Štátne dlhopisy ako kolaterál v refinančných operáciách počas finančnej a dlhovej krízy

Government Bonds as a Collateral in Refinancing Operations during Financial and Debt crisis

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Abstrakt

Súčasná dlhová a finančná kríza priniesla mnohé výzvy nielen pre ekonomiku ako takú, ale aj pre finančné trhy a finančné inštitúcie. Vládne dlhopisy vyspelých európskych krajín boli dlho považované za bezpečnú formu investície, ktorá generuje predvídateľný príjem z kupónov a menovitej hodnoty pri splatnosti – je to dôvod, prečo boli štátne dlhopisy obľúbené medzi investormi pri stabilizovaní portfólií. Dlhová kríza viedla k neschopnosti niektorých krajín Eurozóny splniť svoje záväzky prameniace z dlhopisov vo vzťahu k investorom. Toto opvlyvnilo aj kreditnú kvalitu štátnych dlhopisov, ktoré sú používané ako kolaterál v refinančných operáciách. Účelom tohto článku je poskytnúť prehľad názorov na problematiku kolaterálu vo svetle dlhovej krízy.

Kľúčové slová: *dlhopisy, kolaterál, ECB*

Abstract

The recent financial and debt crisis has brought many challenges not only to economy as such, but also for the financial markets and financial institutions. Government bonds of advanced European countries were long perceived as a safe of form of investment generating predictable income from coupons and face value paid at the maturity – this was the reason why sovereign bonds were popular among investors in order to stabilize their portfolios. The debt crisis has led to inability of some Eurozone countries to meet their liabilities of repaying debts. This also affected the credit quality of government bonds, which are used as a collateral in refinancing operations. The aim of this working paper is to provide various insights on the current collateral issues in light of the debt crisis.

Key words: *bonds, collateral, ECB*

JEL classification: G21, G23

1 Introduction: Government Bonds – are they safe?

Government bonds are an inherent part of all securities and assets portfolios which are created by financial institutions – be it banks, insurance companies or other financial intermediaries managing financial assets. As a financial instrument, government bonds are popular amongst portfolio asset managers – for the fact that they are a stabilizing feature: this statement is based on the fact that government bonds are considered to be a risk-free investment. A state should be able to meet its liabilites in time of maturity and thus is the most credible debtor. This statement is no more valid based on the fact that also a state can fail in repaying its debt to the investors, as seen during the debt crisis in Europe. We have witnessed this fenomenon in recent years, when under the financial crisis and constant increasing of debt burden some Eurozone countries were not able to meet their debt in time. This fact is jeopardizing the stability of the financial sector and credibility of investments in the form of sovereign bonds. The inability of government to pay its debt is only one of many risks connected with investing in state bonds. This type of risk is called the credit risks of bonds.

One of other reasons why government bonds should not be considered as risk-free is that now we are facing the low-interest rates environment and we can expect their rise in the future. Based on the article Are Bonds Still a Safe Bet? It Depends (E. Gjetsen II, 02/2014) the current financial crises has led to low interest rates, when for example FED implemented a policy which saved the economy, but created dangerous conditions for bonds. FED targeted the interest rate at 0,25 % and bought governemnt bonds for trillions American dollars, so that the interest rates stayed low until the economy starts to grow. The example of FED was also followed by another central banks which implemented the zero interest rate policy. According to the theory the low interest rates should lead to cheap money borrowing, which supports the economy growth. Low interest rates affect bank deposits, interbank markets and government bonds. The problem emerges when interest rates start to increase and the price of low-interest bonds issued in the past start to fall. When selling these low-interest bonds, investors reach capital losses. It is a fact that the longer the maturity of a bond the higher the price volatility of the bond towards the change of interest rates. The same is the situation in Eurozone, when the European Central Bank is implementing the policy of quantitative easing and is buying government bonds and other securities in order to lower the interest rates and increase the money supply. Within this policy the ECB will buy governemnt bonds with the maturity from two to thirty years. These bonds should be in EUR and should have an investment grade. The whole purchase should be at 60 million euros a month and it started in March 2015 and should

continue until September 2017. According to the writer at The Telegraph, Jeremy Warner, almost 30 % of Eurozone government bonds in the value of 2 trillion dollars have negative yields. It is mostly the case of German government bonds. The negative yield is the result of combined effect of various factors: the excessive demand for these bonds since Germany is the most credible debtor and there is no doubt of its default of not repaying its debts. The other reason is the outlook of weak European economic growth. There are also no better alternative attractive investments compared to the safe German bonds. This situation is also not supported by low level of inflation. The low interest environment is also maintained by quantitative easing of the ECB. Despite these two kinds of risk mentioned above, there are financial repressions where the stricter regulation of solvency forces the banks and insurance companies to hold more government bonds in their portfolios regardless of the price.

2 Government Bonds as a Collateral in Open Market Operations in the Eurozone

The European Central Bank uses government bonds as one of the collaterals for open market operations, which are a tool of monetary policy. This collateral is also marked as acceptable assets. In case of acceptable assets the ECB applies *haircuts*[4]. They represent a percentage which is deducted from the market price of an asset. ECB uses five main categories, where the percentage is based on the residual maturity, coupon structure and grade of the credibility based on rating. This percentage remains the same during the time of trade.

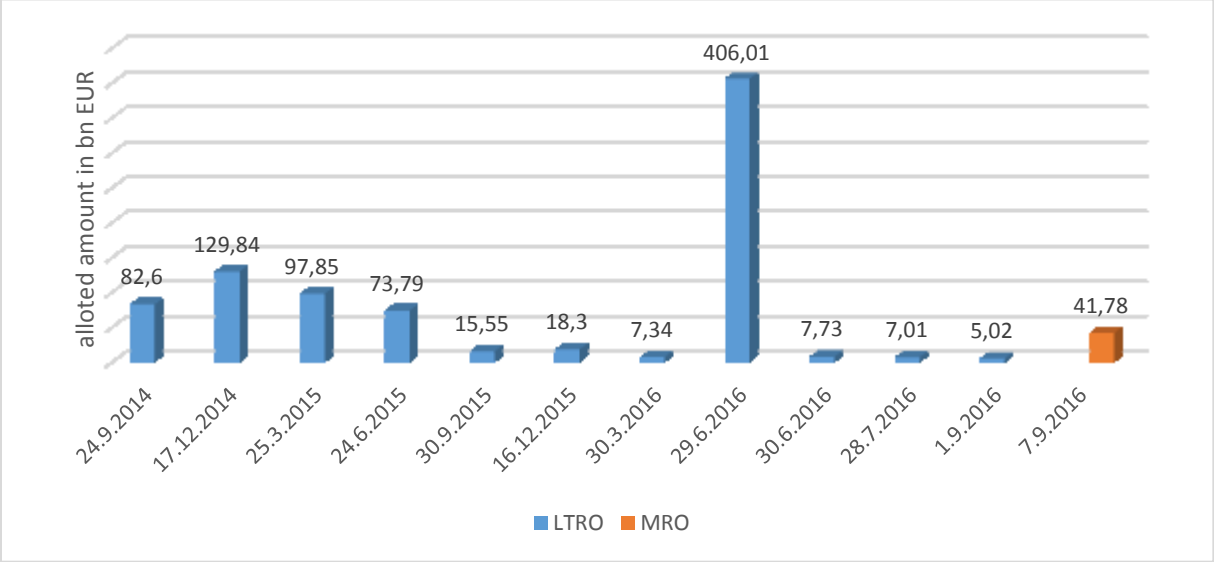
These days the ECB is supplying liquidity to the market. Following this the ECB uses mostly these instruments[3]:

- Main refinancing operations (MRO) – reversal repo trades within Eurosystem tenders. Their maturity is mostly one week. They are executed by national central banks. By using them the ECB follows goals such as managing interest rates, liquidity and signalling the targets of monetary policy.
- Long-term refinancing operations (LTRO) – their aim is to deliver liquidity for longer periods (up to three months). Sometimes they can be used even longer. They are executed by national banks. Here, the Eurosystem does not signal the intentions and is in the role of the taker of interest rates.

For illustration on volumes, the following figure shows the overview of active MRO's and LTRO's.

Figure 1

Overview of active MRO and LTRO as of 9.9.2016



Source: own processing based on data from https://www.ecb.europa.eu/mopo/implement/omo/html/index.en.html

The current financial crisis affected governent bonds, which cannot be considered risk-free in the view of inability of some states to repay their debt because of the extent of their burden. The policy of quantitative easing leads to the restriction of the repo market of bonds, where the bonds serve as a collateral. The disturbing effect of quantitative easing is clearly visible in case of the German government bonds which are the mostly used form of collateral.

Another reason why government bonds cannot be considered as a safe investment is that the financial and debt crisis led to decreased rating of many countries, which led to the increase in haircuts of governemnt bonds as collateral in repo agreements. This results into limited accessibility of liquidity for refinancing of commercial banks in the interbank market.

During the financial crisis and the subsequent sovereign debt crisis the major central banks launched unprecedented money measures. Besides decreasing the interest rates, the ECB lowered the quality of the eligible collateral assets which were accepted for its refinancing operations. The collaterals play an important role for the lender since the latter can protect against default of the borrower and at the same time against liquidity risk.

Haircut is the difference between the market value of an asset and the purchase price paid at the start of a repo. An initial margin is an alternative to a haircut. A haircut is expressed as the percentage deduction from the market value of collateral (e.g. 2%), while an initial margin

is the market value of collateral expressed as a percentage of the purchase price (eg 105%) or as a simple ratio (eg 105:100). We can compute haircut as follows:

$$\frac{\text{Market Value of Collateral} - \text{Purchase price}}{\text{Market Value of Collateral}} . 100 \quad (1)$$

Ideally, collateral should be free of credit and liquidity risks. The market value of such perfect collateral would be certain, meaning that it would be easy to sell for a predicatable value in the event of default by the collateral-giver. The type of asset that comes closest to this paradigm, and is in fact the most commonly-used type of collateral in the repo market, is a bond issued by a creditworthy central government.

Assets that pose material credit and/or liquidity risks can be used as collateral but not for their full market value. Instead, a risk-adjusted value is calculated, which is less than the market value.

The issue of applying government bonds as a collateral in refinancing operations and their haircut is dealt with by more authors. In the article Liquidity, Government Bonds and Sovereign Debt Crises author F. Molteni[5] points out that the government bonds are a primary collateral in the European repo market, which becomes the main source for refinancing of the bank system in Eurozone. He states that repo-haircuts of peripheral government bonds were significantly increased during the crisis, which led to the decrease in their liquidity and strenghtened the volatility of their yields. In this work he studies the impact of this increase in government bond haircuts on the economic cycle and the asset price via the model of stochastic general equilibrium. He points out that the government can lessen the negative effect of a liquidity shock by issuing short-term bonds, which are an alternative liquidity tool for investors. In the author's view there are two factors why the peripheral countries of Eurozone (Greece, Ireland, Italy, Portugal and Spain) have to pay higher interest from public debt in comparison with other countries: credit risk and liquidity. Their main motive why banks buy bonds is that they store liquidity and they serve as a collateral in borrowing. The article states that the financial crisis affected the structure of government bonds as collateral. Particularly, the ratio of government bonds of peripheral countries in portfolios decreased: e.g. the share of Italian bonds decreased from 10 % in June 2011 to 7 % in December 2011 when the sovereign debt pressures were the highest. There were significant haircuts in Irish and Portuguese bonds in 2011: they increased from 15 % before the crisis to 80 %. As a result

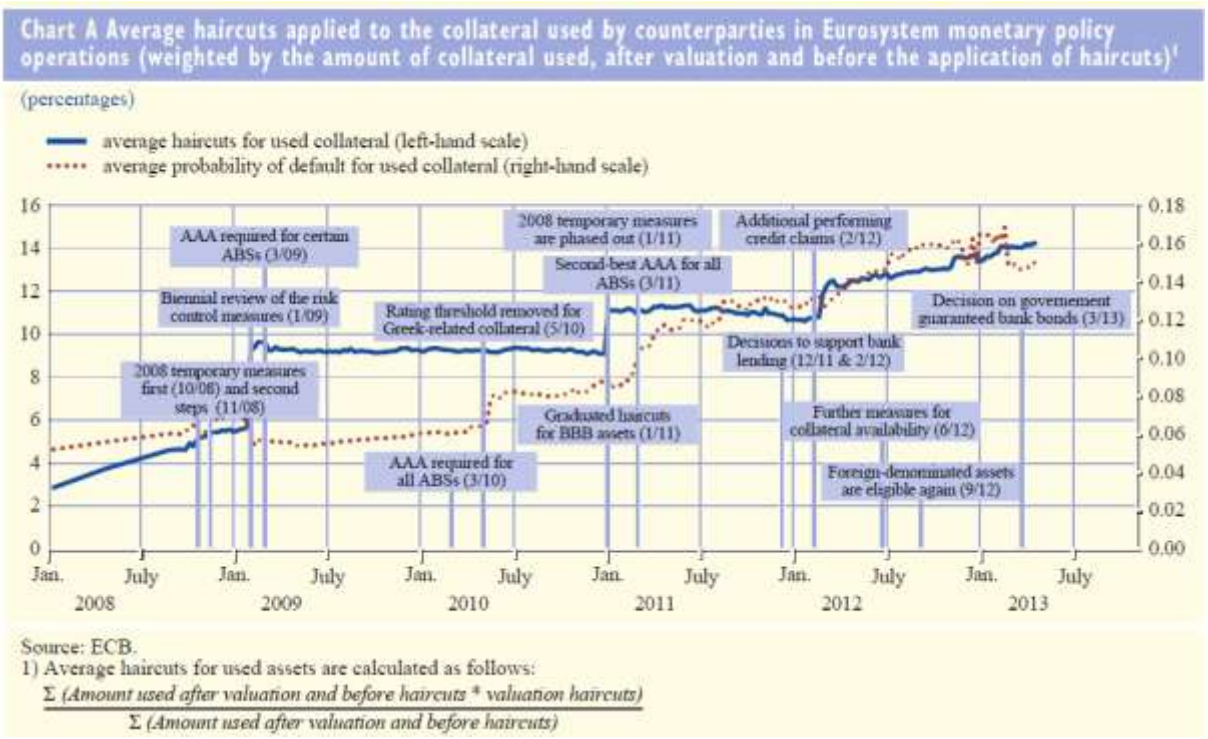
of their lower quality the banks had to reduce the bonds with higher haircuts, which lead to their sale and to decrease in the price of these bonds.

There is a critical view of government bonds haircuts applied by the ECB in the article The ECB's Collateral Policy and Its Future as Lender of Last Resort by Karl Whelan[6] (2014). The framework of collateral by the ECB was adjusted in last year in order to apply assets of lower quality as collateral. On the other hand the average haircuts of collateral increased in in line with increasing risk from 3 % in 2008 to 14 % in 2013. According to the author the approach of the ECB to government bonds is generous and should be revised. Lower haircuts applied for European government bonds together with lower rating and combined with regulatory requirements resulting from the Capital requirement regulation and directive (CRR/CRD IV) led to the fact that banks invest in these bonds at the expense of other assets. It would be better if the ECB applied the same rules to government bonds as to other tradable market assets. One of the important part of collateral policy is to grant credits to banks which do not have sufficient acceptable assets. This is ensured by the programmes of Emergency Liquidity Assistance (ELA). The author proposes that the risk of these operations should be shared amongs the central banks of Eurosystem.

In the table below we can see the evolution of haircuts applied by the ECB from 2008 to 2013 where we can see a gruadual increase of haircuts.

Figure 2

The Increase in Haircuts Applied by the ECB



Source: Whelan, K. The ECB's Collateral Policy and Its Future as Lender of Last Resort

It is also important to note that the ECB lowered the credit threshold of collateral from A – to BBB- ratings as of October 22, 2008 (Aggarwal et. al.[1], 2016). The ECB also suspended its minimum rating threshold at various time during the European sovereign debt crisis, starting on May 3, 2010.

Whelan states in his article that in the international comparison the ECB haircuts are stricter than those of other central banks – e.g. Bank of England, FED, Bank of Japan, Central Bank of Sweden or Swiss National Bank.

In view of this author, the ECB currently applies relatively low haircats compared to the market perception of risk. Low haircuts play important role within the support of demand of commercial banks for government bonds. Annother support of demand is caused by the Capital Directive. Operational procedures of the ECB allow commercial banks to execute profitable carry trades, where it is possible to increase balance sums at low interest rates on the liabilities' side and higher yields from government bonds. This directive allows carry out these trades without increasing risk-weighted assets, so that this operation does not affect the risk of banks and does not affect the capital adequacy.

A solution to this situation according to the author is to revise the policy which currently supports commercial banks in buying government bonds. The conditions decrease the efectiveness of the particular part of monetary policy and strengthen the vicious circle between banks and government debts. It is necessary to create a collateral system in which central banks will apply haircuts based on the market perception of the risk.

Other authors who deal with the issue of collateral are Ch. Buschmann and Ch. Schmaltz[2]. In their paper Sovereign Collateral as a Trojan Horse: Why Do We Need an LCR+ (Buschmann & Schmaltz, 2015) they claim that government bonds are vital for financing of government as well as banks. Banks borrow money in repo transactions and they use the credibility of states issuing bonds more than they use their own credibility. According to the Basel III agreement the liquidity coverage ratio (LCR) will not protect the banks against government bonds jeopardized by states‘ default. Banks, despite the situation they meet the Basel requirements, can be exposed to underestimating of liquidity risk which stems from risky government bonds – via the collateral. This overseen risk can lead to system liquidity shock. The authors created a model by which they show that the payment insolvency of a state triggers jeopardy of the banking sector. This model shows that the worsening collateral in the form of government bonds can lead to the decrease in liquidity and thus not meeting the liquidity requirements by Basel III. According to the authors this fact should be covered by LCR – they use its modified version LCR+. It is the current value of LCR which is modified by the liquidity impact in case of state insolvency when meeting its liabilities from governemnt bonds. The LCR overlooks the sovereign risk of government bonds. Therefore the bank liquidity reserves, which are dependent on LCR, are not sufficient enough to cover the insolvency of states. LCR+ covers this risk and so it can protect banks against unacceptability of the Greek or Irish government bonds because it enforces the banks to increase their reserves in case of this event.

The model is based on the fact that the system liquidity shock comes from two channels: the capital channel (calculated by capital adequacy ratios) and the liquidity channel (given by LCR). This comes from a precondition that the capital and the liquidity of a bank are mutually connected. In the model the triggering event is a sovereign shock which is transferred to the banking sector via both channels and leads to the violation of Basel III conditions. The analysis proves that the capital channel is important but it is not fundamental from the point of view of compliance with Basel III. The transfer via the liquidity channel can lead to insufficient bank liquidity. As for the liquidity channel, the sharp decrease in prices of

collateral directly affects the bank liquidity. In extreme cases the increasing margins and haircuts can stop the whole market.

As for the capital channel, this is based on the compliance with the Basel standards. In comparison with the liquidity channel the mechanism of the capital channel is mostly managed by the accounting and regulatory rules. The increase in sovereign risk decreases the market value. Based on the fact that all banks within EBA stress tests use the same accounting standards, these requirements are the same and they require that banks cover their market losses by respective own capital. This decrease in market value leads to the decrease in capital adequacy ratio. The potential rating downgrade of a state can intensify the extent of this. It can cause that the government bonds are put into the category of less favourable risk-weighted assets and this can lead to increase in the volume of risk-weighted assets and thus decreasing the capital adequacy. This is a violation of Basel III in the area of capital regulation.

The original intention of using government bonds as collateral was the reduction of systemic risk. The authors show that nowadays this form of collateral comes as a Trojan horse because government bonds intensify the systemic risk. This points out at the shortage in the area of regulation. In this view the Basel Committee recommends that the regulators should consider adequate steps to monitor the availability of liquid collateral in the future as a form of reducing the systemic risk.

Based on the study of data from the EBA stress test from 2014 the authors deduce these conclusions: managers of liquidity in banks should perceive the deficiency of the LCR: in the context of insufficient liquidity which stems from the rating downgrade of a state and market chaos the banks might not meet the liquidity standards of Basel III. On the other hand there is a recommendation for the Basel Committee to consider if the LCR reflects market risk and based on this it should adjust the regulatory liquidity requirements.

3 Conclusions and Policy Implications

Government bonds of advanced countries were considered to be a safe form of investment. The debt crisis in Europe has changed the view of global investors on government bonds, in view of the fact that some countries were not able to meet the liabialities towards investors on time. This deteriorated the credit quality of bonds, which affects the acceptance of bonds as collaterals in refinancing operations of the ECB. As an

extreme example we can state the Greek government bonds, where the ECB announced on 4 February 2015 that it would not accept these bonds as a collateral for MRO for their insufficient credit quality. For supporting liquidity of commercial banks there was a possibility to use Emergency Liquidity Assistance via national central bank. The Cypriot bonds faced the same threat. As of 29 June 2016, the ECB decided to reinstate the waiver affecting the eligility of the Greek marketable debt instruments.

Currently, there are more views how to tackle the issue of accepting sovereign bonds as collateral taking into account their real credit quality. In view of one group of opinions the ECB should review the haircuts of government bonds and to apply the conditions based on how the market perceives their risk. Other authors suggest increasing risk weights of sovereign bonds in order to contain potential future losses coming from a state default.

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