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Research Report

Eurosystem collateral policy and framework: Was it unduly changed?

Bruegel Policy Contribution, No. 2014/14

Provided in Cooperation with:

Bruegel, Brussels

Suggested Citation: Wolff, Guntram B. (2014) : Eurosystem collateral policy and framework: Was it unduly changed?, Bruegel Policy Contribution, No. 2014/14, Bruegel, Brussels

This Version is available at:

<https://hdl.handle.net/10419/106311>

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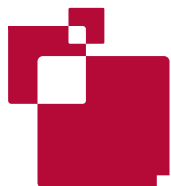
EUROSYSTEM COLLATERAL POLICY AND FRAMEWORK: WAS IT UNDULY CHANGED?

GUNTRAM B. WOLFF

Highlights

- All Eurosystem credit operations, including the important open market operations, need to be based on adequate collateral. Liquidity is provided to banks against collateral at market prices subject to a haircut. The Eurosystem adapted its collateral framework during the crisis to accept lower-rated assets as collateral. Higher haircuts are applied to insure against liquidity risk as well as the greater volatility of prices of lower-rated assets.
- The adaptation of the collateral framework was necessary to provide sufficient liquidity to banks in the euro area periphery in particular. In crisis countries, special emergency liquidity assistance was provided. More than 80 percent of the European Central Bank's liquidity (Main Refinancing Operations and Long Term Refinancing Operations) is provided to banks in five countries (Greece, Ireland, Italy, Portugal and Spain). The changes in the collateral framework were necessary for the ECB to fulfil its treaty-based mandate of providing liquidity to solvent banks and safeguarding financial stability. The ECB did not take on board excessive risks.

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EUROSYSTEM COLLATERAL POLICY AND FRAMEWORK: WAS IT UNDULY CHANGED?

GUNTRAM B. WOLFF, NOVEMBER 2014

EXECUTIVE SUMMARY

All Eurosystem credit operations, including the important open market operations, need to be based on adequate collateral. This means that when extending loans, the central bank requires collateral (assets pledged as security) to protect its balance sheet against the risk of default by the borrower (credit risk). The collateral is accepted at market price subject to a haircut. The haircut is applied to insure against liquidity risk and downward changes in the prices of the collateral.

The Eurosystem adopted its collateral framework during the crisis to accept lower-rated assets as collateral. The adaptation of the collateral framework was necessary to provide sufficient liquidity to banks in the euro-area periphery in particular, but also to some banks in the core. More than 80 percent of European Central Bank liquidity (Main Refinancing Operations, MRO, and Long Term Refinancing Operations, LTRO) is provided to five countries (Greece, Ireland, Italy, Portugal and Spain). Haircuts were increased to insure against the greater liquidity risk and greater price volatility of lower-rated assets. In crisis countries, special emergency liquidity assistance (ELA) was provided. ELA is provided by national central banks with the approval of the ECB governing council against collateral that does not meet the ECB's collateral standard. Potential losses from ELA operations would be borne by the national central bank.

In general, any collateral framework has an impact on prices and allocations. The ECB's framework aims to minimise this impact by taking collateral at market prices. Nevertheless, prior to the crisis, the ECB's collateral framework was criticised as reducing liquidity risk premia and thereby contributing to the insufficient differentiation of sovereign risk. However, it is unlikely that this effect was substantial. In the crisis period, the ECB's collateral policy was criticised on the grounds that it

would allow the funding of large current account deficits in the face of a balance-of-payments crisis. Sinn and Wollmershäuser (2011) thus argued that ECB liquidity – as a result of the changed collateral policy – had an impact on allocation of consumption and investment.

While it is true that without ECB liquidity, adjustment of current accounts in the periphery would have been more rapid, the ECB policy was still legitimate. In particular, the changes to the collateral framework were necessary for the ECB to fulfil its treaty-based mandate of providing liquidity to solvent banks and safeguarding financial stability. Without lowering the minimum required rating, banks in a number of countries would have been without access to the ECB liquidity window. Ultimately, the decision to stop granting liquidity to banks in one country of the monetary union is outside the scope of monetary policy. The creation of a banking union will mitigate some of the problems related to collateral policy. Overall, the ECB appropriately adapted its collateral framework and policy in the course of the crisis.

INTRODUCTION

Open market operations represent the key monetary policy instruments used by the ECB. All Eurosystem credit operations, including open market operations, need to be based on adequate collateral. This means that when extending loans, the central bank requires collateral (assets pledged as security) to protect its balance sheet against the risk of default by the borrower (credit risk). Monetary policy in the euro area is largely operated through the lending of central bank money to banks with fixed maturities and at a certain interest rate against collateral. Among the most important examples are the Main Refinancing Operations (MRO) and Long-Term Refinancing Operations (LTROs)¹. Banks pledge collateral against these loans. Figure 1 shows the composi-

1. According to the 'Guideline of the ECB of 20 September 2011 on monetary policy instruments and procedures of the Eurosystem', all Eurosystem credit operations (ie liquidity-providing monetary policy operations and intraday credit) have to be based on adequate collateral. Liquidity-providing monetary policy operations include the Main Refinancing Operations and the Long-Term Refinancing Operations. The Eurosystem has developed a single framework for eligible collateral common to all Eurosystem credit operations (also referred to as the 'Single List').

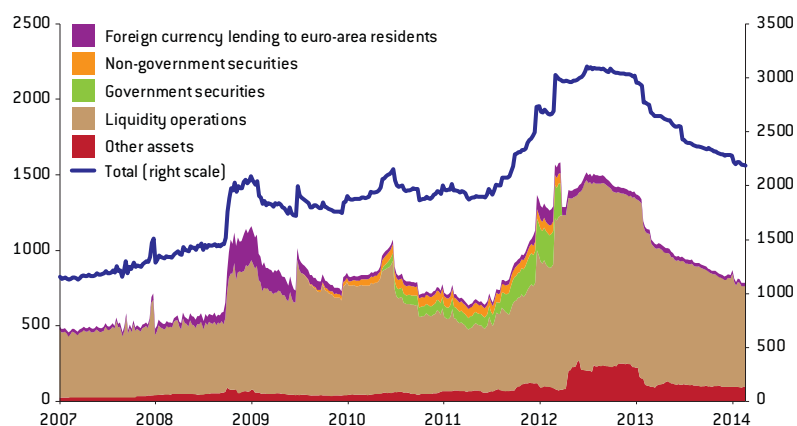
tion of the ECB balance sheet. The main driver of changes in the size of the balance sheet are liquidity operations, for which collateral is needed.

The definition of what is eligible as collateral is therefore of central importance for the implementation of monetary policy in the euro area. The Eurosystem introduced a single list of eligible collateral in January 2007². A collateral framework is based on a number of central considerations. Its central aim is to protect the balance sheet of the ECB and thereby its shareholders and ultimately taxpayers against undue risks. In the liquidity operations, the counterpart to the ECB is the bank that receives liquidity. The bank is required to return the liquidity after a certain period to the ECB, at which point it will recover the collateral. Only when the bank is unable to re-pay the liquidity it previously received, can the ECB use the collateral to prevent a loss. The value of the collateral should therefore reflect the amount of liquidity given to the bank. The aim of the collateral framework is to define a framework that provides the Eurosystem with adequate protection against losses, while defining enough eligible collateral so that solvent banks can access enough central bank liquidity. The framework is defined in the document 'The implementation of monetary policy in the euro area: General documentation on Eurosystem monetary policy instruments and procedures'³ and subsequent updates.

Adequate access to ECB liquidity is of vital importance for banks and for the implementation of monetary policy. Banks need access to central bank liquidity for their daily operations. In particular, when interbank markets are under stress, the banking system relies heavily on central bank liquidity. The way the ECB regulates the access to central bank liquidity is, in turn, a central part of monetary policy. The collateral framework plays an important role in this regard.

The Eurosystem's collateral framework is from time to time subject to political and academic criticism. Buitert and Sibert (2004) were perhaps

Figure 1: Assets of the European Central Bank (€ billions)



Source: ECB and Bruegel.

among the most vocal and early critics arguing that the collateral treatment of sovereign debt by the Eurosystem was at least in part responsible for the small sovereign yield differentials in the euro area. In particular, they argue that despite the differences between triple A and single A ratings, all sovereign debt was accepted as collateral at the same haircut. By not properly differentiating the liquidity risk, the Eurosystem would implicitly weaken fiscal discipline. More recent criticism focused on the role of the collateral system in allowing the financing of capital withdrawals from the euro-area periphery during the recent balance-of-payment crisis.

In this note, we review the collateral framework of the Eurosystem and how it has developed during the crisis. We then add some considerations about the potential impact of the collateral framework on pricing and asset allocations, before drawing some conclusions.

THE ECB'S CHANGING COLLATERAL FRAMEWORK

The main parameters for a collateral system are the definition of which assets are acceptable as collateral, what is the required rating of assets for them to be accepted as collateral and what is the imposed haircut on the market value of the asset. During the crisis, the ECB adapted all three criteria of the collateral framework.

2. Before that date, the collateral framework was divided into two tiers. The first tier consisted of marketable debt instruments that have uniform eligibility criteria for the euro-area countries set by the ECB. Tier 2 consisted of assets that were of particular importance for national financial markets. The eligibility criteria were set by the national central banks.

In January 2007, the Eurosystem moved to a single collateral list. German banks were keen to include bank loans in the definition of collateral. See Bundesbank, *Monthly Bulletin*, April 2006 http://www.bundesbank.de/Redaktion/EN/Downloads/Publications/Monthly_Report_Articles/2006/2006_04_eligible_collateral.pdf?_blob=publicationFile.

3. Guideline ECB/2011/14.

'Recent criticism of the Eurosystem's collateral framework has focused on the role of the collateral system in allowing the financing of capital withdrawals from the euro-area periphery during the recent balance-of-payment crisis.'

Table 1 summarises the asset classes that the Eurosystem and other major central banks accept as collateral. The ECB accepts a greater variety of assets than other central banks. The Fed, for example, only accepts central government bonds and bonds of public sector institutions other than central governments. This is sufficient for the Fed to provide liquidity to the US banking system. In the euro area, in contrast, the banking system is not only much larger than in the US, it is also much more heterogeneous and embedded in 18 different national (legal and historical) systems. A broader definition of collateral is therefore necessary.

The basic idea of the collateral framework is that lower-rated collateral is only accepted against bigger haircuts. While liquidity is only provided at the market value of the asset, thereby taking into account higher default risks as priced in the markets, the bigger haircut for lower rated collateral compensates for the greater risk of changes in valuation that lower-rated collateral represent for the Eurosystem, and for the higher liquidity risk of these assets. Tables A1 and A2 in the annex describe the different categories of collateral according to rating and liquidity and the haircut applied. The lower the rating, the bigger the haircut. For example, central government debt with the best rating and a maturity of 3-5 years would only

be subject to a minimal haircut of 1.5-2.5%. Government debt rated between BBB* and BBB-, in contrast, would be subject to a haircut of 9-10%. During the crisis, the Eurosystem substantially adapted its collateral framework to ensure adequate access to liquidity. The ECB had to adapt the collateral standards in order to be able to provide sufficient liquidity to banks that were experiencing liquidity shortages. In particular, when the interbank market froze, the ECB had to fulfil its role as a lender of last resort and provide the banking system with adequate liquidity.

More specifically, the ECB adapted its rating standards as well as the haircuts applied to collateral. As top-rated collateral in the banking system became less available, the ECB lowered the minimum required rating. To compensate for the increasing riskiness (ie increased volatility during the crisis), the ECB also increased the applied haircuts.

Figure 2 on the next page shows the developments in credit rating thresholds of the ECB's collateral framework since 2008 for a number of assets. The following major steps can be noted:

- At the start of the crisis:
 - All eligible collateral except ABS: credit rating threshold at A-

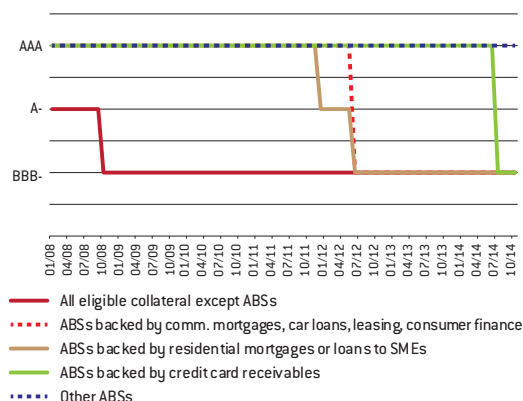
Collateral	Eurosystem	BoE	Riksbank	SNB	Fed	BoJ
Marketable assets						
Debt instruments issued by:						
Central governments	•	•	•	•	•	•
Central banks	•	•	•	•		
Public sector institutions other than central govts	•	•	•	•	•	•
Supranational institutions	•	•	•	•		•
Credit institutions (covered bonds)	•	•	•	•		
Credit institutions (excluding covered bonds)	•	•				
Corporations (other than credit institutions)	•	•	•	•		•
Asset-backed securities (ABS)	•	•				•
Equities						
Money market funds						
Gold						
Non-marketable assets						
Credit claims (bank loans)	•					•
Non-marketable retail mortgage-backed debt instruments	•	•				
Cash as collateral						
Cash including fixed-term deposits from eligible parties	•					

Source: ECB (2013), Collateral eligibility requirements: a comparative study across specific frameworks, July 2013 (<http://www.ecb.europa.eu/pub/pdf/other/collateralframeworksen.pdf>).

- All ABS: credit rating threshold at AAA
- 22 October 2008: credit rating threshold of all eligible collateral except ABS lowered to BBB- as a temporary measure. It was decided on 8 April 2008 that this measure was to be made permanent (ECB/2011/14).
- 8 December 2011: credit threshold of ABS based on either only residential mortgages or

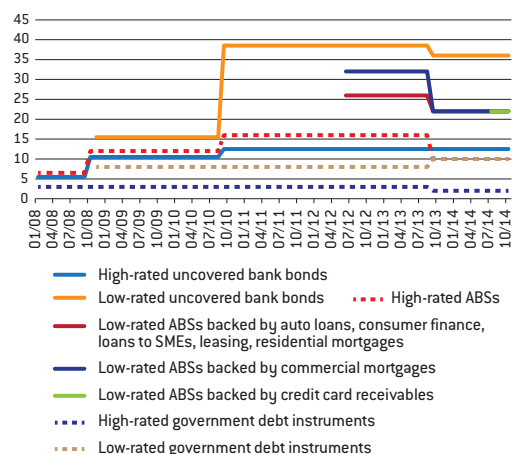
- only loans to SMEs reduced to A- at issuance and at any time subsequently (ECB/2011/25).
- 20 June 2012: credit threshold of ABS based on auto loans, leasing, commercial mortgages, consumer finance, residential mortgages or loans to SMEs reduced to BBB- at issuance and at any time subsequently.
- 9 July 2014: credit threshold of ABS based on auto loans, leasing, commercial mortgages, consumer finance, residential mortgages, loans to SMEs or credit card receivables reduced to BBB- at issuance and at any time subsequently (ECB/2014/31).

Figure 2: Credit rating thresholds of the ECB's collateral framework



Source: Bruegel based on European Central Bank. Note: Credit ratings following Fitch and Standard and Poor's rating system.

Figure 3: Valuation haircuts by asset classes in the ECB collateral framework



Source: Bruegel based on European Central Bank. Notes: The haircuts of uncovered bank bonds and government debt instruments shown are those for assets with a residual maturity of 5-7 years. Haircuts shown are for fixed coupon assets. High-rated: AAA to A-. Low-rated: BBB+ to BBB-. Lines are not continuous because those asset classes were not eligible as collateral beforehand. Individual asset-backed securities, covered bank bonds (jumbo covered bank bonds, traditional covered bank bonds and other covered bank bonds) and uncovered bank bonds that are theoretically valued in accordance with Section 6.5 of the 'Guidelines on monetary policy instruments and procedures of the Eurosystem' are subject to an additional valuation haircut. This haircut is directly applied at the level of the theoretical valuation of the individual debt instrument in the form of a valuation markdown of 5 percent.

The ECB significantly changed the haircuts it applies to several types of collateral. Figure 3 shows the changes in the haircut for a number of marketable assets. The haircuts for high rated uncovered bank bonds (with 5-7 year residual maturity) and ABS were increased by about 150 percent to 12.5 percent and 16 percent respectively in September 2010. As already mentioned, the credit threshold of all eligible collateral except ABS was lowered to BBB- in 2008, conditional on an additional 5 percent haircut. Certain types of low-rated ABS became eligible as collateral only in 2012 or later. With the recent improvement in market sentiment, the size of the haircuts applied to uncovered bank bonds, high-rated ABS and some types of low-rated ABS was reduced again.

For government bonds, the Eurosystem modified the applied haircuts only slightly. At the start of the crisis only high-rated government debt instruments were accepted as collateral (remember that the minimum threshold on all marketable assets except ABS was A-). These were given a valuation haircut of 3 percent for assets with a 5-7 year residual maturity. When lower-rated government bonds became eligible, it was at an additional 5 percent haircut, at 8 percent. These haircuts remained constant until September 2013 when the haircuts of high-rated and lower-rated government bonds were changed to 2 percent and 10 percent respectively. However, for crisis countries, the ECB changed its collateral framework a number of times to allow government debt to become acceptable as collateral again. Greek government bonds became eligible despite being below the BBB- minimum rating subject to a special haircut in December 2012⁴. In May 2013, a

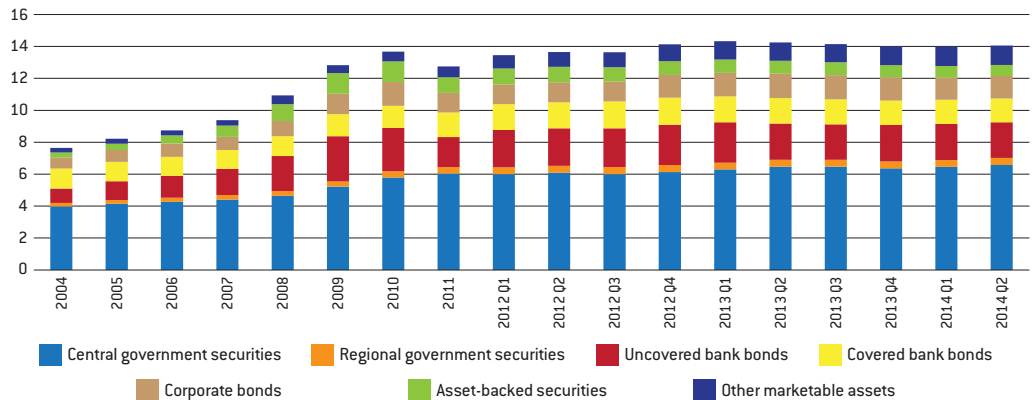
4. In the case of Greece, Greek government bonds were falling below the rating threshold necessary to be accepted as collateral. The ECB therefore announced a change to the eligibility criteria for Greek government debt specifically and applied a special haircut on 19 December 2012. See <http://www.ecb.europa.eu/pr/date/2012/html/pr121219.en.html>.

similar decision was taken for Cypriot debt, a decision that was reversed already in July 2013 thanks to the rating upgrade⁵.

Figures 4 and 5 show the availability and use of collateral in the Eurosystem. As can be seen, the eligible collateral amounts to €14 trillion, the largest part of it being central government bonds.

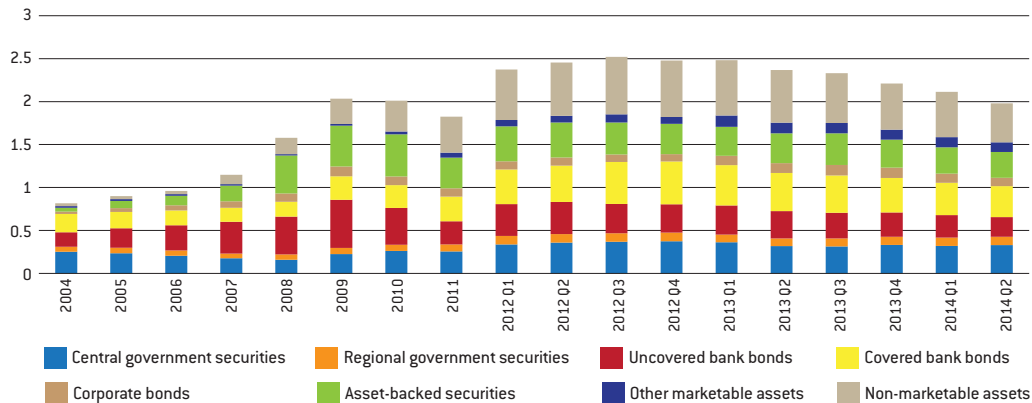
During the crisis, the allocation of ECB liquidity to different countries changed substantially. More and more ECB liquidity went to the banking systems of weaker countries. Figure 6 shows that the amount of liquidity in those countries increased substantially up to the summer of 2012 when the announcement of the OMT programme calmed markets. The share of liquidity of banks in five

Figure 4: Eligible marketable assets by asset type (€tn, nominal amounts, averages of end-of-month data)



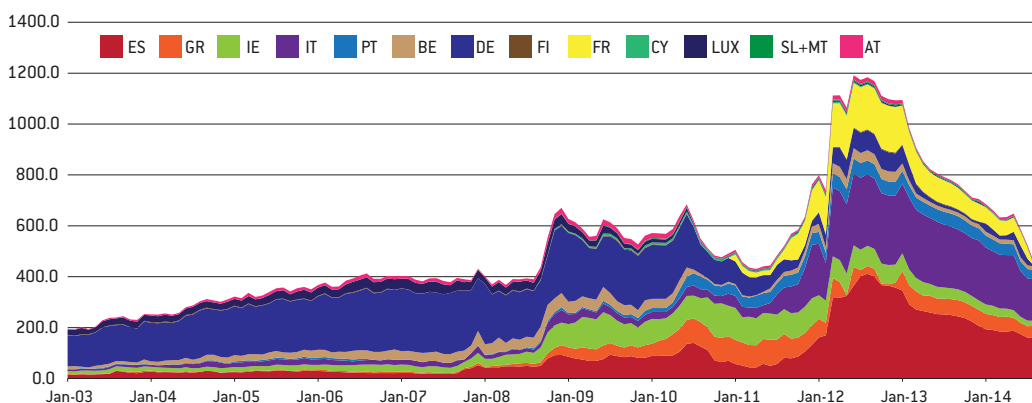
Source: European Central Bank.

Figure 5: Use of collateral by asset type (€tn, after valuation and haircuts, averages of end-of-month data)



Source: European Central Bank.

Figure 6: Country use of Eurosystem MRO and LTRO (in €bn, 01/2003-07/2014)



Source: Updated from Pisani-Ferry and Wolff (2012) using data from the ECB and national central banks.

euro-area countries (IT, ES, PT, IE, GR) in total ECB liquidity currently exceeds 80 percent.

In the crisis countries, the Eurosystem experienced the particular difficulty of having to provide liquidity to banks of countries that were on the brink of insolvency and had to ask for financial assistance. In these countries, the rating of assets that were held by the banking system often dropped significantly, which put severe limits on the ability of these banks to access ECB liquidity directly. At the same time, the ECB did not want to lower collateral standards even further because it was feared that the ECB would take too much risk on board. The solution to this problem was the so-called 'ELA', or 'Emergency Liquidity Assistance'.

ELA needs to be approved by the ECB governing council. The approval of the governing council is needed because ELA operations influence the amount of liquidity available in the euro area and therefore the monetary policy stance. ELA is essentially provided because of lack of available appropriate collateral for normal monetary policy operations. In ELA, the liquidity is given by the national central bank to banks resident in the country against lower quality collateral. For example, the collateral could be below-credit-threshold sovereign bonds. If the bank that receives liquidity is unable to redeem the liquidity with the national central bank, then the national central bank uses the low-quality collateral to avoid losses. If there are losses, those losses remain

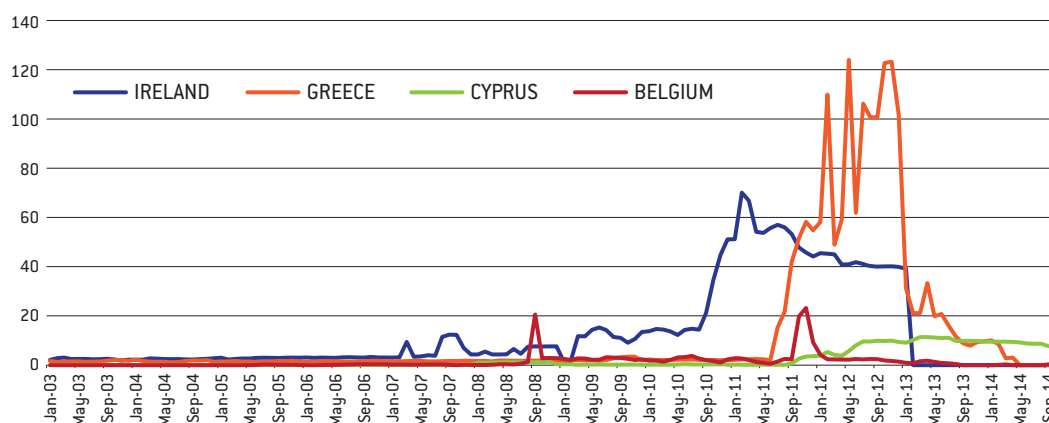
with the national central bank and are not losses of the Eurosystem.

Figure 7 shows the changing levels of ELA to banks in Ireland, Greece, Cyprus and even Belgium, which needed special liquidity during its banking crisis. As can be seen, the amounts of liquidity made available via the instrument were quite substantial at the heights of the respective crises. This also shows that the collateral framework did impose limits on the standard access to liquidity in a number of countries.

CONCLUDING REMARKS ON IMPACT OF COLLATERAL FRAMEWORK ON ASSET ALLOCATIONS AND PRICES

There is only a limited literature that discusses the impact of the collateral framework on asset allocation and prices in the euro area. In general, collateral influences market prices because in an exchange between two parties the collateral will reduce information uncertainties. Geanakoplos and Zame (2007) show that, in a general equilibrium model, the availability of collateral in an economy when there is a possibility of default affects prices in a number of markets as well as the allocation of assets. Brumm *et al* (2013) argue along similar lines. Chapman *et al* (2011) develop a general framework for central bank haircut policy and argue that the haircut insures against two types of risk: liquidity risk and downside risk of the price of the collateral. Setting a haircut

Figure 7: Emergency Liquidity Assistance to banks in Ireland and Greece



Source: Bank of Greece, Central Bank of Ireland, Central Bank of Cyprus, Central Bank of Belgium. Note: Since ELA operations are not very transparent, the amounts of ELA are proxied by the category 'Other Assets' in the respective national central banks' balance sheets before April 2012, and the category 'Other claims on euro-area credit institutions denominated in euro'. This change was due to a harmonisation of data publication in the euro area. In the case of Belgium we proxy ELA operations only by the 'Other claims on euro-area credit institutions denominated in euro' category.

involves a trade-off between the liquidity needs of the counterparties and portfolio choices. The Bank of Canada (2011) described how the collateral system is based on the mark-to-market principle and on applied haircuts. The report argues that haircuts can affect asset allocations and that, during extreme crises, the central bank should actually reduce haircuts in order to mitigate the shortage of liquidity.

In principle, the aim of the collateral framework of the Eurosystem is to avoid distorting prices and allocation. The basic idea is that assets are priced in markets and that the collateral framework does not alter the prices. The former chief economist of the ECB, Issing (2005), argued that:

“All financial assets offered as collateral, including government bonds, are valued daily at market prices. In its collateral policy, the ECB therefore relies on the judgment of the market to distinguish among government bonds and, implicitly, the fiscal behaviour of member states. Moreover, the ECB sets credit standards for the eligibility of assets as collateral and is bound by the Treaty not to distinguish between government and private issuers in the implementation of these standards.”

Issing therefore argues that markets decide on the prices of both private and public assets, and the ECB provides liquidity only against the market price of those assets.

Buiter and Sibert (2005) contradict this view and argue that the fact that all sovereign debt at the time was placed in the same category not only suggested to markets that sovereign debt has equal solvency, but also that it has equal liquidity. As the Eurosystem is a large player in the Euro-markets, this signal increased the liquidity of Greek and other bonds substantially and thereby lowered spreads. The artificial liquidity enhancement, they argue, would matter for the valuation and the valued credit risk of sovereign debt. While such a liquidity effect is possible, it is doubtful that this was one of the main drivers of low sovereign bond spreads prior to the crisis. In fact, liquidity risk premia are estimated to be rather small compared to the more important solvency risk premia. The low differentiation of sovereign yields is there-

fore rather a sign of a market assessment that solvency risks were comparable.

With the downgrade of a number of sovereign debt instruments during the crisis, the Eurosystem had to adapt its collateral framework to allow banks to have sufficient eligible collateral and to be able to continue to access liquidity. Several sovereign debt instruments are now subject to larger haircuts than the top-rated sovereign debt instruments, to reflect their lower liquidity and their greater market price volatility.

Anecdotal evidence from rating agencies suggests that the collateral framework as such does not influence the ratings of banks. However, banks that rely on large amounts of ECB liquidity receive a worse rating *ceteris paribus*⁶. This should not, however, be confounded with the impact of the collateral framework as such. On the contrary, the lowering of collateral standards was done in order to support the access of banks to liquidity.

The ECB had to significantly adapt its collateral framework when banks in the euro-area periphery found it increasingly difficult to access liquidity in the interbank markets. This was particularly the case when the sovereign debt crisis was at its peak and investors and banks feared not only that governments could default on their debt but also that countries could leave the euro and re-introduce national currencies. In fact, when sovereign ratings fell below A-, a change in the collateral framework was necessary because most other assets in the same economy would have a rating below the government debt rating. In this particular situation, the ECB acted according to its treaty-given mandate: to provide liquidity to the banking system and prevent a financial crisis. It did so in a prudent manner by accepting collateral only at market price and applying a larger haircut for less credit-worthy assets. Limits on collateral availability would have implied limits on Target 2 balances⁷, which would have meant that even solvent banks would have had to default because of the lack of liquidity⁸. This would have violated a fundamental principle of central banking, which is to provide abundant liquidity to solvent banks in order to prevent financial crises. Limits on liquidity provisioning would thus not only have resulted in bank defaults, but could have triggered a major

6. See p37 of Standard and Poors (2011) *Banks: rating methodology and assumptions*, 9 November.

7. The Target 2 system is the payment system of the euro area. During the crisis, large creditor and debtor positions built up for different countries of the euro area. These balances reflected the amount of liquidity provided by the central bank on which the local banking system had to rely.

8. See Wolff (2011) 'Lack of collateral will stop euro flows', *Financial Times*, 8 June, <http://www.ft.com/intl/cms/s/0/8079d8cc-9179-11e0-b1ea-00144feab49a.html>.

financial crisis with possible exits of countries from the euro.

The adaptation of the collateral framework was necessary to allow access to finance during the severe balance-of-payments crisis of the euro-area periphery during 2010-12. This policy has been criticised by, for example, Sinn and Wollmershäuser (2011) as a de-facto fiscal bail-out. The authors argue that the ECB liquidity provisioning in fact permitted a slower adjustment of current accounts – in other words, the collateral policy has an impact on consumption, investment and allocation. Merler and Pisani-Ferry (2012) also interpret the capital outflows as a balance-of-payments crisis and argue that a tightening of collateral standards could have limited the Target 2 increases. However, such a step could not have been undertaken quickly without endangering the stability of the financial system.

The altered distribution of liquidity in the Eurosystem can, however, also be interpreted as a normal liquidity operation providing funds to banks that experience a liquidity run. As the banks are judged to be solvent by the relevant supervisor, such liquidity provisioning is a normal part of central bank action. Some evidence suggests that banks with

questionable solvency used the collateral framework for continued access to liquidity with a view to delaying insolvency recognition. For example, Monte dei Paschi issued state guaranteed bonds that were then repurchased to be used as collateral for transactions with the Eurosystem. This example shows that the Eurosystem faced a very difficult situation because it had to rely on local supervisors' assessments of the solvency of banks in its liquidity operations. The creation of a system of common supervision was therefore of great importance not least for the ECB's liquidity operations.

Overall, the ECB fulfilled its treaty-given mandate as a central bank for the entire euro area by adapting its collateral framework during the crisis. If it had acted differently, it would have put limits on access to liquidity and ultimately on the ability of countries to remain in the euro – a choice that is outside its mandate⁹. With its changes in collateral policy, it did not unduly influence asset allocations and prices, nor did it take on board excessive risks thanks to haircuts and mark-to market policy. Completing the banking union is desirable to reduce the risk for the Eurosystem in its liquidity operations.

REFERENCES

Bank of Canada (2011) 'Liquidity provision and collateral haircuts in payments systems', *Bank of Canada Review – Autumn 2011*

Brumm, Grill, Kubler, and Schmedders (2013) 'Collateral requirements and asset prices', Swiss Finance Institute *Research Paper* No. 11-10

Buiter, Willem and Sibert, Anne (2005) 'How the Eurosystem's treatment of collateral in its open market operations weakens fiscal discipline in the Eurozone (and what to do about it)', *Discussion Papers* 5387, CEPR

Chapman, James, Chiu, Jonathan, and Molico, Miguel (2011) 'Central Bank Haircut Policy', *Annals of Finance* 7 (3): 319–48

European Central Bank (2000) 'Guideline of the ECB of 31 August 2000 on monetary policy instruments and procedures of the Eurosystem' (ECB/2000/7)

European Central Bank (2006) 'Guideline of the ECB of 31 August 2006 amending Guideline ECB/2000/7 on monetary policy instruments and procedures of the Eurosystem' (ECB/2006/12)

European Central Bank (2008) 'Guideline of the ECB of 21 November 2008 on temporary changes to the rules relating to eligibility of collateral' (ECB/2008/18)

European Central Bank (2010) 'Guideline of the ECB of 16 September 2010 amending Guideline ECB/2000/7 on Monetary Policy Instruments and Procedures of the Eurosystem' (ECB/2010/13)

European Central Bank (2011) 'Decision of the ECB of 14 December 2011 on additional temporary measures relating to Eurosystem refinancing operations and eligibility of collateral' (ECB/2011/25)

European Central Bank (2011) 'Guideline of the ECB of 20 September 2011 on monetary policy

9. In the case of the Cypriot programme, the ECB arguably endangered the continuity of the euro by accepting capital controls with the aim of preventing a further built-up of Target 2 balances. For a critique, see Wolff (2013) 'Capital controls in Cyprus will put euro at risk', *Financial Times*, 25 March, <http://www.ft.com/intl/cms/s/0/dc0159dc-9301-11e2-b3be-00144feabdc0.html> and 'Capital controls in Cyprus: the end of Target 2?', *Bruegel Blog* 23 March 2013, <http://www.bruegel.org/nc/blog/detail/article/1054-capital-controls-in-cyprus-the-end-of-target2/>.

instruments and procedures of the Eurosystem (recast)' (ECB/2011/14)

European Central Bank (2012) 'Decision of the ECB of 19 December 2012 on temporary measures relating to the eligibility of marketable debt instruments issued or fully guaranteed by the Hellenic Republic' (ECB/2012/32)

European Central Bank (2012) 'Decision of the ECB of 28 June 2012 amending Decision ECB/2011/25 on additional temporary measures relating to Eurosystem refinancing operations and eligibility of collateral' (ECB/2012/11)

European Central Bank (2012) 'ECB takes further measures to increase collateral availability for counterparties', *Press Release* 22 June, available at <http://www.ecb.europa.eu/press/pr/date/2012/html/pr120622.en.html>

European Central Bank (2013) *Collateral eligibility requirements: a comparative study across specific frameworks*, July

European Central Bank (2013) 'Decision of the ECB of 2 May 2013 on temporary measures relating to the eligibility of marketable debt instruments issued or fully guaranteed by the Republic of Cyprus' (ECB/2013/13)

European Central Bank (2013) 'Decision of the ECB of 26 September 2013 on additional measures relating to Eurosystem refinancing operations and eligibility of collateral' (ECB/2013/35)

European Central Bank (2013) 'Decision of the ECB of 26 September 2013 on additional temporary measures relating to Eurosystem refinancing operations and eligibility of collateral' (ECB/2013/36)

European Central Bank (2013) 'Decision of the ECB of 28 June 2013 repealing Decision ECB/2013/13 on temporary measures relating to the eligibility of marketable debt instruments issued or fully guaranteed by the Republic of Cyprus' (ECB/2013/21)

European Central Bank (2013) 'Decision of the ECB of 5 July 2013 on temporary measures relating to the eligibility of marketable debt instruments issued or fully guaranteed by the Republic of Cyprus' (ECB/2013/22)

European Central Bank (2014) 'Guideline of the ECB of 9 July 2014 on additional temporary measures relating to Eurosystem refinancing operations and eligibility of collateral and amending Guideline ECB/2007/9 (recast)' (ECB/2014/31)

Geanakoplos, John and William, R. Zane (2013) 'Collateral equilibrium: a basic framework', *Discussion Paper* No. 1906, Cowles Foundation for Research in Economics, Yale University

Issing, Otmar (2005) 'One size fits all! A single monetary policy for the euro area', speech at the International Research Forum, Frankfurt am Main, 20 May, available at <http://www.ecb.int/press/key/date/2005/html/sp050520.en.html>

Merler, Silvia and Jean Pisani-Ferry (2012) 'Sudden stops in the euro area', *Policy Contribution* 2012/06, Bruegel

Pisani-Ferry, Jean and Guntram Wolff (2012) 'Propping up Europe?' *Policy Contribution* 2012/07, Bruegel

Sinn, Hans-Werner and Timo Wollmershäuser (2011) 'Target Loans, Current Account Balances and Capital Flows: The ECB's Rescue Facility', *Working Paper Series* 3500, CESifo Group Munich

Wolff, Guntram (2011) 'Lack of collateral will stop euro flows', *Financial Times*, 8 June, available at <http://www.ft.com/intl/cms/s/0/8079d8cc-9179-11e0-b1ea-00144feab49a.html>

Wolff, Guntram (2013) 'Capital controls in Cyprus will put euro at risk', *Financial Times*, 25 March, available at <http://www.ft.com/intl/cms/s/0/dc0159dc-9301-11e2-b3be-00144feabdc0.html>

Wolff, Guntram (2013) 'Capital controls in Cyprus: the end of Target 2?' Bruegel Blog, 23 March, available at <http://www.bruegel.org/nc/blog/detail/article/1054-capital-controls-in-cyprus-the-end-of-target2/>

ANNEX

Table A1: The ECB's liquidity categories (1)

Category I	Category II	Category III	Category IV	Category V
Central government debt instruments	Local and regional government debt instruments	Traditional covered bank bonds	Credit institution debt instruments (unsecured)	Asset-backed securities
Debt instruments issued by NCBs (2)	Jumbo covered bank bonds (3)	Debt instruments issued by non-financial corporations and other issuers (4)	Debt instruments issued by financial corporations other than credit institutions (unsecured)	
	Agency debt instruments (4)	Other covered bank bonds (5)		
	Supranational debt instruments			

(1) In general, the issuer classification determines the liquidity category. However, all asset-backed securities are included in category V, regardless of the classification of the issuer, and jumbo covered bank bonds are included in category II, while

(2) Debt certificates issued by the ECB and debt instruments issued by the NCBs prior to the adoption of the euro in their respective Member State are included in liquidity category I.

(3) Only instruments with an issuing volume of at least EUR 1 billion, for which at least three market-makers provide regular bid and ask quotes, fall into the asset class of jumbo covered bank bonds.

(4) Only marketable assets issued by issuers that have been classified as agencies by the ECB are included in liquidity category II. Marketable assets issued by other agencies are included in liquidity category III or IV, depending on the issuer and ass

(5) Non-UCITS compliant covered bank bonds, including both structured covered bank bonds and multi-issuer covered bank bonds are included in liquidity category III.

Source: European Central Bank.

Table A2: Valuation haircuts applied to collateral

Credit quality	Residual maturity (yrs)	Haircut categories								Category V (*)
		Category I		Category II (*)		Category III (*)		Category IV (*)		
		fixed coupon	zero coupon	fixed coupon	zero coupon	fixed coupon	zero coupon	fixed coupon	zero coupon	
Steps 1 and 2 (AAA to A-) (**)	0 - 1	0.5	0.5	1.0	1.0	1.0	1.0	6.5	6.5	10.0
	1 - 3	1.0	2.0	1.5	2.5	2.0	3.0	8.5	9.0	
	3 - 5	1.5	2.5	2.5	3.5	3.0	4.5	11.0	11.5	
	5 - 7	2.0	3.0	3.5	4.5	4.5	6.0	12.5	13.5	
	7 - 10	3.0	4.0	4.5	6.5	6.0	8.0	14.0	15.5	
Step 3 (BBB+ to BBB-) (**)	> 10	5.0	7.0	8.0	10.5	9.0	13.0	17.0	22.5	Not eligible
	0 - 1	6.0	6.0	7.0	7.0	8.0	8.0	13.0	13.0	
	1 - 3	7.0	8.0	10.0	14.5	15.0	16.5	24.5	26.5	
	3 - 5	9.0	10.0	15.5	20.5	22.5	25.0	32.5	36.5	
	5 - 7	10.0	11.5	16.0	22.0	26.0	30.0	36.0	40.0	
	7 - 10	11.5	13.0	18.5	27.5	27.0	32.5	37.0	42.5	
	> 10	13.0	16.0	22.5	33.0	27.5	35.0	37.5	44.0	

(*) Individual asset-backed securities, covered bank bonds (jumbo covered bank bonds, traditional covered bank bonds and other covered bank bonds) and uncovered bank bonds that are theoretically valued in accordance with Section 6.5 of Annex I to Guideline ECB/2011/14 are subject to an additional valuation haircut. This haircut is directly applied at the level of the theoretical valuation of the individual debt instrument in the form of a valuation markdown of 5%. Furthermore, an additional valuation markdown is applied to own-use covered bonds. This valuation markdown is 8% for own-use covered bonds in CQS1&2 and 12% for own-use covered bonds in CQS3.

(**) Ratings are as specified in the Eurosystem's harmonised rating scale, published on the ECB's website at www.ecb.europa.eu.

Source: European Central Bank.