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CORPORATE BONDS ISSUES DURING ANTI-CRISIS ACTIONS BY THE EUROPEAN CENTRAL BANK AFTER 2008

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Abstract: The aim of the article is to determine whether the anti-crisis measures of the European Central Bank are conducive to increases in corporate bonds issues. This matter is important because it relates to a period when a very active monetary policy was applied, not only in the euro area countries. The internationalization of the debt markets increased the possibilities of indebtedness in the financial markets, with the excessive risk of the mass insolvency of various enterprises and even countries. The author points out that the actions of the European Central Bank have significantly changed the terms of issuing corporate bonds. The conclusions of this study are based on a comparative analysis of the volume of bond issues (with interest rates correlations), changes in ratings, and the impact of central bank intervention on the corporate bond market, mainly in the euro area and the USA. Additionally, debt sector indices (government, financial and corporate) were used. The time series mainly cover the period 2011-2019, but some figures come from earlier times. Central bank interventions in the bond markets (mainly the purchase of corporate bonds) increased corporate bond issues and shifted funding from loans to bond issues as other sectors slightly reduced the use of this type of debt.

Keywords: bond market, interest rates, central banks, corporate ratings, financial crisis.

1. Introduction

All too often, all financial scarcity problems are addressed through new issues or debt rollover in both the private and public sectors. Large-scale lending has increased over many years due to the internationalization of markets, only temporarily constrained

by crises. However, some concerns have emerged about the possibility of keeping money as before and the risk of increasing world debt recorded each year. Therefore the rationale for choosing the topic is that the data on the volume of bond issues by some groups of issuers since 2011 are starting to indicate that the constraints of the debt markets sold in the form of bonds are becoming more and more visible. Obviously, there has been no departure from borrowing money by selling bonds both in the euro area and in other countries with highly developed financial markets.

The aim of the article is to determine whether the anti-crisis measures of the European Central Bank are conducive to increases in corporate bond issues. After the crisis of 2008, the scope of influence on financial markets by central banks was increased, aimed at reducing the risk of further economic problems, expressed e.g. by the worsening corporate bonds ratings.

The implementation of the indicated goal prompts to propose the following research questions:

1. Did the post-crisis actions of the ECB give corporations better conditions for issuing bonds?

2. Can monetary policy stimulate the supply of corporate bonds?

The conclusions of this study are based on a comparative analysis of the volume of bond issues, changes in interest rates, changes in corporate ratings, and the impact of central bank intervention on the corporate bond market, mainly in the euro area and the USA. Additionally, several sectorial debt ratios (government, financial and corporate) were used. The time series mainly cover the period 2011-2019, but some figures start from earlier years. From the viewpoint of periodization, the selected topic is important, because of the annual growth rate of the broad monetary aggregate M3 changes: at the turn of 2007 and 2008 (during the crisis): 11.6%, at the turn of 2010 and 2011: 0.0%, from 2011: 1.4%, and at the end of 2019: 4.9% (June 2020 9.2%) (European Central Bank [ECB], 2020).

2. Bond market connections and selected messages from central banks

The fact that the limits of maximum debt have been reached are evidenced by the announcements of the main central banks on guarantees for the purchase of corporate bonds and the official or actual formation of the yield curve. The European Central Bank announced in 2016 the purchase of corporate bonds without the lack of upper spending limits (ECB, 2016), which actually really means shaping the yield curve (Ainger, 2020). The Fed also started action as the quantitative easing was unlimited and provided very broad access to credit. The purchase of US bonds is intended for debt funds investing in investment-grade corporate bonds, but some of the money will also be used to purchase ETFs with the so-called junk bonds (non-investment ratings) (Secondary Market Corporate Credit Facility) (Board of Governors, 2020). The Policy Board of the Bank of Japan officially decided to control the yield curve

in the short and long run, and increase the amounts of money for the purchase of corporate bonds, ETFs, REITs (Bank of Japan, 2020).

The Japanese experience shows that long-term very low interest rates induce domestic investors to buy foreign bonds. This is accompanied by getting rid of the national currency. Both of these factors may limit new bond issues, which creates the need of bond purchase intervention (Beat, Broda, Kroszner, & Ito, 2015, p. 61).

The specificity of the ECB's intervention is evidenced by the strongly accentuated unconditional purchase of corporate bonds on the secondary market, but also on the primary market. The second cornerstone of the program is the purchase of only corporate bonds denominated in euro (ECB, 2020). An analysis based on a subgroup of companies issuing bonds in at least two currencies showed an increase in the issuance of bonds denominated in euro (Todorov, 2019, p. 15).

Regarding the ECB's intervention program, studies of over 12 000 bonds in the period 2013-2018 indicate that this significantly contributed to the growth in the size of the corporate bond market in the two years following the introduction of purchases from March 2016 (Santis de & Zaghini, 2019).

The balance sheets of many entities registered in the euro area showed a significant increase in total debt through investment grade bonds compared to instruments without investment grade (Grosse-Rueschkamp, Steffen, & Streitz, 2019, p. 34). Attention was also paid to the spillover effect of the bond purchase intervention program, which manifested itself in replacing a bank loan with a bond debt. As a result, bank credit restrictions were eased, which allowed banks to increase loans to corporations that did not enter the bond purchase program (Grosse-Rueschkamp et al., 2019, p. 2).

The corporate bond spreads become significantly reduced in several financial market segments (Rischen & Theissen, 2018).

3. The increase in the volume of corporate bond issues

Basically, the indebtedness of corporations in the European Union and in the world shows an upward trend, e.g. in 1991-2011 the volume of issuance increased several dozen times (Bank for International Settlements, 2020). It even seems that all participants of the financial markets did not have to take into account the maximum possibilities of demand for subsequent bond issues, and the only periods of weaker interest were the times of crisis.

Figure 1 shows that apart from the non-financial sector which issues bonds to an increasing extent (upward trend line), there was no increase in debt issuance in any of the analyzed sectors (to make it more visible, the right axis in the chart was added for the non-financial sector). For example in 2020, mainly due to non-financial enterprises in China, there was an increase in world debt (*Global debt...*, 2020). Figure 1 also shows that for the euro area governments and financial sector in 2011-2014 a period of stabilization and then a downward trend appeared. In addition, it is worth noting that e.g. not increasing some debts is indirectly proved by the BIS, pointing out that Brazil,

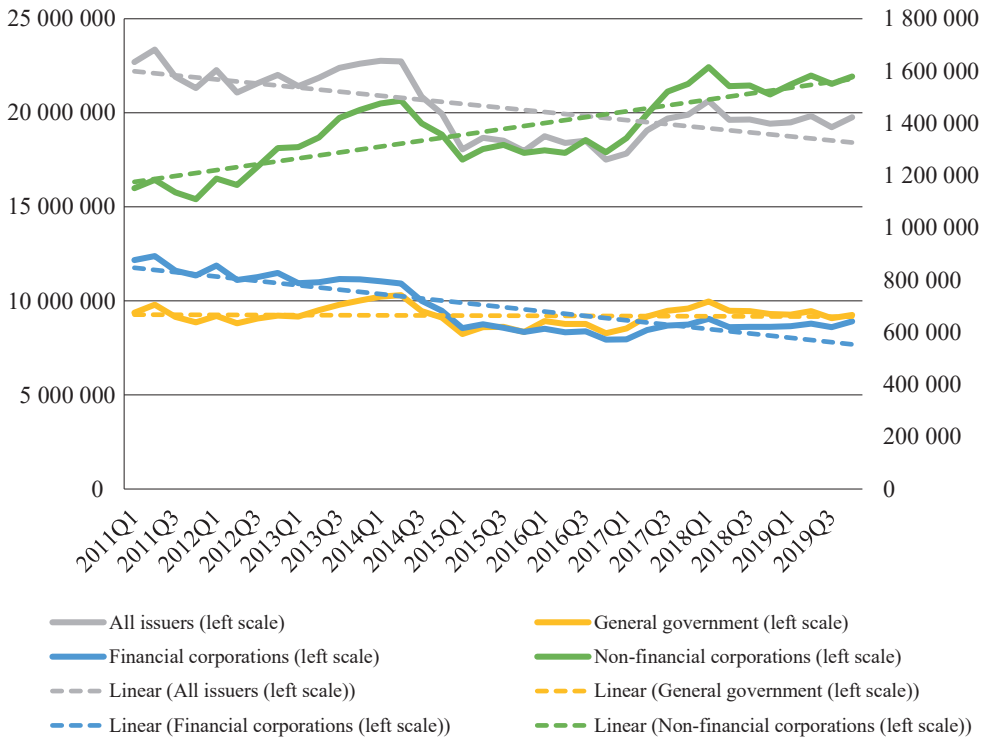


Fig. 1. Euro area bond issues in USD million (2011-2019)

Source: own calculations based on (Bank for International Settlements, 2020).

India, Mexico, and Saudi Arabia have shifted their debt to a sideways trend (BIS, 2020, p. 10). This can be explained, for example, by other possibilities (or the necessity) of securing the debt than in the case of financial or even government bonds. The latter has the highest financial security guarantees, but always offers the lowest-yielding bonds. It can be seen that the government and financial sectors clearly correlate with each other in the course of the bond issue.

Figure 2 shows that the non-financial sector to government ratio is increasing, and the financial sector to government ratio is clearly decreasing. This means that contrasting trends have emerged between the financial and non-financial sectors after the 2008 crisis and in the following years. The market of selectively selected corporate debt still turns out to be receptive to new issues. This may indicate that the debt is rolled over without increasing it which means that if completely new financial needs arise, it will become necessary to look for new sources of financing, rather than bonds. It should be emphasized that as a result of the crisis the government and banking sectors have been subject to strict regulations that define the methods and ratios of acceptable debt.

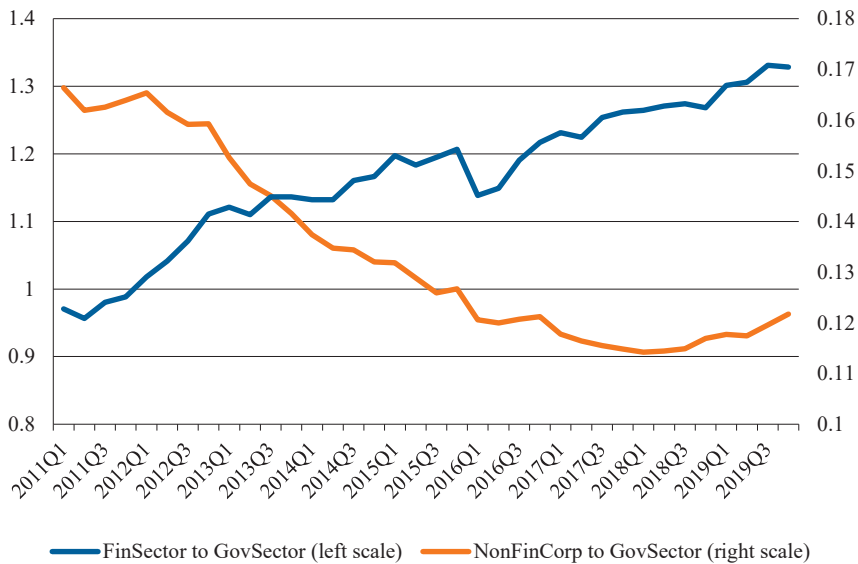


Fig. 2. Financial and non-financial sector to the government sector bond issues (ratios) in the euro area (2011-2019)

Source: own calculations based on (BIS, 2020).

Changes in the dynamics of corporate bond issues also affected Poland, the largest of the new European Union countries (the Catalyst market, Warsaw Stock Exchange). From the establishment of this entity in 2009 to 2011, it almost tripled the number of issuers and the value of the issue. However, by 2019 the number of series increased from 207 to 496, in 2015 there were already 472 series, but by 2019 it did not exceed 573. The total value of issues increased from USD 116 806 million in 2011 to USD 140 192 million in 2015, but only in 2016 did it increase from USD 156 815 million to USD 185 715 million in 2019. It can be concluded that the slowing growth rate of bond issues on the WSE Catalyst shows that the crisis has rationalized the actions of issuers and investors also in Poland (*Statystyki Roczne*, 2020). This took place amid progressive cuts in interest rates and the introduction of asset purchase programs in the euro area and throughout the European Union, and in many other countries.

4. Long-term downward trend in interest rates

One of the most important factors in shaping the terms of bond issue was the reduction of interest rates (the low level of foreign interest rates is an important decision-making factor in the choice of the debt issuance currency (Habib, 2008, p. 13)). Even in the 1990s, average interest rates in the countries present in the euro area exceeded

6%, and after 2003, several times to 2%. However, even these levels were not the end of the reductions (a drop below 1pp in 2013: 0.543%, then 2014 0.555%, 2015 0.323%, 2016 0.058% (*Euribor rates*, 2020)). After successive crises and problems in the euro area with increasing the dynamics of economic growth, the European Central Bank introduced negative interest rates (2017 -0.083%, 2018 -0.186%, 2019 -0.121%, 2020 -0.248% (*Euribor rates*, 2020)). This happened despite incurring public debt above 90%. In this context, the growing amount of global debt will also limit bond issues (at the end of the first quarter of 2020, world debt in relation to GDP was 331%, and total debt reached USD 258 trillion (*Global debt...*, 2020)).

Figure 3 presents the course of the drops in average interest rates (EURIBOR-12m and LIBOR-12m), which shows the conditions conducive to the freedom to shape interest rates on bonds. It can be seen that only for the non-financial sector the decrease in short-term (EURIBOR-3m) and long-term (EURIBOR-12m) rates turns out to be favourable for further indebtedness (upward trend line). For other sectors, low debt costs were not sufficient to drive bond issues, which seems to indicate debt levels, whose increase is becoming very risky.

Using Pearson's r correlation coefficient for each pair of variables, a null and an alternative hypothesis was made. The null hypothesis (H_0) assumed that there was no statistically significant relationship between the variables in a given pair, while the alternative hypothesis (H_1) assumed that there was such a relationship. On the basis of the obtained p values and degrees of freedom, decisions were made about leaving or rejecting the null hypothesis by comparing the value of the assumed significance level ($\alpha = 0.05$). The tested time series are equal, they include 32-quarter data for interest rates and bond issues. For the correlation of two variables, the number of degrees of freedom is the number of test elements minus two. Therefore the number of degrees of freedom is 30 for the studied pairs of variables.

As shown in Table 1, there is no statistical significance for the correlation of general government with the interest rates (no reason for rejecting H_0 , because the correlation is not statistically significant $p = 0.5329$ for Euribor m3, $p = 0.4823$ for Euribor 12m). The general government looks neutral to the impact of low interest rates (correlation is weak 0.11-012).

Significance levels below 0.05 require H_0 to be rejected in favour of H_1 , which states that the relationship (correlation) is statistically significant. Table 1 shows that, except for general government, all correlations had a very low p value (<0.001 , which means statistically significant). Absolute values of the correlation were high, 0.69 to 0.86, and almost identical for the 3-month and 12-month Euribor. This shows the importance of low interest rates for bond issues. Particularly noteworthy is the opposite direction of correlation with the increase in the issuance of non-financial sector bonds. In this case there is a strong link with the active monetary policy, which will be discussed below (the intervention program for the corporate bonds purchase).

If one treats the drop in interest rates as a decrease in financing costs, then there should be no co-occurrence with declining tendencies in bond issues. It is worth

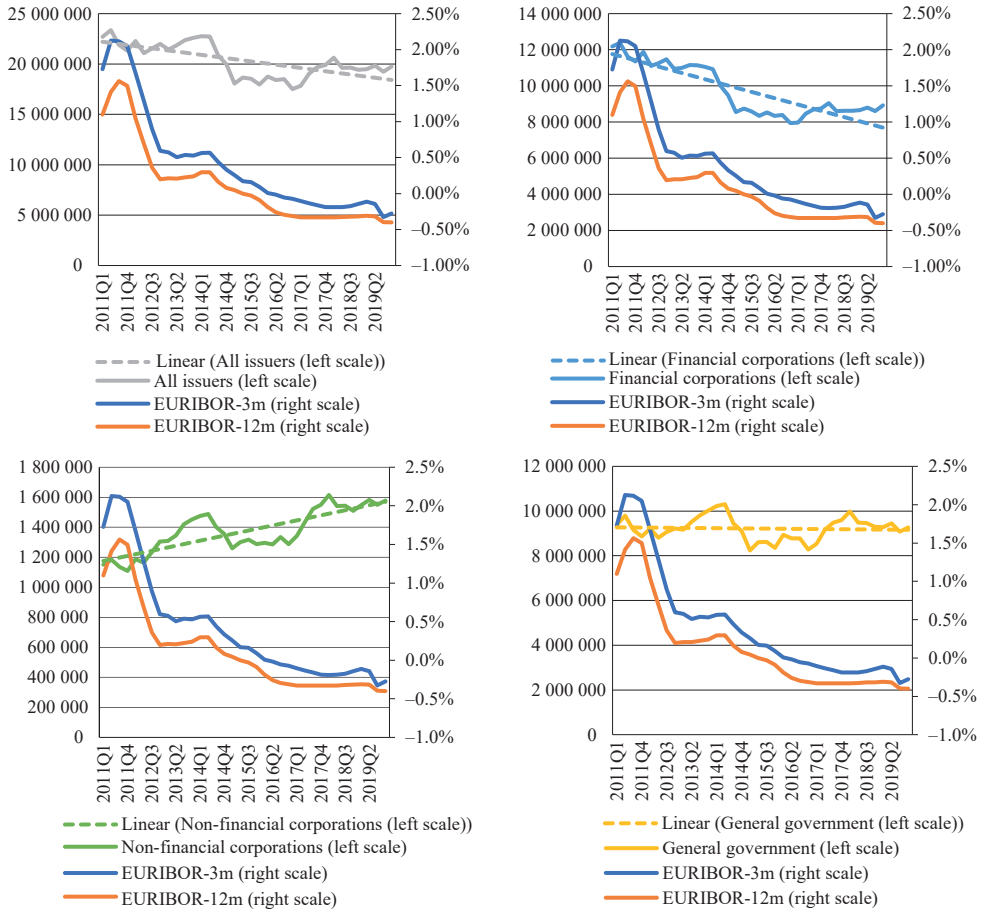


Fig. 3. Government, financial and non-financial sector bond issues (in USD million) against short-term interest rates (EURIBOR-3m) and long-term interest rates (EURIBOR-12m) (2011-2019)

Source: own calculations: 3 and 12 months Euribor rate (*Euribor rates*, 2020), bond issues (BIS, 2020).

Table 1. Pearson correlation interest rates and bond issues in the euro area

	All issuers	General government	Financial Corporations	Non-financial corporations
EURIBOR 3m	0.7	0.11	0.86	-0.77
<i>p</i> -value	<0.001(H1)	0.5329 (H0)	<0.001(H1)	<0.001(H1)
Degrees of freedom	30	30	30	30
EURIBOR 12m	0.69	0.12	0.85	-0.74
<i>p</i> -value	<0.001(H1)	0.4823(H0)	<0.001(H1)	<0.001(H1)
Degrees of freedom	30	30	30	30

Source: own calculations: 3 and 12 months Euribor rate (*Euribor rates*, 2020), bond issues (BIS, 2020).

noting that the correlation coefficients with interest rate declines are not entirely obvious, as each of the indicated sectors differs greatly in terms of their legal status (general government and financial corporations are subject to very restrictive maximum debt regulations in all EU member states).

At zero interest rates, the entire amount of interest is dependent on the issuer to all effects. In the case of the analysed sectors, the benefits of lower and record negative interest rates in 2020 may be better discounted by the government and financial sectors due to their specificity. They especially take advantage of the fact that the central banks of the largest countries have launched the quantitative easing on a large scale. This is a different situation for various corporate entities and even euro area and US entrepreneurs who do not have much experience with bond rates shaping under conditions of zero or negative interest rates. Companies also have to predict whether the bonds will be subject to floating or fixed interest rates.

It should also be noted that negative interest rates will also discourage the purchase of bonds. Such conditions can strongly favour large private investors (pension funds, insurers and financial institutions) which, due to their size, have usually few other safe places to hold their assets and therefore can accept a small loss. The acceptability of such an attitude is evidenced by the growing Bloomberg Global Negative Yielding Debt Index (the value of negatively bearing debt), which increased from USD 2 trillion to USD 16 trillion in 2019 (Mullen, 2019).

5. The excess of weak enterprises with low-quality debt

Despite the fact that the development of the corporate bond market has long been favoured by decreases in interest rates, not every debt issuer is able to take advantage of this factor. This was expressed in a rising amount of the ever-weaker ratings even before the 2008 crisis. Unfortunately, this did not limit the determination of the securities' profitability at the limit of its debt-servicing capacity. Therefore it was concluded that the obtained rating is of great importance for the forecasts of how long a given company will be able to survive on the market. It has been shown that investment grade issuers worldwide tend to achieve greater rating stability over the following years (e.g. 93.7% of issuers at the beginning and end of 2019 were rated "A"). In the case of ratings at speculative level, the situation of enterprises frequently deteriorates in the following years (the share of issuers rated "B" was 78.6%) (S&P Global Ratings, 2020, p. 46).

Figures 4a, 4b, 4c provide a summary of rating changes for corporations in the world, for the euro area countries and the USA. The growing number of speculative-grade issuers led to a noticeable change in the relationship between investment and speculative ratings at the end of 2019. Globally, speculative-grade issuers represent 49.9% of the rated corporate issuers. In 2009-2019, more than 75% of the initial ratings given to new issuers by the S&P Global Rating were speculative (this figure includes new past default ratings). However, even if one limits the pool of new issuers

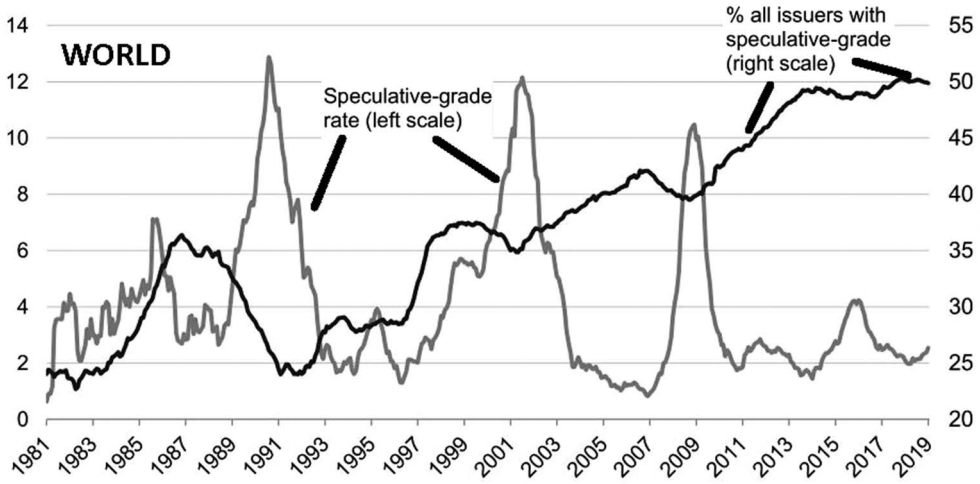


Fig. 4a. World Corporate Speculative-Grade Default Rate Versus Prevalence of Speculative-Grade Issuers (left and right scales are %)

Source: (S&P Global Ratings, 2020, p. 44).

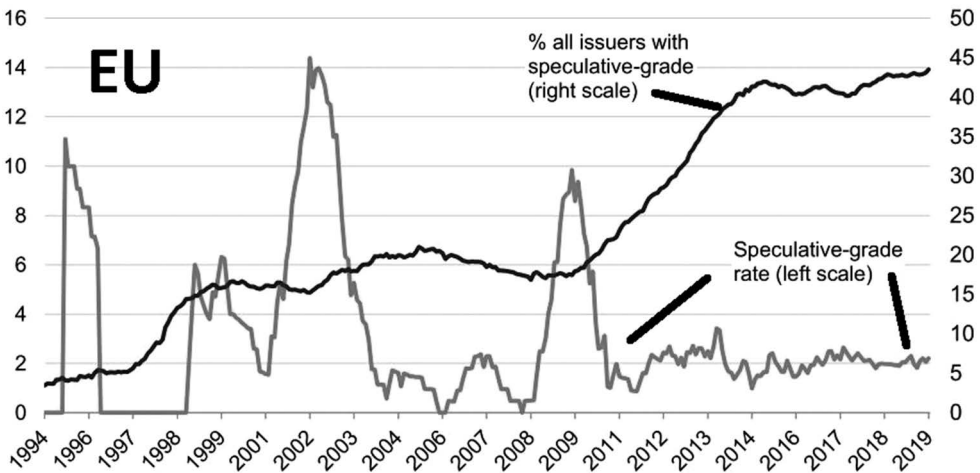


Fig. 4b. EU Corporate Speculative-Grade Default Rate vs Prevalence of Speculative-Grade Issuers (left and right scales are %)

Source: (S&P Global Ratings, 2020, p. 45).

to those who have never been rated before, speculative issuers still make up 74% of the total [S&P Global Ratings, 2020, pp. 44-45]. Comparing the ratings of companies from the European Union (Figure 4b) and the USA (Figure 4c), one can clearly see

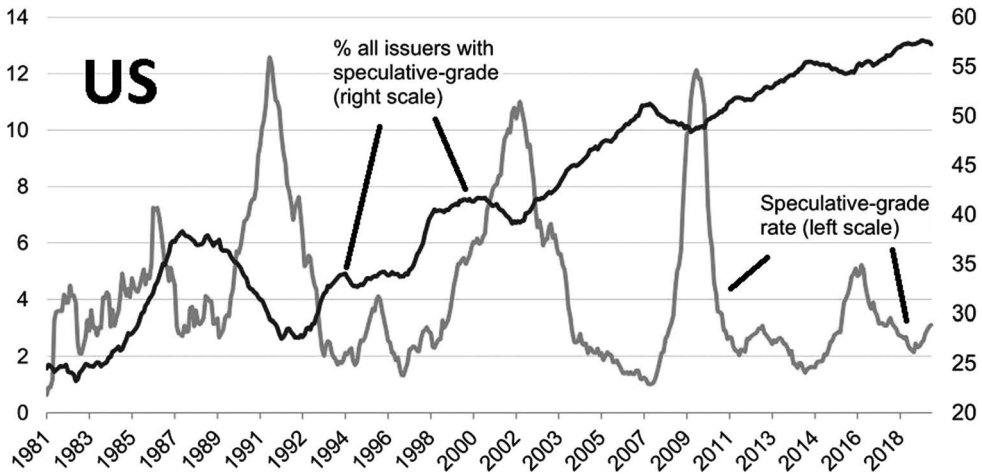


Fig. 4c. US Corporate Speculative-Grade Default Rate vs Prevalence of Speculative-Grade Issuers (left and right scales are %)

Source: (S&P Global Ratings, 2020, p. 45).

an improvement in stability in the case of European corporations after the last two decades, in which the number of weaker ratings was several times higher than in the USA. It is emphasized that the historically growing number of speculative ratings often precede a period of losing financial liquidity. For example, while in the United States it reached 51% in 2007, the default rate peaked at 12% in 2009, while in the European Union the share of speculative assessments was lower. In 2006 the share of European corporate ratings at a speculative level peaked at nearly 21%. Since 2008 the number of speculative assessments in the euro area rose to 43.5% at the end of 2019, largely due to newly assigned speculative assessments. Before 2010 most of the newly assessed European ratings were investment ratings, but since then around 73% of them have shifted to speculative (this ratio was 77.3% in 2019) [S&P Global Ratings, 2020, p. 44]. As for the example of the new member states, in Poland the share of outstanding issues in 2013-2019 ranged from 1% in 2017 to 8% in 2014 and 6% in 2019.

Figure 5 shows that comparatively there has been a global increase in the number of speculative ratings across all sectors (with the lack of separate data for euro area and the USA). It should be emphasized that between 2009 and 2019 many crisis events did not motivate bond issuers to improve the quality of debt. There were more cases in which they showed better skills in hindering the recovery of receivables for bonds sold. Therefore it becomes more difficult to roll over debt and there is also a greater risk that even the investment rating is short-lived. Increasingly, investors are being gently forced to be more tolerant of risk (Wansem van der, Jessen, & Rivetti, 2019, p. 6).

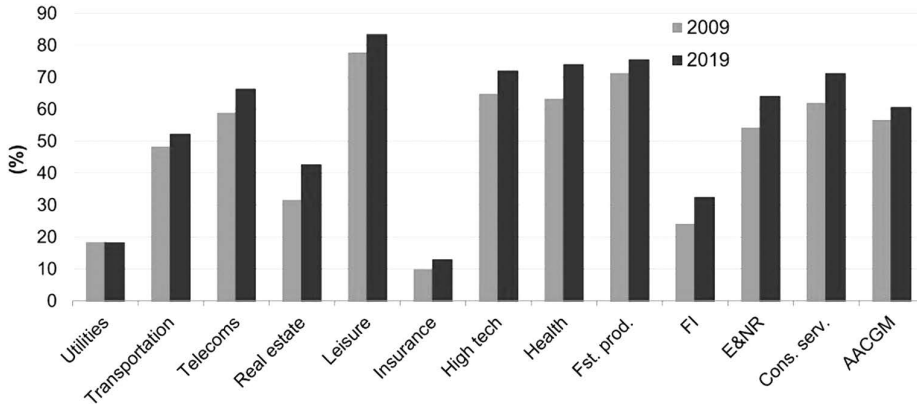


Fig. 5. Global share of speculative-grade ratings to total by industry

Source: (S&P Global Ratings, 2020, p. 42).

6. The scope of changes in the corporate bond market influenced by ECB interventions

It is worth noting that the actions of central banks have a strong influence on the corporate bond market, both through quantitative easing and through direct purchases of corporate bonds.

In terms of the impact on the choice of issuing currency, the OECD points out that as the US began to gradually tighten its monetary policy in 2015, the ECB eased its policy (interest rates in the US and the euro area diverged, US firms issued more euro-denominated bonds). In 2015-2017, American companies issued the largest issues in euro (USD 68 billion annually), which gave an 8% share of euro-denominated bonds in the entire issue of American corporate companies (Çelik, Demirtaş, & Isaksson, 2019).

Regarding the influence of central banks on corporate bonds, the impact of US quantitative easing was examined. If the Fed had not launched it in 2009, the issues of corporate bonds in emerging markets by 2012 would have been as much as a half smaller. Another important aspect for the advanced economies' purchases of securities was the main transmission channel of QE programs (Duca, Nicoletti, & Martinez, 2014). When the Bank of Japan purchased corporate bonds before 2018, it caused, among others, widespread drops in credit spreads, which further increased the shortage of corporate bonds (Suganuma & Ueno, 2018, p. 2).

The scope of the impact of ECB intervention on the corporate bond market from 2016 should also be indicated. It is obvious that central bank influences are aimed at restoring market equilibrium, but the ECB did not impose restrictions in the event of

various effects of corporate bond purchases. Spreads, initial issues, changes in the debt structure of the entities subject to intervention and the financing conditions for corporate bond issues were particularly affected.

First of all, the ECB corporate sector purchase program has shifted non-financial corporations preferences to issuing euro-denominated bonds in amounts similar to those before 2015. The period of intervention increased the share of non-financial sector bond issues denominated in euro. The bigger bonds issues of the ECB purchase program were most noticeable in Germany, Spain, France, Italy and the Netherlands. It is important to underline that banks whose bonds were not subjected to the ECB purchase decreased their activities related to financing the bond issue [Santis de, Geis, Juskaite, & Vaz Cruz, 2018, p. 73].

Spreads have narrowed not only for bonds taken to ECB intervention, but also for corporate bonds that are not subject to the purchase program (e.g. bank-issued, high-yield). The intervention increased the influence of changing the corporate bond spread on the cost of financing. Among other features of bonds, it should be noted that the maturity of newly issued bonds eligible for the ECB purchase program increased by about five months between March 2016 and October 2017 (from 8.9 to 9.3 years) (Santis de et al., 2018, pp. 69-74).

The corporations covered by the program show much greater preferences for using bonds than bank loans (Figure 6). Since the announcement of the ECB purchase program, net bond issuance by the non-financial sector as a whole has increased relative to the net flows of loans for non-financials from monetary financial institutions. In many cases, the mere qualification for inclusion in the intervention program strengthened the replacement of bank financing with bond financing. The

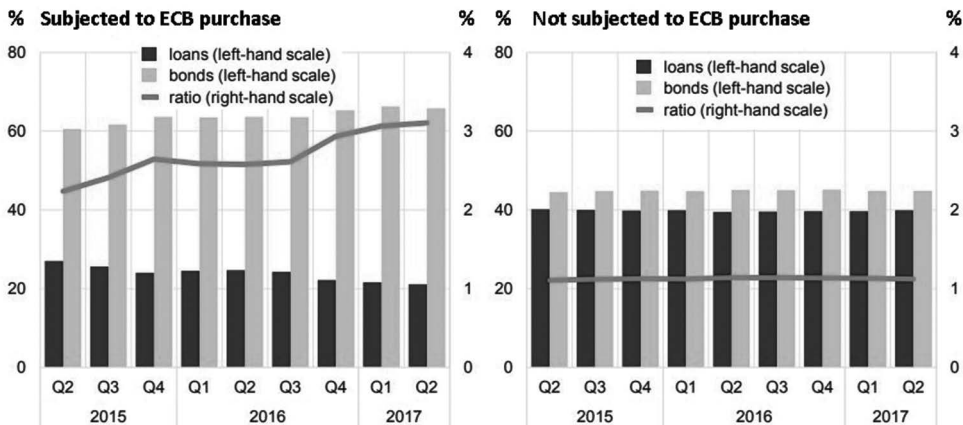


Fig. 6. Debt structure of non-financial corporations subjected/not subjected to the ECB purchase program

Source: (Santis de et al., 2018, p. 76).

increase in non-financial sector bond issuance was based on a shift from bank to market financing. Since the announcement of the ECB purchase program, the net issuance of bonds by the non-financial sector as a whole has increased compared to the net flow of loans to non-financials from central banks. Bonds of non-financial corporations with ECB purchase program bonds showed an increase in the share of bonds in the overall debt structure. On the other hand, the share of long-term bank loans changed from about 24% to 21% (2015-2017) (Santis de et al., 2018, p. 75).

Another area of influence was increasing the balance sheet capacity of banks to grant loans to companies not subjected to the ECB purchase program (an overall increase in net ECB lending to the nonfinancial sector). Some companies subjected to the ECB purchase program were shifting their funding from bank loans to bonds issues (Santis de et al., 2018, pp. 77-78).

7. Conclusion

The conducted analyses show that the various anti-crisis measures of the European Central Bank facilitated the increase in the growth of corporate bond issues in the euro area. As for the first of the questions (whether corporations obtained better terms of issuing their bonds), it should be emphasized that the answer is positive. It should also be noted that the introduction of various anti-crisis measures led to this, and one of the most important, with a very wide range of impact on the markets, was the reduction of interest rates for at least a decade. The magnitude of the decline in interest rates reached negative levels, which meant a decline to historically low levels. Additionally, in order to combat the effects of the crisis, a program of purchasing corporate bonds and tools ensuring liquidity at favourable interest rates to banks granting loans to non-financial corporations was implemented. These actions improved the conditions of the issue as corporations received support reducing the risk of insolvency. As a result, bond spreads also narrowed. This proves the reduction of debt costs for all entities, and is particularly important in the issue of corporate bonds.

As for the second question (whether monetary policy can stimulate the supply of corporate bonds), it should also be emphasized that the answer is positive, because the ECB has strengthened the possibility of issuing bonds as an alternative to financing from a bank loan. Thanks to this, the possibilities of securing against future crisis phenomena have increased because corporate debt issuers have only recently been included in the intervention purchase of their bonds.

It is worth noting that the ECB decided to make a selection among corporations with regard to the quality of corporate debt. The central bank supported corporations with investment grade bonds and ignored corporations without this status. In the latter case, funding was shifted to banks. As a result, the intervention activities provided significant support to corporations that are safer and can increase the

issues of their bonds. The analyses do not show that the central bank's actions increased the issue of all types of bonds. This is especially true as regards the fall in key interest rates.

It should be emphasized that the expansionary monetary policy significantly increased the role of the central banks as a participant in the economy. In this way, the ECB has become the main decision-maker of local and international bond markets in areas other than interest rate changes. It should also be stressed that the ECB's launch of activities aimed at diversifying its financing is a significant breach in the long-promoted limitation of the role of the central bank mainly to controlling interest rates.

As far as further analyses are concerned, it is necessary to extend the research to the extent to which similar tools used in other countries with the most developed economies have produced similar effects on the corporate bond markets (e.g. the USA, Japan). The second research issue of importance is the problem of corporate financing dependence on the support of the ECB. For this reason, limiting or suspending aid programs can be very harmful both to issuers and investors.

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EMISJE OBLIGACJI KORPORACYJNYCH W OKRESIE DZIAŁAŃ ANTYKRYZYSOWYCH EUROPEJSKIEGO BANKU CENTRALNEGO PO 2008 ROKU

Streszczenie: Celem artykułu jest ustalenie, czy działania antykryzysowe Europejskiego Banku Centralnego sprzyjają wzrostom emisji obligacji korporacyjnych. Kwestia ta jest ważna, bo dotyczy okresu, w którym zastosowano bardzo aktywną politykę monetarną nie tylko w krajach strefy euro. Umiędzynarodowienie rynków długu zwiększyło możliwości zadłużania się na rynkach finansowych przy nadmiernym ryzyku masowej niewypłacalności różnych przedsiębiorstw, a nawet państw. Autor zwraca uwagę na to, że działania Europejskiego Banku Centralnego w istotny sposób zmieniły

warunki emisji obligacji korporacyjnych. Podstawą wniosków z niniejszego opracowania jest analiza porównawcza wielkości emisji obligacji, zmian stóp procentowych, zmian ratingów, wpływu programu interwencji Europejskiego Banku Centralnego na rynek obligacji korporacyjnych, głównie w strefie euro i w USA. Dodatkowo wykorzystano wskaźniki proporcji zadłużenia sektorowego (rządowego, finansowego i korporacyjnego). Szeregi czasowe obejmują głównie lata 2011-2019, ale niektóre dane liczbowe dotyczą wcześniejszych okresów.

Słowa kluczowe: rynek obligacji, stopy procentowe, banki centralne, ratingi spółek, kryzys finansowy.