

CORPORATE FINANCING IN FIXED-INCOME
MARKETS: THE CONTRIBUTION OF
MONETARY POLICY TO LOWERING
THE SIZE BARRIER

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Abstract

Access to financing in fixed-income markets enables firms to diversify their sources of financing and reduces their vulnerability, particularly in periods when access to bank credit is restricted. This paper analyses the factors explaining firms' recourse to capital market financing using the ERICA database, which contains detailed information on the balance sheets of the main non-financial groups listed in euro area countries. The results show that size is the most important determinant of recourse to this source of financing. According to the results of this paper, the introduction of the corporate sector purchase programme by the European Central Bank in 2016 appears to have contributed to improving capital market access for smaller listed firms. Nonetheless, size continues to be a key barrier to capital market access. Implementation of other more structural initiatives, such as the capital markets union, could help to further reduce these barriers to access to external financing.

Keywords: corporate financing, fixed-income securities, CSPP, small listed firms, bank financing.

JEL classification: E51, E52, E58, G2, G12, G15, G23.

Resumen

El acceso a la financiación en los mercados de renta fija por parte de las empresas facilita la diversificación de sus fuentes de financiación y las expone a una menor vulnerabilidad, particularmente en momentos en los que se producen restricciones en el acceso al crédito bancario. En este documento se analizan los factores que explican el recurso de las empresas a la financiación en los mercados de capitales haciendo uso de la base de datos ERICA, que contiene información detallada sobre los balances de los principales grupos no financieros cotizados en los países de la Unión Económica y Monetaria. Los resultados muestran que el tamaño es el factor que explica en mayor medida el recurso a esta fuente de financiación. De acuerdo con los resultados de este trabajo, el establecimiento del programa de compras de bonos corporativos por parte del Banco Central Europeo, en 2016, habría contribuido a mejorar el acceso a los mercados de capitales de las empresas cotizadas más pequeñas. A pesar de ello, el tamaño sigue siendo una barrera clave en el acceso a los mercados de capitales. La implementación de otras iniciativas más estructurales, como la unión de los mercados de capitales, podría suponer nuevos avances para seguir reduciendo estas barreras de acceso a la financiación externa.

Palabras clave: financiación empresarial, valores de renta fija, programa de compras de bonos corporativos, empresas cotizadas pequeñas, financiación bancaria.

Códigos JEL: E51, E52, E58, G2, G12, G15, G23.

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1 Introduction

Firms can obtain funding through internal and/or external finance. The latter, in turn, includes bank loans, trade credit, bond issuance and other types of financing (financial leasing, factoring and loans from other firms). Although bank lending represents the main source of funding for European non-financial corporations (NFCs), the share of fixed-income securities financing has increased in recent years. Nonetheless, compared with the United States, in the euro area bonds continue to account for a low proportion of corporate debt. This paper analyses developments in bond market financing for euro area listed NFCs, along with the determinants of access to those markets and the impact of the Eurosystem corporate sector purchase programme (CSPP). There is also detailed analysis of how corporate size influences recourse to fixed-income securities for financing.

This analysis is conducted drawing on the ERICA (European Records of IFRS Consolidated Accounts) database.¹ ERICA contains information on listed non-financial groups in nine European countries,² with nationality based on where the parent company is established. The database covers the period 2005-2020, although this paper uses a sample spanning the four years before and after the CSPP was launched in 2016 (2012-2019). The year 2020 is excluded from the analysis to prevent any contamination from the shift in financing patterns and the economic policy measures adopted as a result of the COVID-19 health crisis. The data are fully harmonised and subject to quality controls to ensure their reliability.

This paper presents two main findings. First, corporate size is identified as the main determinant of the probability of a listed NFC resorting to bond financing. Second, the paper shows that the launch of the CSPP increased the probability of small or medium-sized corporations raising bond market financing, compared with large corporations, by some 8 percentage points (pp), and, therefore, that it contributed to lowering the barriers faced by smaller companies.

The rest of this article is structured as follows: Section 2 discusses the prominence of market-based financing among firms and how this has changed in the euro area over recent years. Section 3 analyses the determinants of NFCs' access to capital market financing. Lastly, Section 4 examines the impact of the CSPP on corporate bond issuance, above all with respect to smaller firms.

1 ERICA is a freely available database compiled and managed by the ERICA Working Group of the European Committee of Central Balance Sheet Data Offices (ECCBSO) and the Banque de France. It provides information on income statements, balance sheets, cash flows, employment figures and other corporate ratios. The groups are divided into three sizes (small, medium and large) and are classified into four broad business sectors (industry, energy, construction and services) and 14 detailed sectors of activity.

2 Austria, Belgium, France, Germany, Greece, Italy, Portugal, Spain and Turkey.

2 Corporate financing in fixed-income markets

Access to bank or market-based financing fosters economic growth by allowing firms to take on debt in order to invest, and thus to grow.³ However, the structure of firms' liabilities may influence investment decisions. For instance, reliance on a single source of funding such as bank lending (the most widely used source of funding) can be an element of vulnerability for firms. When a banking crisis breaks out, financial institutions tend to restrict the overall supply of credit, tighten credit standards and impose more demanding conditions on borrowers, such as higher interest rates, higher fees and commissions, additional collateral demands, caps on loan size, etc.⁴ As a result, firms that rely exclusively on bank financing typically find it more difficult to implement their investment plans and previously viable undertakings cease to be so. If no new loans are granted or lines of credit are not renewed, firms might face liquidity problems which, in some cases, could compromise their solvency. Therefore, a higher proportion of market-based financing – and thus more diversified funding sources – could help to improve firms' resilience and reduce their sensitivity to adverse scenarios.⁵

Indeed, for economies which rely heavily on bank funding, the impact of a banking crisis on GDP can be up to three times more severe than in countries with a more evenly balanced mix of bank lending and market-based financing.⁶ The two sources of finance are generally complementary, although each may replace the other if access to one is restricted.⁷

Bond market financing might offer firms benefits beyond increasing their resilience, such as lower costs and more stable funding over time. Bank loans to firms are typically short term and floating rate, which means changes in market interest rates pass through to the average cost of debt relatively swiftly. It also means that any restriction in the flow of bank lending has a more immediate adverse impact on firms' access to finance. Conversely, bond market financing is predominately long term. Therefore, the relationship between the financing cost and the maturity period often makes corporate debt issuance more attractive,⁸ and also provides for a more stable financing structure since firms do not have to continually refinance their debt. The highly accommodative monetary policy of recent years has exerted downward pressure on long-term interest rates, flattening the yield curve. This has resulted in the cost-maturity relationship favouring corporate debt issuance.

³ Further, as the literature has shown, broadening the sources of finance available in an economy reduces income inequality. However, beyond a certain point income inequality rises if finance is expanded via market-based financing, but not when finance grows via bank lending. For more details, see Brei, Ferri and Gambacorta (2019).

⁴ By contrast, in normal economic downturns (not caused by a banking crisis), banks that start out with a healthy balance sheet tend to maintain the flow of credit to the productive economy, thus helping to cushion the shock of a recession.

⁵ For further evidence of the positive effects of well-diversified sources of funding on the resilience and investment of NFCs, see De Fiore and Uhlig (2015), Tengelov (2020) and Bongini et al. (2021).

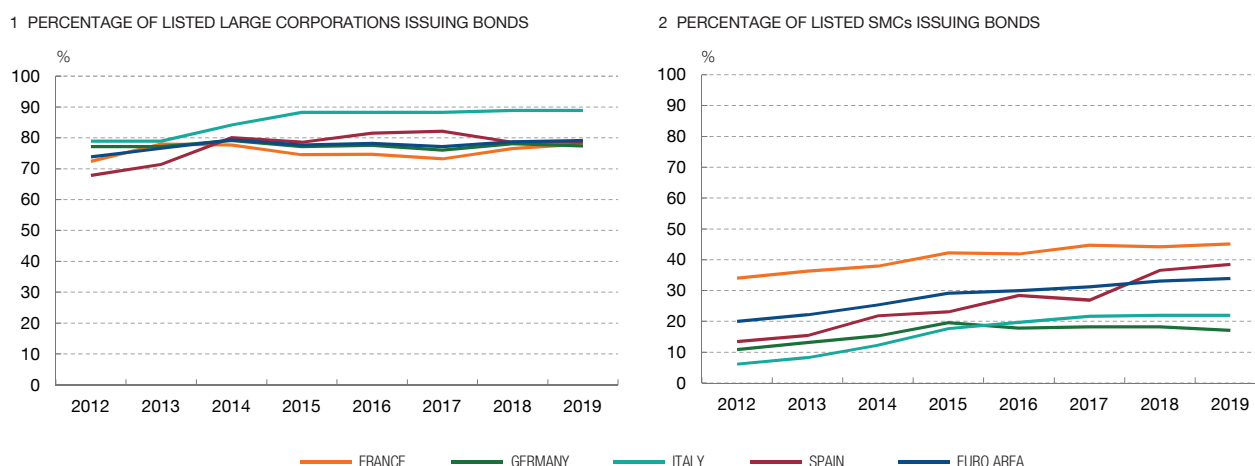
⁶ See Gambacorta, Yang and Tsatsaronis (2014).

⁷ This effect of one source of funding replacing another can depend on the prevailing corporate sector financing structure in the economy prior to the shock. For instance, a high level of market-based finance would help to cushion the crisis, but a low level could have adverse effects. A firm that relied entirely on bank credit prior to a shock could struggle if it tried to raise market-based financing for the first time, as a result of its inexperience and because it would be doing so at a time of strong demand for such finance. For further details, see Holm-Hadulla and Thürwächter (2021).

⁸ See Russ and Valderrama (2012).

Chart 1

FINANCING IN THE FIXED-INCOME MARKETS OF LISTED NON-FINANCIAL CORPORATIONS, BY FIRM SIZE



SOURCE: Own calculations, drawing on the ERICA database.

Traditionally, euro area firms have relied heavily on bank funding, particularly compared with those in other economies, such as the United States or the United Kingdom. However, the 2008 global financial crisis underscored the need to diversify funding sources and gave greater prominence to market-based funding.⁹

Against this backdrop, European authorities felt the need to encourage market-based financing to promote economic growth and financial stability. Thus, in September 2015, the European Commission launched its first action plan to create the capital markets union (CMU), whose aim is to get money – investments and savings – flowing across the EU, eliminating financial fragmentation, so that it can benefit consumers, investors and companies, regardless of where they are located.¹⁰ The CMU would complement the banking union, furthering euro area integration, and encompasses both debt and equity markets. In addition to fostering financial integration, the CMU aims to develop the capital markets themselves, that is, to ensure that they attract far more suppliers and seekers of funds, thus furnishing these markets with greater breadth and depth. However, progress towards the CMU has thus far been very limited, with European capital markets still highly fragmented and underdeveloped compared with those of other areas such as the United States.

In any event, corporate bond financing has grown in euro area economies in recent years. The percentage of listed euro area NFCs that have raised funding through bond issuance increased from 40% in 2012 to 53% in 2019. The percentage of bond-issuing

⁹ See Banco de España (2017).

¹⁰ See “Why do we need a capital markets union?” (European Commission).

corporates rose in the four largest euro area economies during that period, particularly in Spain and Italy where the initial levels were far lower. From 2012 to 2019, the share of listed firms issuing corporate debt rose from 32% to 52% in Spain, from 45% to 51% in Germany, from 48% to 59% in France and from 26% to 40% in Italy.

This increase in the number of bond market-funded companies was concentrated among small and medium-sized listed firms. Thus, in recent years the percentage of large listed euro area NFCs (those with turnover of more than €1.5 billion) that issue bonds has moved broadly between 70% and 80%, with a slight upward trend (see Chart 1.1). Cross-country heterogeneity is low in this segment, with the exception of Italy where in 2019 around 89% of large corporates issued debt. In Spain, the proportion of large bond-issuing firms was relatively low in 2012¹¹ (68%), but it has converged towards the euro area average in recent years. Meanwhile, the percentage of euro area small and medium-sized corporations (SMCs) (those with turnover of less than €1.5 billion) that issue corporate debt rose from 20% in 2012 to 34% in 2019 (see Chart 1.2), with high cross-country heterogeneity. Therefore, the aggregate differences between countries seem to stem from the different ratio of large corporations to SMCs in each country and from the percentage of SMCs that decide to raise funding through bond issuance.

11 See [Banco de España](#) (2017).

3 Determinants of corporate financing in fixed-income markets

The differences in firms' external funding structure may be explained by various factors, including firm-level characteristics, their economic sector and country-specific factors. As noted in Section 2, a far higher percentage of large corporations raise capital market financing compared with SMCs. To ascertain whether size increases the probability of a firm issuing corporate debt, and to quantify the effect of such issuance and other factors, consolidated data for listed corporations headquartered in one of the four largest euro area economies (France, Germany, Italy and Spain) are drawn from the ERICA database. Although the data are fully harmonised and subject to quality controls to ensure their reliability, the database coverage is incomplete since it does not include all listed NFCs for all of the countries. Therefore, the firms included vary from year to year. Accordingly, to avoid any bias in the sample composition, only the firms included in the database throughout the sample period (2012-2019) are selected.¹² The result is the following model to explain the probability of a firm having a positive balance of outstanding corporate bonds:

$$\text{Bonds}_{ijts} = \alpha_0 + \alpha_1 \text{Size}_{ijst-1} + \alpha_2 \text{Risk}_{ijst-1} + \alpha_3 \text{ROA}_{ijst-1} + \Theta X_{ijst-1} + \delta_{jt} + \delta_s + u_{ijst-1} \quad [1]$$

where the dependent variable Bonds_{ijts} is a dummy variable that takes the value of 1 if the corporation i , whose parent company is established in country j and operates in sector s , has a positive balance of outstanding bonds in year t , and takes the value of 0 otherwise.¹³ The main explanatory variable of interest is Size_{ijst-1} , which is the log of total assets and captures the firm size effect. Risk_{ijst-1} includes two measures of business risk. First, the firm's level of indebtedness or leverage, defined as the ratio of interest-bearing debt to total assets. Second, a dummy variable that takes the value of 1 when the Altman Z-score is below a specific threshold and 0 otherwise.¹⁴ The ROA_{ijst-1} variable is the ratio of EBIT (earnings before interest and taxes) to total assets. In addition, matrix X_{ijst-1} contains two controls that capture various firm characteristics: i) the ratio of cash to total assets (a measure of liquidity); and ii) the ratio of tangible fixed assets to total assets. Lastly, δ_{jt} refers to country-time fixed effects and α_s to sector fixed effects, to correct for any variability that one or more of these factors may generate.

Regression model [1] has an R^2 of 37.4%. Therefore, the variables of this model explain 37.4% of the variability in the probability of a firm issuing bonds.

Chart 2.1 shows the explanatory power of each of the factors, i.e. the percentage of the variability in the probability of corporate bond issuance (the dependent variable) that is explained by each.¹⁵ As the chart shows, firm size appears to be the most influential factor – far outweighing

¹² 464 in total.

¹³ This variable is used in lieu of the change in the outstanding amounts, since what interests us is the extensive margin, i.e. new issuers.

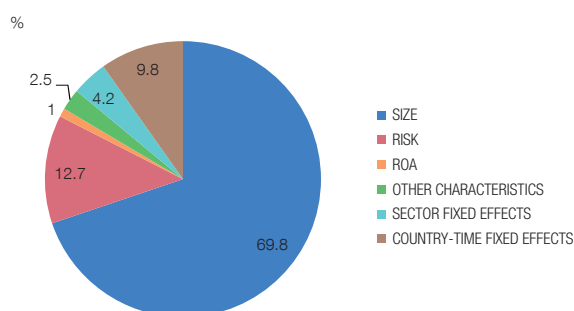
¹⁴ The Altman Z-score is a linear combination of five weighted financial ratios: working capital to total assets, retained earnings to total assets, EBIT to total assets, market value of equity to total liabilities and sales to total assets. A firm is understood to have a high risk profile if the Altman Z-score is below 1.23. For more details, see Altman (1968).

¹⁵ This same estimation was used in an Occasional Paper by Cappiello et al. (2021) for a different time period (2013-2018), in the context of the ECB monetary policy strategy review.

Chart 2

EXPLANATORY POWER AND EFFECT OF FIRM CHARACTERISTICS ON BOND ISSUANCE (a)

1 EXPLANATORY POWER OF FIRM CHARACTERISTICS



2 SIGN OF THE CORRELATION BETWEEN FIRM CHARACTERISTICS AND BOND FINANCING

Characteristic	Sign
Size	+
Risk	
Leverage	+
Z-score	+
ROA	+
Other characteristics	
Liquidity	-
Tangible fixed assets	-

SOURCE: Own calculations, drawing on the ERICA database.

a The explanatory power is expressed in percentages. It is obtained from the R^2 decomposition associated with a regression in which the dependent variable is a dummy variable that takes the value of 1 if the corporation has a positive balance of outstanding bonds in a given year and 0 otherwise. The explanatory variables include proxies for size (the log of the corporation's total assets), risk (Altman Z-score and leverage ratio), ROA (EBIT-to-total assets) and other firm characteristics, such as liquidity (liquid assets ratio), the ratio of tangible fixed assets to total assets, and sector and country-time fixed effects.

any of the others – in explaining whether or not firms use market-based finance, with a descriptive power of 69.8% of the total explained by the independent variables. Specifically, as Chart 2.2 shows, size is positively correlated with the probability of a corporation issuing bonds.

The high explanatory power of firm size shows that SMCs face greater difficulties in accessing market-based funding. The reasons for this could include asymmetric information and agency problems, and the fact that they are generally younger companies and thus have a shorter credit history and less collateral.¹⁶ Moreover, the existence of economies of scale – the larger the corporate bond issue, the lower the cost – would also help explain this firm-size effect on access to debt markets.

Business risk is the second most important factor after firm size, with explanatory power of 12.7%. Higher risk firms are more likely to resort to market-based financing to meet their funding requirements. This could be because their access to bank credit is more constrained owing to their higher credit risk, which entails higher capital requirements for banks. Firms' profitability, measured through ROA, has a positive impact on the probability of accessing market-based funding, although the explanatory power is just 1%.

All the other firm characteristics and the sector fixed effects have an explanatory power of 2.5% and 4.2%, respectively. Lastly, the country-time fixed effects have an

¹⁶ See Jaffee and Russell (1976), Stiglitz and Weiss (1981), Berger and Udell (2006) and Bongini et al. (2021).

explanatory power of 9.8%; this is the third most determinant factor, after firm size and firm risk level. The country-specific factors that might explain firms' access to financing through fixed-income securities include the level of banking penetration, the level of financial market development, the cost of financing through bond issuance (in absolute terms and compared with bank lending), and the level of development of the legal system, among others.¹⁷

¹⁷ For more details on the effect of some of these country-specific factors for the period 2006-2015, see Box 2.3, "Issuance of debt securities by listed groups", *Annual Report 2016*, Banco de España.

4 Impact of the corporate sector purchase programme (CSPP) on smaller firms' market-based financing

Cost is a key factor in firms' decisions to opt for one or another source of funding. Monetary policy, via different channels, can affect the cost of financing through bond issuance compared with financing through bank lending. The ECB's asset purchase programmes have made capital markets a more attractive source of financing in Europe, as they have helped reduce their relative cost. Meanwhile, in a negative interest rate environment, banks have greater difficulties in passing cuts in policy rates through to loans, as their cost of funding through retail deposits is generally limited to 0%, unlike the cost of financing via bond issuance, which makes this source of funding more attractive to firms.

On 10 March 2016, the ECB's Governing Council decided to extend its asset purchase programme (APP)¹⁸ to investment-grade euro-denominated bonds issued by non-bank corporations established in the euro area. This announcement and the subsequent launch of the CSPP in June 2016¹⁹ has helped cut the cost of bond issuance for NFCs, as it has significantly increased demand for these instruments.²⁰

The lower relative cost of financing obtained through bond issuance following the launch of the CSPP appears to have played a part in bank lending being replaced by market-based funding,²¹ reflected in the growth in the percentage of companies issuing corporate bonds. In the case of large firms, the increase in the proportion of listed NFCs issuing fixed-income securities following the launch of the CSPP was concentrated exclusively in Spain and Italy, while in the other two economies analysed here it was virtually unchanged. Specifically, in the four years after the launch of the CSPP (2016-2019), the increase compared with the four previous years (2012-2015) was around 6 pp in both Spain and Italy (see Chart 3.1). There was an even larger increase – of almost 8 pp on average – in the proportion of smaller firms²² obtaining funding through bond issuance in all four big euro area economies (see Chart 3.2). Once more the highest increases were recorded in Spain (14 pp) and, to a lesser extent, in Italy (10 pp), compared with growth of 3 pp in Germany and 6 pp in France.

To analyse in more detail whether smaller firms have become significantly more inclined to issue bonds since the launch of the CSPP, the following regression was made:²³

$$\text{Bonds}_{ijts} = \beta_0 + \beta_1 \text{SMCs}_{ijst-1} + \beta_2 \text{SMCs}_{ijst-1} \times \text{CSPP}_t + \gamma \text{Risk}_{ijst-1} + \omega \text{ROA}_{ijst-1} + \Theta X_{ijst-1} + \delta_{jt} + \delta_s + u_{ijst-1} \quad [2]$$

¹⁸ See "Monetary policy decisions", press release of 10 March 2016, ECB Governing Council.

¹⁹ See Decision (EU) 2016/948 of the European Central Bank of 1 June 2016 on the implementation of the corporate sector purchase programme (ECB/2016/16).

²⁰ See Abidi and Miquel-Flores (2018), Arce, Mayordomo and Gimeno (2021) or Zaghini (2019), among others.

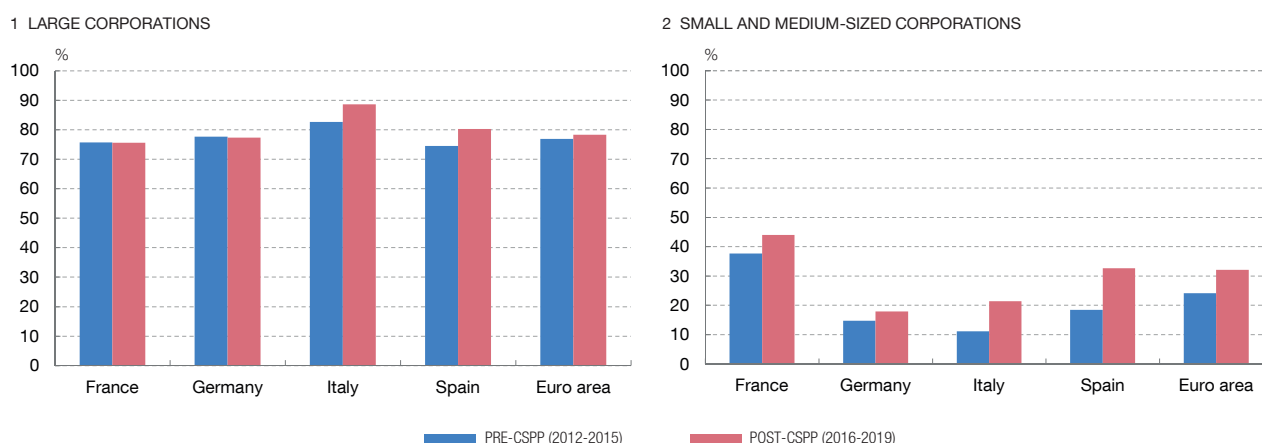
²¹ See Arce, Mayordomo and Gimeno (2021), Bats (2020), Betz and De Santis (2019), Grosse-Rueschkamp, Steffen and Streitz (2019) and Lhuissier and Szczerbowicz (2018).

²² Listed companies with turnover under €1.5 billion.

²³ The period analysed runs from 2012 to 2019.

Chart 3

PERCENTAGE OF LISTED NON-FINANCIAL CORPORATIONS ISSUING BONDS, BY SIZE



SOURCE: Own calculations, drawing on the ERICA database.

where the dependent variable, $Bonds_{ijts}$, is the dummy (bond issuance/non-issuance) variable explained earlier. The explanatory variables of interest are: i) $SMCs_{ijst-1}$, which takes the value of 1 in the case of a small or medium-sized corporation (turnover under €1.5 billion) and 0 otherwise; and ii) the interaction between $SMCs_{ijst-1}$ and $CSPP_t$, with the latter variable taking the value of 1 in 2016, the year the CSPP was launched, and in all subsequent years. The coefficient that multiplies the $SMCs_{ijst-1}$ variable captures the average difference in the probability of an SMC obtaining funding through bond issuance, compared with large firms, before the launch of the CSPP (controlling for all other characteristics of each firm). In turn, the coefficient that multiplies the interaction captures the extent to which the launch of the CSPP affected that average difference. All the other variables in regression model [2] have the same specifications and definitions as in regression model [1].

As shown in column (1) of Table 1, the probability of an SMC obtaining funding on the debt markets before the CSPP was launched was 47 pp lower than for a larger corporation. In turn, the β_2 coefficient indicates that the introduction of the CSPP helped raise that probability compared with large corporations by around 8 pp. This suggests that the CSPP has helped to lower barriers to bond market access for these companies.²⁴

To analyse whether the positive effect of the CSPP in facilitating corporate debt issuance is widespread – i.e. if it is also observed among larger corporations or if it is specific to SMCs – a variation of regression model [2] is estimated. Specifically, instead of using country-time fixed effects, only country fixed effects are used and $CSPP_t$ is introduced as

²⁴ Although not shown in the table, other firm characteristics, such as risk and ROA, also have a significant impact on firms' decisions to issue fixed-income securities.

Table 1

IMPACT OF ECB'S CORPORATE SECTOR PURCHASE PROGRAMME (CSPP) ON FINANCING THROUGH BOND ISSUANCE AT SMALLER LISTED CORPORATIONS (a) (b)

	(1)	(2)	(3)	(4)
Small & medium-sized corporations	-0.466*** [0.040]	-0.475*** [0.040]	-0.440*** [0.036]	-0.446*** [0.035]
Small & medium-sized corporations	0.084*** [0.023]	0.104*** [0.023]	0.066*** [0.020]	0.079*** [0.019]
CSPP		0.018 [0.015]		0.023* [0.013]
Observations	3,216	3,216	4,224	4,224
R ²	0.316	0.290	0.312	0.291
Firm-level controls	Yes	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes	Yes
Country-time fixed effects	Yes	No	Yes	No
Country fixed effects	No	Yes	No	Yes

SOURCE: Own calculations, drawing on the ERICA database.

- a** The table shows the coefficients obtained in regression model [2]. The dependent variable is a dummy variable which takes the value of 1 if a specific corporation has a positive balance of outstanding bonds in a given year, and the value of 0 otherwise. The first variable of interest (SMCs) is a dummy variable which takes the value of 1 if it is a small or medium-sized corporation, and the value of 0 otherwise. SMCs are defined as corporations with turnover under €1.5 billion. The second variable of interest is a dummy variable (CSPP) which takes the value of 1 in the year of launch of the CSPP and in all subsequent years, and the value of 0 in all previous years. The third variable of interest is the interaction between these two variables. These regressions also include firm-level controls, for characteristics such as risk profile, ROA, liquidity and tangible fixed assets, as well as sector and country-time fixed effects. In columns (2) and (4) country fixed effects rather than country-time fixed effects are used; this enables us to estimate the coefficient of the variable CSPP which does not figure in columns (1) and (3). The table shows the coefficients of the variables of interest and their standard errors in brackets. Lastly, ***, ** and * indicate that the explanatory variable of interest is statistically significant at 1%, 5% and 10%, respectively.
- b** The sample period used in all four columns runs from 2012 to 2019. Columns (1) and (2) consider corporations whose parent is established in France, Germany, Italy or Spain, while columns (3) and (4) include corporations from across the euro area with data included in the ERICA database, i.e. the above-mentioned four countries plus Austria, Belgium, Greece and Portugal.

an explanatory variable. This variable indicates the average difference in the probability of larger corporations obtaining financing through bond issuance before and after the launch of the CSPP. As column (2) of Table 1 shows, the conclusion drawn is that the CSPP has had no statistically significant impact on the probability of larger corporations obtaining financing through bond issuance. Moreover, the new model continues to show an increase in that probability for smaller firms compared with larger ones.

These results are consistent with those obtained for Spain by Arce, Mayordomo and Gimeno (2021), who conclude that the CSPP has driven up the propensity of Spanish firms to issue bonds and helped new issuers access the bond markets.

Lastly, in columns (3) and (4) of Table 1, the same estimates are made as in columns (1) and (2), but using the set of corporations for all the euro area countries included in the ERICA database (i.e. the big four economies plus Austria, Belgium, Greece and Portugal) and for the same sample period (2012-2019). The number of observations increases by just 31%, as most of the corporations are established in the four major economies. These

results are consistent with those shown in columns (1) and (2) and support the robustness of the core analysis. However, in the new sample, the CSPP has a positive and marginally significant effect on large corporations, owing to the effect associated with them in the new countries included in the analysis.

The CSPP has made bond issuance more attractive, not only for traditional issuers but also for firms that had no previous experience on the debt markets. Thus, on data drawn from the ERICA database, almost 12% of corporate fixed-income securities in circulation from 2016 were issued by listed groups that had no issuance experience prior to 2012, compared with just 5% in the years previous to the introduction of the CSPP. These newcomers to the bond markets tend to be smaller than firms that have prior issuance experience (on average, the latter have around 17 times more total assets than new issuers).

Accordingly, the CSPP has achieved a more balanced corporate funding structure between bank loans and fixed-income securities, especially for non-financial groups whose debt has been acquired under the programme. Net asset purchases under the APP will foreseeably be discontinued in 2022 and this will greatly reduce the beneficial impact of the CSPP (which is part of the APP) on corporate bond issuance. However, the commitment to fully reinvest the principal payments from maturing debt securities purchased under the programme for an extended period of time means that the Eurosystem will remain active in this market segment during that period. In any event, the increase in the number of new issuers following the introduction of the CSPP is likely to have helped them gain the experience and visibility needed to continue issuing debt securities in the future.

The temporary nature of the CSPP means that other structural measures to lower the barriers to bond market access for small firms remain necessary, to afford them the opportunity to achieve more diversified funding sources and, therefore, more resilience. In this respect, completing the CMU could enhance capital market access for smaller firms. The CMU aims to create a single EU capital market, eliminating the current financial fragmentation between countries, to enable funding to flow between those supplying and those seeking funds under the same conditions as within the capital markets of each individual country. By combining all those markets into one single European capital market, the European Commission hopes to encourage the latter's development and enable it to attract a much higher volume of funding than the simple sum of the national capital markets. Thus, a single European capital market with greater breadth and depth, alongside uniform requirements and rules for all those supplying and seeking funds, should make it easier for smaller firms to access these markets, lowering the barriers they currently face.

However, since the CMU initiative was launched in 2015 there has been little progress, despite the legislative effort. The CMU affects a multitude of interconnected regulations. Moreover, other key aspects for achieving greater financial integration have not yet (or have only timidly) been addressed. These include cross-border withholding tax procedures (which affect corporate income tax and investment income under personal income tax), business insolvency laws, and supervisory convergence across financial markets (especially in the

insurance and pension fund sectors). The European Commission's current action plan envisages 16 legislative and non-legislative actions through end-2023, to deliver on three key objectives.²⁵

25 See "A capital markets union for people and businesses-new action plan", September 2020, European Commission.

References

- Abidi, N. and I. Miquel-Flores (2018). "Who benefits from the corporate QE? A regression discontinuity design approach", *ECB Working Paper* No 2145.
- Altman, E. (1968). "Financial ratios, discriminant analysis and the prediction of corporate bankruptcy", *The Journal of Finance*, 23(4), pp. 589-609.
- Arce, Ó., S. Mayordomo and R. Gimeno (2021). "Making room for the needy: the credit-reallocation effects of the ECB's corporate QE", *Review of Finance*, 25(1), pp. 43-84.
- Banco de España (2017). "Financing and investment decisions of Spanish non-financial corporations", Chapter 2, *Annual Report 2016*.
- Bats, J. (2020). "Corporates' dependence on banks: the impact of ECB corporate sector purchases", *De Nederlandsche Bank Working Paper*, No 667.
- Berger, A. and G. Udell (2006). "A more complete conceptual framework for SME finance", *Journal of Banking & Finance*, 30(11), pp. 2945-2966.
- Betz, F. and R. de Santis (2019). "ECB corporate QE and the loan supply to bank-dependent firms", *ECB Working Paper*, No 2314.
- Bongini, P., A. Ferrando, E. Rossi and M. Rossolini (2021). "SME access to market-based finance across Eurozone countries", *Small Business Economics*, 56(4), pp. 1667-1697.
- Brei, M., G. Ferri and L. Gambacorta (2019). "Financial structure and income inequality", *BIS Working Paper*, No 756.
- Cappiello, L. et al. (2021). "Non-bank financial intermediation in the euro area: implications for monetary policy transmission and key vulnerabilities", *ECB Occasional Paper*, No 270.
- De Fiore, F. and H. Uhlig (2015). "Corporate debt structure and the financial crisis", *Journal of Money, Credit and Banking*, 47, pp. 1571-1598.
- Gambacorta, L., J. Yang and K. Tsatsaronis (2014). "Financial structure and growth", *BIS Quarterly Review*, March.
- Grosse-Rueschkamp, B., S. Steffen and D. Streitz (2019). "A capital structure channel of monetary policy", *Journal of Financial Economics*, 133(2), pp. 357-378.
- Holm-Hadulla, F. and C. Thürwächter (2021). "Heterogeneity in corporate debt structures and the transmission of monetary policy", *European Economic Review*, 136, 103743.
- Jaffee, D. and T. Russell (1976). "Imperfect information, uncertainty, and credit rationing", *The Quarterly Journal of Economics*, 90(4), pp. 651-666.
- Lhuissier, S. and U. Szczerbowicz (2018). "Monetary policy and corporate debt structure", *Banque de France Working Paper*, No 697.
- Russ, K. and D. Valderrama (2012). "A theory of bank versus bond finance and intra-industry reallocation", *Journal of Macroeconomics*, 34(3), pp. 652-673.
- Stiglitz, J. and A. Weiss (1981). "Credit rationing in markets with imperfect information", *American Economic Review*, 71(3), pp. 393-410.
- Tengulov, A. (2020). "The value of borrowing diversity: evidence from the financial crisis of 2007-2009", *Working Paper*.
- Zaghini, A. (2019). "The CSPP at work: yield heterogeneity and the portfolio rebalancing channel", *Journal of Corporate Finance*, 56, pp. 282-297.

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