

I

(Resolutions, recommendations and opinions)

RECOMMENDATIONS

EUROPEAN SYSTEMIC RISK BOARD

RECOMMENDATION OF THE EUROPEAN SYSTEMIC RISK BOARD

of 20 December 2012

on funding of credit institutions

(ESRB/2012/2)

(2013/C 119/01)

THE GENERAL BOARD OF THE EUROPEAN SYSTEMIC RISK BOARD,

Having regard to Regulation (EU) No 1092/2010 of the European Parliament and of the Council of 24 November 2010 on European Union macro-prudential oversight of the financial system and establishing a European Systemic Risk Board⁽¹⁾, and in particular Article 3(2)(b), (d) and (f) and Articles 16 to 18 thereof,

Having regard to Decision ESRB/2011/1 of the European Systemic Risk Board of 20 January 2011 adopting the Rules of Procedure of the European Systemic Risk Board⁽²⁾, and in particular Article 15(3)(e) and Articles 18 to 20 thereof,

Whereas:

- (1) Funding conditions for credit institutions have been significantly affected by the current crisis. Credit and interbank markets have remained impaired as a result of the strong links between credit institutions and sovereigns as well as the uncertainties over asset quality and the sustainability of some credit institutions' business models. Credit institutions have responded to this situation by making changes to their funding structures and asset portfolios.
- (2) On 29 June 2012 the euro area summit took an important step towards breaking the negative link between sovereigns and credit institutions. It envisaged a single supervisory mechanism and the direct use of European funds from the EFSF and ESM for bank recapitalisation/bailout and resolution. However, certain credit

institutions still weigh negatively on sovereigns, and vice versa. This vicious circle needs to be broken in order to bring about the better functioning of the funding markets.

- (3) In order to improve funding conditions it is necessary to re-establish the resilience of credit institutions and confidence in them. The recommendation of the European Banking Authority (EBA) for a minimum 9 % Core Tier 1 capital ratio for credit institutions⁽³⁾ has partly contributed to this aim. However, the current macroeconomic outlook imposes further strains on credit institutions' balance sheets.
- (4) The ongoing reform of the European Union regulatory regimes governing credit institutions (CRD IV package⁽⁴⁾), in particular its provisions regarding the liquidity regime and the framework for recovery and resolution⁽⁵⁾) remains at the negotiation stage. The date on which

⁽¹⁾ OJ L 331, 15.12.2010, p. 1.

⁽²⁾ OJ C 58, 24.2.2011, p. 4.

⁽³⁾ EBA Recommendation on the creation and supervisory oversight of temporary capital buffers to restore market confidence (EBA/REC/2011/1).

⁽⁴⁾ Proposal for a directive of the European Parliament and of the Council on the access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms and amending Directive 2002/87/EC of the European Parliament and of the Council on the supplementary supervision of credit institutions, insurance undertakings and investment firms in a financial conglomerate (COM(2011) 453 final), and proposal for a regulation of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms (COM(2011) 452 final).

⁽⁵⁾ Proposal for a directive of the European Parliament and of the Council establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directives 77/91/EEC and 82/891/EEC, Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC and 2011/35/EU and Regulation (EU) No 1093/2010 (COM(2012) 280/3).

the proposed packages will receive final approval and enter into force remains uncertain, as does the nature of the interrelations among the different instruments. Achieving clarity as to the regulatory framework would be beneficial not only for the credit institutions subject to it but also for investors.

- (5) While public authorities, in particular central banks, have used extraordinary measures to reduce funding strains and create the conditions for credit institutions to strengthen funding structures in the future, credit institutions also need to actively strive to achieve sustainable funding structures.
- (6) The monitoring and assessment of credit institutions' funding risks and funding risk management by national supervisory authorities is fundamental to the evaluation of the institutions' capacity to execute their own funding plans and reduce reliance on public sector funding sources. Likewise, the monitoring by national supervisory authorities of the recourse to innovative instruments and to the provision of uninsured deposit-like financial instruments may contribute to the timely detection of risks, allowing for further supervisory actions to be taken whenever necessary.
- (7) The introduction of risk management policies on asset encumbrance is vital to ensure that credit institutions follow their own encumbrance levels and are therefore better able to cope with possible stress situations.
- (8) The monitoring of asset encumbrance by the national supervisory authorities should cover encumbered assets and unencumbered but encumberable assets, as well as the sources of encumbrance, and the policies and contingency plans developed by credit institutions.
- (9) Market transparency contributes to addressing asymmetric information. Information which is clear, simple and easy to compare is required in order to allow market participants to better differentiate risk profiles in terms of encumbrance.
- (10) Market participants are subject — when applicable — to disclosure requirements based on International Financial Reporting Standard (IFRS) 7 ⁽¹⁾. It would be appropriate at the same time to broaden the range of credit institutions disclosing information, to widen the disclosure to all means of encumbrance, to enhance the terms of disclosure and to create more uniform practices.
- (11) The proposed terms for disclosure aim at preventing credit institutions from being subject to stigma effects and for this reason, central bank operations should not be disclosed in any way.

⁽¹⁾ In Europe these standards are adopted by means of Commission Regulation (EC) No 1126/2008 of 3 November 2008 adopting certain international accounting standards in accordance with Regulation (EC) No 1606/2002 of the European Parliament and of the Council (OJ L 320, 29.11.2008, p. 1).

- (12) The identification of best practices by the European and national supervisory authorities facilitates comparison of different issuances of covered bonds and contributes to better-informed risk analysis. The identification of best practices in respect of other financial instruments that generate encumbrance can contribute to similar improvements in these other markets. The acquisition of both types of instrument will be more appealing for investors as the costs involved in understanding the regulatory framework governing them would be lowered. Accordingly, it is desirable to incentivise the use of best practices at the highest quality standards.
- (13) The Commission proposal for the establishment of a single supervisory mechanism ⁽²⁾ (as agreed by the Council on 12 December 2012) envisages conferring specific supervisory tasks necessary for supervision of credit institutions on the European Central Bank (ECB). For the purposes of carrying out these tasks, the ECB will be considered the competent authority under the relevant acts of Union law and have the powers and obligations which competent authorities have under those acts.
- (14) The Annex to this recommendation analyses the significant systemic risks to financial stability within the Union arising from the funding of credit institutions.
- (15) In accordance with recital 29 of Regulation (EU) No 1092/2010, the observations of the relevant private sector stakeholders have been taken into account in preparing this recommendation.
- (16) This recommendation is without prejudice to the monetary policy mandates of the central banks within the Union.
- (17) Recommendations of the European Systemic Risk Board are published after informing the Council of the General Board's intention to do so and providing the Council with an opportunity to react,

HAS ADOPTED THIS RECOMMENDATION:

SECTION 1

RECOMMENDATIONS

Recommendation A — Monitoring and assessment of funding risks and funding risk management by supervisors

1. National supervisory authorities with responsibility for banking supervision are recommended to intensify their assessments of the funding and liquidity risks incurred by

⁽²⁾ Proposal for a Council regulation conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions (COM(2012) 511 final).

credit institutions, as well as their funding risk management, within the broader balance sheet structure, and should in particular:

- (a) assess the funding plans provided by credit institutions and their feasibility for each national banking system, on an aggregated basis, taking into account the business model and risk appetite of each institution;
 - (b) monitor the development of funding structures in order to identify innovative instruments, request information on such instruments and analyse the information obtained to understand how risks may shift within the financial system;
 - (c) monitor the level, evolution and behaviour of uninsured deposit-like financial instruments, which are sold to retail customers, and their potentially negative effects on traditional deposits.
2. National supervisory authorities with responsibility for banking supervision are recommended to monitor credit institutions' plans to reduce reliance on public sector funding sources and to assess the viability of such plans for each national banking system, on an aggregated basis.
 3. National supervisory authorities and other authorities with a macro-prudential mandate are recommended to assess the impact of credit institutions' funding plans on the flow of credit to the real economy.
 4. The EBA is recommended to develop guidelines on harmonised templates and definitions, in accordance with its established consultation practices, in order to facilitate the reporting of funding plans for the purposes of the recommendations contained in paragraphs 1 to 3 above.
 5. The EBA is recommended to coordinate the assessment of funding plans at Union level, including credit institutions' plans to reduce reliance on public sector funding sources, and to assess the viability of such plans for the Union banking system, on an aggregated basis.

Recommendation B — Risk management of asset encumbrance by institutions

National supervisory authorities with responsibility for banking supervision are recommended to require credit institutions to:

1. Put in place risk management policies to define their approach to asset encumbrance, as well as procedures and controls that ensure that the risks associated with collateral management and asset encumbrance are adequately identified, monitored and managed. These policies should take into account each institution's business model, the Member States in which they operate, the specificities of the funding markets and the macroeconomic situation. The policies should be approved by each institution's appropriate management bodies.

2. Include in their contingency plans strategies to address the contingent encumbrance resulting from relevant stress events, which means plausible albeit unlikely shocks, including downgrades in the credit institution's credit rating, devaluation of pledged assets and increases in margin requirements.
3. Have in place a general monitoring framework that provides timely information to the management and the relevant management bodies on:
 - (a) the level, evolution and types of asset encumbrance and related sources of encumbrance, such as secured funding or other transactions;
 - (b) the amount, evolution and credit quality of unencumbered but encumberable assets, specifying the volume of assets available for encumbrance;
 - (c) the amount, evolution and types of additional encumbrance resulting from stress scenarios (contingent encumbrance).

Recommendation C — Monitoring of asset encumbrance by supervisors

1. National supervisory authorities with responsibility for banking supervision are recommended to closely monitor the level, evolution and types of asset encumbrance as part of their supervisory process, and should in particular:
 - (a) review the monitoring frameworks, policies and contingency plans put in place by credit institutions in terms of encumbrance and collateral management;
 - (b) monitor the level, evolution and types of asset encumbrance and related sources of encumbrance, such as secured funding or other transactions;
 - (c) monitor the amount, evolution and credit quality of unencumbered but encumberable assets available for unsecured creditors;
 - (d) monitor the amount, evolution and types of additional encumbrance resulting from stress scenarios (contingent encumbrance).
2. National supervisory authorities with responsibility for banking supervision are recommended to monitor and assess risks associated with collateral management and asset encumbrance, as part of the supervisory review process. This assessment should take into account other risks, such as credit and funding risks, and mitigating factors, such as capital and liquidity buffers.
3. The EBA is recommended to issue guidelines on harmonised templates and definitions in order to facilitate the monitoring of asset encumbrance, in accordance with its established consultation practices.

4. The EBA is recommended to closely monitor the level, evolution and types of asset encumbrance, as well as unencumbered but encumberable assets at Union level.

Recommendation D — Market transparency on asset encumbrance

1. The EBA is recommended to develop guidelines on transparency requirements for credit institutions on asset encumbrance. These guidelines should help ensure that the information disclosed to the market is clear, easy to compare and appropriate. In view of the limited experience in disclosing reliable and meaningful information on asset quality, the EBA should follow a gradual approach, with a view to moving to a more extensive disclosure regime after one year. The guidelines should request credit institutions to provide:

- (a) the level and evolution of encumbered and unencumbered assets:

- (i) for the first year following the adoption of the guidelines, this information should include a breakdown by asset type, provided on an annual basis;

- (ii) based on the experience gained until 31 December 2014, including in implementing Recommendation C, the guidelines should be amended to require information to be provided on a semi-annual basis and supplemented by a requirement to disclose a breakdown by asset quality, provided that the EBA deems that such additional disclosure offers reliable and meaningful information;

- (b) a voluntary narrative, by which credit institutions provide the users with information that may be useful to understand the importance of encumbrance in the credit institutions' funding model.

2. For the purposes of paragraph 1(a), the EBA is recommended to specify in the guidelines the features of the disclosed data, in terms of units and lag of disclosure.

3. In developing these guidelines, the EBA is recommended to:

- (a) cooperate with ESMA, in order to build on the existing requirements included in IFRS with regard to asset encumbrance;
- (b) take into account relevant developments in related topics, in particular, those relating to the liquidity regulatory framework; and
- (c) ensure that the level and evolution of assets encumbered to central banks, as well as the amount of liquidity assistance given by central banks, cannot be detected.

Recommendation E — Covered bonds and other instruments that generate encumbrance

1. National supervisory authorities are recommended to identify best practices regarding covered bonds and encourage harmonisation of their national frameworks.

2. The EBA is recommended to coordinate actions taken by national supervisory authorities, particularly in relation to the quality and segregation of cover pools, insolvency remoteness of covered bonds, the asset and liability risks affecting cover pools and disclosure of the composition of cover pools.

3. The EBA is recommended to consider whether it is appropriate to issue guidelines or recommendations endorsing best practices, after monitoring the functioning of the market for covered bonds by reference to these best practices for a period of two years. If the EBA identifies the need for a legislative proposal in this regard, it should report to the European Commission and inform the ESRB.

4. The EBA is recommended to assess whether there are other financial instruments that generate encumbrance which would also benefit from the identification of best practices in national frameworks. If the EBA concludes that such instruments exist, it should: (i) coordinate the identification and encourage the harmonisation of the resulting best practices by the national supervisory authorities; (ii) act as defined in paragraph 3 regarding covered bonds, in a subsequent stage.

SECTION 2

IMPLEMENTATION

1. Interpretation

1. For the purposes of this recommendation, the following definitions apply:

- (a) 'credit institution' means credit institution as defined in Article 4(1) of Directive 2006/48/EC ⁽¹⁾;

- (b) 'financial system' means financial system as defined in Regulation (EU) No 1092/2010;

- (c) 'national supervisory authority' means a competent or supervisory authority as defined in Article 1(3)(f) of Regulation (EU) No 1092/2010. Whenever a national supervisory authority is not the competent supervisory authority, the ECB acting within the single supervisory mechanism is deemed the addressee of the relevant recommendation;

- (d) 'encumbered asset' means an asset which is, either explicitly or implicitly, pledged or subject to an arrangement to secure, collateralise or credit-enhance any transaction;

- (e) 'innovative instrument' means an instrument in respect of which, due to its novelty, little information is available about its behaviour, particularly in a stress event, thus

⁽¹⁾ OJ L 177, 30.6.2006, p. 1.

exposing credit institutions to hidden risks, such as liquidity and funding crunch and legal or reputational risks;

- (f) 'uninsured deposit-like financial instrument' means a financial instrument that may resemble a deposit, but which entails risks different to those of a deposit, as this financial instrument is not covered by a deposit guarantee scheme;
 - (g) 'deposit' means deposit as defined in Article 1(1) of Directive 94/19/EC ⁽¹⁾;
 - (h) 'sustainable funding structure' means a funding structure that can be perpetuated without public intervention and in respect of which the cost of funding does not affect the viability of the institution.
2. The Annex forms an integral part of this recommendation. In the case of conflict between the main text and the Annex, the main text prevails.

2. Criteria for implementation

1. The following criteria apply to the implementation of this recommendation:
- (a) this recommendation covers only the funding of credit institutions;
 - (b) regulatory arbitrage should be avoided;
 - (c) due regard should be paid to the principle of proportionality in the implementation, with reference to the particular systemic significance of the funding and encumbrance risks within each banking system and taking into account the objective and content of each recommendation;
 - (d) specific criteria for compliance with Recommendations A to E are set out in the Annex.
2. Addressees are requested to report to the ESRB and to the Council on the actions undertaken in response to this recommendation, or adequately justify any inaction. The reports should at minimum contain:
- (a) information on the substance and timeline of the actions undertaken;
 - (b) an assessment of the functioning of the actions undertaken in terms of the objectives of this recommendation;
 - (c) detailed justification of any inaction or departure from this recommendation, including any delays.

3. Timeline for the follow-up

Addressees are requested to report to the ESRB and the Council on the actions taken in response to this recommendation, or adequately justify any inaction, in compliance with the timelines set out below.

1. *Recommendation A* — National supervisory authorities with responsibility for banking supervision, national supervisory

authorities and other authorities with a macro-prudential mandate, and the EBA are requested to report according to the following timeline:

- (a) by 30 June 2014, national supervisory authorities with responsibility for banking supervision are requested to deliver to the ESRB an interim report containing a first assessment of the result of the implementation of Recommendation A(1) and (2);
 - (b) by 31 January 2015, national supervisory authorities with responsibility for banking supervision are requested to deliver a final report on Recommendation A(1) and (2) to the ESRB and to the Council;
 - (c) by 30 June 2014, national supervisory authorities and other authorities with a macro-prudential mandate are requested to deliver to the ESRB an interim report containing a first assessment of the result of the implementation of Recommendation A(3);
 - (d) by 31 March 2015 national supervisory authorities and other authorities with a macro-prudential mandate are requested to deliver a final report on the implementation of Recommendation A(3) to the ESRB and to the Council;
 - (e) by 31 December 2013, the EBA is requested to deliver the guidelines referred to in Recommendation A(4) to the ESRB and to the Council;
 - (f) by 30 September 2014, the EBA is requested to deliver to the ESRB an interim report containing a first assessment of the result of the implementation of Recommendation A(5);
 - (g) by 31 March 2015: the EBA is requested to deliver a final report on the implementation of Recommendation A(5) to the ESRB and to the Council.
2. *Recommendation B* — by 30 June 2014, national supervisory authorities with responsibility for banking supervision are requested to report to the ESRB and the Council the actions taken in response to this recommendation.
3. *Recommendation C* — the EBA and national supervisory authorities with responsibility for banking supervision are requested to report according to the following timeline:
- (a) by 31 December 2013, the EBA is requested to deliver to the ESRB and the Council the guidelines referred to in Recommendation C(3) and an interim report containing a proposal on how it intends to fulfil Recommendation C(4);
 - (b) by 30 September 2014, the EBA is requested to deliver to the ESRB a first monitoring report on asset encumbrance for the purposes of Recommendation C(4);
 - (c) by 31 December 2015, the EBA is requested to deliver to the ESRB and the Council a final monitoring report on asset encumbrance for the purposes of Recommendation C(4);

⁽¹⁾ OJ L 135, 31.5.1994, p. 5.

- (d) by 30 June 2014, national supervisory authorities with responsibility for banking supervision are requested to deliver to the ESRB a first monitoring report on the actions taken in response to Recommendation C(1) and (2);
- (e) by 30 September 2015, national supervisory authorities with responsibility for banking supervision are requested to deliver to the ESRB and the Council a final monitoring report on the actions taken in response to Recommendation C(1) and (2).
4. *Recommendation D* — the EBA is requested to report according to the following timeline:
- (a) by 31 December 2013, the EBA is requested to deliver to the ESRB and the Council the guidelines;
- (b) by 30 June 2015, the EBA is requested to deliver to the ESRB and the Council an additional report on the implementation of Recommendation D(1)(a)(ii).
5. *Recommendation E* — the EBA and national supervisory authorities are requested to report according to the following timeline:
- (a) by 31 December 2013, national supervisory authorities are requested to report to the ESRB and to the Council on the actions taken in response to Recommendation E(1);
- (b) by 31 December 2013, the EBA is requested to deliver to the ESRB an interim report setting out the principles of best practice in relation to covered bonds which it has identified together with national supervisory authorities, and an assessment of the existence of other financial instruments which generate encumbrance in respect of which best practices need to be identified;
- (c) by 31 December 2014, the EBA is requested to deliver to the ESRB an interim report setting out the principles of best practices for other financial instruments that generate encumbrance, if they were identified in the interim report mentioned in paragraph (b) of this timeline;
- (d) by 31 December 2015, the EBA is requested to deliver a final report to the ESRB and to the Council containing an assessment of the functioning of the framework for covered bonds under the best practice principles and its view on recommended further action if deemed desirable;
- (e) by 31 December 2016, the EBA is requested to deliver a final report to the ESRB and to the Council containing an assessment of the functioning of the framework for the other financial instruments that generate encumbrance under the best practice principles, if they were identified in the interim report to be delivered under paragraph (b) of this timeline, and its view on recommended further action if deemed desirable.
- 4. Monitoring and assessment**
1. The ESRB Secretariat:
- (a) assists the addressees, including by facilitating coordinated reporting, providing relevant templates and detailing where necessary the modalities and timeline for the follow-up;
- (b) verifies the follow-up by the addressees, including by assisting them on request, and reports on the follow-up to the General Board via the Steering Committee.
2. The General Board assesses the actions and the justifications reported by the addressees and, where appropriate, decides whether this recommendation has not been followed and if the addressees have failed to adequately justify their inaction.
- Done at Frankfurt am Main, 20 December 2012.
- The Chair of the ESRB*
Mario DRAGHI

ANNEX TO THE RECOMMENDATION ON FUNDING OF CREDIT INSTITUTIONS

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EXECUTIVE SUMMARY

Banks' funding structures have undergone significant change in recent years. This Annex presents the developments in Union banks' funding sources and structures, the risks stemming from such developments and a set of policy proposals to address such risks.

The most notable development has been the increase in the relative importance of secured funding as a consequence of investors' risk aversion and of regulatory developments, notably the Basel frameworks for capital and liquidity and Solvency II. These developments have set the scene for rising demand for collateral (including from public sector funding sources) with a tightening supply of quality collateral, at a time when banks need stable funding sources to maintain their lending into the real economy. The heightened investor uncertainty associated with the current sovereign debt crisis has led banks to rely increasingly on public sector funding sources, while central banks have responded with extraordinary measures that have included longer-term operations and extended lists of collateral.

Banks have also increased reliance on, and competition for, customer deposits. Increased reliance on deposits has been partially successful; it has also been accompanied by risks, as deposits may become more volatile with competition and customer offerings have become more innovative and not always well understood. Finally, a few banks have moved to innovative products, notably liquidity swaps, in order to obtain funding at competitive prices. In an attempt to review these phenomena comprehensively, the Annex contains an assessment of the sustainability of funding structures as well as of their impact on the financial sector and on the real economy.

The Annex highlights and reviews three sources of risks in greater depth: (1) asset encumbrance; (2) innovative funding; and (3) concentration.

Secured funding has proved to be a lifeline for banks during the current period of stress, as it allows for diversification of funding sources and decreases counterparty risk. While recognising the benefits derived from secured funding during the crisis, the Annex also assesses the risks of an excessive encumbrance level. First, it implies further subordination of other creditors, in particular depositors, which has consequences in terms of potential usage of funds from deposit guarantee schemes. High levels of encumbrance may also negatively affect future access to the unsecured markets and create challenges in pricing risks correctly, with implications for efficient resource allocation. In addition, contingent encumbrance tends to be pro-cyclical since it increases in stress periods as a result of automatic increases in collateralisation requirements. More broadly, system-wide increases in encumbrance create difficulties in liquidity and funding management and reinforce the risks related to collateral reuse. Further difficulties are associated with the effective management and oversight of institutions with high encumbrance.

Innovative funding tends to be less transparent and, as a result, more difficult to manage and supervise. Given the potential opaqueness, there are also increased chances of the materialisation of litigation and reputation risks, primarily if these products are sold to retail consumers. Risks from concentration are analysed from four different perspectives: the investor base, instruments, maturity profiles and geographical scope.

Viewing funding structures from a holistic perspective, it is argued in the Annex that a well-diversified funding structure is crucial to guaranteeing credit institutions' capacity to withstand stress events. This implies avoiding over-reliance on individual funding sources and, in particular, on secured funding. Furthermore, it requires that institutions also take account of the actions of other institutions in determining their capacity to implement their funding plans, in particular with regard to reliance on customer deposits, which, owing to increased competition, may become a less stable funding source. There is already evidence of credit institutions resorting to retail funding instruments, which may look similar to deposits but which entail different risks as they may not be covered by deposit guarantee schemes.

On the basis of the analysis undertaken, several policy recommendations are made.

In the short run, given the still impaired market conditions and credit institutions' need to develop robust funding plans, national supervisory authorities and the European Banking Authority (EBA) are recommended to monitor and assess funding and liquidity risks and the viability of funding plans, on aggregate, at national and Union levels respectively. At this juncture, authorities are, in particular, recommended to assess institutions' plans to reduce reliance on public sector funding sources. When analysing funding and liquidity risks, authorities are advised to pay special attention to the use of innovative instruments that may pose systemic risks and to consider the risks of uninsured deposit-like instruments when sold to retail customers and their possible negative effects on traditional deposits.

A key thrust of the proposals is to address issues of encumbrance with a comprehensive strategy. In the short run, it is suggested that a concerted effort be made to further improve credit institutions' management of liquidity and funding

risks where encumbrance is involved. Supervisors are also recommended to be more consistent in their monitoring and assessing of the levels, evolution and types of encumbrance, as well as of the effect on encumbrance of stress events. Importantly, a recommendation on market transparency is included to address the supply of funding by facilitating the better pricing of risks, in particular those related to encumbrance.

Considering the relative importance that covered bonds have assumed in banks' funding structures and the risks identified for these instruments, for instance in terms of legal uncertainties in some Member States and differences in disclosure habits, national supervisory authorities are recommended to incentivise the implementation of best practices, either public or private. Following this first stage, the European Banking Authority is recommended to coordinate such initiatives and to identify best practices as well as to consider the functioning of the marketplace in accordance with the principles identified. It should also consider whether it is appropriate to use its own powers as formal mechanisms for imposing such best practices or to refer the matter to the European Commission for potential further action, taking into account the potential impact on otherwise well-functioning markets. In a second phase, it is recommended that the EBA consider whether there are other financial instruments that also encumber assets that would call for a similar approach.

Without proposing formal recommendations to stimulate other funding markets, the ESRB takes note of some private initiatives, for instance with regard to the labelling of securitisation and covered bonds, as these may help to restore confidence in certain financial products.

INTRODUCTION

The recent crisis has its roots in the events of 2007-08 when developments in wholesale and retail markets exposed the vulnerabilities inherent in some asset classes (e.g. subprime residential mortgages in the United States and elsewhere) and in some business models (e.g. reliance on short-term wholesale funding). The crisis has subsequently morphed and extended over a lengthy period. In the Union and, in particular, in the euro area, the current vulnerabilities of some sovereigns, together with fragilities in some banking systems, have negatively reinforced themselves in a context of poor economic growth. In this setting, the strong link between bank and sovereign funding costs, combined with uncertainties over the asset quality of some banks and the sustainability of their business models, mean that credit and interbank markets have remained impaired and that banks have faced difficulties in managing their balance sheets.

Against this background, public authorities have intervened, with central banks implementing decisive measures to allow banks to fund themselves and with supervisors taking steps to shore up capital levels, improve transparency and tackle asset quality.

To cope with this situation, banks have also responded by making changes in their funding structures and in their asset portfolios. This Annex also devotes attention to changes in banks' funding sources and structures and assesses whether such developments pose systemic risks.

This Annex reviews the funding structures of EU banks and how they have evolved in recent years and focuses on the increasing role played by secured funding and by other collateralised transactions and their consequences in terms of asset encumbrance. Potentially in response to the crisis, a few banks have also turned to more innovative funding sources, which are frequently opaque and in some cases can have an impact on asset encumbrance. Finally, the Annex examines more broadly the consequences of these developments in relationship to the sustainability of banks' funding structures.

The Annex contains an assessment of whether and how these developments warrant policy attention. It concludes that some of these risks are significant and therefore presents policy options. These options take due account of the nature of the current situation, which is still one of crisis and market instability and therefore requires special care.

This analytical exercise makes use of several different data sets in order to better depict the evolution and current state of affairs. Although banks' balance sheets are monitored by supervisors and other public authorities and are subject to market transparency rules, it was necessary to conduct an ad hoc survey to obtain information, particularly on the levels and types of encumbrance and on innovative funding sources.

This Annex is organised into six sections. Following the introduction, Section I presents the evolution and current state of EU banks' funding structures. Section II is devoted to the analysis of the data on asset encumbrance collected by the ESRB. The analysis of the risks entailed in such evolution is discussed in Section III. Section IV addresses more broadly the issue of the sustainability of funding structures and Section V concludes with the ESRB's policy recommendations. A methodological and statistical annex on the ESRB survey on asset encumbrance and innovative funding is included (Section VI).

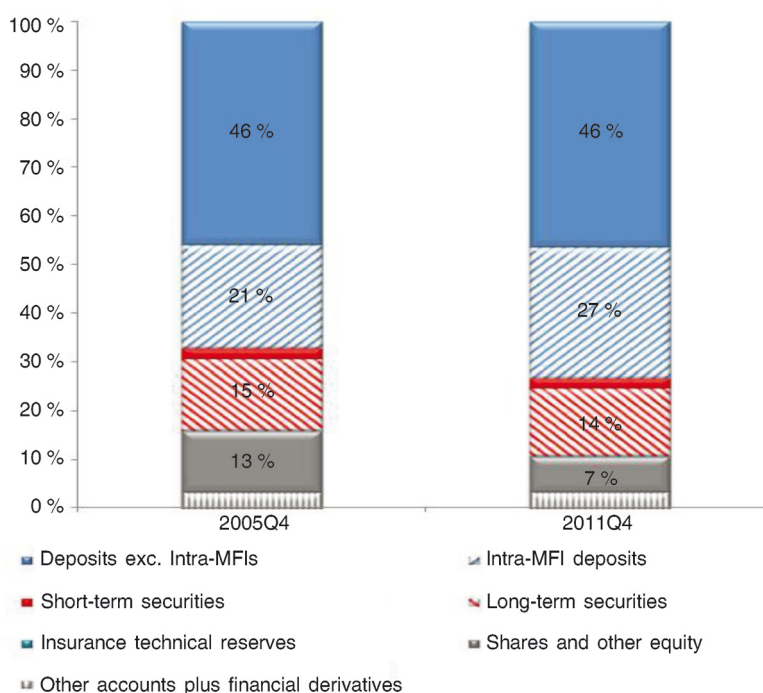
I. EVOLUTION OF FUNDING STRUCTURES AND ASSETS

The evolution of funding sources and structures in recent years cannot be analysed separately from the context of the current, long-lasting crisis. In response to severely impaired credit and interbank markets and in a context of vulnerabilities in both sovereigns and financial systems, particularly in the euro area, banks have adapted both their funding structures and their asset portfolios.

If the funding structure of the balance sheets of euro area banks ⁽¹⁾ as of the end of 2011 is compared with that prevailing before the financial crisis (as of the end of 2005), it can be concluded that deposits, excluding intra-monetary financial institutions (MFIs), still represent the largest percentage of banks' liabilities (see **Chart 1**). Moreover, since 2008, the percentage of customers' deposits in banks' liabilities has been increasing, as have the maturities of those deposits ⁽²⁾ (see Section **I.3.1**).

Chart 1

Liabilities breakdown: 2005 vs 2011



Sources: ECB and Eurostat.

Since 2005 liabilities have been restructured increasing the share of intra-MFI deposits. In fact, on the basis of financial transactions data, deposits have increased by 12 % since the end of 2005.

However, it should be pointed out that this statistical component encompasses central bank funding. Following the policy response by central banks and other public authorities to the impairment of credit and interbank markets, recourse to central bank funding and to the Eurosystem in particular, as well as reliance on state-guaranteed debt, have increased significantly in recent years (see Section **I.5**).

The third most relevant item is long-term debt securities, which accounted for 14 % of total bank liabilities. In terms of debt securities, in the past few years there has been a shift in banks' funding structures towards secured funding, including covered bonds (see Sections **I.1** and **I.2**). Deteriorating market confidence has also led to a significant reduction in cross-border interbank transactions, which has been reflected in shorter maturities and higher borrowing rates. This resegmentation within national boundaries is still ongoing.

It is possible to conclude that, for a small sample of surveyed banks ⁽³⁾, the recomposition of liability structures is dependent on the banks' rating (and inherently on the sovereigns' rating), with more vulnerable banks or banks in more

⁽¹⁾ Owing to the lack of harmonised data for the whole EU, this information relates to the euro area only.

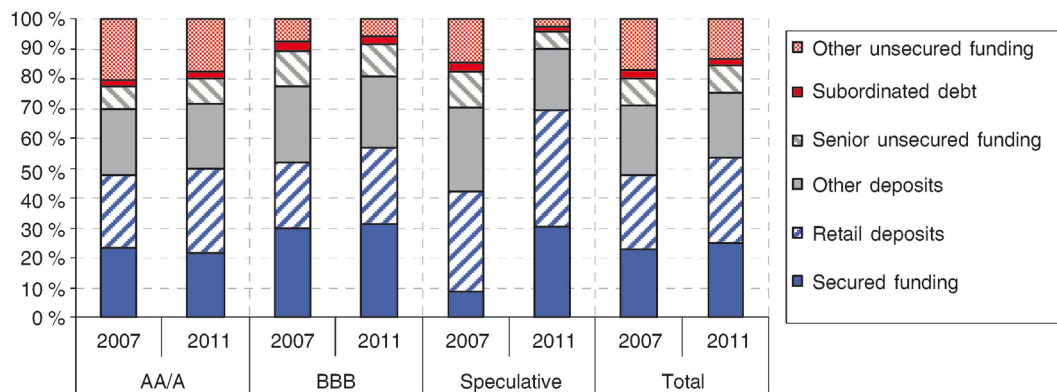
⁽²⁾ See ECB (2012a), *Changes in bank financing patterns*, April 2012.

⁽³⁾ These data refer to the survey on asset encumbrance and innovative funding carried out by the ESRB in the summer of 2012. See Section VI for further details.

vulnerable sovereigns experiencing a higher increase in secured funding (which includes central bank funding) and a decrease in the reliance on unsecured debt instruments. These banks also seem to have strengthened their deposit base more than the higher rated banks (see **Chart 2**).

Chart 2

Structure of funding for groups of banks with different ratings, end-2007 and end-2011



Sources: ESRB survey on asset encumbrance and innovative funding and Bloomberg.

Coverage: 12 banks (AA/A), 6 banks (BBB), 11 banks (speculative rating), 29 banks (total).

Note: In order to ensure consistent comparison, the same sample of banks was used for both end-2007 and end-2011 data.

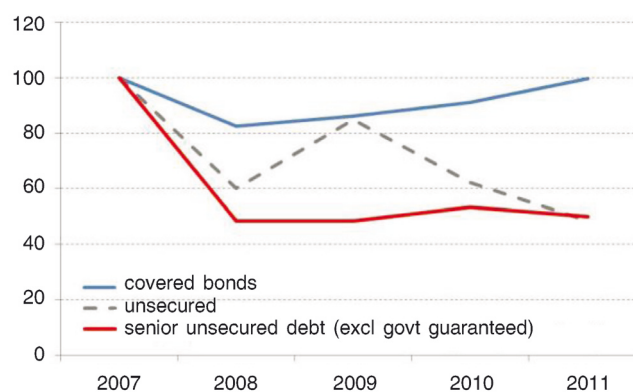
These changes in banks' liabilities are also a reflection of a change in business models. Before the crisis, EU banks mostly pursued asset-driven strategies, leading to excessive leverage, as funding was readily available at low prices, especially in wholesale markets. The crisis and its implications for the availability of liquidity and funding forced a strategic turnaround for banks, which have shifted to liability-driven strategies.

I.1. Secured versus unsecured funding

Issuance of medium and long-term debt by banks has been significantly down from late 2007 onwards compared to the pre-crisis decade. While the financial crisis adversely affected both unsecured and secured funding markets, the issuance by Union banks of covered bonds has proved much more resilient over the past few years than that of senior unsecured debt (see **Chart 3**), resulting in a shift towards more secured issuance (see **Chart 4**). This increasing trend reversed in 2012, partly due to the fact that market access for peripheral issuers, which accounted for a significant part of the increase in covered bond issuance in 2010 and 2011, was restricted for most of the year.

Chart 3

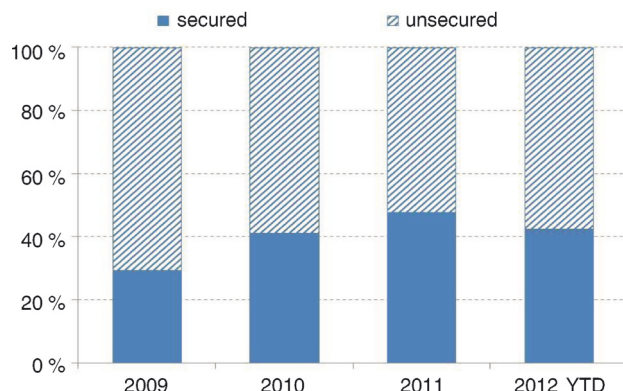
Change in the issuance of covered bonds and senior unsecured debt (2007-11; index 2007 = 100)



Sources: Dealogic and ECB calculations.

Note: Issuance of EU banks, independently of size of issuance. Retained deals are not included.

Chart 4

Share of secured and unsecured debt issuance (2009 — Sep. 2012; percentages)

Sources: Dealogic and ECB calculations.

Notes: Secured issuance includes covered bonds, asset-backed securities and mortgage-backed securities. Issuance of EU banks, independently of size of issuance. Retained deals are not included.

This broad trend conceals differences in developments across countries and across banks. In the past few years, the issuance of banks in more vulnerable countries has suffered more than in other countries. Banks in those countries also resorted more significantly to secured instruments (frequently retaining the instruments to use as collateral) and to guaranteed instruments (in particular those guaranteed by the state). Lower rated banking groups, even when located in stronger sovereigns, faced more difficulties in obtaining wholesale funding in private sector markets.

Turning to interbank funding, euro money market survey data ⁽¹⁾ show that, after years of continuous growth, total activity in the unsecured markets started to fall in 2008 and dropped significantly further in 2009-10 as a result of heightened counterparty risk concerns. While unsecured borrowing increased somewhat in 2011, it still remained well below pre-crisis levels. The decline in the relative share of unsecured lending also continued in 2012, when the turnover in the unsecured markets contracted by 36 %. The decline in unsecured interbank borrowing was offset to some extent by an increase in repo funding, which, after a drop in 2008, started to grow in 2009; however, it declined again by 15 % in 2012. The relative resilience of secured market activity can be attributed, in part, to the increased use of electronic platforms and, in particular, of trading facilities with central counterparties (CCPs) for secured transactions. According to survey data, activity in the secured market cleared through CCPs has increased markedly since 2008; in 2012 it already accounted for 55 % of secured market transactions (compared with 51 % in 2011).

1.2. Evolution of secured funding

The amount of EU banks' secured debt outstanding (excluding Germany) was relatively stable between the end of 2009 and the first quarter of 2012, although this masked the difference in developments across the Union, with increases in several countries (e.g. Spain, Italy and Sweden) contrasting with declines in others (e.g. Ireland, the Netherlands and the United Kingdom) ⁽²⁾.

At the same time, some banks started increasing the issuance of retained securitisation or covered bonds in order to use those instruments as collateral, in particular for refinancing operations with central banks (see Section 1.5 for further details). In particular, between 2011 and 2012, lower-rated institutions resorted more to this type of operation.

Securitisation was heavily employed at the beginning of the process: in 2008 a record EUR 711 billion in issuance volume was observed but only 5 % of total issuance was not retained by banks. The share and volume of retained asset backed securities (ABS) far exceeded that of retained covered bonds in 2008-11.

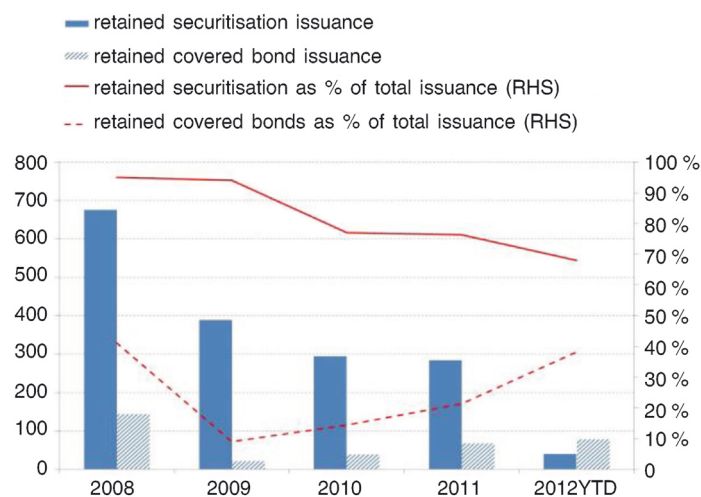
⁽¹⁾ See *Euro money market survey*, ECB, September 2012.

⁽²⁾ The amount outstanding of German banks' secured debt has shown a downward trend in the past few years. This can be attributed to the fact that several banks are undergoing significant restructuring and are running off portfolios that were previously funded by covered bonds (in particular public sector covered bonds).

In the first nine months of 2012, retained covered bond issuance picked up and accounted for more than one-third of total covered bond issuance (see **Chart 5**). However, the share of retained securitisation issuances remained significantly higher, at least in the first quarter of 2012.

Chart 5

Retained securitisation and covered bond issuances by year in the EU



Sources: Association for Financial Markets in Europe, Dealogic.

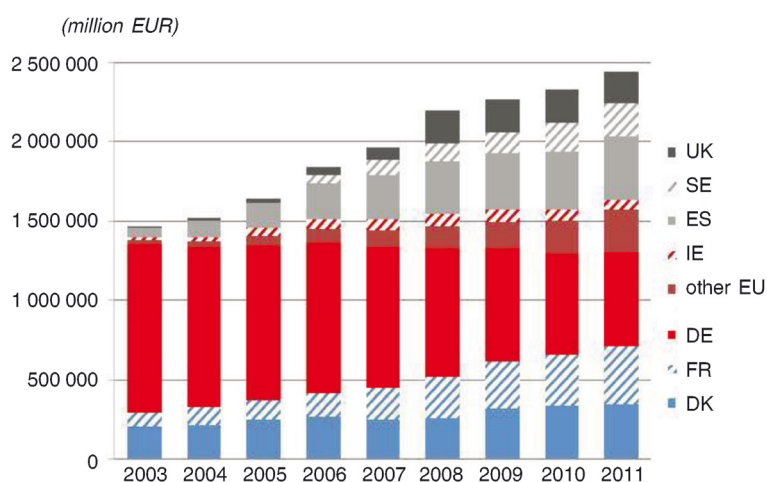
Notes: Data encompass covered bonds, ABS and MBS issued by EU banks. 2012YTD figures refer to the first quarter and the first three quarters for securitisation and covered bonds, respectively.

1.2.1. Covered bonds

Covered bonds assume an important role in terms of secured funding. They have shifted from being a funding source in only a few countries to becoming an important source of long-term funding for banks in a much broader group of countries (see **Chart 6**). In 2003, 95 % of all covered bonds outstanding were issued by banks and mortgage banks located in only four countries (Denmark, France, Germany and Spain), whereas in 2010 only 66 % of all covered bonds outstanding were issued by those four countries (see **Chart 7**).

Chart 6

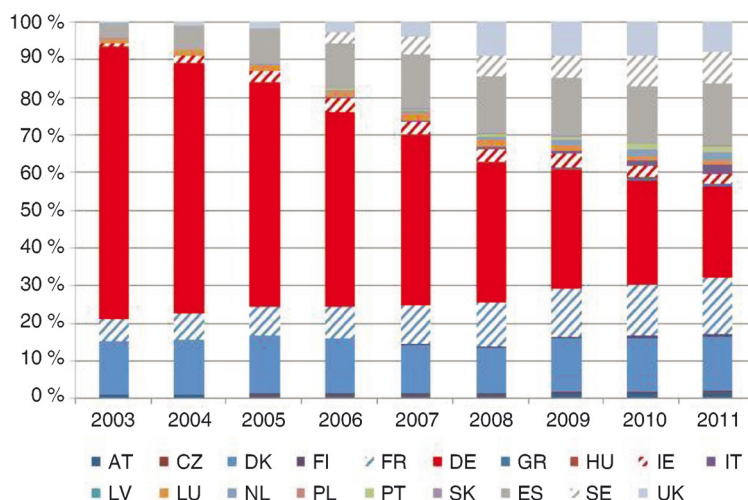
Covered bonds outstanding



Source: European Mortgage Federation/European Covered Bond Council (ECBC Fact Book 2012).

Chart 7

Share of covered bonds outstanding, by country, in total of the EU



Source: EMF/ECBC (ECBC Fact Book 2012).

In both primary and secondary markets, covered bond spreads have remained tighter than the equivalent senior unsecured debt, thus making covered bonds more attractive as funding instruments, in particular for residential mortgages. The fact that rating agencies rate covered bonds significantly higher than the senior unsecured liabilities of the same issuer has also contributed to higher investor appetite for these instruments.

1.3. Evolution of unsecured funding

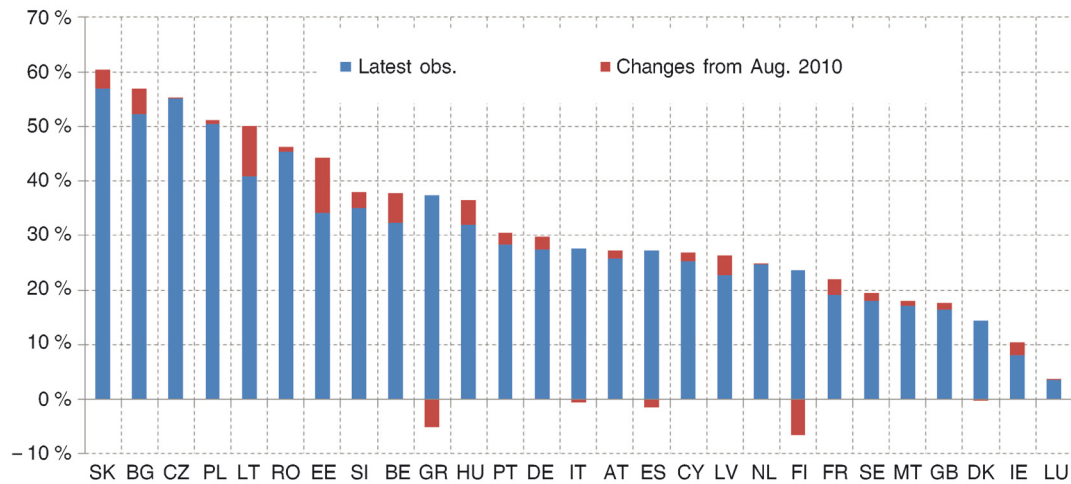
While the amount of unsecured debt outstanding was relatively stable in 2009 and 2010, it started to decline in the first quarter of 2011. The same is true for the share of unsecured debt outstanding of total debt outstanding, which was around 40 % in 2009 and 2010 and started to fall in the first quarter of 2011, reaching 30 % most recently. This development was heterogeneous across Union countries but the most significant decline in this share was seen mainly in countries on which the crisis had a pronounced impact (notably Italy and Portugal). Banking groups with lower ratings domiciled in higher-rated countries also registered a decrease in the share of unsecured debt.

1.3.1. Customer deposits

In spite of a generalised increase in customers' deposits in banks' liabilities (see **Chart 1**), banks' attempts to maintain a larger deposit base have so far produced mixed results (see **Chart 8**), largely because of tighter competition in an already overbanked market and some savers' relative reluctance to tie up funds in low-interest deposits.

Chart 8

Share of domestic non-financial private sector deposits as a percentage of total assets



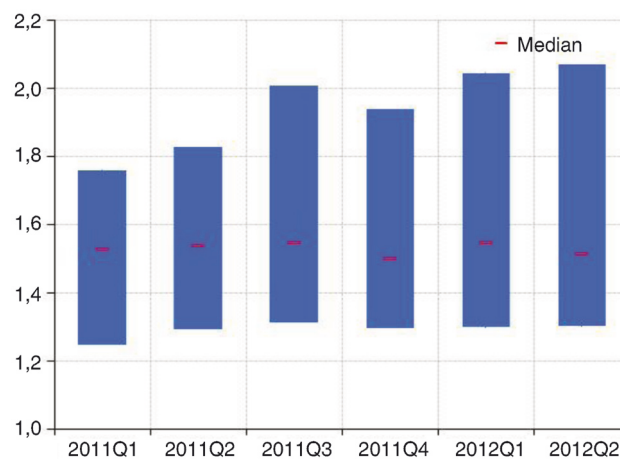
Source: ECB. Last observation: Aug. 2012.

Notes: Deposits from domestic households and non-financial corporations sector. Total assets exclude the item 'remaining assets' (i.e. financial derivative positions with gross positive market values). Last observation (i.e. Aug. 2012) is represented by the sum of the red and blue bar for countries with positive changes of the ratio in the period from Aug. 2010 to Aug. 2012.

In fact, the loan-to-deposit ratio remained relatively flat between 2009 and 2012 (see **Chart 9**): after a contraction in the first quarter of 2011, it increased again and remained relatively stable over the last quarters, at about 150 %. Overall, unlike the situation for market funds, deposit stocks have shown stability throughout the crisis, with the exception of a few countries at times of stress. To an extent, this is because of the existence of Union-wide harmonised deposit guarantee schemes. There have, however, been some movements of wholesale deposits in some countries, starting in the second half of 2011, some of which were of a cross-border nature (see **Chart 10**).

Chart 9

Loan-to-deposit ratio for a sample of large EU banking groups

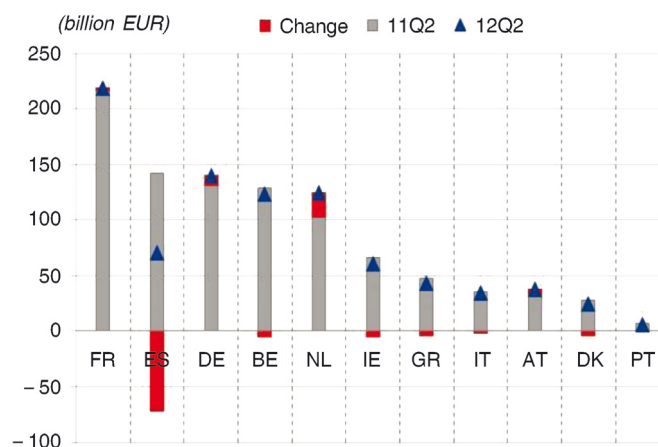


Source: EBA.

Notes: Individual institutions' interquartile range. Sample of 36 large banks. The sample may vary across time.

Chart 10

Cross-border deposits by EU non-MFIs



Source: ECB.

Notes: Cross-border deposits of non-MFIs within the EU. Changes based on the difference between the stocks at 12Q2 and 11Q2

I.4. Innovative funding

Besides the traditional types of bank funding, banks use, to differing degrees, other types of instruments in order to improve their funding or liquidity situation.

I.4.1. Liquidity swaps

Liquidity swaps can take several forms but are in general a type of secured lending whereby a lender provides a borrower with highly liquid assets (e.g. cash and government bonds) in exchange for a pledge of less liquid collateral (e.g. asset-backed securities), performing a liquidity upgrade in the process.

Information provided in the ESRB survey on asset encumbrance and innovative funding indicates that the funding obtained by liquidity swaps with cash collateral (repos) and by pledging collateral received in reverse repos ('matched repos') accounts for 7 % of total assets. If 2007 and 2011 data are compared, it can be seen that no significant change was reported regarding this share, other than that banks tended to prefer matched repos over repos in 2007 ⁽¹⁾.

According to the same survey, securities lending transactions remain marginal for the majority of institutions. Indeed, the funding received in those transactions represents on average only 0,7 % of banks' total assets and does not exceed 3,5 % for any of the reporting banks. However, securities lending transactions are highly concentrated, mainly at larger banks. In total, such transactions were reported by only 19 banks (out of 47), with four banks accounting for a 67 % share of funding received. In addition, the market is highly dominated by a few countries, namely United Kingdom (44 % of total funding received), Germany (22 %) and France (19 %), followed by the Netherlands, Italy and Sweden.

I.4.2. Structured products and ETFs

The crisis had an impact on the market for structured products ⁽²⁾. The annual turnover of structured securities listed on Euronext (Amsterdam, Brussels, Lisbon and Paris) increased significantly in the mid-2000s but dropped significantly following the onset of the crisis (see **Table 1**).

Table 1

Turnover in structured products; billion EUR

2005	2006	2007	2008	2009	2010
11,5	23,6	34,0	28,9	23,0	26,1

Source: NYSE Euronext.

⁽¹⁾ This conclusion is based on a consistent sub-sample of 21 banks reporting both end-2007 and end-2011 data.

⁽²⁾ Structured products are products with a predefined pay-off structure depending on the value at maturity or on the development of one or more underlying factors such as shares, equity indices, FX rates, inflation indices, debt securities or commodities. They may take the form of structured securities or structured deposits.

The use of structured products for bank funding ⁽¹⁾ varies widely among European countries, according to the size of the market (Belgium, Germany, France and Italy account for two-thirds of structured products outstanding, with EUR 226 billion, EUR 157 billion, EUR 84 billion and EUR 82 billion respectively at the end of 2011) and the patterns in domestic bank funding structures. However, it should be noted that structured products are not innovations introduced after the crisis.

The use of exchange traded funds (ETFs) as an innovative funding instrument has been widely publicised. However, the use by banks of traded funds to obtain funding goes beyond the scope of ETFs, as other UCITS could be used as well by resorting to total return swaps and securities lending. From the information gathered through the ESRB survey, ETFs are very seldom used to obtain funding; only a couple of banks reported using this instrument for funding purposes. However, this does not mean that this activity will not pick up again in the future. This is one of the reasons why supervisors are continuing to monitor this activity. Moreover, the European Securities and Markets Authority (ESMA) published guidelines on ETFs and other UCITS issues in July 2012.

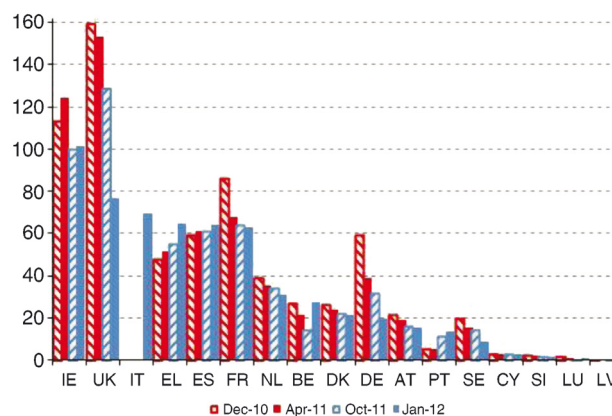
1.5. Public support in the current distressed conditions

Following the onset of the financial crisis and particularly after the Lehman collapse, central banks and public authorities intervened decisively. Given the difficulty for banks to fund themselves in unsecured credit markets, banks within the Union increased their recourse to secured funding (see Section I.2) and to central bank funding.

Moreover, EU Member States took several measures to support their banking systems. The bulk of public support measures can be classified into three broad categories, capital injections, guarantees on bank liabilities and asset relief measures ⁽²⁾. Notably, Member States agreed to a system of national state guarantees for liquidity, which was revised in 2011, in an attempt to allow viable banks to obtain funding. In January 2012, 17 EU Member States had granted guarantees on new bond issuances for a total of EUR 580 billion (EUR 480 billion in the euro area), which was down from a peak of EUR 930 billion (EUR 720 billion in the euro area) in the last quarter of 2009. The situation at country level is mixed (see **Chart 11**). The amount of contingent liabilities stemming from guarantees on bank liabilities declined in most countries as a result of bonds maturing, but it increased in countries such as Belgium, Greece, Italy, Portugal and Spain.

Chart 11

Guarantees on bank liabilities: country breakdown, in billion EUR



Sources: DG ECFIN and survey of Member States via the EFC.

Note: The countries not listed did not have any effective guarantees on bank liabilities.

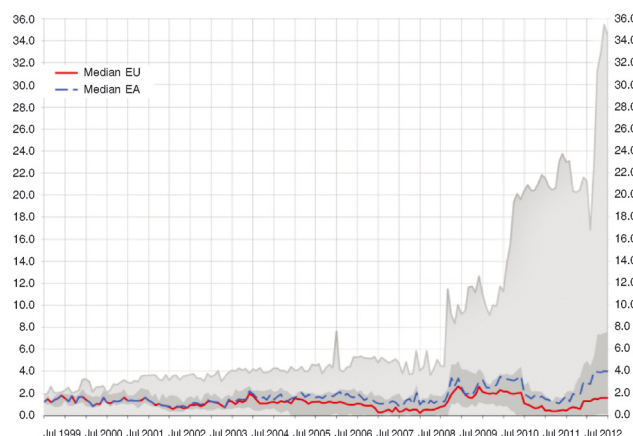
With the crisis evolving into a sovereign crisis in some euro area countries, conditions for funding worsened significantly for banks in such countries. In this context, the Eurosystem intervened with a broad range of measures, which included, inter alia, establishing longer-term refinancing operations (LTROs) at full allotment and fixed rates, broadening eligible collateral and decreasing the minimum reserves requirement. On 22 December 2011 and 1 March 2012, the ECB conducted two LTROs with a maturity of three years, which together amounted to more than EUR 1 trillion (see **Chart 12** and **Chart 13**).

⁽¹⁾ According to <https://www.structuredetailproducts.com>

⁽²⁾ According to the European Commission, total public support for EU financial institutions peaked at EUR 1 540 billion in late 2009 and declined to EUR 1 080 billion in January 2012.

Chart 12

Operations with the EU NCBs

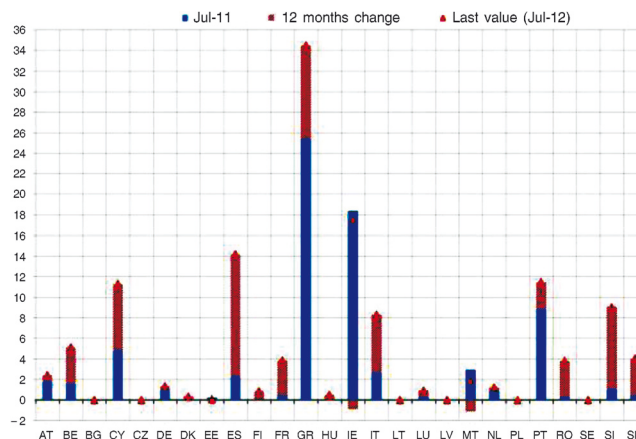


Sources: ECB and International Monetary Fund (IMF).

Notes: Liabilities of other MFIs excluding Money Market Funds (MMFs) vis-à-vis the European System of Central Banks (ESCB) as a share of total liabilities excluding capital and reserves and remaining liabilities. The dark grey area includes interquartile range; the grey area includes maximum and minimum observations. Data for the UK are not available.

Chart 13

Operations with the EU NCBs



Sources: ECB and IMF.

Notes: Liabilities of other MFIs excluding MMFs vis-à-vis the ESCB as a share of total liabilities excluding capital and reserves and remaining liabilities. Data for the UK are not available.

Naturally, recourse to central bank funding is correlated with sovereign fragilities, with banks from Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain being more reliant on financing from the Eurosystem (see **Chart 13**). In some countries, banks have resorted to retained securities, in particular covered bonds, in order to gather eligible collateral for operations with central banks (see **Chart 5**). Some banks have resorted to state guarantees for issuing debt, which was in some cases used in refinancing operations with the central bank.

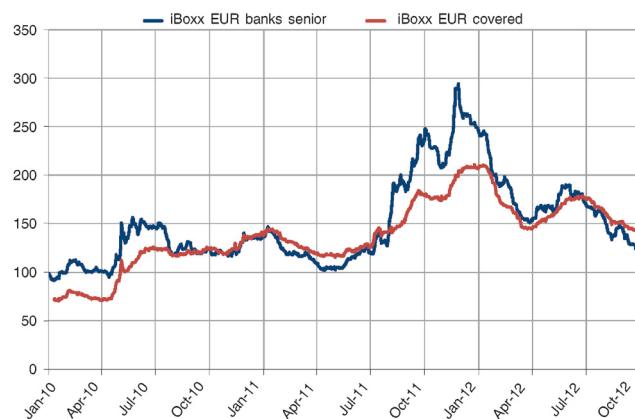
1.6. Drivers for the development of funding structures

The change in the composition of banks' liabilities is the result of several concurrent factors. Following the multi-notch downgrades of debt issued by several peripheral euro area sovereigns, which were previously highly rated and perceived to be low risk, there was an increase in demand by fixed income investors for safer assets. This led to a bias towards secured assets and, in particular, covered bonds as the cover pools consisting of relatively safer assets as a second source of repayment provided some further reassurance. Moreover, specific legal frameworks for covered bonds offer additional investor reassurance.

As regards developments in the cost of secured and unsecured debt, based on the respective iBoxx indices, the differential between senior unsecured debt and covered bond spreads showed changing pricing patterns during the crisis. Until around mid-2010, the average cost of senior unsecured debt remained well above that of covered bonds but subsequently the difference largely disappeared and the relationship even reversed in the first half of 2011. Increased risk aversion in credit markets due to the intensification of the sovereign debt crisis, coupled with fears about the possible impact of bail-in proposals on the cost of senior unsecured debt, led to the reappearance and the rewidening of the positive spread differential between senior unsecured debt and covered bonds in the second half of 2011.

Chart 14

Swap spreads on iBoxx indices for euro-denominated senior unsecured debt and covered bonds (Jan. 2010-Oct. 2012; basis points)



Source: Markit.

Following the Eurosystem's three-year LTROs, senior unsecured spreads tightened significantly in early 2012 and average spreads on secured and unsecured debt moved relatively closely together for much of the first half of the year. In late June 2012, however, the average spread on senior unsecured debt fell below that of covered bonds.

As regards the cost of interbank funding, following the Lehman default, unsecured transactions became much more costly relative to repo funding, as illustrated by the sharp widening of the EURIBOR-EUREPO term spreads, which reflected a significant rise in counterparty credit risk. While spreads significantly narrowed following the implementation of the ECB's large-scale liquidity support measures, they remained well above pre-crisis levels. The intensification of the sovereign debt crisis from mid-2011 onwards again led to rewidening of the spreads on secured versus unsecured transactions. In the first half of 2012, the rate differential between repo and unsecured transactions narrowed again after the implementation of the Eurosystem's three-year LTROs.

It should also be noted that since the beginning of the crisis, EU banks have been focusing on strengthening their funding base by making deposit-gathering a key strategy. Retail deposits are considered by the Basel proposal for the liquidity regime as 'stickier' than other instruments, which may also have contributed to banks engaging in such strategies.

1.6.1. Impact of new and upcoming regulations on bank funding

1.6.1.1. Background

Several legislative initiatives that have been or will be implemented in the near future may have an impact on banks' funding options, especially on the trade-off between secured versus unsecured funding sources but also on recourse to new sources of funding. Of these initiatives, the most important are the Capital Requirements Directive and Regulation (CRR/CRD IV), the Solvency II/Omnibus II Directive, the proposals for the Bank Recovery and Resolution Directive and the European Market Infrastructure Regulation (EMIR).

In summary, as covered bond issuance will have a potentially favourable treatment under future Basel III and Solvency II rules compared with securitisations, banks might have further incentives to opt for such instruments. At the same time, the 'bail-in' debt provisions included in the proposal on bank resolution have contributed to investor perceptions that recovery rates for unsecured creditors are likely to be lower in the future. The fact that, in the current proposal regarding the Liquidity Coverage Ratio, unsecured debt instruments issued by banks are not considered liquid assets may also negatively affect banks' interest in holding other banks' unsecured debt ⁽¹⁾.

The impacts of the referred regulations are not restricted to bank funding and the potential negative effects should be considered in the wider context of the benefits not only in terms of funding and liquidity but also in terms of increased resilience of the system, decreased moral hazard, limiting contagion etc.

L6.1.2. Details of relevant upcoming or already implemented legislation

CRR/CRD IV. Two of the elements of the CRD IV that could have significant effect on bank funding patterns are those related to the liquidity framework: the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Requirement (NSFR). The main purpose of the NSFR is to require banks to establish more stable, long-term sources of funding. The main purpose of the LCR is, in turn, to create a pool of easily disposable assets consisting mostly of high quality, liquid assets, including covered bonds but excluding ABSs.

An additional impact on bank funding stemming from the Capital Requirements legislation comes from the treatment of covered bonds. The CRR/CRD IV does not introduce new treatment for covered bonds in terms of capital charges as compared with the past, since it maintains the main asset classes that can be eligible for collateral to back covered bonds, as established by the previous capital requirements directives.

Solvency II Directive. The Directive aims at harmonising the regulation of insurance and reinsurance firms. Solvency rules stipulate the minimum amounts of financial resources that insurers and reinsurers must have in order to cover the risks to which they are exposed. One of the main criticisms of Solvency II is that it will incentivise investment in short-term rather than long-term debt because of the design of the capital requirements for spread risk. However, this criticism is based on a simplistic view of Solvency II, comparing parameters of the spread risk module with CRD IV parameters. This approach also fails to take account of diversification effects and the effect of interest risk submodules in the final capital requirements.

Other elements currently under discussion in the Omnibus II negotiations may preserve or enhance incentives for long-term investments. One example is the 'long-term guarantees package', which is designed to deal with issues arising from the impact of artificial volatility on insurance products with long-term guarantees.

Another key criticism is that the Solvency II approach penalises investment in bank participations. Again, this is based on the European Insurance and Occupational Pensions Authority (EIOPA) fifth quantitative impact study (QIS5) approach, in which participations in financial and credit institutions were deducted from own funds. Current draft delegated acts will reflect an approach similar to that of the CRD IV, in accordance with which the value of the participation in banks is deducted from the corresponding tier only where certain thresholds are exceeded. It is unlikely that this approach could have a significant effect on the reallocation of assets for insurers.

It could still be possible that Solvency II will change the asset allocation for some undertakings, given that it captures diversification effects.

Bank Recovery and Resolution Directive. The draft Directive sets out the necessary steps and powers to ensure that bank failures across the EU are managed in a way that avoids financial instability and minimises costs for taxpayers. The proposed framework contains a 'debt write-down' or 'bail-in' resolution tool. Under this tool, resolution authorities would be able to write down equity, subordinated debt and any other unsecured senior liabilities or convert them into equity. According to the Commission's proposal, secured funding, deposits covered by deposit guarantee schemes (DGS), funds with a maturity of less than one month, trade/commercial credit, liabilities to employees or tax/social security authorities and derivatives are excluded from the bail-in regime.

⁽¹⁾ These conclusions in terms of incentives for issuers and debt holders do not mean that these regulatory proposals are unnecessary or will not contribute to a safer financial system; they merely acknowledge that the current regulatory overhaul may have implications in terms of funding structures.

While bail-in would not change the position of unsecured creditors in the creditor hierarchy, it would contribute to investor's perceptions that recovery rates for unsecured funding are likely to be lower in the future. All in all, given a higher risk premium, 'bail-in-able' liabilities (e.g. unsecured funding) might be more expensive in the future. Nevertheless, impact assessments carried out by the European Commission have shown that the expected impact is contained. The Commission's Impact Assessment ⁽¹⁾ accompanying the draft Directive anticipates that the cost of bank funding will increase overall by between 5 and 15 basis points, whereas the change in the funding costs of 'bail-in-able' liabilities ranges between 15 and 40 basis points. The banking industry's estimates of the change in the funding costs of 'bail-in-able' liabilities, however, range between 55 and 100 basis points ⁽²⁾.

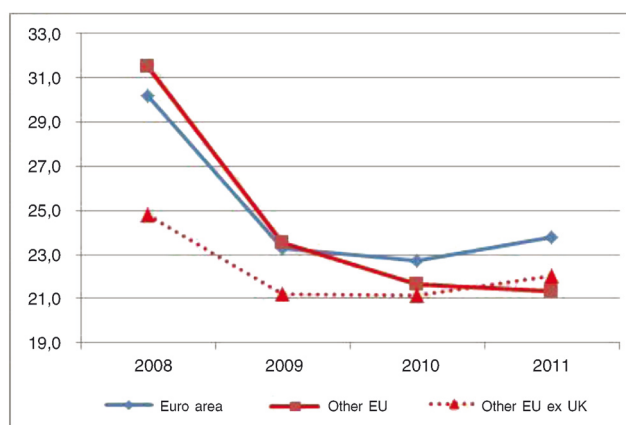
Overall, the increase in the risk and funding costs of liabilities subject to bail-in should be considered in the context of the beneficial effects of the bail-in tool on bank funding. The new Regulation on the **European market infrastructure (EMIR)** aims at introducing greater transparency and better risk management to the 'over the counter' (OTC) derivatives market, as well as making this market safer by reducing counterparty credit risk and operational risk.

To reduce counterparty credit risk, the new rules introduce (i) stringent requirements for prudential (e.g. how much capital CCPs need to hold), organisational (e.g. role of risk committees) and conduct of business standards (e.g. disclosure of prices) for CCPs, (ii) mandatory CCP clearing for contracts that have been standardised (i.e. they have met predefined eligibility criteria), (iii) risk mitigation standards for contracts not cleared by a CCP (e.g. exchange of collateral). For further details on risks from CCPs, see Section **III.1.6**.

1.7. Leverage and asset decomposition

In the run-up to the financial crisis, banks' leverage increased, with banks' balance sheets expanding substantially. In the post-crisis period, in response to elevated funding costs, particularly on unsecured funding, banks aimed at decreasing their leverage, both by increasing capital and limiting asset growth, as can be seen in **Chart 15**. The trend was more pronounced for banks outside the euro area, but this fact was driven by banks resident in the United Kingdom.

Chart 15
Leverage multiple of EU banks



Source: ESCB.

Note: Leverage multiple is calculated as total assets divided by equity, where intangible assets are subtracted from denominator and numerator.

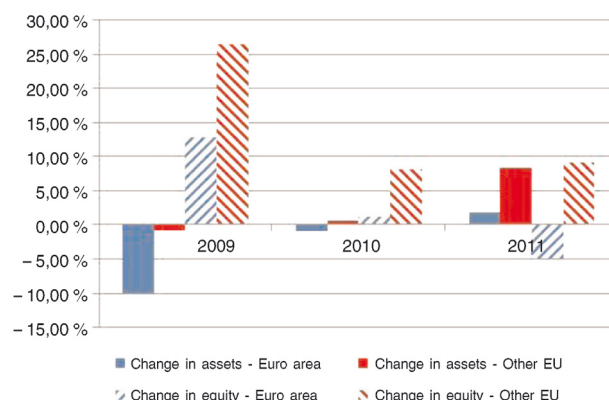
In the euro area, banks decreased their assets by approximately 10 % in 2009, with changes in 2010 and 2011 being less pronounced (see **Chart 16**). EU banks outside the euro area experienced, on aggregate, few adjustments in the size of assets until 2010, but these started growing again in 2011. From 2008 onwards, banks tried to recapitalise, and equity increased substantially throughout the EU by almost EUR 400 billion, albeit with a decrease of around 5 %, for the euro area banks in 2011. Total assets of banks in the euro area have increased by 14 % since 2007 but asset decomposition has also changed. Holdings of equity securities fell by 6 %, while loans to households increased by just 9 % and loans to MFIs by only 6 %. By contrast, other assets, loans to governments and debt holdings increased by more than 20 %. These figures give some evidence of weakened lending by the interbank sector as well as a relative decline in lending to households and corporations.

⁽¹⁾ http://ec.europa.eu/internal_market/bank/docs/crisis-management/2012_eu_framework/impact_assessment_final_en.pdf

⁽²⁾ In Denmark, where a bail-in resolution tool for all creditors, including depositors, in a 'gone concern' perspective, is already in force, 'bail-in-able' liabilities are traded 100 basis points higher than in their Scandinavian peers.

Chart 16

Changes in EU banks' equity and assets



Source: ESCB.

Note: Changes in end-of-year balance sheet positions for equity and total assets.

II. ASSET ENCUMBRANCE: INPUT FROM THE SURVEY

Asset encumbrance takes place when assets are used to secure creditors' claims. These assets are therefore not available to general creditors in the event of a bank failure. This collateralisation can either be used for funding purposes (e.g. ABS, covered bonds and repos) or for trading and risk management (e.g. derivatives and securities lending). In some of these operations, banks do not encumber assets directly with their counterparty but rather with CCPs in operations which are cleared through those institutions. An encumbered asset is an asset that is, explicitly or implicitly, pledged or subject to an arrangement to secure, collateralise or credit-enhance any transaction.

Following the increased reliance on secured funding and the move towards collateralisation of other transactions (such as derivatives), asset encumbrance has expanded since the onset of the crisis. While this increase is fairly widespread, it is more significant for vulnerable banks and banks in vulnerable sovereigns. In fact, asset encumbrance cannot be disentangled from the crisis and its impact in terms of impairment of credit and interbank markets. Apart from these market constraints, the amount and types of secured debt are driven by many factors, first and foremost prices, collateral availability, over-collateralisation and maturities.

II.1. Overall levels of asset encumbrance

In the remainder of this Annex, the level of asset encumbrance is calculated as the ratio of encumbered assets to total assets ⁽¹⁾. For methodological details, see Section VI.

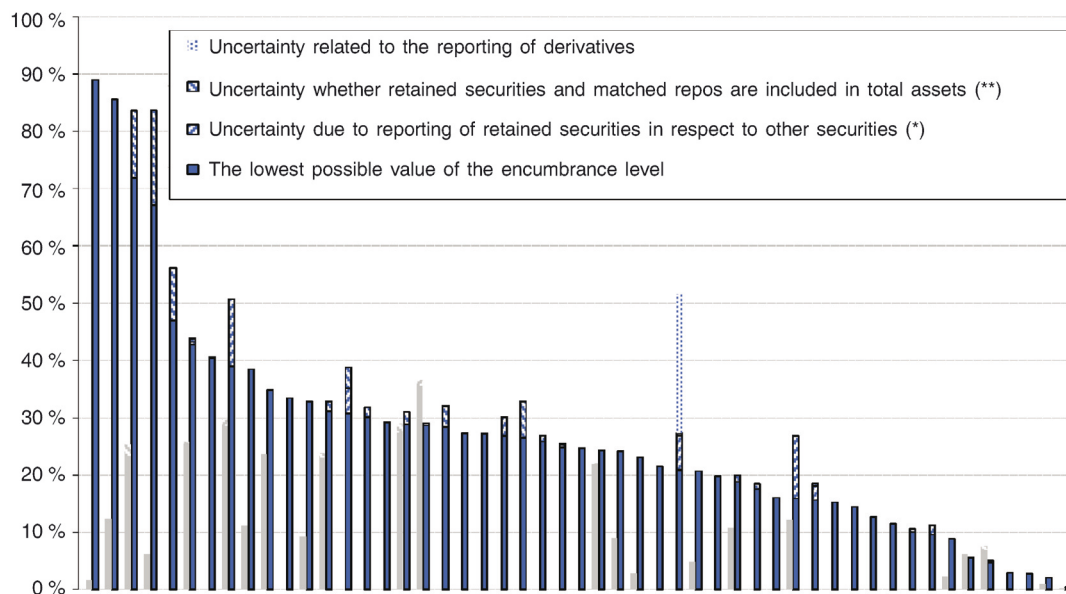
The distribution of the level of encumbrance, for 2007 and 2011, is presented in **Chart 17** ⁽²⁾. This ratio refers to all encumbered assets, including those assets received in a reverse repo (matched repos), measured against total assets. However, due to some uncertainties associated with the exact reporting methodology at some banks, intervals of encumbrance levels are presented instead of single figures. The data show that the median value of the encumbrance level for the sample of banks covered in this data collection exercise is around 25 % (or around 23 % when matched repos are excluded).

⁽¹⁾ The computation of encumbrance levels needs explanation. One initial difficulty with this computation is that retained securities might be off or on balance sheet, information which was not collected in the ESRB survey. Furthermore, some banks may have included off-balance-sheet securities in their total assets, while others may have not, causing some uncertainty about the computation of the level of encumbered assets. A second difficulty relates to the inclusion of off-balance-sheet items as encumbered assets, in particular regarding matched repos. Given that these items may be off balance sheet, when calculating the encumbrance level, both the numerator and denominator need to be adjusted to take account of matched repos. It should be noted, however, that this does not represent the entire off-balance-sheet approach as there may be other instruments that are considered off balance sheet but that are unencumbered and for which there is no information available. Furthermore, sovereign-guaranteed retained debt securities are included in the collateral pool for the central bank refinancing of some institutions. Although they do not produce any balance-sheet encumbrance, these securities are included in the amount of 'encumbered assets' throughout the following analysis, resulting in a slight overestimation of encumbrance levels for some institutions.

⁽²⁾ An equivalent chart — Chart 29 — portraying the level of encumbrance excluding matched repos is presented in Section VI.

Chart 17

Distribution of the ratio of encumbered assets (including matched repos) to total assets, end-2011 (blue shading) and end-2007 (grey shading)



Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 51 banks (end-2011 data), 28 banks (end-2007 data).

Notes: The lowest value in this interval is calculated as the share of total encumbered assets (decreased by the value of retained securities at banks, where they might be included in other covered bonds and other collateralised securities) in the amount of total assets increased by the amount of matched repos. The middle value (marked by (*) in the legend) is calculated as the share of total encumbered assets (including matched repos) of the amount of total assets increased by the amount of matched repos. The highest value (marked by (**) in the legend) is calculated as the share of total encumbered assets (including matched repos) on the amount of total assets, as reported. For banks whose reporting method was clear from the data, the abovementioned adjustments to the encumbrance ratio have not been made and the uncertainty intervals are negligible.

The levels of encumbrance have increased for almost all banks in the sample if the 2007 and 2011 data are compared ⁽¹⁾. Taking a subsample of 28 banks reporting in both years, the median increased from 7 % to 27 % and the average, weighted by total assets, increased from 11 % to 32 % (when including matched repos).

Despite the widespread nature of this tendency, the significance of the increase in encumbrance levels varied depending on the banks' characteristics. In fact, banks with lower credit ratings (lower than A) ⁽²⁾ systematically presented more striking increases in the level of encumbrance (Chart 18) ⁽³⁾.

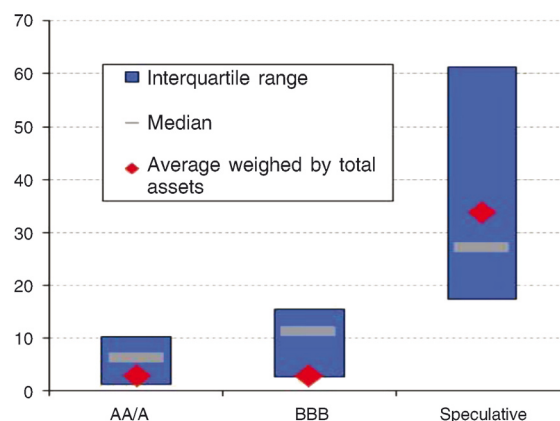
⁽¹⁾ This comparison is made only for banks for which data were available for both 2007 and 2011.

⁽²⁾ The rating represents the worst long-term issuer credit rating of the ratings issued by the three major rating agencies (Fitch, Moody's, Standard & Poor's, if available) as of 9 July 2012. For this analysis, the ratings have been placed into three groups: 'AA and A' (referring to ratings from AA+ to A- and Aa1 to A3, respectively), 'BBB' (referring to ratings from BBB+ to BBB- and Baa1 to Baa3, respectively) and 'Speculative' (non-investment).

⁽³⁾ It should be noted that this correlation between rating and encumbrance levels does not entail any causality, i.e. it is not argued that lower ratings cause higher encumbrance nor that higher encumbrance cause lower ratings. These statements merely note the correlation.

Chart 18

**Increase in encumbrance levels between 2007 and 2011 for groups of banks with different credit ratings
([percentage points] ⁽¹⁾)**



Coverage: 11 banks (AA/A), 6 banks (BBB), 11 banks (speculative rating).

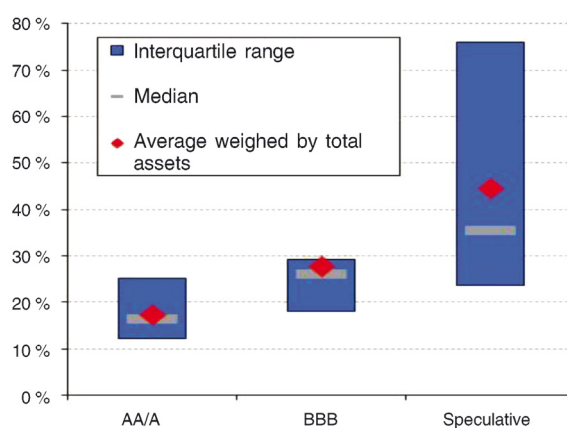
Notes: In order to ensure a consistent comparison, the same sample of banks was used for end-2007 and end-2011 data. The vertical axis corresponds to percentage points.

Source: ESRB survey on asset encumbrance and innovative funding, Bloomberg.

In 2011, higher rated banks (up to A) presented, on average, significantly lower levels of encumbrance (**Chart 19**) ⁽²⁾. While this is not a surprising conclusion, it should not be seen separately from the link between banks and their sovereign, as some of the banks that present higher levels of encumbrance are weighed down by sovereign risk. This difference in encumbrance patterns depending on banks' and sovereigns' resilience may be understood as a corroboration of the thesis that increased encumbrance is (at least partly) a consequence of the crisis.

Chart 19

Distributions of encumbrance levels for groups of banks with different credit ratings (percentages), end-2011



Coverage: 26 banks (AA/A), 13 banks (BBB), 12 banks (speculative rating).

Source: ESRB survey on asset encumbrance and innovative funding, Bloomberg.

⁽¹⁾ The rating represents the worst issuer rating of those issued by the three major rating agencies (Fitch, Moody's, Standard & Poor's, if available) on 9 July 2012. Only the ratings on that particular date have been taken into account, i.e. past rating changes were not considered. Hence, changes in the number of banks in different rating classes have no impact on the results.

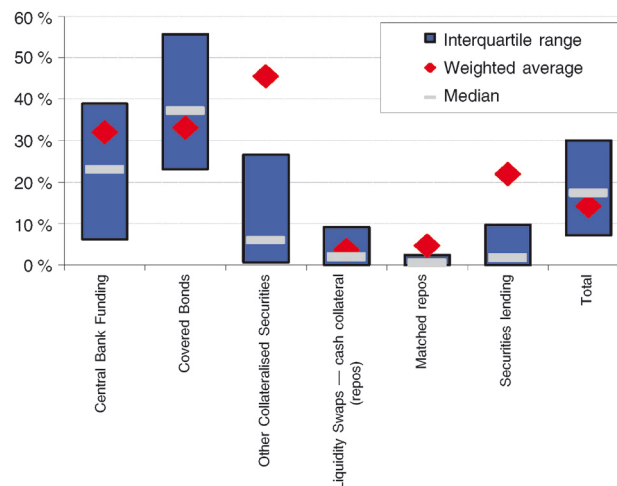
⁽²⁾ No relation was found between encumbrance levels and Tier 1 ratios. However, this may be due to the fact that significant recapitalisation exercises have taken place in recent years.

II.2. Impact of over-collateralisation on levels of encumbrance

Encumbrance levels depend on the type of transactions on which the asset pledge was made, notably on the inherent over-collateralisation requirements (see **Chart 20**). Repos, matched repos and securities lending are the type of secured funding which involves less use of collateral, as haircuts exercised are usually lower. However, higher rated institutions are those that are best positioned to take advantage of such transactions, since counterparties are more willing to engage in these operations with more resilient institutions (see also **Chart 21**). On the contrary, central bank funding, covered bonds and other collateralised securities require higher amounts of collateral.

Chart 20

Distribution of the over-collateralisation ratio by types of funding, end-2011

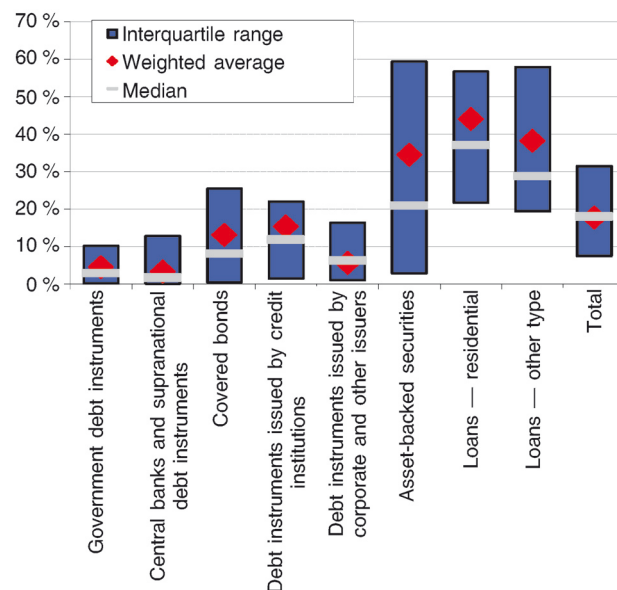


Coverage: 49 banks.

Source: ESRB survey on asset encumbrance and innovative funding.

Chart 21

Distribution of the over-collateralisation ratio by collateral type, end-2011



Coverage: 48 banks.

Source: ESRB survey on asset encumbrance and innovative funding.

The case of covered bonds requires further clarification. The level of over-collateralisation of covered bonds depends, broadly, on three factors: (1) regulatory requirements; (2) rating agencies' requirements; and (3) institutions' strategic choices regarding the over-collateralisation buffer that they wish to hold. Some national regulations require

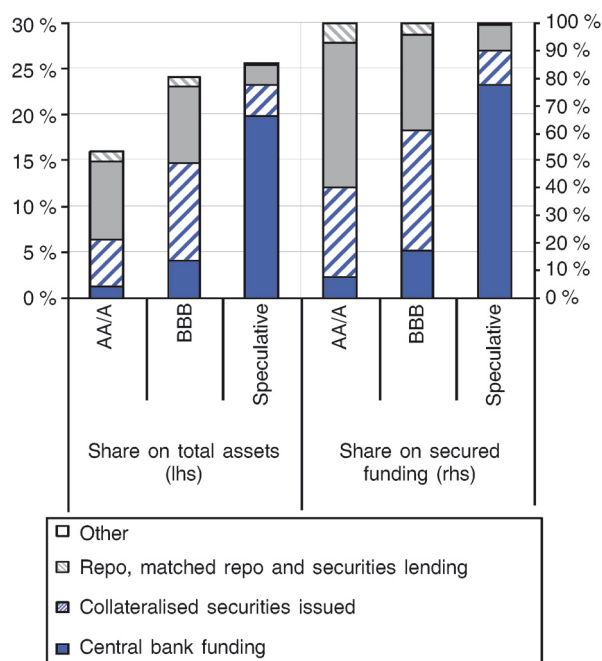
covered bonds to maintain significant minimum over-collateralisation levels (e.g. Spain ⁽¹⁾), some have over-collateralisation requirements which are fairly low ⁽²⁾ and another group requires the whole portfolio of eligible assets to be set apart for collateralising covered bonds (e.g. Slovakia), while others have no such requirements. This different treatment has non-negligible consequences in terms of over-collateralisation and therefore on levels of asset encumbrance. Whereas over-collateralisation can be partially justified by the regulatory regime, it also depends on the rating that institutions desire to achieve for their secured debt instruments, as higher over-collateralisation offers extra security for investors and thus permits higher ratings. Moreover, institutions decide on the buffer that they wish to hold on top of regulatory and rating agencies' requirements. This is a strategic decision and practices differ among banks and across Member States as to whether this buffer is held inside or outside the cover pool.

II.3. Contribution of the different transactions to encumbrance

Unsurprisingly, more vulnerable banks (when assessed by their credit rating) tend to rely more heavily on secured funding, and particularly on central bank funding, while higher rated banks have a more diversified structure of secured funding, with repos, securities lending and collateralised debt securities playing a very relevant role among funding sources. It should also be noted that while banks with a speculative rating appear to have only slightly higher levels of secured funding than banks with ratings up to BBB, given the amount of retained assets already 'packaged', but not yet used to obtain funding, by speculative-rated banks, those levels may rise.

Chart 22

Breakdown of secured funding for groups of banks with different credit ratings, end-2011



Source: ESRB survey on asset encumbrance and innovative funding, Bloomberg.

Coverage: 26 banks (AA/A), 13 banks (BBB), 11 banks (speculative rating).

This leads to a relatively high encumbrance level at banks with the lowest rating; there are several reasons why this occurs. First, central bank funding involves a high amount of encumbered assets due to more pronounced over-collateralisation than for other types of funding (see **Chart 20**). Second, banks with the lowest rating may be excluded from private sector unsecured markets but may be able, in some cases, to issue secured funding instruments if they can post good quality collateral. Third, these banks have already exhausted a large portion of their assets that are eligible as collateral in central bank refinancing operations (see **Chart 24**, middle panel) and are increasingly using their own retained covered bonds and other collateralised securities as collateral to obtain funding from central banks. Fourth, such collateral nonetheless implies slightly higher haircuts than for banks with the highest rating (see **Chart 24**, left-hand panel).

⁽¹⁾ Cédulas hipotecarias are required to hold a minimum of 25% of over-collateralisation.

⁽²⁾ Regulations in countries such as Finland, France, Germany, Ireland and Portugal also contain minimum over-collateralisation requirements but these are between 2 and 3% for the main types of covered bonds.

III. RISKS

This section analyses the risks involved in (1) asset encumbrance; (2) innovative funding; and (3) concentration. The table below summarises the main risks and conclusions.

Table 2

Main risks stemming from funding developments

Asset encumbrance	Innovative funding	Concentration
1. Structural subordination of unsecured creditors, e.g. depositors	1. Transparency, confidence, ease of management and supervision	1. Investor base
2. Future access to unsecured markets: (1) crowding-out of unsecured creditors; (2) retaining market access and market discipline; (3) increased sensitivity of senior unsecured debt spreads to fundamentals	2. Interconnectedness	2. Funding instruments
3. Issues related to transparency and correct pricing	3. Litigation and reputation risks; consumer protection	3. Maturity profiles
4. Increased funding and liquidity risks	4. Specific risks on liquidity swaps	4. Geographical scope
5. Contingent encumbrance		
6. Other risks from asset encumbrance: (1) collateral scarcity and reuse; (2) risk management of a bank with high encumbrance		
7. Other risks related to specific products or transactions: (1) covered bonds; (2) CCPs		

III.1. Risks from asset encumbrance

Risks arising from asset encumbrance can be broadly divided into the following groups: (1) structural subordination of unsecured creditors; (2) issues related to future access to unsecured markets; (3) issues related to transparency and correct pricing; (4) increased liquidity risks; (5) issues related to contingent encumbrance; (6) issues related to pro-cyclicality; and (7) other risks. In this section reference is also made to specific risks related to covered bonds and to operations with CCPs.

III.1.1. Structural subordination of unsecured creditors

One of the effects of asset encumbrance is that it shifts risks among investors. The claims of unsecured creditors, such as senior unsecured bondholders or depositors, tend to become riskier as a result of increased asset encumbrance, becoming increasingly subordinated as more secured debt is positioned above them. The magnitude of the risk shifting between creditors depends, among other things, on the degree of over-collateralisation (i.e. the extent of protection of more senior creditors), the type of other creditors, the business models and the general asset quality, as well as on the relative sizes of secured vs. unsecured debt and on the probability of default. The extent to which risk-shifting is a risk for unsecured creditors depends on their capacity to price that risk. Consequently, unexpected changes more than absolute levels of encumbrance are more problematic for existing unsecured creditors, since they do not have an opportunity to price such encumbrance changes.

III.1.1.1. Structural subordination of depositors

Since deposits are a form of senior unsecured funding for banks, encumbrance also increases the riskiness of deposits and ultimately the liability of deposit insurance funds ⁽¹⁾. Structural subordination of deposits can be less of a concern in countries where deposit insurance funds are *ex ante* financed by premia paid by covered institutions. In such cases, the

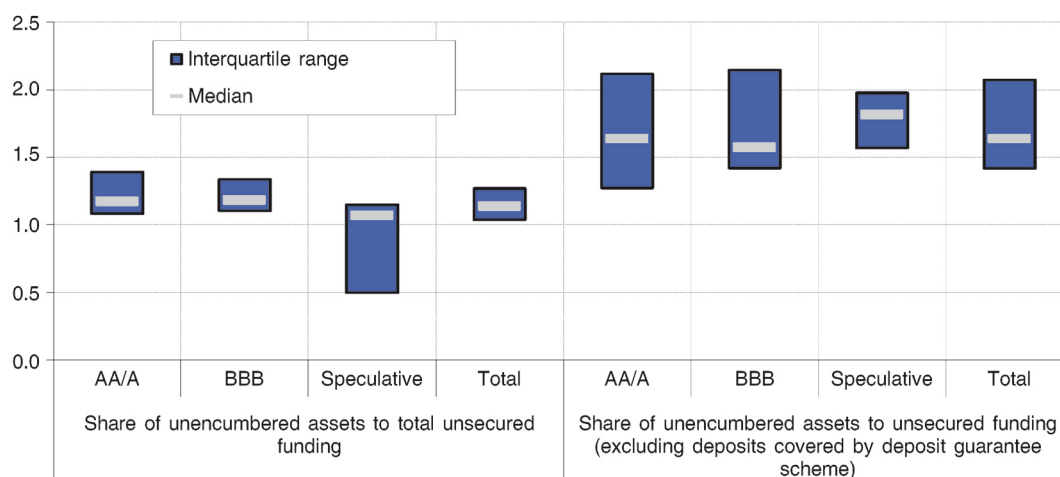
⁽¹⁾ This risk applies only to deposit-taking institutions.

risk of increased tax-payers' liabilities from asset encumbrance is partly reduced. To compensate deposit insurance funds for increased riskiness, premia paid by covered institutions could be risk-sensitive, namely with regard to risks stemming from encumbrance and subsequent subordination of depositors.

The increased riskiness of deposits is of particular concern in Member States without special depositor preference laws. Such laws grant seniority to deposit insurance funds, reducing a possible burden to tax-payers in case of credit institutions' insolvency⁽¹⁾. Increased riskiness of deposits is also less of a concern in Member States where asset encumbrance tends to be low because of regulatory limits. Some Member States have placed direct limits on encumbrance due to covered bonds, while others have separated deposit-taking and mortgage lending. From the viewpoint of unsecured depositors and investors, it is important to analyse whether the remaining unencumbered assets could cover the unsecured liabilities. According to the survey conducted by the ESRB, for a majority of banks, this is still the case (see **Chart 23**), although two issues should be raised. First, the unencumbered assets do not sufficiently cover the unsecured funding for some reporting banks. Second, this coverage is lower among banks with lower ratings.

Chart 23

Distribution of the ratio of unencumbered assets to total unsecured funding for groups of banks with different credit ratings, end-2011



Source: ESRB survey on asset encumbrance and innovative funding, Bloomberg.
Coverage: 47 banks (left panel), 44 banks (right panel).

III.1.2. Issues related to future access to unsecured markets

1. Crowding-out of unsecured creditors

High levels of asset encumbrance, both for institutions whose levels are already high or for those with potential future increases, may feed expectations of further encumbrance. Such expectations may increase the cost of unsecured funding to levels that banks are unable or unwilling to meet. Moreover, as a result of strict criteria, the quality of encumbered assets is likely to be better than that of unencumbered assets. In the extreme case, banks' funding may be skewed significantly towards secured debt, with over-collateralisation funded either by retail deposits (the only source of unsecured debt) and/or own funds.

Based on the ESRB survey, there is some evidence that the credit risk related to encumbered assets is generally lower than the credit risk related to unencumbered assets, once assessed by the risk weights. Conversely, there is no significant difference between encumbered and unencumbered assets when assessed by distribution into loan-to-value (LTV) buckets. The data show that this conclusion is also robust across individual reporting banks. Nevertheless, the different composition of assets in the two categories may cause some distortion in the comparison.

Such a development undermines financial stability since it worsens the structural subordination of depositors and banks' liquidity position. This risk is less likely to materialise in a banking system with a liability set-up in which there is little subordination of other creditors or which has sufficient capital to deal with high encumbrance (e.g. the Nordic banking systems).

⁽¹⁾ Currently, such laws are in place in Argentina, China, Switzerland and the United States. The UK government has also proposed the introduction of depositor preference for deposits covered by the UK's deposit guarantee scheme.

2. *Retaining market access and discipline*

High asset encumbrance can also reduce the variety of counterparties willing to invest in bank debt, potentially over-concentrating the market. Given that some institutions have limits on how large an exposure to a counterparty can be, this could add further limitations to their funding management.

With regard to market functionality, finance theory relies on the premise that unsecured debt investors have the right incentives to carry on monitoring activity and adjust prices accordingly. A bank that increases its reliance on secured funding (and consequently its encumbrance) would pay less attention to the discipline that unsecured creditors would try to impose via pricing of unsecured debt, as it would be less reliant on them.

3. *Increased sensitivity of senior unsecured debt spread to fundamentals*

In a low default environment, default is remote and the resulting structural subordination has limited or no real consequences for unsecured creditors. However, as the probability of default starts to increase, the effect of structural subordination should be rationally factored into spreads. Unexpected negative events could therefore lead to sharp jumps in the cost of unsecured funding, increasing the potential for disturbances in unsecured markets.

III.1.3. *Issues related to transparency and correct pricing*

Models and information used by rating agencies and others to factor in asset encumbrance and potential structural subordination deviate from actual empirical conditions and require continuous changes and updates. As models and information are updated and improved, there is a risk that senior unsecured debt may be downgraded, which in turn may also trigger the downgrading of secured funding (due to the current link between issuer rating and covered bond rating).

Moreover, asset encumbrance risks are also difficult to quantify, because of lack of disclosure or of precedents. There is much opacity around contingent encumbrance risks (see Section III.1.5) and encumbrance due to activity in the repo market and with central banks as well as due to over-collateralisation. Poor disclosure on encumbrance can result in situations where asset encumbrance is not fairly priced in by unsecured creditors. In such cases, asset encumbrance can surprise the market as risks materialise, adding to banks' funding pressures.

In a resolution situation, secured investors have incentives to force the banks to sell collateral, potentially at distressed prices (fire sales) regardless of market impact as they are relatively protected by over-collateralisation (and dual recourse in the case of covered bonds). This could potentially penalise other stakeholders such as unsecured investors and depositors but would be very difficult to factor into market prices.

In addition to price movements driven by fundamental factors such as default risk, herd behaviour in times of stress can also contribute to mispricing, in particular in flight-to-quality and flight-to-liquidity situations. Furthermore, mispricing could also arise due to different regulatory treatment of instruments. In particular, since covered bonds have lower capital requirements, banks — also as counterparties — can favour investing in them; by increasing the supply of funds for these instruments, this may induce a decrease in yields.

III.1.4. *Increased funding and liquidity risks*

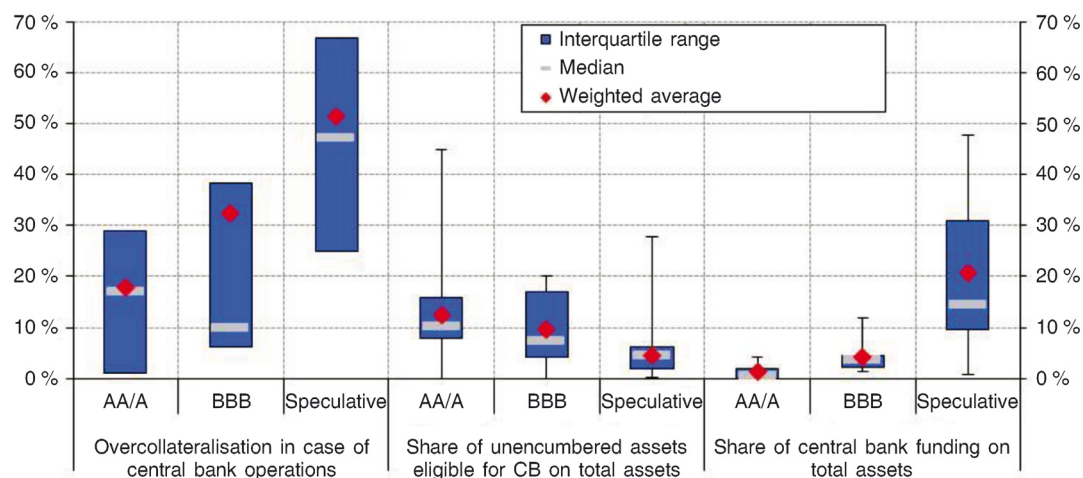
Asset encumbrance increases banks' general funding and liquidity risks in a normal environment since it may reduce the funding headroom of an institution. However, at the current juncture, secured funding with its associated encumbrance allows banks to operate when other avenues of funding are closed.

In particular, high levels of encumbrance already used for refinancing reduce the amount of assets that can be transformed into central bank eligible collateral, thus undermining central banks' abilities to provide liquidity assistance (**Chart 25**). Consequently, the increased role of asset encumbrance in bank funding may reduce the effectiveness of the monetary transmission mechanism. Furthermore, high levels of encumbrance can lead to increased systemic risk in the banking sector and/or increased credit risk for central banks if central banks decide to widen the spectrum of acceptable collateral without applying appropriate haircuts.

As referred to above, according to the ESRB survey on asset encumbrance and innovative funding, lower-rated institutions present higher levels of encumbrance. Hence, their headroom for further central bank funding is narrower than for other institutions. In fact, a more specific analysis concludes that these lower rated banks have already pledged a substantial amount of their own retained debt securities (see **Chart 24**, left panel).

Chart 24

Central bank funding: Over-collateralisation, unencumbered assets eligible for central bank, share of central bank funding — distribution for groups of banks with different ratings, end-2011



Source: ESRB survey on asset encumbrance and innovative funding, Bloomberg.

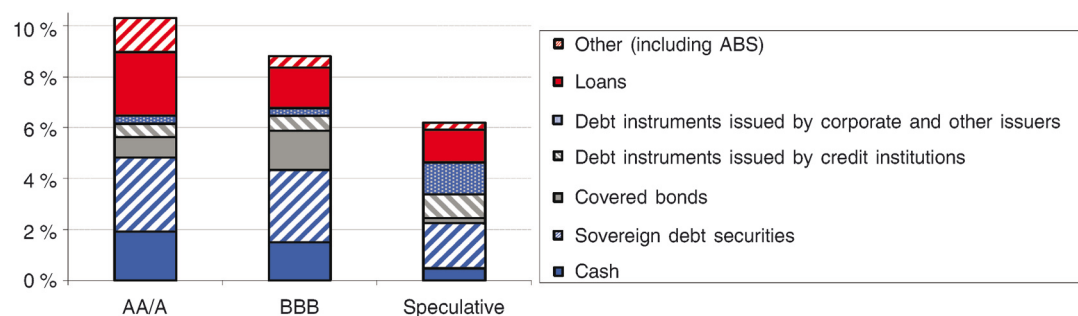
Coverage: 24 banks (AA/A), 13 banks (BBB), 11 banks (speculative rating).

Note: Over-collateralisation was calculated as the share of encumbered assets to matching liabilities decreased by 100 %.

The structure of unencumbered assets which are eligible as collateral for central bank funding varies for groups of banks with different ratings: for banks with lower ratings, the share of debt instruments issued by credit institutions (with the exception of covered bonds) and by corporate and other issuers compared with total unencumbered assets eligible for central bank funding is higher, whereas the share of cash and loans is lower (see **Chart 25**). Furthermore, this share of debt securities issued by credit institutions and corporates generally increases with the lower share of unencumbered assets eligible for central banks on total assets (see **Chart 32**). The higher share of debt securities issued by credit institutions partially supports the conclusion that the lower-rated institutions increasingly use retained collateralised securities to obtain funding. Moreover, the share of retained collateralised securities is the highest in case of banks with a non-investment rating, and these securities are mainly pledged as collateral in central bank operations⁽¹⁾.

Chart 25

Breakdown of unencumbered assets eligible as collateral for central bank funding for groups of banks with different credit rating, end-2011



Sources: ESRB survey on asset encumbrance and innovative funding, and Bloomberg.

Coverage: 26 banks (AA/A), 13 banks (BBB), 12 banks (speculative rating).

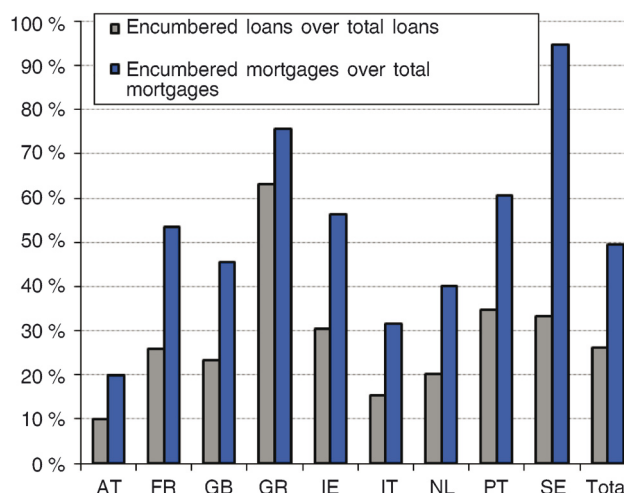
Note: The vertical axis represents the share of individual categories of total assets.

⁽¹⁾ For further details, see Section VI.

Furthermore, banks in some countries have already encumbered a significant part of their loan portfolios, as can be seen in **Chart 26**. This conclusion should however be nuanced with the characteristics of, in particular, covered bonds that entail significant amounts of over-collateralisation that can however be drawn upon (for a detailed discussion, see Section II.2).

Chart 26

Ratio of encumbered loans to total loans for different countries, end-2011



Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 33 banks.

Notes: Loans pledged for retained covered bonds and other collateralised securities were included when calculating the amount of unencumbered loans. Banks with missing data or data found to be unreliable were excluded. Information for a selected sample of countries.

Encumbrance may also increase potential outflows in certain circumstances. A fall in the value or quality of the existing collateral generally creates a need to post more collateral. Downgrading increases counterparty risks and can therefore result in additional margin calls (see also Section III.1.5 on contingent encumbrance).

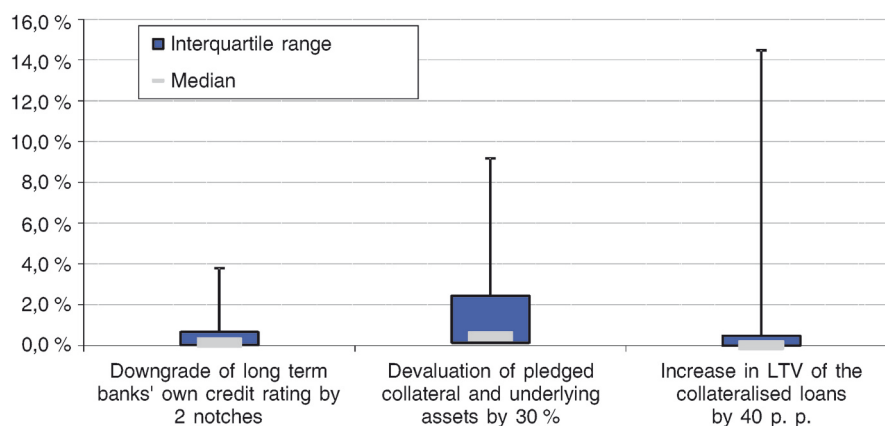
III.1.5. Contingent encumbrance

Existing encumbrance tends to lead to further encumbrance after an adverse event, such as a downgrade, a fall in the value of collateral or a general loss of confidence. These adverse events can lead to increased haircuts or automatic margin calls that stem from the underlying contractual obligations or from perceived increases in counterparty risks. Investors can be caught unawares because the effect on encumbrance from some positions, such as derivatives, is hard to predict.

Moreover, in the case of covered bonds, a fall in the value of collateral could have negative consequences such as the need for the issuer to top up the cover pool to include more appropriate LTVs and quality. Severe devaluation of the cover pool would ultimately be an incentive for the bank to redeem its covered bonds, which could give rise to a large funding gap on the part of the issuer.

The ESRB survey also requested information on contingent encumbrance in three adverse scenarios. An analysis is shown in **Chart 27**. Taken separately, none of the three scenarios proposed seems to have significant impact on average encumbrance levels. However, some banks appear to be more vulnerable in scenarios with a potential increase in encumbrance of more than 10 % of total assets. These results should be viewed with due caution, as the impact of the scenarios was calculated by the banks themselves; hence methodologies and assumptions used can vary significantly from bank to bank.

Chart 27

Changes in the distribution of encumbrance levels in adverse scenarios (by bank), end 2011

Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 40 (Scenario 1), 35 (Scenario 2), 29 (Scenario 3).

Note: The samples of banks are different across individual scenarios; this is because different sets of institutions reported the impact of the individual scenarios.

III.1.6. Other risks from asset encumbrance

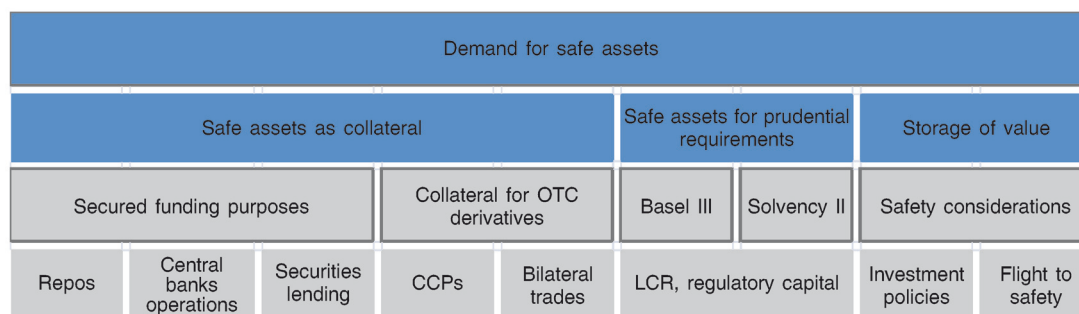
This subsection discusses other potential risks deriving from high levels of asset encumbrance: (1) collateral scarcity and reuse; and (2) management of a bank with high encumbrance.

1. Collateral scarcity and collateral reuse

Demand for collateral and more specifically for safe assets (see **Diagram 1**) has increased significantly over the past few years. Part of the demand is linked to secured funding and the use of collateral for OTC transactions. At the same time, the supply of safe assets has been affected by the uncertainty regarding the resilience of some sovereigns and the decline in securitisation. Simultaneously, according to Singh ⁽¹⁾, the reuse of collateral, i.e. the ability to use pledged collateral for its own purposes, has declined, resulting in further pressures on the availability of collateral.

Diagram 1

Demand for good quality collateral



The risks associated with collateral scarcity are twofold. On the one hand, a reduction in the availability and the actual reuse of collateral may be an impediment to the funding of financial institutions. On the other hand, increased reuse implies longer and more complex intermediation chains, which would increase interconnectedness and may also be risky for final investors as they could find it difficult to redeem the collateral.

⁽¹⁾ Singh, M., (2011) 'Velocity of Pledged Collateral: Analysis and Implications', IMF Working Paper WP/11/256.

2. Risk management of a bank with high encumbrance

Another risk worth noting is that a bank with a high level of encumbrance is more difficult to manage and to supervise than an institution with a similar business model and/or funding need but with a lower encumbrance level. The greater difficulty relates notably to the fewer options available to management should shocks occur. Negative shocks may be transmitted throughout a bank with a high level of encumbrance more quickly than in a bank with low encumbrance.

All institutions should have adequate risk management systems for their liquidity and funding, in particular for monitoring encumbrance levels. Institutions with high encumbrance levels should give consideration in their management systems to the fact that they have less room for manoeuvre in response to a shock. Bank supervisors should be aware of the prevailing conditions and their implications for risk management.

III.1.7. Other risks related to specific products or transactions

1. Specific risks from covered bonds

Risks associated with covered bonds that are common to other types of secured funding and that relate more generally to encumbrance have been listed in the previous subsections.

First and foremost, there are legal uncertainties in some Member States in case of insolvency of the issuer of covered bonds. These are related, in particular, to the segregation of the cover pool from the issuer's assets and to the creditors' 'time subordination'. Unsecured funding becomes due immediately on default, whereas, in general, covered bonds do not accelerate. Thus, if the cover pool subsequently turns out (contrary to earlier assumptions) to be unable to satisfy all secured claims, the entire insolvency proceeds might have already been given to the unsecured investors.

Given the lower capital charges for covered bonds (in comparison with other types of debt securities), their proposed eligibility as liquid assets for the purposes of the LCR and their proposed exemption from large exposures limits under the CRD IV (subject to national supervisory discretion), banks will have an incentive to swap covered bonds among each other to an extent that will increase interconnectedness within the banking sector, thus facilitating the transmission of shocks throughout the financial markets.

In addition, as the issuer is not obliged to disclose detailed information on the assets in the cover pool, this opacity could lead to a mispricing of the assets by the market.

Finally, another risk stems from the difference between the yield paid by covered bonds and the yield that certain investors, particularly insurance companies, need to obtain in order to fulfil their obligation to provide a guaranteed yield on their (life insurance) contracts. They might therefore be induced to buy riskier products. Alternatively, covered bond issuers might be prompted to lower the quality of covered bonds. However, such action leads to higher risks and allows for contagion from one covered bond market to another.

Box 1

Differences in national regulations regarding covered bonds

National regulations regarding covered bonds vary from one European country to another. This box focuses on the differences in national regulations that are of relevance from the perspective of systemic risk.

1. Who is allowed to issue covered bonds?

National regulations may permit all credit institutions, only special/mono-line institutions, or both to issue covered bonds. One distinct characteristic of special/mono-line institutions is the fact that they do not take deposits and that covered bonds constitute their main funding source.

2. Regulations regarding cover assets

Although covered bonds regimes are national in nature, the Capital Requirements Directive (hereinafter CRD) ⁽¹⁾ also defines covered bonds for its own purposes ⁽²⁾. In particular, it defines which assets are eligible for cover pools. This includes, inter alia, (a) first ranking residential and commercial mortgages; (b) claims on or guarantees by other credit institutions; (c) public sector credits/guarantees — some national regulations operate with a minimum rating threshold; and (d) ship mortgages.

⁽¹⁾ Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions (recast) (OJ L 177, 30.6.2006, p. 1).

⁽²⁾ This CRD specification hinges on the definition established by the UCITS Directive (Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS)).

The wider the collateral eligibility criteria, the larger the potential for covered bond issuances. Therefore, a wide definition of assets eligible for cover pools can contribute to an increased level of asset encumbrance and consequently to structural subordination of other creditors. The CRD also imposes LTV limits for loans to be included in the cover pool. The permitted LTV limits are highest for residential (80 %) mortgages and lowest for commercial mortgages (60 %).

3. Subordination of creditors

In case of bankruptcy, holders of covered bonds are given preferential treatment as they are entitled to obtain the proceeds of the cover pool.

The level of subordination depends on the number and type of other creditors of each institution. Subordination is not relevant to specialised institutions that are only funded through covered bonds. For non-deposit-taking institutions in particular, creditors are investors who do not rely on deposit insurance. In deposit-taking institutions, depositors and other creditors are subordinated to covered bond holders.

4. Regulations regarding segregation of assets and bankruptcy

In case of bankruptcy the preferential rights given to covered bond holders are important, particularly as bondholders tend to have recourse to the institution's insolvency mass (dual recourse). Dual recourse will contribute to increased structural subordination for other creditors. In addition, structural subordination will be increased if national regulation allows for acceleration in case of insolvency, for example if acceleration means that additional collateral can be required in case of insolvency.

5. Regulations regarding ALM of cover pools

Significant asset liability management (ALM) risks can occur between covered bonds and the assets eligible for the cover pool. This concerns the extent to which FX risk, interest rate risk, liquidity risk and option risk are allowed. All things being equal, strict regulation of ALM risks would imply that the issuing banks can only take minimal risks apart from the inherent credit risk, thus ensuring a closer match between the covered bonds issued and the underlying assets in the cover pool. Limiting the ability to take on risks other than credit risk reduces the risk of failure in the cover pool. It could also reduce requirements for over-collateralisation.

6. Regulations on asset encumbrance

In order to protect depositors and other ordinary creditors, some countries have frameworks in place that allow them to impose limits regarding asset encumbrance on the issuance of covered bonds. These countries include Australia, Canada, the United States, Italy, the Netherlands and the United Kingdom. In the latter two countries, the limit on asset encumbrance is determined on a case-by-case basis. Most countries, however, have no such limits. These countries include Denmark, Finland, France, Germany, Ireland, Norway and Sweden. Apart from any established regulatory limits with regard to asset encumbrance, rating agencies also operate with some thresholds for asset encumbrance in order to maintain a certain rating.

2. Specific risks associated with CCPs

While the push by regulators for greater use of CCPs can produce substantial benefits, in particular in terms of a decrease in counterparty risks and in interconnectedness, it is important to be aware of certain risks. Two types of risk call for careful monitoring.

First, CCPs can have an adverse impact on funding conditions and collateral availability by increasing asset encumbrance. Moving transactions to CCPs, when they would otherwise not be cleared through those institutions⁽¹⁾ may well increase demand for high quality collateral. Pledging increasing amounts of good collateral to CCPs means that less remains to be used elsewhere. If centrally cleared transactions are compared with those that are bilaterally cleared, the multilateral netting effect provided by CCPs is likely to decrease the collateral and capital needs that would be generated by bilateral clearing. Hence, the legislative initiatives in favour of central clearing provide support for less collateral-intensive solutions. Moreover, the margin requirements of CCPs may reduce the supply of collateral in the banking system, although the collateral received in cash is normally reinvested.

⁽¹⁾ For instance, owing to the commitment to clear OTC contracts through central counterparties.

Second, CCPs' risk management may affect liquidity risk in the banking system. A CCP can make large and unexpected unilateral changes to initial margin requirements when market conditions alter, thus adversely affecting liquidity in the system. To account for credit risks in times of stress, CCPs act pro-cyclically, calling for higher margins requirements and even excluding some counterparties from settlement. However, the EMIR required the European Securities and Markets Authority (ESMA) to take account of the impact of margins on pro-cyclicality in the definition of the technical standards for CCP margin requirements.

There are other risks related to CCPs, which are, however, outside the scope of this Annex, such as the risk of transferring systemic risk from banks to CCPs, with CCPs generating potential for contagion, and the potential for regulatory arbitrage, whereby competition between CCPs may lead to a lowering of standards.

III.1.8. *Triggers for the materialisation of risks*

Potential triggers for the materialisation of encumbrance risks include confidence shocks, rating downgrades, additional margin calls and increased asset encumbrance per se. The failure of individual banks (due to one or several of the risks listed above) could also have a contagion effect, spreading beyond the institution involved. Moreover, if markets lose confidence and become impaired, even banks with low encumbrance might possibly be unable to access funding.

III.1.9. *Sustainability of asset encumbrance*

On the one hand, it should be highlighted that, while there are risks inherent in encumbrance reaching unsustainable levels, benefits are also derived from secured funding and from the collateralisation of other transactions. The collateralisation of transactions reduces counterparty risks, rendering such instruments more stable. Moreover, secured funding instruments also allow the diversification of funding sources and counterparties (see Section III.3 on risks from concentration). In addition, secured funding tends to be more cost-efficient and can also give banks additional incentives to ensure that loans are of a good quality.

On the other hand, the risks of excessive encumbrance, which were discussed in detail in Section III.1, should not be underestimated. Beyond a certain level, encumbrance becomes self-amplifying and accelerates to the point where secured funding is impossible because of a lack of collateral and, at the same time, unsecured funding is not feasible because of the higher risk premia.

There is no single threshold above which balance sheet encumbrance is unsustainable. One indicator of banks' capacity to fund themselves via asset encumbrance is the volume of assets eligible for central bank funding which remain on an individual as well as on an aggregate basis, as funding via central banks can be seen as the very last resort for liquidity.

III.1.10. *Impact of asset encumbrance on the real economy*

III.1.10.1. *Direct impacts*

The direct impacts of asset encumbrance on the real economy relate mostly to the credit supply channel.

1. Collateralisation can limit overall bank balance-sheet growth and bank lending activity

- a. Given the collateral involved in secured funding transactions, secured funding is expected to be less volatile than unsecured funding. Nevertheless, as the amount of encumberable collateral is finite, so is the possible secured funding. Furthermore, higher encumbrance levels tend to lead to further encumbrance after an adverse event (see Section III.1.5). As such, a shortfall in (secured) funding, *ceteris paribus*, acts directly on banks' credit supply and therefore on the real economy/economic growth (investments are postponed or cancelled owing to credit supply constraints) ⁽¹⁾.
- b. If secured bank funding possibilities are limited, banks will have to look for alternative sources of funding. However, alternative sources of funding are also limited: intense competition for retail deposits might increase the volatility of deposits and banks' funding costs. For the time being, unsecured bank funding costs can thus be high, especially for banks with high levels of encumbrance.

2. An increase in secured funding may lead to a distortion in credit allocation

The more dependent a bank becomes on secured funding, the greater the likelihood will be that it will invest in assets for the primary purpose of achieving eligibility for encumbrance on the asset side. Such eligible assets comprise top-rated governments bonds and commercial and residential mortgages. As assets such as loans to small and medium-sized enterprises are considered of lower quality and are normally not eligible as collateral (e.g. for traditional covered

⁽¹⁾ See Abiad et al. (2011), Calvo et al. (2006), Kannan (2009).

bonds or repos), their share on a highly encumbered balance sheet may decrease. Naturally, the level of credit granted to the different economic agents also depends on other factors, such as funding prices, competition and the capacity to influence loan prices and yields on other assets. This credit misallocation could conceivably have a negative impact on economic growth as a result of reduced credit supply to non-/less-eligible sectors (e.g. small and medium-sized entities (SMEs), corporates).

III.1.10.2. Indirect impacts

The indirect impacts of asset encumbrance on the real economy occur typically over the long term. Although these impacts are quite difficult to assess, they may prove to be significant.

1. Increased pro-cyclicality of credit intermediation

Asset encumbrance can reinforce the pro-cyclicality of the real economy through financial intermediation. On the one hand, as mentioned in Section III.1.5, the values of collateral usually tend to increase in economic upturns and decrease in economic downturns (e.g. haircuts, margin calls, asset quality and investors' risk appetite move together). This automatically increases banks' credit supply in good times and decreases it in bad times. At high levels of encumbrance, the financial system might be riskier because it is more sensitive to pro-cyclical 'swings' in the underlying value of assets. Thus, loan supply (excess credit supply/credit crunch) and loan margins (mispricing of credit/liquidity risk) are less prone to large pro-cyclical fluctuations, which is preferable from the point of view of long-term sustainable growth.

On the other hand, unsecured funding may be pro-cyclical in terms of credit intermediation since it is normally a more volatile source of funding. In this regard, secured funding can be used as a stabiliser of credit in periods of stress.

2. Disintermediation

If the banking sector is unable to perform credit intermediation in the future, this might increase the risk of unregulated, alternative intermediation systems developing (e.g. shadow banking). For corporates that are capable of resorting directly to capital markets, this could mean that part of the credit intermediation function moves from the banking system to capital markets. However, smaller enterprises cannot usually access capital markets and this is not feasible for individuals.

Furthermore, assets that are not eligible as collateral for secured funding may exit from the banking system — especially from banks that have a high-encumbrance business/funding model. Those assets may end up in the shadow banking system, which could have funding available more easily and would not be constrained in the same manner as banks, thus smoothing the effects of the limitations of cover pools on the growth of the economy.

III.2. Risks from innovative funding

The use of more innovative funding sources (such as the ones identified above, financial products such as structured retail deposits, liquidity swaps and the use of UCITS and ETFs) can lead to additional risks or intensify existent risks and potentially increase the probability of tail events for an individual bank and the financial sector as a whole. Financial crises are typically characterised by several risks materialising at the same time, reinforcing or compounding each other; innovative funding sources thus add additional risks or lead to stronger reinforcing effects.

III.2.1. Transparency, confidence, difficulty of management and supervision

The use of innovative funding sources may decrease transparency and increase the difficulty of understanding risks for investors, banks themselves, the financial sector and the supervisors. The complexity of innovative products may lower the understanding and clarity of the risks among investors and lead to sharp sell-offs when confidence is suddenly lost. Structured retail products may, for instance, result in certain triggers (linked to financial market variables, the bank's own credit quality or that of a guarantor) being released, leading to early calls that confront the bank concerned with sudden unexpected outflows.

III.2.2. Interconnectedness

Innovative funding may also lead to stronger interconnectedness between financial players and different economic sectors. For instance the fall-out from a capital guarantor (Lehman Brothers) in some structured retail products left retail investors scrambling to retrieve their savings, entailing sudden outflows for the issuing bank. Securities financing transactions and liquidity swaps may increase the interconnectedness between different banks, between entities in the same group and between different sectors, potentially acting as a mechanism to transmit systemic risk across the entire financial system. It should, however, be noted that this same interconnectedness also increases efficiency in the use of collateral.

III.2.3. Litigation and reputation risks, consumer protection

Innovative funding sources may be relatively more quickly subject to litigation and reputation risks. Since the financial crisis, several banks in different Member States faced litigation for having sold products that were too complex and without clear descriptions of the risks that they entailed. Such products can lead to reputation risks, meaning that the bank has to take the assets back on the balance sheet to avoid the withdrawal of unsatisfied customers from the bank altogether (e.g. closing their current and savings accounts). Reputation risks may also emerge in securities financing transactions as they can put banks that receive high-quality liquid assets under pressure to return the received assets during stress periods. Innovative products are also more likely to face measures from a consumer protection perspective that may strongly reduce or limit the issuance of certain types of innovative funding. For instance, since the financial crisis several authorities (Belgium, Denmark, France and Portugal) have issued warnings against selling complex products to retail investors.

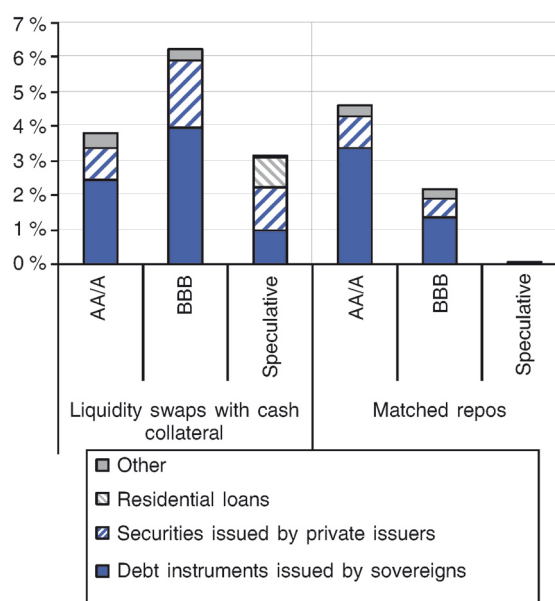
III.2.4. Specific risks relating to liquidity swaps

One of the major difficulties in identifying, monitoring and controlling the potential risks of liquidity swaps is the current lack of data available to regulators. Liquidity swaps can be structured in numerous different ways and the lack of a widely understood definition of these transactions exacerbates the issue.

On the basis of the ESRB survey, it is possible to observe differences in the use of repos as a form of liquidity swaps, in terms of collateral and counterparties, depending on the bank's rating. Sovereign debt instruments represent only 20 % of total collateral pledged by lower-rated institutions in these operations, compared with approximately 70 % at other banks. Lower rated institutions pledge residential loans more than banks with higher ratings (see **Chart 28**). There is also a substantial difference regarding the counterparties, since credit institutions are the only type of counterparties for banks with a non-investment rating, whereas other banks can also benefit from transactions with other types of counterparties, mainly non-bank financial institutions.

Chart 28

Breakdown of collateral pledged in liquidity swaps with cash collateral (repos) and matched repos for groups of banks with different credit ratings, end-2011



Source: ESRB survey on asset encumbrance and innovative funding, Bloomberg.

Coverage: 48 banks.

Note: The figures represent the share of total assets (in %).

Banks mostly pledged government debt instruments as collateral in securities lending transactions (40 % of total collateral pledged); although the structure might be different in individual countries. The most important counterparties in these transactions are also the credit institutions (64 %, of which 42 % are EU-based institutions and 22 % non-EU institutions) and other financial institutions, which represent a share of 28 % (money market funds: 9 %; non-money market funds: 7 %; others: 12 %).

Relation with the insurance sector

Liquidity swaps often take place between a bank and an insurance company. Insurance companies acting as lenders of liquid assets can be exposed to different risks than banks acting as borrowers but those risks are nevertheless potentially significant. EIOPA is currently conducting work on liquidity swaps related to the insurance sector.

The EIOPA launched a fact-finding exercise and a survey on liquidity swaps and other similar transactions in March 2012. It was possible to conclude from this work that the total notional amount of liquidity swaps and liquidity programmes represents around 3 % of total balance sheet assets but with a variation by jurisdiction from 0 % to 14 %. Overall, 'liquidity swaps' and liquidity programme transactions by insurance undertakings (i) are limited; (ii) the main reasons for the transactions are revenue generation, portfolio optimisation and hedging; (iii) maturities are mainly short-term (with exit strategies in place and in many Member States, liquidation is otherwise possible at short notice in case of counterparty default); (iv) are mainly with group-external bank counterparties; (v) the type of collateral held/pledged is largely cash or investment-grade government bonds; (vi) transactions are mainly marked to market and valuation is daily/weekly; (vii) there is hardly any rehypothecation (and in some Member States it is not allowed); (viii) over-collateralisation plays a role for assets held in securities lending and reverse repos; and finally, (ix) income generated by 'liquidity swaps' and liquidity programme transactions represents only a small proportion of the total gross income of the undertakings.

Nevertheless, a relevant aspect is that repos and reverse repos performed by insurance undertakings appear to have their origin in bank funding needs within the same group/conglomerate, as a considerable portion of the securities lent by insurance undertakings are sovereign debt instruments which are then pledged as collateral in the Eurosystem's operations. Thus, in these instances insurance undertakings do not use these transactions because of their own needs for liquidity but as a way of helping a bank within the same group/conglomerate to gain access to liquidity.

Although liquidity swaps still seem to be at fairly low levels for banks and insurers within the Union, there are aspects that should be monitored.

While these transactions offer certain benefits to borrowers (recipients of liquidity) and lenders (providers of liquidity), such as the transfer of liquidity and funding to where it is most needed within the economy, improving financial stability by allowing banks to access liquidity outside the banking system and an increased yield on assets, they can also represent potential risks ⁽¹⁾.

Potential risks that institutions and regulators need to consider in this respect include (a) increased interconnectedness between insurers and banks, potentially acting as a mechanism to transmit systemic risk across the financial system; (b) increased intra-group risk, including potential conflicts of interest; and (c) issues similar to other secured instruments such as the use of margining, which may create pro-cyclicality in the funding from collateral through (i) time-varying haircuts and (ii) changes in the value of the collateral itself.

Additionally, the lack of transparency for the market can amplify the risks associated with liquidity swaps. Market participants are unsighted as to the extent of liquidity swap activity and the risks that have been entered into. This lack of transparency could potentially initiate a stress scenario or further exacerbate an unrelated stress situation.

III.3. Risks from concentration

A concentrated funding structure could adversely add pro-cyclical developments in financial markets, as it might make it problematic for an institution to fund itself if the funding sources on which it relies dry up precisely at times of financial stress. This holds true across different dimensions: concentration in the investor base and in funding instruments, concentration in the maturity structure of a bank's liabilities structure or the geographic scope of its operations could pose similar challenges. It should also be observed that the likelihood of risks of concentration materialising and their impact also depend on the type of investors and on the type of instruments. Depending on their investment strategies and expertise, investors' behaviour differs in terms of the stability of the funding that they provide.

1. **Concentration in the investor base.** Excessive reliance on individual classes of investors might be problematic in case of a shift in the behaviour of that market segment, possibly due to changes in (a) market sentiment; (b) market liquidity; and (c) the institutional setting. Excessive reliance on individual counterparties could add the pro-cyclicality of the above developments. Along the same lines, the larger the relative size of an investor, the more bargaining power

⁽¹⁾ As a reaction to the increased issuance of this innovative type of funding and potential risks inherent in such transactions, the Financial Services Authority in the United Kingdom published guidance on collateral upgrade transactions, also including liquidity swaps, in February 2012.

it might have in asking the bank to perform certain ad hoc actions, such as to reimburse outstanding securities ahead of their maturity. The example highlights the existence of possible externalities for other investors, even within the same class: a concentrated investor base in, say, senior bonds, might, in fact, force a bank to buy back the debt held by certain investors, with an adverse impact on others sharing the same degree of seniority.

2. **Concentration in funding instruments.** While the above holds true in general, different products entail different risks: during the financial crisis, wholesale funding — and unsecured wholesale funding in particular — proved to be more volatile and more sensible to shifts in market sentiment/perceived counterparty risk than other funding sources. Secured wholesale funding is *ceteris paribus* more stable, as it is generally backed by collateral which can be pledged to the central bank, at least in the euro area institutional environment. Retail deposits are considered the most stable source of funding. Although they are also subject to confidence crises, deposit guarantee schemes reduce risks. Nevertheless, concentration on retail funding is not without externalities for other market participants: the only reaction to a funding squeeze by a bank which does not access capital markets in any other form would be to increase the rate offered to depositors, speeding up the competition process.

3. **Concentration in the maturities profile** is an additional source of risk, particularly when referring to short-term maturities. It makes the bank more vulnerable to changes and shocks in the market as the amount to refinance in the short term will be high in comparison to its total liabilities and the impact of refinancing costs on the profit and loss account will be significant.

4. Similarly, **concentration in the geographical scope** of funding can also be a risk factor. There may be legal or regulatory constraints on the free flow of assets between Member States (e.g. tax issues, regulatory ring-fencing), restricting the ability of groups to effectively pool their liquidity. Institutions should be able to identify where concentration arises in the intra-bank (between the head office and the foreign branches) and intra-group (either between the parent company and its subsidiaries or among different subsidiaries) dimensions.

III.4. Risks from deleveraging pressure

As described in Section I.7, banks have sought to reduce their leverage since the beginning of the financial crisis. While this trend was fairly stable for banks in non-high-spread EU countries, banks in high-spread EU countries faced problems of deleveraging when the sovereign debt crisis emerged. Due to large losses and devaluations, their equity decreased in 2010 and very dramatically in 2011, leading to an increase in leverage from 2010 onwards. This trend has raised concerns about the ability of banks in high-spread countries to maintain stable capitalisation. However, adverse funding conditions, market and supervisory incentives for increasing resilience and new regulatory requirements do not ease the pressure on banks to deleverage. If the sovereign debt crisis persists and the outlook for earnings remains weak, further reduction in leverage may only be possible by further adjusting the banks' asset sides. This in turn could have a negative impact on the provision of credit for the private sector, which is crucial in order to obtain an environment fostering sustainable economic growth.

IV. SUSTAINABILITY OF FUNDING STRUCTURES (MEDIUM TO LONG-TERM PERSPECTIVE)

A sustainable funding structure can be defined as one that can be perpetuated without public intervention and in which the prices paid allow the viability of the institution.

From the current standpoint, returning to normal funding conditions presupposes the withdrawal from extraordinary measures related to central bank funding and state guarantees. From a narrow viewpoint, a desirable sustainable future state of funding requires banks to re-establish sustainable business models, which includes having accomplished an acceptable level of balance sheet repair. Moreover, banks should have business models that allow liquidity and funding risks to be limited and liquidity standards to be fulfilled without a disproportionate and excessive long-term dependence on funds provided by central banks.

A broad view of the sustainability of funding structures also takes into account the consequences of such structures, notably in terms of levels of intermediation and, in particular, the matter of ensuring an adequate credit flow to the real economy.

IV.1. Stronger role for customer deposits

Customer deposits — and retail funding in general — are supportive of more stable funding models. First, experience shows that customer deposits have been the most stable and predictable funding source. Customer deposits are unsecured and, if granular, constitute a diversified funding source (see Section III.3, for an assessment of concentration risks). In addition, depending on the intensity of competition in this segment, customer deposits are also widely seen as relatively inexpensive. In the past few years however, stronger competition has already led to higher retail funding costs.

Nevertheless, the increase in the overall ratio of deposit liabilities to total assets is not just a temporary, crisis-related phenomenon. Regulatory reforms, especially the Basel III liquidity rules, attribute significant importance to customer deposits in the long term. A first point to consider is how to safeguard credible deposit insurance schemes within the Union to help to avoid customer bank runs ⁽¹⁾.

There are, however, also risks involved in deposit funding. First, banks compete for a finite amount of deposits. In fact, the limited elasticity of retail savings is often cited as a concern regarding the increasing reliance on retail deposits in bank funding structures. However, over the past two decades, banks within the Union have increasingly incentivised customers to switch from bank deposits to bank-sponsored mutual funds. In the future, this trend is likely to reverse and the substitution of bank deposits/bank liabilities for alternative savings products may increase the elasticity of the overall supply of retail savings at any given level of macroeconomic savings. Nonetheless, information from supervisors shows that most banks' funding plans hinge on increasing their market share of customer deposits, which is not feasible at an aggregate level, at least in the short run. In fact, if all banks were to seek to increase their share of retail deposits at the same time, the increased competition would push up funding costs both in terms of interest rates offered but also in terms of the infrastructure needed to support them (more branch networks, better internet banking, etc.). As competition increases, retail depositors are likely to become more knowledgeable about rates being offered and more sensitive to rate differences between institutions. This could make retail deposits more volatile than they have been in the past as customers constantly search for yield, especially in a low-interest-rate environment. Additionally, the expansion of internet banking and the increasing harmonisation of deposit guarantee schemes across Europe will make moving deposits far easier, again making deposits more volatile.

Moreover, the associated heightened competition for customer deposits has created specific dynamics in banks' offerings. On the one hand, this should encourage better returns for customer deposits but, on the other hand, heightened competition has led in some cases to offerings of new and innovative products which are not necessarily understood by consumers or covered by deposit guarantee schemes. In the United Kingdom, the mis-selling of payment protection insurance (PPI) has led to massive complaints since the beginning of 2011 and compensation has already amounted to over GBP 5 billion.

Effectively, there is a risk that increased competition may expose depositors to the risk of mis-selling. Banks may advise clients to purchase deposit instruments that may be inappropriate for uninformed customers. This risk may have a negative impact on reputational risks and undermine confidence in the financial system. It may potentially even aggravate other risks in the form of fines for mis-selling from regulators.

Should concerns over the viability of an institution grow, this may increase the risk of a large-scale removal of deposits. It should be noted, however, that deposit guarantee schemes (and the harmonisation of minimum guaranteed amounts at the Union level) are one of the tools used to counteract this risk of deposits runs. In fact, although a few countries have experienced significant outflows of deposits to other countries, deposits have remained stable or even increased during the crisis.

IV.2. Role of wholesale unsecured and secured funding

The future funding mix of banks will be very much influenced by investors' 'new' perception of risk, regulatory changes and policy responses (see Section 1.6.1). Although from a current point of view — still in a financial crisis environment — it is difficult to detect what a future funding structure will look like, it is foreseeable that the importance of unsecured wholesale funding instruments will decline from the pre-crisis level.

Even if a reduction in wholesale funding levels compared to pre-crisis levels is largely regarded as favourable for a sustainable funding model, reactivation of the senior unsecured debt markets is desirable. In this regard, the impairment of credit markets entails risks as it decreases institutions' capacity to diversify funding instruments. Indeed, it should be noted that, up to appropriate levels, secured funding is beneficial, as it provides diversification in terms of funding instruments and it may also provide diversification in terms of investors and tenors. Moreover, secured funding instruments have characteristics that make them a more stable source of funding.

⁽¹⁾ The European Commission has proposed a Directive of the European Parliament and of the Council on Deposit Guarantee Schemes. According to the proposal, Deposit Guarantee Schemes can lend to other Deposit Guarantee Schemes in another Member State, thus temporarily mutualising the burden-sharing.

IV.3. Features of a sustainable funding structure

The future development of bank funding structures will likely vary, depending on banks' business models. As a common principle, a diversified funding mix with a sustainable maturity composition will increase banks' resilience.

The changes described in this Annex will certainly have an impact on the future sustainability of banks' balance sheets. The current trend towards more stable funding sources can be observed since 2008 and is, moreover, also incentivised by the application of the new Basel III liquidity proposals. An increase of retail funding sources can be seen as positive for overall bank resilience. Moreover, the decreasing reliance on short-term interbank and wholesale funding might also contribute to overall stability.

IV.4. Demand and supply effects of funding

Concerning the demand and supply effects for banks' funding, it can be observed that current uncertain market conditions affect the risk aversion of potential investors for bank debt. Since even high-rated assets were subject to risks at the peak of the crisis, investors are readjusting their risk perception. On the demand side, the uncertainty that still prevails induces a race/flight to quality which — when it comes to debt instruments of banks — is conveyed by the increasing demand for collateralised funding instruments, as shown in Section I. On the supply side, the volume of debt instruments considered to be safe has fallen as a result either of rating downgrades on unsecured debt or of adjusted risk perception when it comes to the securitisation market. This tendency impairs the ability of banks to generate collateral for either repurchase and derivative markets or other collateralised funding sources.

V. POLICY

The crisis has had a severe impact on bank funding. Funding shortages have been shored up by central banks and other policy measures such as state guarantees for bank debt. In particular, funding difficulties have been mitigated by the Eurosystem's interventions, namely the two LTROs, which generated gross lending to EU banks of over EUR 1 trillion. Other policy measures designed to instil confidence in banks for investors include recapitalisation and transparency exercises and ongoing work to (i) improve banks' liquidity situations and (ii) restore stable private sector funding to banks.

Through these interventions, policy-makers have created the space needed for banks to move towards more sustainable funding structures. Nevertheless, the crisis is still unfolding and banks are operating in a difficult triad of vulnerabilities in some sovereigns and financial sectors and sluggish economic growth, in particular in the euro area. In spite of coordinated actions by the Union and the euro area institutions, challenges remain ahead. In this context, policy-makers face a conundrum of needing to address the situation in which the demand for bank funding should ideally increase — in order to ensure the provision of credit to the real economy — whereas the supply of funding from private sector sources is still impaired.

It is with this setting in mind that the following policy recommendations are made.

Policy objectives

The policy objectives of the following ESRB proposals on bank funding are a function of the risks to financial stability previously identified.

The fundamental risk relates to the sustainability of bank funding over the medium term as banks endeavour to reduce their reliance on public sector funding sources and to return to the private sector markets in a way which allows them to fund their activities appropriately over the long term. Nonetheless, on the basis of current trends in bank funding, there are a number of specific risks that have been identified in this Annex as systemic, or have the potential to become so, and thus merit attention. These relate to (1) overall funding risks, particularly those related to innovative products and deposit-like products sold to retail customers, and the execution of funding plans; (2) encumbrance; and (3) covered bonds and other instruments that generate encumbrance.

Policy recommendations aim broadly at limiting and mitigating funding and liquidity risks, allowing for a smooth provision of credit to the economy. Depending on the specific recommendation, this is undertaken either through creating incentives for institutions to internalise, both cross-sectorally and inter-temporally, some of the externalities that they cause (e.g. taking account of the impact of contingent encumbrance) or through decreasing asymmetries of information (e.g. market transparency).

The different policy proposals entail different time spans, the underlying consideration being that, at this juncture, it is important to reconcile (1) the long-lasting impairment of credit markets; (2) the capacity for banks to achieve more sustainable funding structures; and (3) the need for banks not to enter into excessive or disorderly deleveraging. It is of utmost importance that the implementation of these policy proposals does not aggravate the current stress situation while promoting a sustainable recovery from the crisis.

Principles for the implementation of the recommendations

Due regard should be paid to the principle of proportionality in the implementation of the recommendations, with reference to the particular systemic significance of the funding and encumbrance risks within each banking system and taking into account the objective and content of each recommendation.

Follow-up common to all policy recommendations

Common to all recommendations, addressees should:

- identify and describe all measures taken (including timelines applied and essential substance) in response to each recommendation,
- for each recommendation, specify how the measures taken have functioned for the purposes thereof, taking into account the compliance criteria,
- where appropriate, provide detailed justification for not taking measures recommended or for any other departure from the recommendation.

As required by Article 17(1) of Regulation (EU) No 1092/2010, this response is to be directed to the ESRB and to the Council of the European Union. In the case of response by national supervisory authorities, the ESRB must also inform the EBA thereof (in accordance with the confidentiality rules).

Recommendations

Table 3 below summarises the proposed recommendations.

Table 3
Recommendations

Topic	Recommendations	Timeline ⁽¹⁾	
		NSA	EBA
Funding and refinancing risks	A: Monitoring and assessment of funding risks and funding risk management by supervisors	Jan. 2015	Mar. 2015
Asset encumbrance	B: Risk management of asset encumbrance by institutions	Jun. 2014	—
	C: Monitoring of asset encumbrance by supervisors	Sep. 2015	Dec. 2013 & Dec. 2015
	D: Market transparency on asset encumbrance	—	Dec. 2013 & Jun. 2015
Funding instruments	E: Covered bonds and other instruments that generate encumbrance	Dec. 2013	Dec. 2015 & Dec. 2016

⁽¹⁾ This timeline refers only to the date for which final reports are due, i.e. it does not include the reference to interim reports.

V.1. Recommendation A — Monitoring and assessment of funding risks and funding risk management by supervisors

1. **National supervisory authorities with responsibility for banking supervision** are recommended to intensify their assessments of the funding and liquidity risks incurred by credit institutions, as well as their funding risk management, within the broader balance sheet structure, and should in particular:

- (a) assess the funding plans provided by credit institutions and their feasibility for each national banking system, on an aggregated basis, taking into account the business model and risk appetite of each institution;
- (b) monitor the development of funding structures in order to identify innovative instruments, request information on such instruments and analyse the information obtained to understand how risks may shift within the financial system;
- (c) monitor the level, evolution and behaviour of uninsured deposit-like financial instruments, which are sold to retail customers, and their potentially negative effects on traditional deposits.

2. **National supervisory authorities with responsibility for banking supervision** are recommended to monitor credit institutions' plans to reduce reliance on public sector funding sources and to assess the viability of such plans for each national banking system, on an aggregated basis.

3. **National supervisory authorities and other authorities with a macro-prudential mandate** are recommended to assess the impact of credit institutions' funding plans on the flow of credit to the real economy.

4. The **EBA** is recommended to develop guidelines on harmonised templates and definitions, in accordance with its established consultation practices, in order to facilitate the reporting of funding plans for the purposes of the recommendations contained in paragraphs 1 to 3 above.

5. The **EBA** is recommended to coordinate the assessment of funding plans at Union level, including credit institutions' plans to reduce reliance on public sector funding sources, and to assess the viability of such plans for the Union banking system, on an aggregated basis.

V.1.1. Economic reasoning

Analysing credit institutions' funding plans, on aggregate, makes it possible to assess their coherence and feasibility, while taking into account the likely evolution of funding markets. This should be carried out at the level of each individual Member State as well as at the level of the Union.

The development of new financial products and structures is a feature of the financial system. These new instruments are often opaque (for example, collateral swaps and synthetic ETFs). Especially in times of stress this can lead to widespread uncertainty among investors, not only with regard to the instrument but also with regard to the institution. There is anecdotal evidence that credit institutions are resorting to products that are similar to deposits, without actually being deposits, an important feature of such products being that they are not covered by deposit guarantee schemes. As a result, such instruments can respond with greater volatility to signs of the institution being subject to stress, exacerbating the funding pressure on the bank if they are withdrawn. If this practice becomes widespread, significant costs in terms of legal fees and fines may be involved as a result of mis-selling complex products to unsophisticated investors, particularly in the retail segment. Even more important is the potential decrease in depositors' confidence, which ultimately has a negative impact on the stability of deposits as well.

Hence, supervisory monitoring is the necessary pre-condition for risk assessment and for further action where necessary.

V.1.2. Assessment, including advantages and disadvantages

The most significant advantages of the proposal are:

- a. An overall perspective is gained of funding needs, funding capacity and, consequently, of the viability of funding plans, both at national and Union levels;
- b. A contribution is made to signalling, at an early stage, potential risks stemming from innovative instruments and instruments that are not appropriate for retail customers.

The most significant disadvantages of the proposal are:

- c. Additional supervisory burden for national supervisory authorities, although this is expected to be marginal as supervisors already monitor and assess the feasibility of funding plans.
- d. Additional supervisory burden for the EBA, which is required to coordinate these funding plans at Union level.
- e. Costs arising from regulatory changes;
- f. A higher burden for credit institutions, which will have to prepare more information to report.

V.1.3. *Follow-up*

V.1.3.1. *Timeline*

National supervisory authorities with responsibility for banking supervision, national supervisory authorities and other authorities with a macro-prudential mandate and the EBA are requested to report to the ESRB and the Council on the actions taken in response to this recommendation, or adequately justify any inaction, according to the following timeline:

- a. by 30 June 2014, national supervisory authorities with responsibility for banking supervision are requested to deliver to the ESRB an interim report containing a first assessment of the result of the implementation of Recommendation A(1) and (2);
- b. by 31 January 2015, national supervisory authorities with responsibility for banking supervision are requested to deliver a final report on Recommendation A(1) and (2) to the ESRB and to the Council;
- c. by 30 June 2014, national supervisory authorities and other authorities with a macro-prudential mandate are requested to deliver to the ESRB an interim report containing a first assessment of the result of the implementation of Recommendation A(3);
- d. by 31 March 2015, national supervisory authorities and other authorities with a macro-prudential mandate are requested to deliver a final report on the implementation of Recommendation A(3) to the ESRB and to the Council;
- e. by 31 December 2013, the EBA is requested to deliver the guidelines referred to in Recommendation A(4) to the ESRB and to the Council;
- f. by 30 September 2014, the EBA is requested to deliver to the ESRB an interim report containing a first assessment of the result of the implementation of Recommendation A(5);
- g. by 31 March 2015, the EBA is requested to deliver a final report on the implementation of Recommendation A(5) to the ESRB and to the Council.

V.1.3.2. *Compliance criteria*

Regarding Recommendation A(1) and (2), the following compliance criteria are defined for national supervisory authorities, which should:

- a. Assess, in the context of the regular monitoring and assessment of the funding and liquidity risks incurred by credit institutions in each Member State and their risk management of funding, the feasibility of credit institutions' funding plans, on aggregate for each national banking system;
- b. Monitor development of credit institutions' liabilities, in the relevant Member State, in order to identify innovative instruments that may pose systemic risks and assess how the use of innovative instruments shifts risks within the financial system of that Member State;
- c. Monitor deposit-like product offerings that are not covered by deposit guarantee schemes, assess the risks embedded in such products when sold to retail customers and their potentially negative effects on traditional deposits;

- d. Assess the capacity of credit institutions in their Member States to return to private sector funding sources, taking into account the prevailing extraordinary measures at the time;
- e. Ensure that the monitoring and assessment of funding and liquidity risks, in particular regarding innovative instruments and uninsured deposit-like instruments, is proportionate to the level of risk stemming from these instruments;
- f. The application of the recommendation should be on a consolidated basis, and results discussed in colleges of supervisors;
- g. The coverage of monitoring and assessment of funding plans and institutions' plans to reduce reliance on public sector funding sources should cover, as a minimum, each Member State's largest credit institutions, in terms of volume of assets, and should amount to at least 75 % of the banking system's total consolidated assets.

Regarding Recommendation A(3), the following compliance criteria are defined for national supervisory authorities and other authorities with a macro-prudential mandate, which should:

- h. Assess, on an aggregated basis, the impact of institutions' funding plans and business strategies on the flow of credit to the real economy of the relevant Member State(s);
- i. Ensure that the coverage of monitoring and assessment of the impact on the flow of credit to the real economy of institutions' funding plans covers, as a minimum, each Member State's largest credit institutions, in terms of volume of assets, and amounts to at least to 75 % of the banking system's total consolidated assets.

Regarding Recommendation A(4), the following compliance criteria are defined for the EBA, which should:

- j. Develop guidelines on harmonised templates for the reporting of funding plans.

Regarding Recommendation A(5), the following compliance criteria are defined for the EBA, which should:

- k. Assess the funding and liquidity risks incurred by credit institutions in the Union as well as their funding risk management and funding plans;
- l. Assess the capacity of credit institutions in the Union to return to private sector funding sources, in relation to the prevailing extraordinary measures at the time, based on information provided by the national supervisory authorities;
- m. The application of the recommendation should be on a consolidated basis, and results discussed in colleges of supervisors;
- n. Ensure that the assessment of funding plans and institutions' plans to reduce reliance on public sector funding sources covers, as a minimum, the Union's largest credit institutions, in terms of volume of assets, and amounts to at least to 75 % of the Union banking system's total consolidated assets.

V.1.4. *Communication on the follow-up*

The communication should refer to all the compliance criteria.

The interim report by national supervisory authorities that is due for submission by 30 June 2014 should contain a first assessment of the results of the implementation of Recommendation A(1) and (2), containing information referring to at least 31 December 2013.

The report by national supervisory authorities that is due for submission by 31 January 2015 should contain a final report on Recommendation A(1) and (2), containing information referring to at least 30 September 2014.

The report by the EBA that is due for submission by 31 December 2013 should contain the template for the reporting of the funding plans as part of the proposed guidelines.

The interim report by the EBA that is due for submission by 30 September 2014 should contain a first assessment of the results of the implementation of Recommendation A(5), containing information referring to at least 31 December 2013.

The final report by the EBA that is due for submission by 31 March 2015 should contain a final assessment of the results of the implementation of Recommendation A(5), containing information referring to at least 30 September 2014.

The interim report by national supervisory authorities and other authorities with a macro-prudential mandate that is due for submission by 30 June 2014 should contain a first assessment of the result of the implementation of Recommendation A(3), containing information referring to at least 31 December 2013.

The final report by national supervisory authorities and other authorities with a macro-prudential mandate that is due for submission by 31 March 2015 should contain a final assessment of the implementation of Recommendation A(3), containing information referring to at least 30 September 2014.

V.2. Recommendation B — Risk management of asset encumbrance by institutions

National supervisory authorities with responsibility for banking supervision are recommended to require credit institutions to:

1. Put in place risk management policies to define their approach to asset encumbrance, as well as procedures and controls that ensure that the risks associated with collateral management and asset encumbrance are adequately identified, monitored and managed. These policies should take into account each institution's business model, the Member States in which they operate, the specificities of the funding markets and the macroeconomic situation. The policies should be approved by each institution's appropriate management bodies.
2. Include in their contingency plans strategies to address the contingent encumbrance resulting from relevant stress events, which means plausible albeit unlikely shocks, including downgrades in the credit institution's credit rating, devaluation of pledged assets and increases in margin requirements.
3. Have in place a general monitoring framework that provides timely information to the management and the relevant management bodies on:
 - a. the level, evolution and types of asset encumbrance and related sources of encumbrance, such as secured funding or other transactions;
 - b. the amount, evolution and credit quality of unencumbered but encumberable assets, specifying the volume of assets available for encumbrance;
 - c. the amount, evolution and types of additional encumbrance resulting from stress scenarios (contingent encumbrance).

V.3. Recommendation C — Monitoring of asset encumbrance by supervisors

1. **National supervisory authorities with responsibility for banking supervision** are recommended to closely monitor the level, evolution and types of asset encumbrance as part of their supervisory process, and should in particular:
 - (a) review the monitoring frameworks, policies and contingency plans put in place by credit institutions in terms of encumbrance and collateral management;
 - (b) monitor the level, evolution and types of asset encumbrance and related sources of encumbrance, such as secured funding or other transactions;
 - (c) monitor the amount, evolution and credit quality of unencumbered but encumberable assets available for unsecured creditors;
 - (d) monitor the amount, evolution and types of additional encumbrance resulting from stress scenarios (contingent encumbrance).
2. **National supervisory authorities with responsibility for banking supervision** are recommended to monitor and assess risks associated with collateral management and asset encumbrance, as part of the supervisory review process. This assessment should take into account other risks, such as credit and funding risks, and mitigating factors, such as capital and liquidity buffers.

3. The **EBA** is recommended to issue guidelines on harmonised templates and definitions in order to facilitate the monitoring of asset encumbrance, in accordance with its established consultation practices.

4. The **EBA** is recommended to closely monitor the level, evolution and types of asset encumbrance, as well as unencumbered but encumberable assets at Union level.

V.3.1. *Economic reasoning (Recommendations B and C)*

On the one hand, in the context of the current crisis, secured funding markets have been a source of stability and have helped avoid additional funding distress and credit squeeze. On the other hand, increasing levels of secured funding entail increasing asset encumbrance with the risks mentioned in Section III.1.

Against this background, it is vital that supervisors require credit institutions to be aware of their encumbrance levels and to devise a comprehensive monitoring framework. Institutions can better cope with stress situations if they have the ability to monitor and control risks on the basis of regular, good quality information. Supervisors can use this information to assess credit institutions' situations in accordance with the specificities of each individual case and should be in a position to adopt further measures based on their expert knowledge if necessary. Finally, the measures proposed will also help supervisors to identify what is a structural increase in encumbrance and what is a crisis response and therefore avoid any additional pressure being brought to bear on the funding markets.

V.3.2. *Assessment, including advantages and disadvantages (Recommendations B and C)*

The most significant advantages of the proposal are:

- a. It promotes good practices at the level of credit institutions;
- b. It can be implemented in the short to medium term by both credit institutions and supervisors;
- c. It could be adapted according to the specificities of the different Member States and of different business models;
- d. It would promote a better assessment of a credit institution's risk, as asset encumbrance would be monitored on the basis of supervisory expertise;
- e. The perception of a higher level of control by both credit institutions and supervisors over the level of asset encumbrance may have a positive impact in the markets and on credit institutions' ratings;

The most significant disadvantages of the proposal are:

- f. A higher burden for credit institutions, who will have to implement policies, procedures and monitoring, although this should be seen as a good practice, especially in the current situation;
- g. A higher burden for supervisors who will have to review the policies and practices of the credit institutions and to monitor asset encumbrance in all of them (although some degree of proportionality should be applied).

V.3.3. *Follow-up (Recommendations B and C)*

V.3.3.1. *Timeline — Recommendation B*

National supervisory authorities with responsibility for banking supervision are requested to report to the ESRB and the Council on the actions taken in response to Recommendation B, or adequately justify any inaction, by 30 June 2014.

V.3.3.2. *Timeline — Recommendation C*

The EBA and national supervisory authorities with responsibility for banking supervision are requested to report to the ESRB and the Council on the actions taken in response to this recommendation, or adequately justify any inaction, according to the following timelines:

- a. by 31 December 2013, the EBA is requested to deliver to the ESRB and the Council the guidelines referred to in Recommendation C(3) and an interim report containing a proposal on how it intends to fulfil Recommendation C(4);

- b. by 30 September 2014, the EBA is requested to deliver to the ESRB a first monitoring report on asset encumbrance for the purposes of Recommendation C(4);
- c. by 31 December 2015, the EBA is requested to deliver to the ESRB and the Council a final monitoring report on asset encumbrance for the purposes of Recommendation C(4);
- d. by 30 June 2014, national supervisory authorities with responsibility for banking supervision are requested to deliver to the ESRB a first monitoring report on the actions taken in response to Recommendation C(1) and (2);
- e. by 30 September 2015, national supervisory authorities with responsibility for banking supervision are requested to deliver to the ESRB and the Council a final monitoring report on the actions taken in response to Recommendation C(1) and (2).

V.3.3.3. Compliance criteria — Recommendation B

The following compliance criteria are defined for national supervisory authorities regarding Recommendation B:

- a. Guidelines should be issued to — or other actions commensurate with the requirement taken vis-à-vis — credit institutions, covering all aspects of Recommendation B, where such requirements either do not exist in the relevant Member State or are not in line with, or do not cover, all aspects of Recommendation B;
- b. These guidelines should cover all institutions, but their implementation by institutions should reflect the relevance of the risks in each case.

V.3.3.4. Compliance criteria — Recommendation C

Regarding Recommendation C, the following compliance criteria are defined for national supervisory authorities, which should:

- a. Monitor asset encumbrance in the relevant jurisdiction, and assess the relevant risks;
- b. Present a summary of levels and evolution, in the relevant Member State, of: (i) encumbrance levels and related sources of encumbrance; (ii) availability and credit quality of unencumbered but encumberable assets; and (iii) additional encumbrance resulting from stress scenarios, specifying the scenarios considered;
- c. Ensure that regular supervisory procedures include the monitoring of asset encumbrance, in particular regarding the aspects covered in Recommendation C.
- d. The application of the recommendation should be on a consolidated basis, and results discussed in colleges of supervisors;
- e. Ensure that the monitoring and assessment referred to in Recommendation C(1) refers, as a minimum, to each jurisdiction's largest institutions, in terms of volume of assets, and amounts to at least to 75 % of the banking system's total consolidated assets

Regarding Recommendation C(3) and (4), the following compliance criteria are defined for the EBA, which should:

- f. Define the necessary terminology, including that of encumbered assets and unencumbered but encumberable assets, and of encumbrance levels;
- g. Design a harmonised template for data collection on asset encumbrance;
- h. Issue the necessary guidelines for the consistent implementation of the definitions and templates throughout the Union;
- i. Monitor the evolution of asset encumbrance in the Union, on the basis of information gathered and provided by the national supervisory authorities (as a response to the implementation of Recommendations B and C);
- j. The application of the recommendation should be on a consolidated basis, and results discussed in colleges of supervisors.

V.3.4. *Communication on the follow-up — Recommendation B*

The communication should refer to all the compliance criteria. The report by the national supervisory authorities that is due for submission by 30 June 2014 should contain:

- a. An English translation of the instrument used to require credit institutions to act in line with Recommendation B;
- b. A brief explanation of how the actions undertaken fulfil the recommendation.

V.3.5. *Communication on the follow-up — Recommendation C*

The communication should refer to all the compliance criteria.

The interim report by the EBA that is due for submission by 31 December 2013 should contain:

- a. The guidelines issued regarding harmonised templates and definitions relating to Recommendation C(3);
- b. A brief explanation of how the guidelines fulfil Recommendation C(3);
- c. A proposal on how the developments in terms of asset encumbrance in the Union will be monitored.

The report by the EBA that is due for submission by 30 September 2014 should contain:

- d. The indicators chosen to monitor asset encumbrance for the different Member States and for the Union as a whole.

The report by the EBA that is due for submission by 31 December 2015 should contain the indicators chosen to monitor asset encumbrance in the different Member States and in the Union as a whole.

The report by national supervisory authorities that is due for submission by 30 June 2014 should contain:

- e. A reference to all the details referred to in Recommendation C(1) and (2), in terms of both indicators used to monitor asset encumbrance and assessments required.

The report by the national supervisory authorities that is due for submission by 30 September 2015 should contain a reference to all the details referred to in Recommendation C(1) and (2), in terms of both indicators used to monitor asset encumbrance and assessments required.

V.4. **Recommendation D — Market transparency on asset encumbrance**

1. The **EBA** is recommended to develop guidelines on transparency requirements for credit institutions on asset encumbrance. These guidelines should help ensure that the information disclosed to the market is clear, easy to compare and appropriate. In view of the limited experience in disclosing reliable and meaningful information on asset quality, the EBA should follow a gradual approach, with a view to moving to a more extensive disclosure regime after one year.

The guidelines should request credit institutions to provide:

- (a) The level and evolution of encumbered and unencumbered assets:
 - (i) for the first year following the adoption of the guidelines, this information should include a breakdown by asset type, provided on an annual basis;
 - (ii) based on the experience gained until 31 December 2014, including in implementing Recommendation C, the guidelines should be amended to require information to be provided on a semiannual basis and supplemented by a requirement to disclose a breakdown by asset quality, provided that the EBA deems that such additional disclosure offers reliable and meaningful information.
- (b) A voluntary narrative, by which credit institutions provide the users with information that may be useful to understand the importance of encumbrance in the credit institutions' funding model;

2. For the purposes of paragraph 1(a), the **EBA** is recommended to specify in the guidelines the features of the disclosed data, in terms of units and lag of disclosure.
3. In developing these guidelines, the **EBA** is recommended to:
 - (a) cooperate with ESMA, in order to build on the existing requirements included in IFRS with regard to asset encumbrance;
 - (b) take into account relevant developments in related topics, in particular, those relating to the liquidity regulatory framework; and
 - (c) ensure that the level and evolution of assets encumbered to central banks, as well as the amount of liquidity assistance given by central banks, cannot be detected.

V.4.1. *Economic reasoning*

The trend of increased dependence on collateralised funding is caused, among other factors, by increased risk aversion on the part of investors in credit institutions. This risk aversion, and the fact that unsecured creditors have a claim on a diminished and potentially lower quality share of the balance sheet, tends to drive up the price of unsecured funding. If markets worked without failure, this pricing mechanism would be instrumental to inducing adequate levels of encumbrance.

However, there are two main reasons why unsecured creditors do not adjust their pricing: either they do not have sufficient information about the asset encumbrance levels because of lack of disclosure or they do not take account of the increased risk caused by asset encumbrance levels because of implicit or explicit guarantees (for instance, deposit guarantee schemes). Mandatory transparency aims to level out the uneven playing field that exists between informed and uninformed investors. By clarifying that the guidelines should require institutions to accompany the disclosure of quantitative information on asset encumbrance with a narrative, the recommendation aims to ensure that the market does not make any over-simplified or inaccurate assumptions on the basis of the quantitative information disclosed.

Moreover, in case of default by the issuer of secured instruments, investors have the right and the incentive to sell the asset pool in order to obtain the nominal value of the funds they have provided. This can lead to depressed prices for the assets they sell and thereby a higher loss given default (LGD) for other investors. This can also have a negative impact on other institutions/individuals that own the same asset (fire-sale mechanism). Against this background, this recommendation on market transparency aims to decrease both asymmetry of information and externalities. If market participants have information on credit institutions which is clear and easy to compare, they will be more capable of differentiating between risk profiles in terms of encumbrance.

V.4.2. *Assessment, including advantages and disadvantages*

The most significant advantages of the proposal are:

- a. It allows stakeholders to make better and more informed decisions, thus creating a market mechanism which contributes to more adequate encumbrance levels.
- b. The lack of transparency regarding asset encumbrance, which creates uncertainty regarding credit institutions' resilience, is reduced. Currently, credit institutions face a collective action problem, and a concerted effort to increase transparency will therefore benefit credit institutions. Transparency may also help facilitate access to unsecured debt for credit institutions that currently do not have access, since it allows investors to price the actual risk they take.
- c. Mandatory disclosure, in particular, could help less encumbered credit institutions to distinguish themselves from more encumbered credit institutions without incurring any 'first-mover' disadvantage (markets can react negatively to 'healthy' credit institutions declaring their level of encumbrance if they have no information on the distribution of those values). This argument is relevant only in Member States in which credit institutions do not voluntarily publish their asset encumbrance levels.

- d. Imposing additional disclosure requirements alongside those based on IFRS 7 would broaden the range of credit institutions disclosing information, widen the disclosure to all means of encumbrance, enhance the terms of disclosure and create more uniform practices.
- e. Disclosure of median values, in comparison to end-period figures, is more conducive to a portrayal of structural levels of encumbered and unencumbered assets and is less prone to window dressing.

The most significant disadvantages of the proposal are:

- f. The cost related to the production of the required information.
- g. The potential pro-cyclical effects that may occur if disclosure is not harmonised and well explained: the market may define some sort of maximum encumbrance level that is not appropriate, forcing credit institutions into limiting their asset encumbrance to excessively low levels in order to access market funding; at the same time, regulators may impose regulations that push the level of encumbrance higher.
- h. Mandatory disclosure requirements, in particular, may shut some credit institutions out of the markets. As a result of being excluded from unsecured markets, highly encumbered institutions might become even more encumbered, thereby widening the dispersion of asset encumbrance levels across credit institutions. As secured funding itself is highly pro-cyclical (due to price/haircuts rather than quantities), increased asset encumbrance might impair credit institutions' ability to fund themselves. Such pro-cyclical developments (runs on credit institutions' outstanding liabilities, threats of fire sales) might force the public sector to intervene as a lender of last resort in cases where no intervention would be needed otherwise. If asset encumbrance were perceived as highly clustered at the national level, increased transparency might increase the speed of a sovereign/banking loop.
- i. Any additional disclosure relating to encumbrance may increase the risk that use of central bank facilities is detected by the market, giving rise to perverse effects, including the stigmatisation of such facilities. However, disclosure of information which is carried out as advocated by this recommendation and that, in particular, meets the criteria set out in paragraph 3(b), will avoid the significant costs associated with the stigmatisation of central bank liquidity facilities.

V.4.3. *Follow-up*

V.4.3.1. *Timeline*

The EBA is requested to report to the ESRB and the Council on the actions taken in response to this recommendation, or adequately justify any inaction, by 31 December 2013.

By 30 June 2015 the EBA should submit to the ESRB and the Council an additional report on the implementation of Recommendation D(1)(a)(ii). The timing of the implementation by credit institutions of the EBA guidelines should be set out in the guidelines.

V.4.3.2. *Compliance criteria*

Regarding Recommendation D, the following compliance criteria are defined for the EBA, which should:

- a. Develop guidelines on transparency requirements covering all aspects of Recommendation D, taking into account the following:
 - i. In developing the guidelines, the EBA should always take into account the need to protect the integrity of central bank operations. In particular, the terms of disclosure which aim to avoid assets encumbered to central banks being detected, referred to in paragraph 3(b), should satisfy the following criteria: assets encumbered to central banks should not be included in a category for disclosure (a) that is normally stable; and (b) that allows changes in encumbrance due to market transactions to be visible within the scope of other disclosure requirements.
 - ii. In order to protect the integrity of central bank operations, the disaggregation of encumbered and unencumbered assets by asset type referred to in paragraph 1(a)(i) should not go beyond: (1) cash; (2) government, central bank and supranational debt instruments; (3) other financial assets; and (4) non-financial assets.
 - iii. In order to ensure that the information disclosed is coherent and to protect the integrity of central bank operations, the classification of encumbered and unencumbered assets by asset quality referred to in paragraph 1(a)(ii) should be based on appropriate criteria, including risk weights.

- iv. There should be clear guidance on the definition of encumbered and unencumbered assets, and in particular on the classification of encumbered assets when there are pooling systems of assets to be used as collateral, such as in the case of the Eurosystem monetary policy framework.
 - v. The narrative referred to in paragraph 1(b) should include specific examples, such as sources of encumbrance, explanations of business models and information on overcollateralisation. The latter should contain the necessary details on overcollateralisation above minimum requirements, as assets collateralising an operation in excess of minimum requirements can still be available for encumbrance or for other creditors in case of insolvency. These minimum requirements can be of a regulatory, contractual, market or business practice nature.
 - vi. The guidelines should stipulate that the quantitative data on encumbered and unencumbered assets should correspond to median values over a 6-month period for semiannual data and a 12-month period for annual data. The computation of the median values should include a minimum of 6 monthly observations for semiannual data and 12 monthly observations for annual data.
 - vii. The guidelines should stipulate a lag of disclosure of up to 5 months that may not be longer than the lag of disclosure for annual accounts.
- b. Issue the necessary guidelines on transparency requirements.
- V.4.4. *Communication on the follow-up*
- The communication should refer to all of the compliance criteria.
- The report by the EBA that is due for submission by 31 December 2013 should contain:
- a. the guidelines issued;
 - b. a brief explanation of how the guidelines fulfil the recommendation.

The report by the EBA that is due for submission by 30 June 2015 should contain an assessment of the results of the implementation of Recommendation D(1)(a)(ii).

V.5. Recommendation E — Covered bonds and other instruments that generate encumbrance

1. **National supervisory authorities** are recommended to identify best practices regarding covered bonds and encourage harmonisation of their national frameworks.
2. The **EBA** is recommended to coordinate actions taken by national supervisory authorities, particularly in relation to the quality and segregation of cover pools, insolvency remoteness of covered bonds, the asset and liability risks affecting cover pools and disclosure of the composition of cover pools.
3. The **EBA** is recommended to consider whether it is appropriate to issue guidelines or recommendations endorsing best practices, after monitoring the functioning of the market for covered bonds by reference to these best practices for a period of two years. If the EBA identifies the need for a legislative proposal in this regard, it should report to the European Commission and inform the ESRB.
4. The **EBA** is recommended to assess whether there are other financial instruments that generate encumbrance which would also benefit from the identification of best practices in national frameworks. If the EBA concludes that such instruments exist, it should (i) coordinate the identification and encourage the harmonisation of the resulting best practices by the national supervisory authorities; (ii) act as defined in paragraph 3 regarding covered bonds, in a subsequent stage.

V.5.1. *Economic reasoning*

The economic reasoning presented below relates to the specific case of covered bonds.

Broadly speaking, if covered bond frameworks follow best practices and are more comparable, investors — and in particular foreign investors — may find it more appealing to buy this instrument, since costs associated with gaining an understanding of the regulatory framework are lower. To put it differently, such measures can contribute to decreasing market frictions related to transaction costs (if these costs are evaluated in terms of the cost of obtaining information) and thus to market integration at Union level. It should be noted that there is no intention to set Europe-wide limits for the issuance of covered bonds; it is desirable, however, to incentivise best practices to ensure high quality standards.

V.5.2. *Assessment, including advantages and disadvantages*

The most significant advantages of the proposal are:

- a. The improvement and partial convergence of the different covered bond frameworks as well as the frameworks on other instruments that generate encumbrance;
- b. The contribution to improving the acceptance of covered bonds by investors, including outside the Union, and their assessment by rating agencies — by making the different frameworks more similar and comparable at the level of best practices; and
- c. It may also yield positive effects in the short term.

The most significant disadvantage of the proposal is:

- d. The cost of regulatory changes.

V.5.3. *Follow-up*

V.5.3.1. *Timeline*

The EBA and national supervisory authorities are requested to report to the ESRB and the Council on the actions taken in response to this recommendation, or adequately justify any inaction, according to the following timelines:

- a. by 31 December 2013, national supervisory authorities are requested to report to the ESRB and to the Council on the actions taken in response to Recommendation E(1);
- b. by 31 December 2013, the EBA is requested to deliver to the ESRB an interim report setting out the principles of best practice in relation to covered bonds which it has identified together with national supervisory authorities, and an assessment of the existence of other financial instruments which generate encumbrance in respect of which best practices need to be identified;
- c. by 31 December 2014, the EBA is requested to deliver to the ESRB an interim report setting out the principles of best practices for other financial instruments that generate encumbrance, if they were identified in the interim report mentioned in paragraph (b) of this timeline;
- d. by 31 December 2015, the EBA is requested to deliver a final report to the ESRB and to the Council containing an assessment of the functioning of the framework for covered bonds under the best practice principles and its view on recommended further action if deemed desirable;
- e. by 31 December 2016, the EBA is requested to deliver a final report to the ESRB and to the Council containing an assessment of the functioning of the framework for the other financial instruments that generate encumbrance under the best practice principles, if they were identified in the interim report to be delivered under paragraph (b) of this timeline, and its view on recommended further action if deemed desirable.

V.5.3.2. *Compliance criteria*

Regarding Recommendation E, the following compliance criteria are defined for national supervisory authorities, which should:

- a. Revise private or public initiatives and standards and encourage those that can foster best practices and harmonisation for covered bonds and other instruments that generate encumbrance.

Regarding Recommendation E, the following compliance criteria are defined for the EBA, which should:

- b. Develop principles for best practices for covered bonds and other instruments that generate encumbrance. These principles should be based on highly credible and robust existing standards;
- c. Monitor the market for covered bonds for a period of two years and assess its compliance with the principles referred to above, and consider further action if deemed desirable;
- d. If further actions are necessary, develop standards that achieve the highest possible level of quality in order to safeguard the stability of these instruments.

V.5.4. *Communication on the follow-up*

The communication should refer to all the compliance criteria.

The report by the national supervisory authorities that is due for submission by 31 December 2013 should contain an overview of the private or public initiatives and standards existent in the relevant Member State and an identification of best practices.

The report by the EBA that is due for submission by 31 December 2013 should contain the principles of best practice issued for covered bonds and an assessment of the existence of other financial instruments that generate encumbrance in respect of which best practices need to be identified.

The interim report by the EBA that is due for submission by 31 December 2014 should set out principles of best practices for any other financial instruments identified under Recommendation E(4).

The report by the EBA that is due for submission by 31 December 2015 should contain an assessment of the functioning of the market for covered bonds under the best practice principles issued, and of its view on recommended further action if deemed desirable.

The report by the EBA that is due for submission by 31 December 2016 should contain an assessment of the functioning of the framework for the other financial instruments that generate encumbrance identified under the best practice principles, and its view on recommended further action if deemed desirable.

V.6. **The ESRB takes note of other initiatives**

The ESRB also takes note of private initiatives that are underway to kick start other areas of the funding market. Particular reference should be made here to the Prime Collateralised Securities (PCS) initiative on 'labelling', which aims to set out in with greater clarity the terms and conditions of securitisation. While there are aspects of the securitisation market which were arguably one component cause of the financial crisis in 2008, some securitisation, as part of a broader mix of funding sources, may add value to the overall banking sector if clearly regulated and understood.

Under the private initiative, only instruments that meet the criteria will be eligible to bear the 'label'. If this is properly implemented, the ESRB notes that it may lead to an increase in market confidence as a result of standardisation and market-driven harmonisation, which may prove to be beneficial to reinvigorating one section of the broader suite of funding sources. There are other initiatives at the national level, for instance the Dutch HFC (Holland Financial Centre) initiative (by the Dutch Securitisation Association), which entails standardisation of terminology and disclosure of information regarding residential mortgage-backed securities (RMBS).

Likewise, the ESRB takes note of private initiatives on the 'labelling' of covered bonds, which enhance the clarity of the terms and conditions of covered bonds. Bonds that meet the criteria will be eligible to bear the 'label'. As with securitisation, if properly implemented, this may lead to a degree of increased market confidence, which could engender some standardisation and market-driven harmonisation.

VI. **RESULTS OF THE SURVEY ON ASSET ENCUMBRANCE AND INNOVATIVE FUNDING: METHODOLOGICAL AND STATISTICAL NOTE**

VI.1. **Methodological note**

VI.1.1. *General description of the data set*

In the late spring of 2012 the ESRB conducted a survey on asset encumbrance and innovative funding. All the results presented in this Annex and all the results referred to in the main text as stemming from the 'ESRB survey on asset encumbrance and innovative funding' refer to this one-off exercise with the reference period being end-2011. In addition, some data for the end-2007 reference period were collected on a best effort basis, in order to allow comparisons to be made with the pre-crisis situation. The data collected from banks included several aspects associated with asset encumbrance and innovative sources of funding.

Information has been collected on a fully consolidated basis. Every effort was made to apply the prudential scope of consolidation (i.e. to exclude any exposures originated at non-bank subsidiaries).

The information requested included breakdowns of encumbered assets and matching liabilities by type of collateral used (e.g. government bonds, residential loans, etc.) and by type of secured funding (e.g. covered bonds, repos, liquidity swaps, central bank funding). The information also included assets encumbered for reasons which are not a source of funding (e.g. derivative transactions). In order to allow a comparison to be made between the situation at the end of 2011 and the pre-crisis period, this information was requested for both end-2011 and end-2007 (the latter on a best effort basis).

Information was also requested, for both secured and unsecured funding, on the breakdown of funding by counterparties (e.g. central banks, other financial institutions, etc.), including data on the corresponding encumbered assets for end-2011.

Moreover, the survey gathered a limited breakdown of encumbered and unencumbered assets according to their credit quality, based on their distribution either with respect to LTV ratios (for loans collateralised by a real estate property) or with respect to regulatory risk weights. Since adverse events might play an important role in terms of banks' encumbrance levels, contingent asset encumbrance was reported in three adverse scenarios: a downgrade of the bank's own credit rating, a devaluation of pledged collateral, and an increase in the LTV of the collateralised loans. Banks themselves provided the estimations of the impact of each scenario and might therefore have used different assumptions and methodologies.

Finally, some information was gathered on innovative sources of funding, in particular, banks' financing via liquidity swaps and ETFs. The information included a comparison of the value of securities lent and that of securities borrowed, together with some counterparty breakdown in the case of liquidity swaps. Data were requested for both end-2011 and, on a best-effort basis, end-2007.

VI.1.2. *Some methodological aspects*

In order to correctly interpret the preliminary results of this data analysis, the following methodological aspects should be borne in mind.

Central bank funding was considered as a separate category. Liquidity swaps (including repo transactions) were not included in transactions with central banks. In the case of covered bonds and other collateralised securities not placed in the market (retained securities), only encumbered assets were reported in the template, since these securities themselves did not yet represent a source of funding.

In general, off-balance-sheet items were not reported. The exceptions are retained securities and reused collateral from reverse repos (referred to as 'matched repos'). Hence, the encumbrance level presented does not generally include unencumbered assets which may have been reported as off-balance-sheet items.

VI.1.3. *Data quality control*

All data collected for this exercise underwent a thorough quality control, during which the consistency of the data within and across banks was checked. Whenever needed and feasible, corrections to the data were made to guarantee the consistency of the whole data set. In most cases, problems were related to unclear interpretation, inconsistency or uncertainty about the data reported by the banks. National supervisory authorities provided support in resolving the most complex cases and, when possible, also provided revised data. Nevertheless, some data points had to be excluded owing to their dubious reliability or lack of economic interpretation ⁽¹⁾.

Of the original 54 banks in the sample, 51 reported data or qualitative information, which represents around 99 % of the banks in the sample and more than 60 % of the banking system of the Union. Nevertheless, the degree of completeness as well as the level of data quality varied significantly across banks and across different tables from the same reporting bank. In particular, the data for 2007 were missing for the majority of banks, and the quality/completeness of the data regarding the credit quality of encumbered and unencumbered assets, contingent encumbrance and innovative funding instruments is significantly lower than in other parts of the template.

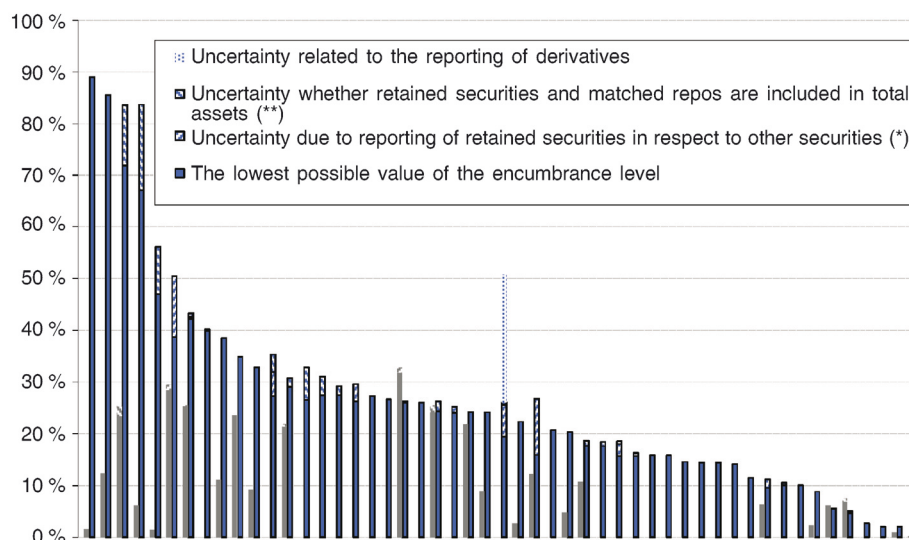
⁽¹⁾ As a consequence, the sample of banks might differ across the various types of charts; however, charts showing comparisons between 2007 and 2011 data are always based only on the sample of banks reporting both 2007 and 2011 figures. Altogether, the share of missing or unreliable data points accounts for approximately one-quarter of the whole data set (the vast majority of which are missing data).

VI.2. Encumbrance

VI.2.1. Encumbrance levels

Chart 29

Distribution of the ratio of encumbered assets (excluding matched repos) to total assets, end-2011 (blue shading) and end-2007 (grey shading)



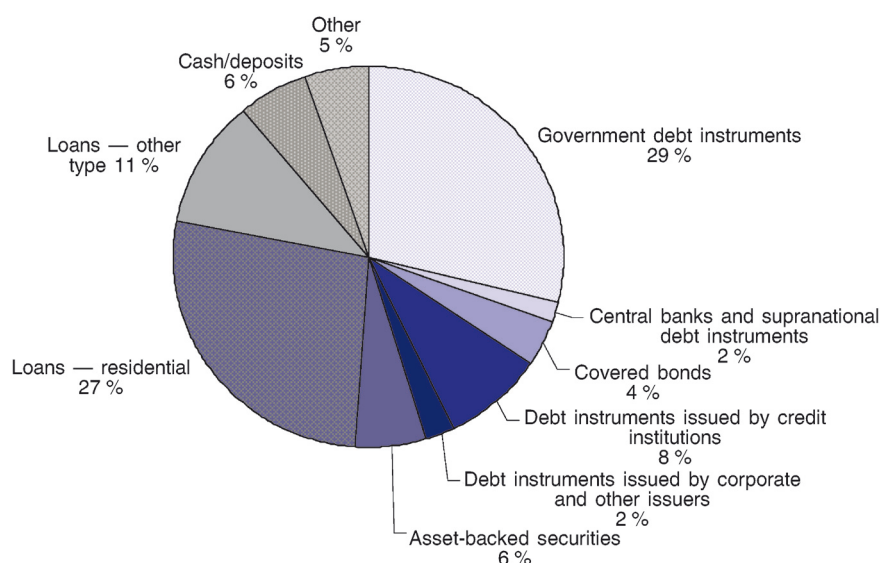
Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 51 banks (end-2011 data), 28 banks (end-2007 data).

Notes: The lowest value in this interval is calculated as the share of total encumbered assets (decreased by the value of retained securities at banks, where they might be included in other covered bonds and other collateralised securities) in the amount of total assets increased by the amount of matched repos. The middle value (marked by *) in the legend) is calculated as the share of total encumbered assets (including matched repos) in the amount of total assets increased by the amount of matched repos. The highest value (marked by (**)) is calculated as the share of total encumbered assets (including matched repos) in the amount of total assets, as reported. For banks whose reporting method was clear from the data, the abovementioned adjustments to the encumbrance ratio were not made and the uncertainty intervals are negligible.

Chart 30

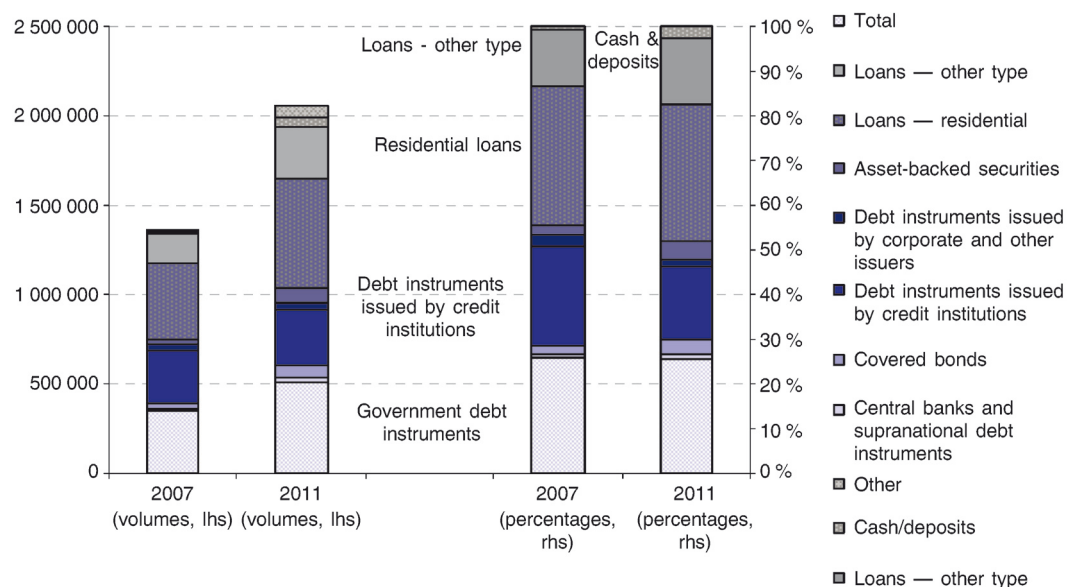
Breakdown of encumbered assets by collateral type, end-2011



Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 49 banks.

Chart 31

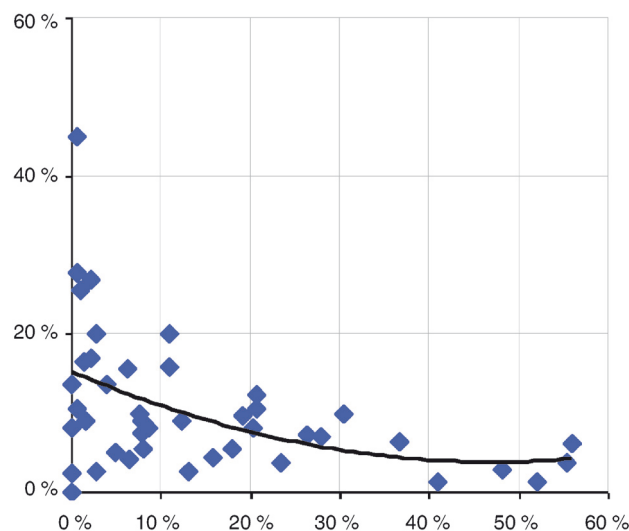
Breakdown of encumbered assets by collateral type in 2007 and 2011 (million EUR and percentages)

Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 24 banks.

Note: The sample of banks is the same for 2007 and 2011 data.

Chart 32

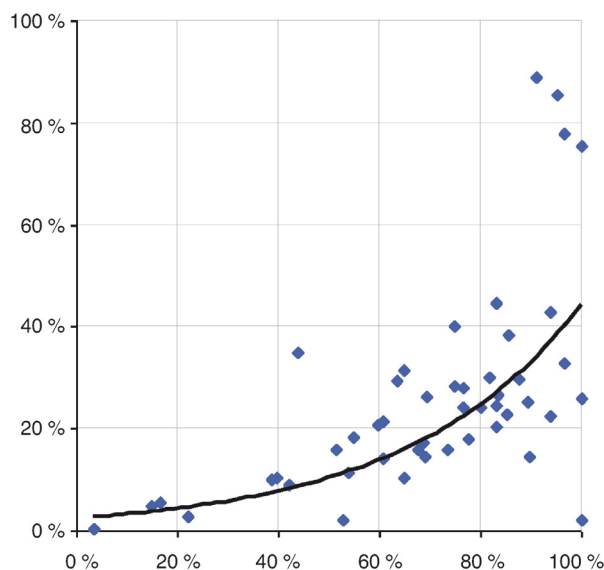
Relationship of the structure of unencumbered assets eligible for central bank funding to their share of total assets, end-2011

Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 43 banks.

Notes: The horizontal axis represents the share of unencumbered assets which are eligible as collateral for central bank funding as a percentage of total assets. The vertical axis represents the share of debt instruments issued by credit institutions (excluding covered bonds) and by corporate and other issuers as a percentage of total unencumbered assets eligible for central bank funding.

Chart 33

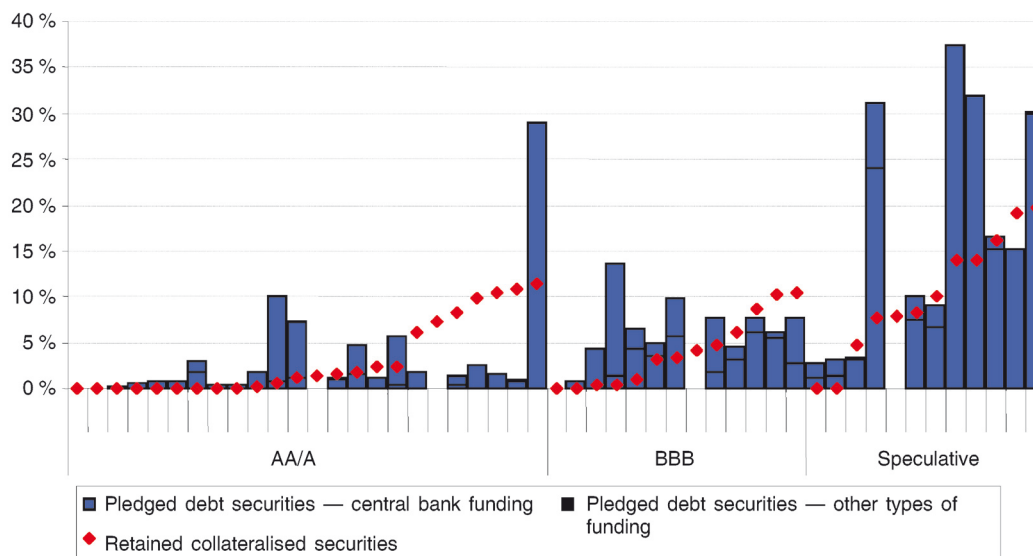
Unencumbered eligible assets and encumbrance level

Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 48 banks.

Notes: The horizontal axis represents the ratio of encumbered assets (excluding matched repos) to the sum of encumbered assets and unencumbered assets eligible for central bank funding. The vertical axis represents the encumbrance level.

Chart 34

Retained collateralised securities and pledged debt securities for groups of banks with different credit ratings, end-2011

Source: ESRB survey on asset encumbrance and innovative funding, Bloomberg.

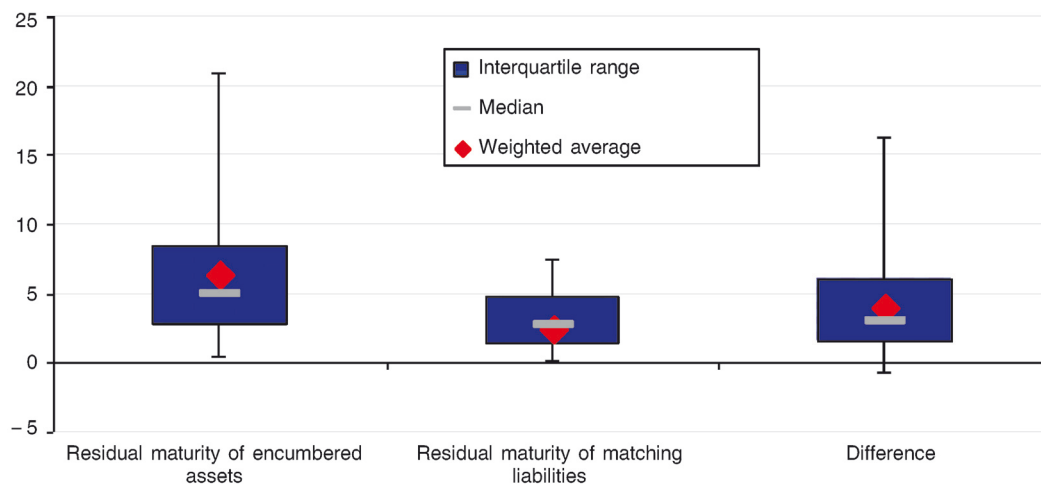
Coverage: 24 banks (AA/A), 13 banks (BBB), 12 banks (speculative rating).

Notes: All figures are represented as a percentage of total assets. Pledged debt securities include debt instruments issued by financial companies (banks and non-banks) and corporates as well as ABS.

VI.2.2. Maturity of encumbered assets and matching liabilities

Chart 35

Distribution of the residual maturity of encumbered assets and matching liabilities and of the difference between the two, end-2011 (in years)



Source: ESRB survey on asset encumbrance and innovative funding.

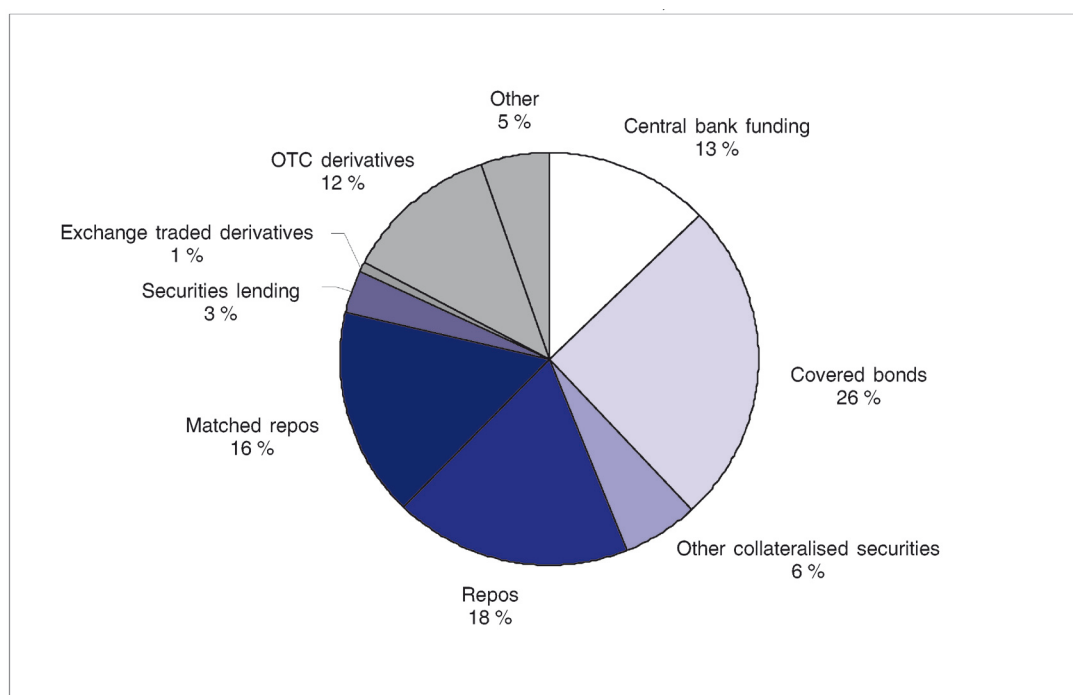
Coverage: 22 banks.

Notes: The weighted averages of residual maturities represent the average of individual banks weighted by the amounts of their respective encumbered assets and matching liabilities. The difference is the difference between residual maturities of encumbered assets and matching liabilities for individual banks and its distribution. In this case the weighted average represents the difference between the weighted averages for encumbered assets and matching liabilities, respectively.

VI.3. Secured funding

Chart 36

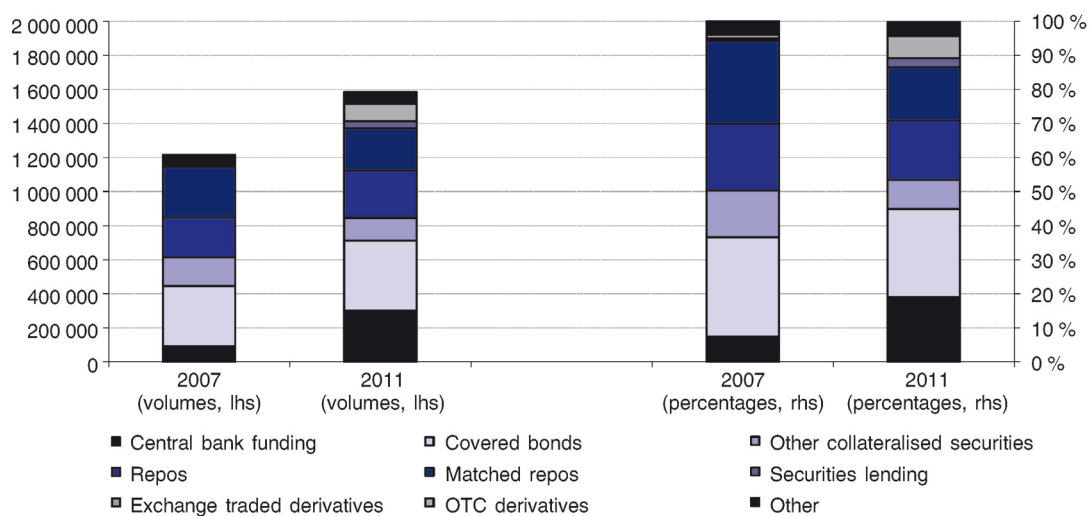
Breakdown of secured funding and derivatives, end-2011 data



Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 48 banks.

Chart 37

Breakdown of secured funding and derivatives, end-2007 and end-2011 data (million EUR and percentages)

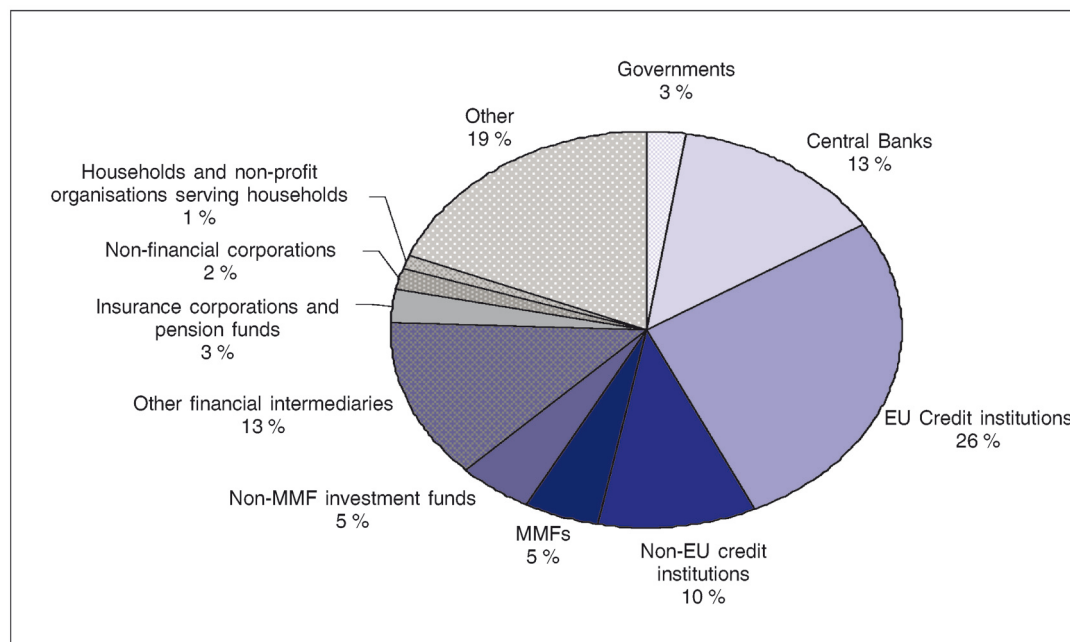
Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 27 banks.

Note: The sample of banks is the same for 2007 and 2011 data.

VI.4. Counterparties

Chart 38

Breakdown of matching liabilities by type of counterparty, end-2011 data

Source: ESRB survey on asset encumbrance and innovative funding.

Coverage: 42 banks.

Notes: Owing to the uncertainty of banks in tracking ownership of covered bonds and other tradable securities issued, the coverage of this chart in terms of matching liabilities is approximately 26 % lower than that of Chart 36. The same applies to the category of matched repos. Furthermore, several banks added those amounts directly to the category 'other counterparties'.