.5263	0.0059	11.35***	0.0324	0.0009	0.4809	0.0014	3.02***	0.0263	-0.0006	-6.41***
CAR (-1,1)	0.5242	0.0090	10.25***	0.0546	0.0018	0.4867	0.0016	2.12**	0.0429	-0.0009	-6.30***
CAR (-2,2)	0.5188	0.0102	9.61***	0.0660	0.0020	0.4803	0.0022	2.31**	0.0536	-0.0015	-5.58***
CAR (0,1)	0.5229	0.0086	11.55***	0.0463	0.0015	0.4803	0.0013	1.98**	0.0363	-0.0012	-7.35***
CAR (0,2)	0.5209	0.0097	10.97***	0.0547	0.0013	0.4950	0.0014	1.80*	0.0432	-0.0016	-7.03***
CAR (-1,0)	0.5237	0.0071	9.94***	0.0445	0.0012	0.4977	0.0021	3.32***	0.0359	-0.0001	-5.20***
CAR (-2,0)	0.5175	0.0075	9.13***	0.0512	0.0014	0.4858	0.0024	3.26***	0.0419	-0.0003	-4.58***
CAR (-1,2)	0.5229	0.0101	10.27***	0.0611	0.0015	0.4754	0.0019	2.27**	0.0487	-0.0014	-6.17***
CAR (-2,1)	0.5268	0.0091	9.48***	0.0594	0.0021	0.4773	0.0018	2.16**	0.0480	-0.0015	-5.61***

Table 6
Regressions

This table displays OLS regression results of the CAR(-1,1) on the debt issue and issuer variables. Robust standard errors in parentheses are clustered at the debt issue level. All variables are defined in the appendix. ***, **, and * denote coefficients that are statistically significant at the 1%, 5%, and 10% level. Dummy variables are included for industry and currency in all regressions, for year in all regressions with the exception of (5), for country in all regressions with the exception of (4) and (5).

Variable	(1)	(2)	(3)	(4)	(5)
Loan	0.0046*** (0.0015)	0.0036** (0.0017)	0.0030* (0.0017)	0.0044** (0.0020)	0.0046** (0.0019)
log(Amount)	-0.0001 (0.0004)	-0.0001 (0.0004)	-0.0007 (0.0005)	-0.0019*** (0.0006)	-0.0018*** (0.0006)
Maturity	0.0000 (0.0001)	0.0000 (0.0001)	0.0001 (0.0001)	0.0001 (0.0002)	0.0001 (0.0002)
Max. issues		-0.0007*** (0.0002)	-0.0005* (0.0003)	-0.0005 (0.0004)	-0.0006 (0.0004)
Bond & loan		-0.0029* (0.0017)	-0.0027 (0.0017)	-0.0031 (0.0019)	-0.0029 (0.0019)
Loan before bond		0.0007 (0.0020)	0.0010 (0.0020)	0.0004 (0.0024)	0.0001 (0.0024)
log(Sales)			-0.0004 (0.0005)	0.0006 (0.0005)	0.0006 (0.0005)
Debt to equity			-0.0007* (0.0004)	-0.0004 (0.0004)	-0.0004 (0.0004)
Ebit to assets			0.0039 (0.0127)	-0.0031 (0.0148)	-0.0033 (0.0147)
Stock market				-0.0019 (0.0027)	-0.0019 (0.0024)
Private credit				0.0070** (0.0032)	0.0057** (0.0025)
Bank concentration				-0.0012 (0.0050)	-0.0010 (0.0048)
Bank Z-score				0.0003** (0.0001)	0.0003** (0.0001)
Credit to Gov. & SOE				0.0105 (0.0155)	0.0102 (0.0149)
Creditor rights				-0.0009 (0.0009)	-0.0006 (0.0008)
French law				-0.0014 (0.0025)	-0.0014 (0.0024)
EZ crisis					-0.0045** (0.0022)
Intercept	0.0124 (0.0129)	0.0149 (0.0129)	0.0173 (0.0129)	0.0107 (0.0139)	0.0122 (0.0133)
Obs.	5411	5411	4733	3442	3442
Adj.R2	0.0076	0.0090	0.0082	0.0066	0.0077

Table 7
Regressions with interaction terms

This table displays OLS regression results of the CAR(-1,1) on issue & issuer interaction variables, debt issuance, country, and crisis variables. We use the full specification for the set of explanatory variables. In each regression *Loan x Variable* interacts *Loan* with a particular variable, listed in the first line of the table for each column. The other control variables are not shown, to save space. Robust standard errors in parentheses are clustered at the debt issue level. Dummy variables for industry and for currency are included in all regressions. All variables are defined in the appendix. ***, **, and * denote coefficients that are statistically significant at the 1%, 5%, and 10% level.

Variable	Amount	Maturity	Max. issues	Bond & loan	Loan before bond	Sales	Debt to equity	Ebit to assets
Loan	0.0424** (0.0208)	0.0039 (0.0028)	0.0032 (0.0024)	0.0067*** (0.0022)	0.0047** (0.0020)	0.0505** (0.0214)	0.0020 (0.0022)	0.0059** (0.0027)
Loan x Variable	-0.0020* (0.0011)	0.0001 (0.0003)	0.0007 (0.0008)	-0.0055 (0.0035)	-0.0008 (0.0042)	-0.0021** (0.0009)	0.0016** (0.0008)	-0.0251 (0.0291)
Obs.	3442	3442	3442	3442	3442	3442	3442	3442
Adj.R2	0.0083	0.0074	0.0076	0.0081	0.0074	0.0091	0.0085	0.0076
Variable	Stock market	Private credit	Bank concentration	Bank Z score	Credit to Gov. & SOE	Creditor rights	French law	EZ crisis
Loan	0.0052 (0.0036)	-0.0003 (0.0046)	0.0029 (0.0063)	-0.0010 (0.0036)	0.0095*** (0.0032)	0.0038 (0.0025)	0.0058** (0.0027)	0.0047** (0.0020)
Loan x Variable	-0.0008 (0.0039)	0.0039 (0.0034)	0.0024 (0.0084)	0.0004* (0.0002)	-0.0341* (0.0182)	0.0005 (0.0010)	-0.0019 (0.0030)	-0.0008 (0.0040)
Obs.	3442	3442	3442	3442	3442	3442	3442	3442
Adj.R2	0.0074	0.0077	0.0074	0.0082	0.0081	0.0074	0.0075	0.0074

Table 8
Robustness checks

This table displays OLS regression results for robustness checks. We use the full specification for the set of explaining variables. The other control variables are not shown, to save space. Each robustness check is indicated in the first line of the table for each column. Robust standard errors in parentheses are clustered at the debt issue level. All variables are defined in the appendix. ***, **, and * denote coefficients that are statistically significant at the 1%, 5%, and 10% level. Dummy variables are included for industry and currency in all regressions, for year only in regressions before and during Eurozone crisis.

Variable	CAR(0,0)	CAR(-2,2)	CAR(-2,0)	CAR(0,2)	UK issuers excluded	Bond & loan = 0	Bond & loan = 1	Before Eurozone crisis	During Eurozone crisis
Loan	0.0026** (0.0011)	0.0058** (0.0023)	0.0044** (0.0019)	0.0044** (0.0018)	0.0047** (0.0020)	0.0069*** (0.0026)	-0.0002 (0.0031)	0.0037* (0.0022)	0.0070 (0.0053)
Intercept	0.0139* (0.0078)	-0.0043 (0.0163)	0.0023 (0.0126)	0.0077 (0.0132)	0.0076 (0.0168)	0.0239 (0.0175)	-0.0069 (0.0231)	0.0167 (0.0157)	0.0527 (0.0493)
Obs.	3442	3442	3442	3442	2689	2156	1286	3084	358
Adj.R2	0.0078	0.0061	0.0040	0.0070	0.0080	0.0152	0.0015	0.0063	-0.0119

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