

EUROPEAN CENTRAL BANK AND BANCO
DE ESPAÑA MEASURES AGAINST THE
EFFECTS OF COVID-19 ON THE MONETARY
POLICY COLLATERAL FRAMEWORK,
AND THEIR IMPACT ON SPANISH
COUNTERPARTIES

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Abstract

In March and April 2020, the European Central Bank adopted a series of monetary policy measures aimed at providing liquidity support to the financial system and facilitating access to financing for the real economy to mitigate the adverse economic effects of COVID-19. Some of these measures focused on preserving and expanding the universe of assets that counterparties can use as collateral to participate in Eurosystem financing operations. This paper, after a brief summary of the collateral framework for monetary policy operations, studies the measures adopted in this connection by the European Central Bank and the Banco de España and their impact on Spanish counterparties. This study finds that, in overall terms, two measures stand out over the others in terms of the amount of collateral provided: the acceptance of partially government-guaranteed credit claims and the reduction in haircuts. Although all counterparties have been affected by the measures, the extent of the impact has differed widely, determined by the characteristics of the assets used as collateral and their management. Finally, the interaction between the different measures is analysed, since more than one can affect the eligibility and valuation of the same asset.

Keywords: European Central Bank, Eurosystem, collateral, monetary policy, counterparties.

JEL classification: E42, E52, E58, G21, G32.

Resumen

Durante los meses de marzo y abril de 2020, el Banco Central Europeo (BCE) tomó una serie de medidas de política monetaria destinadas a proporcionar apoyo de liquidez al sistema financiero y facilitar el acceso a la financiación a la economía real para mitigar los efectos económicos adversos del COVID-19. Algunas de esas medidas se centraban en mantener y aumentar el universo de activos que las entidades de contrapartida pueden usar como garantía para participar en las operaciones de financiación del Eurosistema. Este documento, después de hacer un breve resumen del marco de activos de garantía de las operaciones de política monetaria, estudia las medidas adoptadas en ese ámbito por el BCE y por el Banco de España, y su impacto entre las entidades de contrapartida españolas. De este ejercicio se concluye que, en términos globales, en cuanto al importe de garantías aportadas, dos medidas destacan sobre las demás: la admisión de los préstamos parcialmente avalados por el Estado y la reducción de los recortes aplicados al valor de los activos. Si bien todas las entidades se han visto afectadas por las medidas, el alcance ha sido muy diferente entre ellas y ha estado determinado por las características de los activos utilizados como garantía y por la gestión de estos. Por último, se analiza la interacción entre las distintas medidas, puesto que varias de ellas pueden afectar a la elegibilidad y a la valoración de un mismo activo.

Palabras clave: Banco Central Europeo, Eurosistema, activos de garantía, política monetaria, entidades de contrapartida.

Códigos JEL: E42, E52, E58, G21, G32.

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Introduction

According to the Statute of the European System of Central Banks (ESCB), all credit operations provided by the Eurosystem to counterparties must be against collateral. These are financial assets that counterparties are required to pledge or temporarily assign to central banks to secure the financing extended by them, so as to protect the Eurosystem from potential losses should counterparties not repay the borrowed funds. These assets must satisfy a series of criteria determining their eligibility, the loan amount that they can guarantee (i.e. their collateral valuation) and, in some cases, the scope of their use (i.e. limits). These criteria are laid down in the regulations defining and governing the collateral framework for Eurosystem monetary policy operations.

This framework determines the assets that counterparties may pledge to guarantee any financing that they seek from the Eurosystem, both in qualitative terms (which assets are eligible as collateral) and quantitative terms (the amount of eligible assets and how they are valued). Accordingly, monetary policy measures geared towards increasing the availability of credit are typically accompanied by others that broaden the collateral framework, thus maintaining the balance between the scope of eligible assets and the desired volume of lending to counterparties.

With a view to analysing the impact of the collateral framework measures adopted by the European Central Bank (ECB) in response to the pandemic-induced crisis, this paper is structured as follows: this introduction is followed by a brief description of the Eurosystem's monetary policy operations collateral framework; the next section sets out the collateral eligibility easing measures implemented by the ECB in April 2020; following that is an individual study of each of the measures and their effect on Spanish counterparties; and lastly, the interaction between the different measures is assessed and some final considerations are presented.

2 The Eurosystem monetary policy operation collateral framework

Article 18(1) of the Statute of the ESCB states that “the ECB and national central banks may conduct credit operations with credit institutions and other market participants, with lending being based on adequate collateral”. The concept of “adequate collateral” entails, first, assets of sufficient credit quality to prevent the Eurosystem from incurring losses and, second, the availability of sufficient collateral to allow the provision of liquidity to a large number of counterparties. At the same time, the collateral framework must be flexible enough to adapt to market needs and move in step with monetary policy measures relating to credit provision.

The applicable legal framework is established by various ECB legal texts on monetary policy implementation: Guideline ECB/2014/60¹ (on the implementation of the Eurosystem monetary policy framework), Guideline ECB/2015/35² (on valuation haircuts) and Guideline ECB/2014/31³ (on additional temporary measures). These establish the common framework for all Eurosystem central banks. The first two provide the basis for the general framework and the latter for the temporary framework. Each Eurosystem central bank must transpose these guidelines into national texts, with latitude to adapt certain aspects to each country’s legal or operational jurisdiction. In Spain, these are transposed in: (i) the general clauses of Banco de España monetary policy operations;⁴ (ii) the technical application on collateral for operations and risk control measures,⁵ and the technical application on additional collateral for operations and risk control measures⁶ (both from the Banco de España); and (iii) the contracts that counterparties are required to sign with the Banco de España.

The Eurosystem accepts as collateral both marketable assets (the ECB publishes a list of eligible marketable assets which is updated daily) and non-marketable assets (mainly credit claims stemming from loans and credit extended by counterparties to non-financial corporations or to the public sector).⁷ In the Eurosystem, counterparties can use this set of assets with no distinction as to the type of credit operations that they will secure, which include credit provision operations to implement monetary policy (open market operations at different maturities and marginal lending facilities) and other operations for various purposes (from contributing to the smooth functioning of payment systems (intraday credit) to ensuring the provision of liquidity to counterparties in currencies other than the euro).⁸

It should be noted that the Eurosystem collateral framework has undergone several significant changes since it was set up.⁹ At its launch in 1999, the framework was designed so

1 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02014O0060-20210101>.

2 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02015O0035-20210101>.

3 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02014O0031-20210101>.

4 http://app.bde.es/clf_www/leyes.jsp?tipoEnt=0&id=85486.

5 https://www.bde.es/ff/webbde/INF/MenuVertical/PoliticaMonetaria/activos/AT_8_2020_Activos_de_garantia_de_operaciones.pdf.

6 https://www.bde.es/ff/webbde/INF/MenuVertical/PoliticaMonetaria/activos/AT_9_2020_Activos_adicionales_de_garantia.pdf.

7 Hereinafter the term “credit claims” will be used.

8 Not included here are emergency liquidity assistance operations. For further information, see European Central Bank (2020).

9 See Bindseil et al. (2017).

as to transition smoothly from the existing frameworks at Eurosystem central banks, allowing each to maintain its specific characteristics. The single list of collateral, which standardised numerous aspects, was introduced between 2005 and 2007. For instance, shares ceased to be eligible collateral in some countries (Spain, Portugal and the Netherlands) and credit claims (hitherto acceptable only in some jurisdictions) became eligible throughout the euro area. In 2008 and 2009, the eligibility rules for asset-backed securities were amended to mitigate the risks that had come to light in the preceding period. Between 2008 and 2012, a series of measures were implemented to broaden collateral availability and thus allow greater liquidity provision to counterparties (easing of the minimum requirements for credit quality thresholds, easing of the requirements for asset-backed securities and acceptance of additional credit claims (ACCs) by some euro area central banks). Lastly, in 2020 a fresh set of measures was approved with a view to expanding the scope of assets eligible as collateral and thus facilitate the provision to counterparties of the liquidity needed to contend with the fallout from COVID-19. These measures will be analysed in the following sections.

2.1 Collateral eligibility

As mentioned above, the collateral accepted under the current framework can be divided into two broad groups: marketable and non-marketable assets. The eligibility criteria are established under the general framework and in some cases certain aspects are eased under the temporary framework. Once a marketable asset has been issued, its eligibility is determined by the national central bank of the country where it is admitted to trading.

A key aspect in determining asset eligibility is the credit quality assessment. For this purpose, the Eurosystem takes information from three sources: external credit assessment institutions (ECAIs), the central banks' in-house credit assessment systems (ICASs), and the counterparties' internal ratings-based (IRB) systems. The Eurosystem rating scale establishes several credit quality steps (CQSs), considering a probability of default over a one-year horizon of up to 0.10% as equivalent to a credit assessment of CQS2, a probability of default of up to 0.40% as equivalent to CQS3, a probability of default of up to 1.00% as equivalent to CQS4, and a probability of default of up to 1.50% as equivalent to CQS5.¹⁰ These categories determine not only asset eligibility but also the applicable valuation haircuts.

Very briefly, the main eligibility criteria are as follows:

- **Marketable assets:** these must be unsecured debt instruments, asset-backed securities (ABSs), legislative covered bonds or *multi-cédulas*, issued in euro, and with a credit rating not lower than BBB- (or CQS3 on the Eurosystem scale) or A- (CQS2) for asset-backed securities.¹¹ They must be

¹⁰ The CQSs are equivalent to the following external agency ratings: CQS1 is equivalent to a rating of AAA to AA-; CQS2 to A+ to A-; CQS3 to BBB+ to BBB-; CQS4 to BB+; and CQS5 to BB.

¹¹ The credit rating used for each firm or asset is the best rating allocated by any of the four ECAIs accepted by the ECB (Moody's, Standard and Poor's, Fitch and DBRS). The exception is asset-backed securities, for which the second-best rating is taken.

admitted to trading on a regulated market or a non-regulated market accepted by the Eurosystem and satisfy a series of geographical requirements relating to their place of issue, place of settlement and the place of establishment of the issuer, guarantor and other participants in the instrument. The temporary framework permits the eligibility of non-euro-denominated instruments (US dollar, pound sterling and Japanese yen), of asset-backed securities with a credit quality of at least BBB- (CQS3) and of certain short-term bonds not traded on an accepted market. Further, it suspends, subject to a decision by the ECB Governing Council, the minimum credit quality requirement for instruments issued by central governments under a European Union (EU) or International Monetary Fund (IMF) programme.

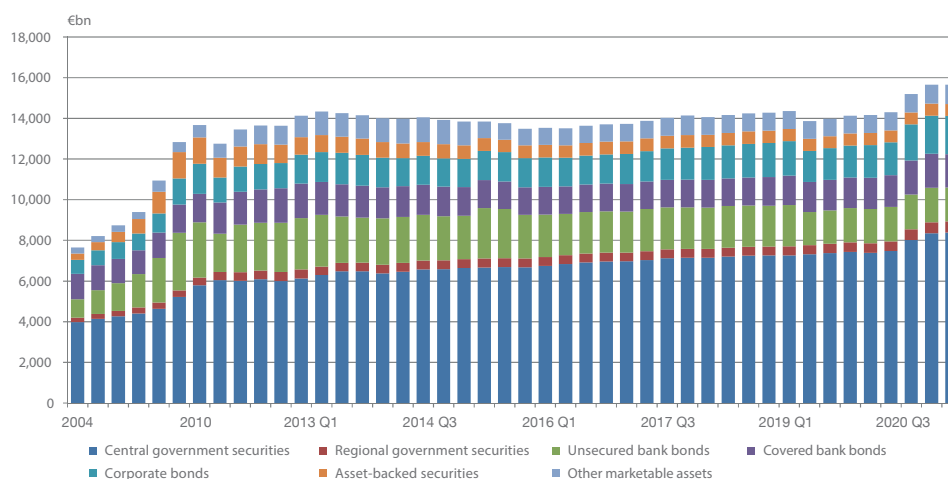
- **Non-marketable assets:** these must be fixed-term deposits, credit claims, retail mortgage-backed debt instruments (RMBDs) or debt instruments backed by eligible credit claims (DECCs). The most widely used are credit claims, which must be euro-denominated and constitute a debt obligation of a debtor vis-à-vis a counterparty. The debtors and guarantors must be established in the euro area and be non-financial corporations, public sector entities (except public financial corporations), multilateral development banks or international organisations. The credit quality of credit claims is measured by that of the debtor or guarantor, using one of the three accepted sources (ECAIs, ICASs or IRB system); as with marketable assets, they must have a rating equivalent at least to BBB- (CQS3). There are also a series of geographical requisites relating to the law applicable to granting and mobilising the credit claims and the number of jurisdictions that can intervene in the same. The temporary framework allows credit claims not satisfying all eligibility requirements to be used as collateral. For instance, loans to the self-employed and households are permitted, as are credit portfolios that include consumer credit and mortgage loans. The credit quality threshold is also relaxed, permitting ratings equivalent to BB (or CQS5), and non-euro-denominated loans are accepted.

ACC frameworks allow national central banks to broaden the type and characteristics of the credit claims accepted in their jurisdiction, provided that they comply with certain minimum criteria and a minimum risk control framework established by the Eurosystem ACC framework. Each national central bank can define the ACC framework for its country, which must be approved by the ECB Governing Council.

As Chart 1 shows, in the Eurosystem approximately half of the eligible marketable assets are issued by central Governments. Bank bonds (unsecured bank bonds, covered bonds and asset-backed securities) also account for a notable volume of assets. Less prominent are corporate bonds and local or regional government securities.

Turning to the assets actually used (out of those eligible) by Eurosystem counterparties, asset-backed securities and covered bonds have the largest relative share

Chart 1

ELIGIBLE MARKETABLE ASSETS (NOMINAL AMOUNTS)

SOURCE: ECB.

(see Chart 2). Recent quarters have seen a notable increase in the use of sovereign debt and credit claims, with counterparties expanding the collateral provided to participate in the extraordinary liquidity-providing operations implemented by the ECB to combat the economic fallout of the pandemic.

2.2 Collateral valuation

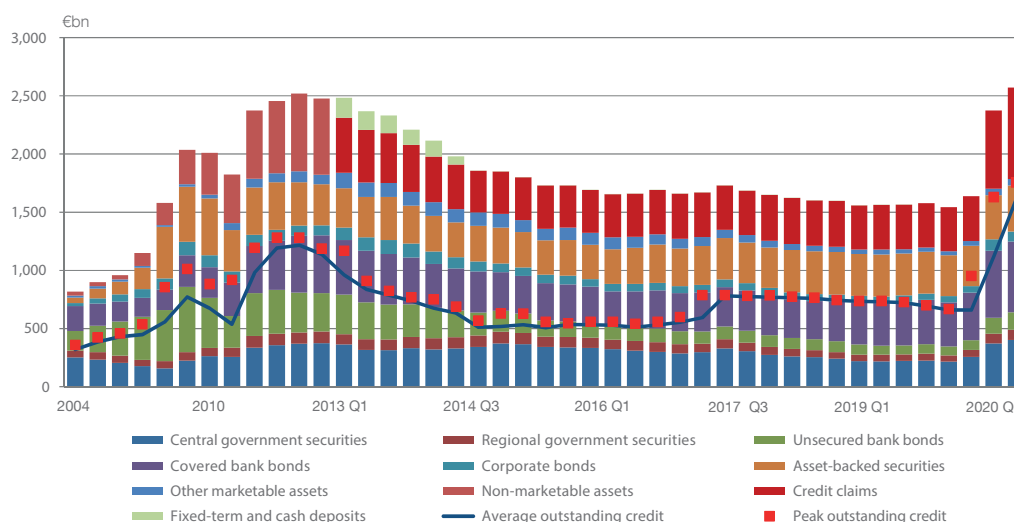
Marketable assets used as collateral are valued daily through the Common Eurosystem Pricing Hub (CEPH). These valuations are used by all Eurosystem central banks, ensuring a level playing field for all counterparties. The CEPH compiles market prices and determines which is the most reliable. When no reliable price is available, the CEPH calculates a theoretical value. Non-marketable assets are assigned a value corresponding to their outstanding nominal value.

The Eurosystem applies a series of haircuts that reduce the asset valuation and determine the loan amount that they can guarantee (both for marketable and non-marketable assets). These haircuts are among the risk control measures established to protect the Eurosystem against the risk of losses should collateral have to be enforced due to counterparty default. These risks derive from market liquidity conditions, price volatility and even potential collateral issuer default (not to be confused with the default of the counterparty to the monetary policy operation). The haircuts are calibrated to ensure risk equivalence across the different asset types, i.e. to ensure that the loss that the Eurosystem could incur when liquidating the collateral in an adverse scenario is the same across the different asset types.¹² Contrary to practice at commercial banks, the Eurosystem, in line with its mandate to uphold equal treatment for market participants, does not apply different haircuts based on the level of counterparty credit risk.

¹² ECB (2013).

Chart 2

ASSETS USED AS COLLATERAL (AFTER VALUATION AND HAIRCUT)



SOURCE: ECB.

There are three types of valuation markdown (an explanation of how they are applied is provided further on):

- **Valuation markdown on theoretical value:** theoretically valued asset-backed securities, covered bonds and unsecured bank bonds will be subject to a valuation markdown before a valuation haircut is applied.
- **Currency markdown:** an additional markdown of 16% will apply on assets denominated in US dollars or pounds sterling, and of 26% on assets denominated in yen.
- **Valuation haircut:** a valuation haircut is applied to all assets. This haircut will depend on their credit quality (CQS), asset category, coupon rate (zero-coupon, fixed or variable) and residual maturity.¹³ For marketable assets, haircuts are divided into five categories based on asset class and issuer group.¹⁴ Further, when the asset is a covered bond and there are close links¹⁵

¹³ For asset-backed securities, the weighted average life is used instead of residual maturity.

¹⁴ Category I: central government securities; Category II: securities issued by local and regional governments, agencies meeting certain quantitative criteria, international organisations, and jumbo covered bonds; Category III: all other covered bonds and securities issued by non-financial corporations, public-sector companies and agencies which are non-credit institutions that do not meet the quantitative criteria; Category IV: unsecured bonds issued by credit institutions, agencies which are credit institutions and do not meet the quantitative criteria and financial institutions other than credit institutions; and Category V: asset-backed securities regardless of the classification of the issuer.

¹⁵ "Close links" means one of the following situations: (i) the counterparty owns 20% of the capital of the other entity; (ii) the other entity owns 20% of the capital of the counterparty; or (iii) a third party owns 20% of the capital of the counterparty and 20% of the capital of the other entity

between the pledging counterparty and the issuer, its valuation would be subject to a haircut add-on (own-use add-on), which is added to the general haircut.

Accordingly, for an asset with a nominal value N , price P , a theoretical value markdown M , a currency markdown H_m , a general haircut H and an own-use haircut add-on H_u , its valuation as collateral will be:

$$\text{Valuation} = N \times P \times (1 - M) \times (1 - H_m) \times (1 - (H + H_u)),$$

where all percentages are expressed as a decimal.

Thus, the general haircut for covered bonds rated AA+ (equivalent to CQS1), with a fixed coupon and residual maturity of three to five years would be 3%.¹⁶ Assuming a theoretical value of 108.25 and that the pledging counterparty has no close links to the issuer, the valuation allocated to a nominal amount of €100,000 will be as follows:

$$\text{Valuation} = 100,000 \times 1.0825 \times (1 - 0.05) \times (1 - 0.03) = \text{€}99,752.38$$

In the event of close links to the issuer, the valuation would be as follows:

$$\text{Valuation} = 100,000 \times 1.0825 \times (1 - 0.05) \times (1 - (0.03 + 0.08)) = \text{€}91,525.38$$

And, in this latter case, if the asset were dollar-denominated (i.e. the nominal amount were \$100,000), the valuation (assuming EUR 0.847 = USD 1.00), will be:

$$\text{Valuation} = 100,000 \times 0.847 \times 1.0825 \times (1 - 0.16) \times (1 - 0.05) \times (1 - (0.03 + 0.08)) = \text{€}65,118.47$$

To value credit claims, which are valued by their outstanding amount, a price of 100 is always assumed and neither the theoretical value markdown nor the own-use haircut add-on will apply. Thus, a CQS3 credit claim with a residual maturity of eight years and a fixed interest rate would be subject to a haircut of 56.5%. Assuming an outstanding amount of €200,000, the valuation would be as follows:

$$\text{Valuation} = 200,000 \times 1 \times (1 - 0.565) = \text{€}87,000.00$$

2.3 Risk control measures

As mentioned in the previous section, the Eurosystem has in place various risk control measures to protect itself against potential losses should collateral have to be enforced due to counterparty default. In addition to the haircuts and valuation markdowns detailed in Section 2.2, the Eurosystem's risk control measures include the following:

¹⁶ Annex 1 sets out the pre- and post-measure haircuts.

- Variation margins: if the collateral value falls below a certain level, the counterparty is called upon to provide additional assets or cash.
- Concentration limits: limits on the use of unsecured bonds issued by a single credit institution or by other entities with which it has close links.
- Initial margins: counterparties are required to provide collateral assets with a value equal to the liquidity provided plus the value of the initial margin.
- Limits in relation to issuers or debtors.
- Additional haircuts.
- Additional guarantees.
- The exclusion of certain assets.

Although the Eurosystem has all of these tools at its disposal, at present it only uses the first two.

3 Measures adopted by the European Central Bank against the crisis triggered by COVID-19

In April 2020 the ECB Governing Council adopted a series of temporary measures to prevent the economic effects of the pandemic from causing a shortage of eligible collateral (either through lower collateral valuations or loss of eligibility owing to rating downgrades) that could impede banks from raising the necessary liquidity through Eurosystem credit operations.¹⁷

The first set of measures applies to all national central banks comprising the Eurosystem:¹⁸

- A temporary reduction of haircuts applied both to marketable and to non-marketable assets, including the own-use haircut add-on for covered bonds and the valuation markdown on theoretical value,¹⁹ by a fixed factor of 20% for as long as the pandemic-induced effects persist. In addition, a reduction of haircuts for non-marketable assets as part of the regular review of the risk control framework, leading to an average further haircut reduction of around 20% for this type of collateral. Consequently, haircuts have been reduced by between 20% and 73%.
- An increase, from 2.5% to 10%, in the maximum share of the collateral pool issued by a single issuer or closely linked issuers.
- Rating freeze: credit ratings play a triple role within the collateral framework, shaping the market price, establishing the haircut schedule and determining asset eligibility.²⁰ The ECB measures adopted on 22 April state that, so as to mitigate the reduction in the scope of eligible collateral due to potential rating downgrades on account of the pandemic, marketable assets that were eligible on 7 April 2020 would continue to be eligible in case of rating downgrades, provided that their credit rating remains at or above the equivalent to a rating of BB (CQS5), except for asset-backed securities, which will remain eligible as long as their rating remains at or above the equivalent to BB+ (CQS4).²¹

¹⁷ See the relevant ECB press releases:

https://www.bde.es/f/webbde/GAP/Secciones/SalaPrensa/ComunicadosBCE/NotasInformativasBCE/20/presbce2020_64en.pdf.

https://www.bde.es/f/webbde/GAP/Secciones/SalaPrensa/ComunicadosBCE/NotasInformativasBCE/20/presbce2020_72en.pdf.

<https://www.bde.es/f/webbde/GAP/Secciones/SalaPrensa/ComunicadosBCE/NotasInformativasBCE/20/pm201210en.pdf>.

¹⁸ See Banco de España (2020).

¹⁹ See Section 2.2 for details of the various haircuts that the Eurosystem can apply.

²⁰ E. Rodríguez de Codes et al. (2020).

²¹ Hitherto the minimum credit quality threshold was BBB- (CQS3), except for asset-backed securities which had a general threshold of A- (CQS2) and a temporary threshold of BBB-.

The second set of measures consisted of expanding ACC frameworks. In the case of the Banco de España, which already had an ACC framework in place, the measures adopted were as follows:

- Acceptance of loans to corporates, SMEs and the self-employed guaranteed by the Official Credit Institute (ICO). The ICO facility was established by the Spanish government under Royal Decree-Law 8/2020,²² approved in response to the COVID-19 pandemic (this guarantee does not cover the full credit claim amount and therefore does not satisfy the general collateral framework eligibility requirements).
- Introduction of the Statistical Internal Credit Assessment System (S-ICAS), a purely statistical system for the credit assessment of non-financial corporations, allowing for an increase in the number of debtors assessed. It is included among the Financial Stability Board’s recommendations to reduce reliance on external ratings by strengthening internal assessment capabilities.
- Acceptance of credit claims with a credit rating not lower than the equivalent to BB or CQS5 (previously not lower than BB+ or CQS4).
- Acceptance of pools of non-mortgage credit claims extended to non-financial corporations (including SMEs). These credit claims must satisfy all eligibility requirements, except for the debtor or guarantor minimum credit quality requirement (although they must not be non-performing or have an unstressed probability of default of 100% over a one-year horizon), and maintain a certain level of granularity, set as a concentration level (measured using the Herfindahl-Hirschman index) of equal to or less than 1%. This measure, through a risk offsetting method, allows for the use of credit claims that would be ineligible individually.
- Acceptance of credit claims stemming from reverse factoring contracts.

Lastly, the Governing Council approved a further set of measures that national central banks can implement on a voluntary basis, of which the Banco de España has adopted the following:

- Elimination of the minimum size threshold for credit claims (previously set at €25,000).
- Decision to accept Greek sovereign bonds as collateral (exempting it from the general minimum credit rating threshold of CQS3).

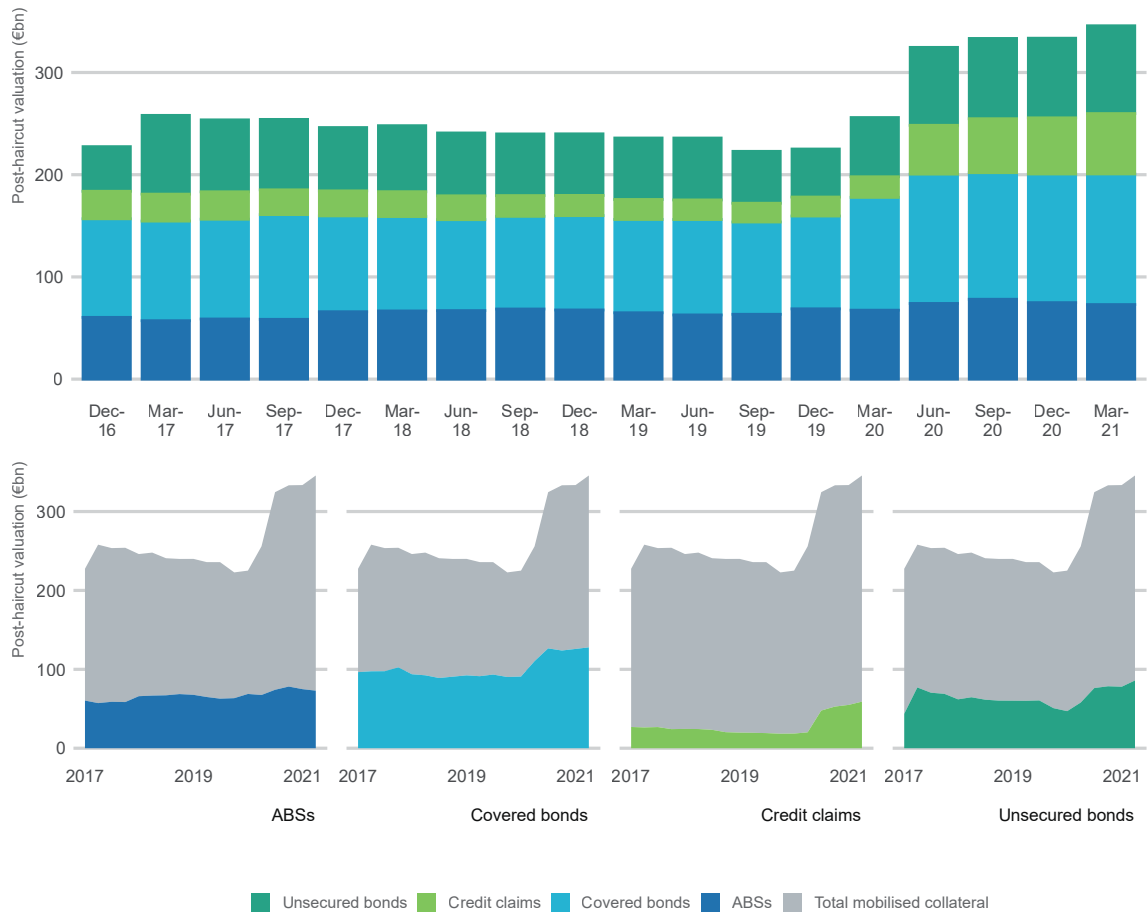
²² <https://www.boe.es/eli/es/rdl/2020/03/17/8>.

4 Analysis of the individual measures and their impact on Spanish counterparties

Prior to analysing the impact of the different measures on Spanish counterparties, it is worthwhile outlining the overall composition of their collateral pools.²³ The total amount of collateral held largely unchanged in recent years, with the vast majority accounted for by marketable assets (chiefly covered bonds and asset-backed securities). However, the amount of collateral pledged increased sharply from 2020 Q1, as a result of the economic crisis triggered by COVID-19 and the countermeasures adopted by the ECB (see Chart 3). While there has been growth in the use of covered bonds and other bonds, the relative increase in the use of credit claims has been much sharper. Asset-backed securities have shown steady but modest growth.

Chart 3

ASSETS USED AS COLLATERAL BY SPANISH COUNTERPARTIES



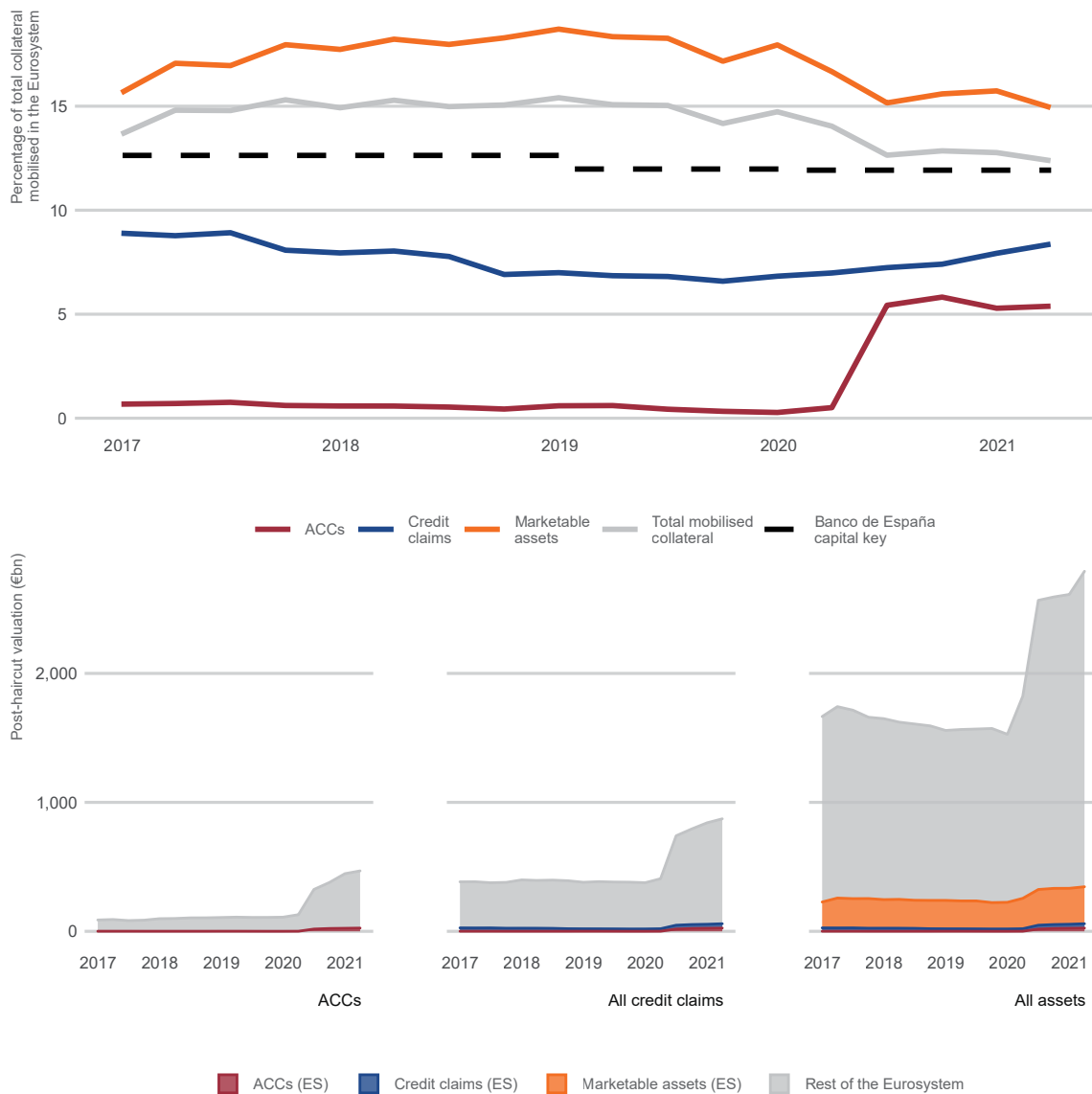
SOURCE: Own calculations drawing on Banco de España data.

NOTE: The topmost panel shows changes in the collateral pledged by Spanish counterparties as a whole, with the colours distinguishing the following four asset classes (from top to bottom): loans, covered bonds, bonds and asset-backed securities. The lower panels show developments for each class compared with the total collateral pledged (in grey).

²³ “Collateral pool” refers to the account held by each counterparty at the Banco de España to which the collateral assets mobilised for Eurosystem credit operations are allocated. These credit operations are guaranteed by the collateral pool as a whole, such that the assets are not linked to a specific credit operation and can be continuously replaced.

Chart 4

CREDIT CLAIMS AND OTHER ASSETS: COMPARISON WITH THE EUROSYSTEM



SOURCE: Own calculations drawing on Banco de España data.

NOTE: The left-hand panel shows the valuations of the different types of asset pledged (as a percentage of total Eurosystem collateral), together with the Banco de España's Eurosystem capital key. The right-hand panel compares the valuation of these assets with the total valuation of Eurosystem collateral.

Despite the increased use of ACCs (rising in one year from less than €700 million to over €25 billion), Spain remains below its corresponding level based on the Eurosystem capital key (see Chart 4). The relatively low use of credit claims and ACCs as collateral is offset by the broader use of marketable assets; as a result, the overall assets used as collateral in Spain exceed the capital key. This is in keeping with Spanish counterparties' greater relative recourse to Eurosystem financing.

The measures adopted by the ECB and their effect on Spanish counterparties' collateral are analysed individually below.

4.1 Haircut reduction

The decision of 7 April, effective on 20 April, entails a dual reduction of collateral haircuts: (i) a permanent reduction (20% on average) of haircuts on credit claims as a result of the regular review of the ECB's risk control framework; and (ii) a temporary reduction of haircuts for all collateral assets (marketable and non-marketable alike) by a fixed factor of 20%, to support the provision of credit to the economy while the effects of the pandemic persist. This temporary reduction is applicable to general haircuts, to the own-use haircut add-on (down from 8% to 6.4% for bonds at CQS1 and CQS2, and from 12% to 9.6% for bonds at CQS3) and to the markdown on theoretical value (from 5% to 4%).

To study the impact of the haircut reduction on the valuation, we define the valuation multiplier as the ratio between the new and old valuations. With H_1 representing the old haircut and H_2 representing the new haircut, the multiplier will be given by:

$$m = \frac{\text{Valuation}_2}{\text{Valuation}_1} = \frac{\text{Nominal} \times \text{Price} \times (1 - H_2)}{\text{Nominal} \times \text{Price} \times (1 - H_1)} = \frac{1 - H_2}{1 - H_1}$$

Similarly, where an asset is subject to a markdown on theoretical value, the effect of this markdown would have to be included in the formula:

$$m = \frac{\text{Valuation}_2}{\text{Valuation}_1} = \frac{\text{Nominal} \times 0.96 \times \text{Price} \times (1 - H_2)}{\text{Nominal} \times 0.95 \times \text{Price} \times (1 - H_1)} = 1.010526 \times \frac{1 - H_2}{1 - H_1}$$

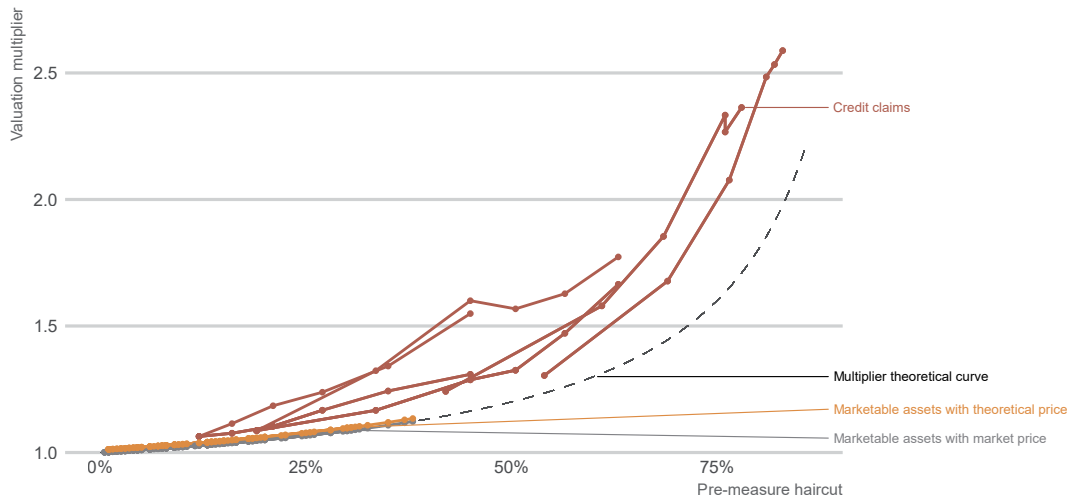
Previously, the haircuts ranged from 0.5% to 83%²⁴ depending on the level of risk to be mitigated. A comparison of the initial haircut schedule and the amended, post-measure one reveals the following: since the temporary haircut reduction is a fixed percentage of the same (20%), the larger the initial haircut, the greater the absolute reduction in the new haircut. Accordingly, a larger initial haircut will lead to a higher valuation multiplier (see Chart 5). This effect combines with the permanent reduction of haircuts from the risk control framework review. This applies exclusively to non-marketable assets, which had larger initial haircuts than marketable assets, thus resulting in a considerably greater relative effect on credit claims than on marketable assets.

For example, the lowest haircut in the schedule would relate to a central government bond with a residual maturity below one year and rated at CQS1 or CQS2. In a case like this, the post-measure haircut is reduced from 0.5 to 0.4 (by 20%). If the final price of the asset were 100, the pre-measure valuation would be 99.5 and the post-measure valuation, 99.6. In this case, the valuation multiplier would be 1.001 (99.6/99.5). The effect of the haircut reduction on this asset would have involved an increase in its valuation of only 0.1%. However, a loan with residual maturity of more than ten years, fixed interest and rated at CQS3 would start with a 63% haircut, which would be reduced to 38.4% after the measures (taking into account both the permanent and the temporary reduction). In the foregoing example, its valuation would increase from 37 to 61.6, and the valuation multiplier would be

²⁴ Annex 1 sets out the pre- and post-measure haircuts.

Chart 5

VALUATION MULTIPLIER COMPARED WITH PRE-MEASURE HAIRCUTS



SOURCE: Own calculations.

NOTE: Depiction of pre-measure haircut compared with the haircut reduction's collateral valuation multiplier. The groups that are joined by lines have all the significant characteristics for haircut assignment (category, CQS and type of coupon) in common and differ only in remaining maturity. Since haircuts grow as asset maturity grows, the point that is farthest to the left of each group represents the haircut for assets with remaining maturities of up to 1 year and the point that is farthest to the right represents that for assets maturing in over 10 years. Also depicted is the theoretical curve of the multipliers of assets with a 20% haircut reduction, which would be given by:

$$m = \frac{1 - 0.8 \times H}{1 - H}$$

Where H is the pre-measure haircut.

It can be seen that credit claims do not stand on that curve, because they had two haircut changes at the same time:

- A permanent reduction owing to the recalibration of the risk model.
- A temporary 20% reduction of the previously reduced haircuts.

And theoretically priced bank bonds stand slightly above the curve owing to the markdown reduction.

1.665 (61.6/37). The valuation of this collateral item would have increased by 66.5%.

Table 1 shows the maximum and minimum multipliers, by asset type. In calculating the maximum multipliers, both the reduction in the general haircut and reductions in the own-use haircut add-ons and in the markdown on theoretical price (where applicable), have been taken into account.

The valuation multiplier in the case of credit claims is much higher than in that of marketable assets (especially those with lower credit quality), for which the post-measure valuation may exceed twice the initial amount. Since haircuts are set on the basis of asset credit quality, residual maturity – or weighted average life for asset-backed securities – and asset category (only for marketable assets), the multiplier can be seen to increase as the asset's residual maturity increases (see Chart 6).

Despite the striking aspects of the two previous charts (Charts 5 and 6), the composition of Spanish counterparties' collateral pools, largely comprising covered bonds, asset-backed securities and government debt, mostly with high credit ratings and low haircuts, meant that, overall, the haircut reduction had a moderate effect on the collateral

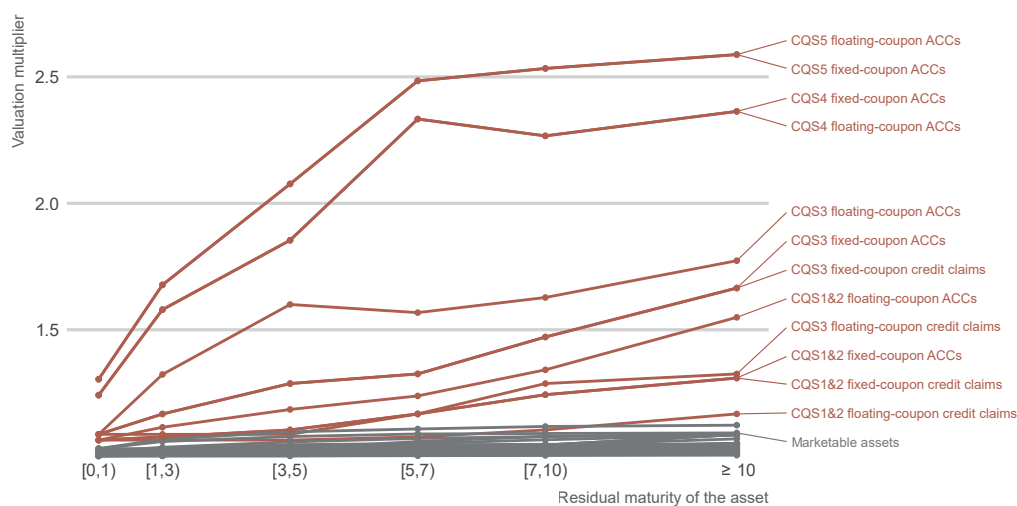
Table 1

MINIMUM AND MAXIMUM MULTIPLIERS BY ASSET TYPE

Asset type		Multiplier		% increase	
		Minimum	Maximum	Minimum	Maximum
Loans	General framework	1.064	1.665	6.4	66.5
	Additional	1.064	2.588	6.4	158.8
Marketable assets	Category I	1.001	1.038	0.1	3.8
	Category II	1.002	1.154	0.2	15.4
	Category III	1.002	1.157	0.2	15.7
	Category IV	1.016	1.134	1.6	13.4
	Category V	1.008	1.097	0.8	9.7

SOURCE: Own calculations.

Chart 6

VALUATION MULTIPLIER COMPARED WITH RESIDUAL MATURITY

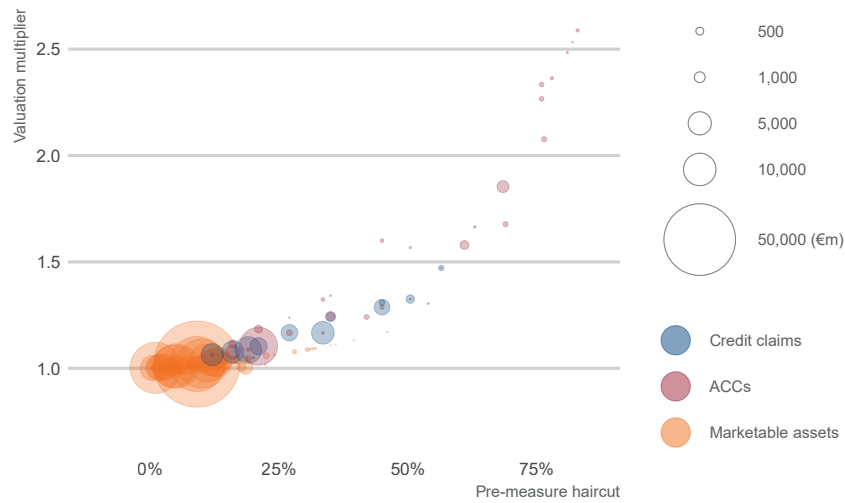
SOURCE: Own calculations.

NOTE: Same data as in Chart 5, but substituting the pre-measure haircut for the maturity intervals of the asset that is relevant for the haircuts. The characteristics of the assets subject to each haircut are flagged. In general, the multipliers are much higher for credit claims than for marketable assets.

valuation. Charts 7 and 8 show how, in general, while ACCs have been the collateral items with the largest multiplier (except for government-guaranteed loans), the valuation affected by high multipliers has been much smaller than the valuation with a multiplier close to 1, mostly comprised of marketable assets. Comparing the valuation of the collateral pledged using the new haircuts with the collateral valuation had the previous haircuts remained in place on the measure's entry into force, we find that it increased from €263,169 million to €272,453 million (3.53%). If we repeat this with the pool at 31 March 2021, we find that the valuation rises from €332,515 million to €347,550 million (4.52%). The larger increase is due to the change in the pool's composition as a result of the measures adopted.

Chart 7

VALUATION MULTIPLIER COMPARED WITH THE PRE-MEASURE HAIRCUTS, BY COLLATERAL VOLUME

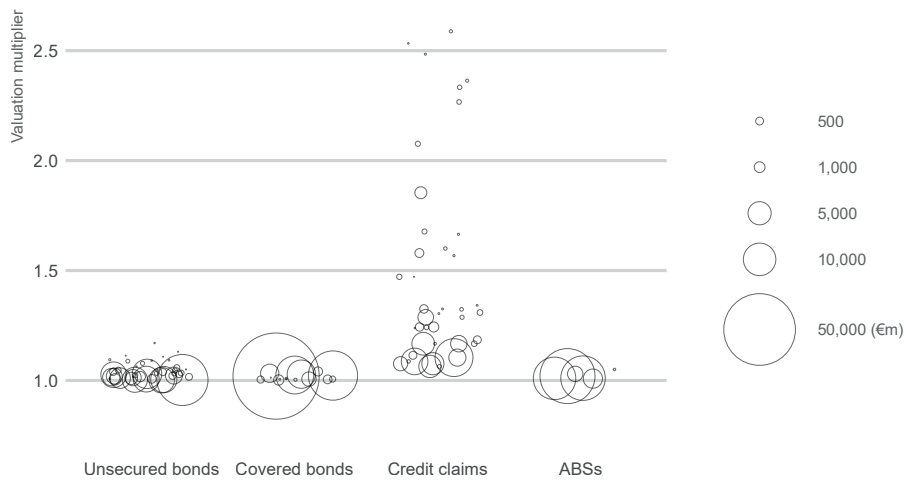


SOURCE: Own calculations drawing on Banco de España data.

NOTE: Same data as in Chart 4, but depicting the total valuation affected by the multiplier at 1 April 2021. Each bubble aggregates the valuation, calculated using the pre-measure haircuts, of all collateral items of the same type and with the same haircut and multiplier. The centre of each bubble is located where the multiplier and the pre-measure haircut converge. Colours are used to differentiate collateral type and each bubble's area is proportionate to the total prior valuation affected by that multiplier.

Chart 8

VALUATION MULTIPLIER, BY COLLATERAL TYPE



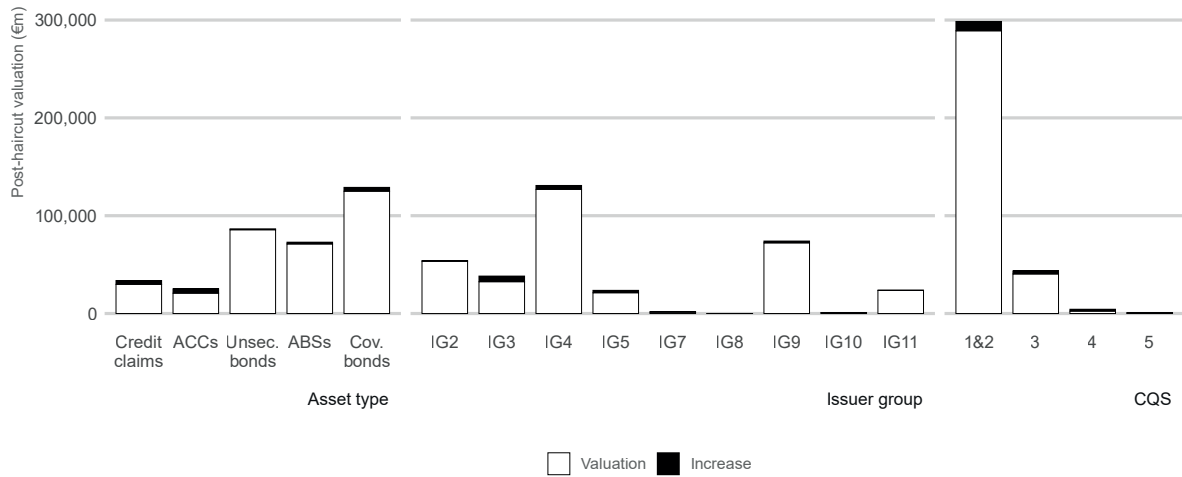
SOURCE: Own calculations drawing on Banco de España data.

NOTE: Depiction of the multiplier, by collateral group. Once again, each bubble aggregates the total valuation affected. Marketable assets have a multiplier very close to 1, whereas, in the case of credit claims, the highest multipliers affect a very small valuation.

Upon analysing the change using different criteria (see Charts 9 and 10), we see that, by collateral type, covered bonds, credit claims and ACCs undergo similar absolute increases, ranging from €3.9 billion to €4.5 billion; however, in relative terms, the increase is much higher for credit claims (13.1%) and especially for ACCs (21.4%) than for covered

Chart 9

CHANGE IN VALUATION DUE TO HAIRCUTS

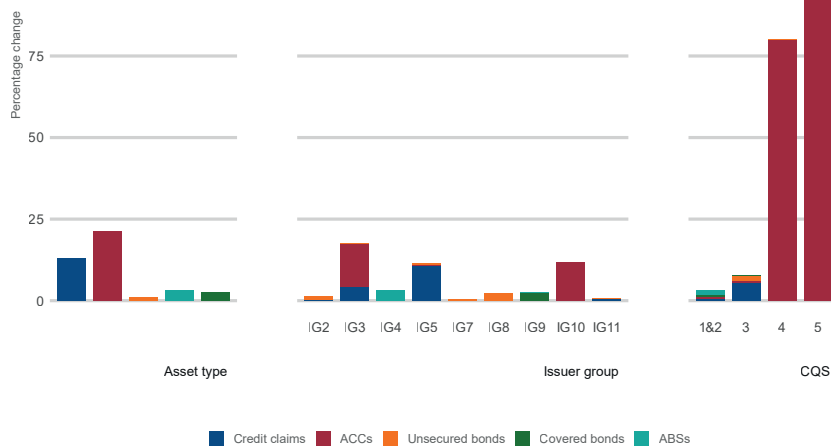


SOURCE: Own calculations drawing on Banco de España data.

NOTE: Valuation of mobilised collateral at 1 April 2021, by category. The white column depicts the valuation of the mobilised collateral with the pre-measure haircuts. The difference between that valuation and the current one is the increase due to the haircut reduction.

Chart 10

CHANGE IN VALUATION DUE TO HAIRCUTS, BY COLLATERAL TYPE



SOURCE: Own calculations drawing on Banco de España data.

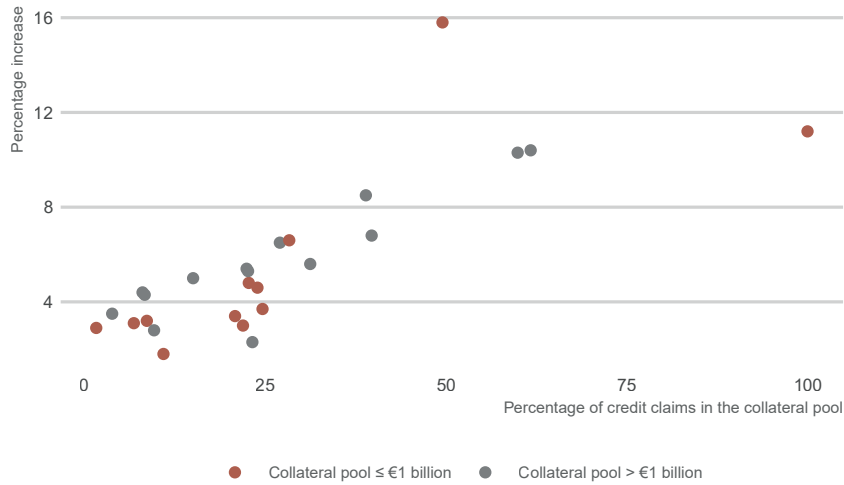
NOTE: Percentage increase in valuation due to the haircut reduction. These charts complement those in Chart 9. By category, the percentage increase in collateral due to the haircut reduction is depicted. The colour represents the percentage increase due to each collateral type.

bonds (3.1%). Analysing by issuer group (IG),²⁵ we observe the correlation between IG and collateral type: credit institutions, as issuers of covered bonds, stand out in terms of valuation, while corporate issuers (a 17.6% increase), the self-employed (11.9%) and regional and

²⁵ According to Eurosystem terminology, issuers are categorised into the following groups: IG1, central bank; IG2, central government; IG3, corporate issuers; IG4, credit institutions (excluding agencies); IG5, regional/local government; IG6, supranational issuer; IG7, agency - non-credit institution; IG8, agency - credit institution; IG9, financial corporations other than credit institutions; IG10, the self-employed; and IG11; corporations in the government sector. The same categorisation is valid for debtors and guarantors.

Chart 11

INCREASE IN VALUATION DUE TO THE HAIRCUT REDUCTION COMPARED WITH THE SHARE OF CREDIT CLAIMS IN THE COLLATERAL POOL

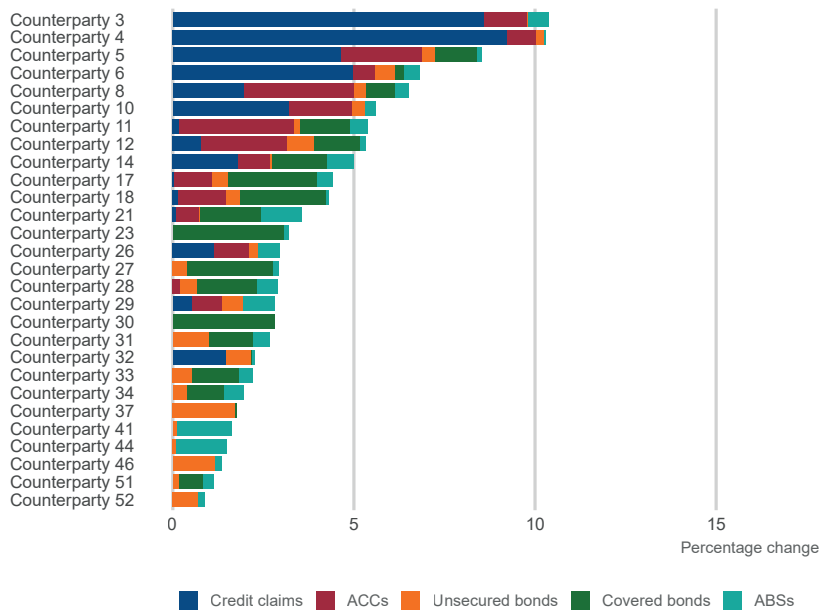


SOURCE: Own calculations drawing on Banco de España data.

NOTE: Depiction of the total increase in each counterparty's collateral pool in relation to the share of credit claims (both concepts expressed as a percentage of the valuation). The colours distinguish between counterparties with collateral pools greater or smaller than €1 billion.

Chart 12

CHANGE IN VALUATION DUE TO HAIRCUTS: LARGE COUNTERPARTIES

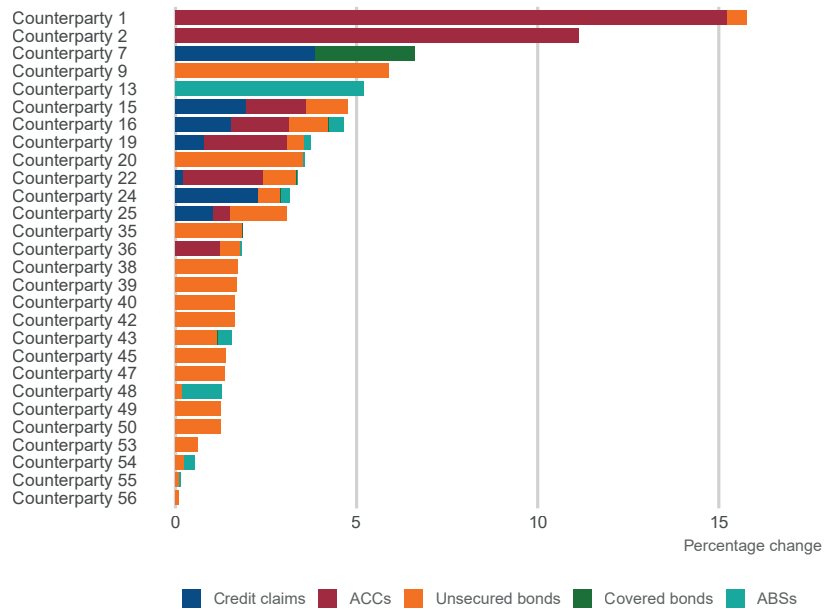


SOURCE: Own calculations drawing on Banco de España data.

NOTE: Increase in valuation of mobilised collateral at 1 April 2021 due to the haircut reduction, for counterparties with pools exceeding €1 billion. For each counterparty the pool is valued using the pre- and post-20 April haircuts, and the difference is shown as a percentage of the prior valuation, broken down by collateral type. Note the predominance of credit claims, ACCs and covered bonds. For this and the following chart, the counterparties are numbered by ordering them from largest to smallest percentage change vis-à-vis the total of their pool.

Chart 13

CHANGE IN VALUATION DUE TO HAIRCUTS: SMALL COUNTERPARTIES



SOURCE: Own calculations drawing on Banco de España data.

NOTE: Increase in valuation of mobilised collateral at 1 April 2021 due to the haircut reduction, for counterparties with pools of less than €1 billion. Note the predominance of bonds. For this and the previous chart, the counterparties are numbered by ordering them from largest to smallest percentage change vis-à-vis the total of their pool.

local governments (11.4%), as the main debtors of credit claims and ACCs, stand out in relative terms. By credit quality step (CQS1&2, 3, 4 and 5), the large majority of collateral items are at CQS1&2 (where most of the asset-backed securities and covered bonds stand, along with all the assets issued by the Spanish government or enjoying its rating). It is at this step where the largest absolute increase occurs (albeit moderate in relative terms). Although the increase in valuation is much smaller at CQS4 and 5, in percentage terms it totals 80.2% and 89.5%, respectively.

Just as the overall composition of Spanish counterparties' collateral means that the haircut reduction has a moderate effect, the heterogeneous composition of counterparties' collateral pools means that the absolute effect is uneven among them. The counterparties with a smaller proportion of non-marketable assets see an almost negligible increase, while those at which credit claims and, above all, ACCs, account for a greater relative share of the pool, see the valuation of their collateral increase by more than 10%.

A proportional relationship can be observed for all counterparties between the relative share of credit claims in the collateral pool and the percentage increase in the valuation of their collateral as a result of the haircut reduction. There are two exceptions to this correlation between the two aggregates: the counterparty with the greatest increase in the valuation and the counterparty whose credit claims account for the largest share of the

pool. The former is because all of its credit claims are ACCs with a floating-rate coupon. The latter is because virtually all the credit claims are guaranteed loans (the guaranteed portions) bearing a fixed interest rate (Chart 6 shows that the multipliers of the additional credit claims at CQS1&2 and CQS3 bearing a fixed interest rate are smaller than those with a floating interest rate).

4.2 Inclusion of loans guaranteed by the new guarantee mechanisms

Several of the measures adopted by the ECB in April 2020 were aimed at enabling the additional credit claim frameworks to be expanded. At present, 17 of the 19 Eurosystem central banks have implemented these frameworks in their jurisdictions (only De Nederlandsche Bank and the Banque centrale du Luxembourg have not done so). Several have done so as a result of the effects of COVID-19, and most have adapted the frameworks to provide for the eligibility of loans to large enterprises, SMEs, the self-employed and households benefitting from public guarantee schemes established by the Member States to contend with the economic effects of the pandemic.

Adaptations to the ACC frameworks by the main central banks after the April 2020 measures:

- In addition to making government-guaranteed loans eligible, the *Banca d'Italia* expanded the permitted solvency measurement methods, eased the requirements for pools and increased the types of credit claim eligible both in those pools (lending to households, including consumer credit) and individually (recourse factoring).²⁶
- The *Banque de France* also adapted its ACC framework to accept government-guaranteed loans. In addition, it lowered the credit quality requirement for debtors from CQS4 to CQS5, provided that the residual maturity of the CQS5 loan does not exceed 30 years (compared with five years previously).²⁷
- The *Deutsche Bundesbank* eased the credit quality requirement from CQS3 to CQS5 for the loans of those borrowers with credit ratings at CQS3 on 7 April 2020. It thus matched the treatment of credit claims with that of marketable assets.²⁸

To date, the measure with the greatest quantitative impact among Spanish counterparties has been that enabling central banks to expand their ACC frameworks to include government-guaranteed loans. At end-March, almost 170,000 government-

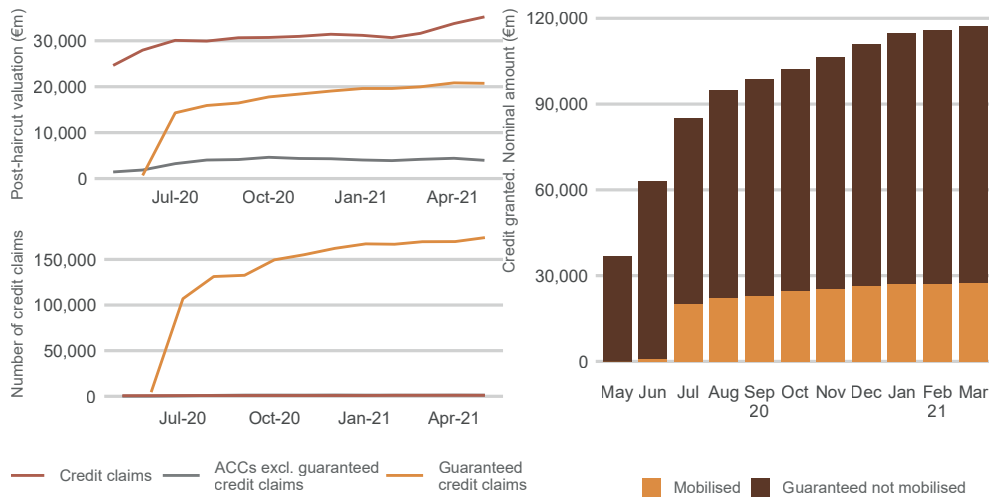
²⁶ <https://www.bancaditalia.it/media/notizia/le-misure-di-espansione-delle-attivita-a-garanzia-delle-operazioni-di-politica-monetaria-dell-eurosistema-in-risposta-all-emergenza-covid-19/>.

²⁷ <https://www.banque-france.fr/politique-monetaire/cadre-operationnel-de-la-politique-monetaire/remise-dactifs-en-garantie-des-operations-de-refinancement-de-leurosystème/mesures-dassouplissement-du-collateral-covid-19>.

²⁸ <https://www.bundesbank.de/en/service/banks-and-companies/maccs/additional-credit-claims-acc->.

Chart 14

PLEGDED CREDIT CLAIMS: VALUATION AND NUMBER



SOURCE: Own calculations drawing on ICO (2021) and Banco de España data.

NOTE: The left-hand panels depict the changes in the three credit claim categories (credit claims, ACCs excluding guaranteed credit claims and guaranteed credit claims). The right-hand panel compares the total State-guaranteed financing (under Royal Decree-Law 8/2020) granted by credit institutions with the portion of those credit claims pledged as collateral.

guaranteed credit claims had been pledged (compared with just over 2,300 credit claims, aggregating those eligible under the general framework and other kinds of ACCs), for a total post-haircut amount of €20 billion.

According to the ICO’s COVID-19 guarantee facility monitoring report, at 28 February 2021 Spanish enterprises had been granted 974,678 government-guaranteed loans in accordance with Royal Decree-Law 8/2020, for a collateral value of €117,398 million (the guaranteed amount totalled €89,150 million). Approximately a quarter of this financing granted by credit institutions is pledged as collateral. Despite the high number of guaranteed credit claims pledged, their valuation remains smaller than that of the pledged credit claims that are eligible under the general framework (see Chart 14).

It should be noted that these credit claims are valued considering the credit quality of the State, as guarantor, for the State-guaranteed portion (which can range from 60% to 80%) and the obligor’s rating for the remainder (if no valid rating is available, it is measured at zero).

4.3 Elimination of the minimum size threshold for the acceptance of credit claims

The measures announced on 7 April included the possibility for central banks to lower or even eliminate the minimum size threshold credit claims should surpass when mobilised as collateral (the minimum outstanding amount had previously been €25,000).

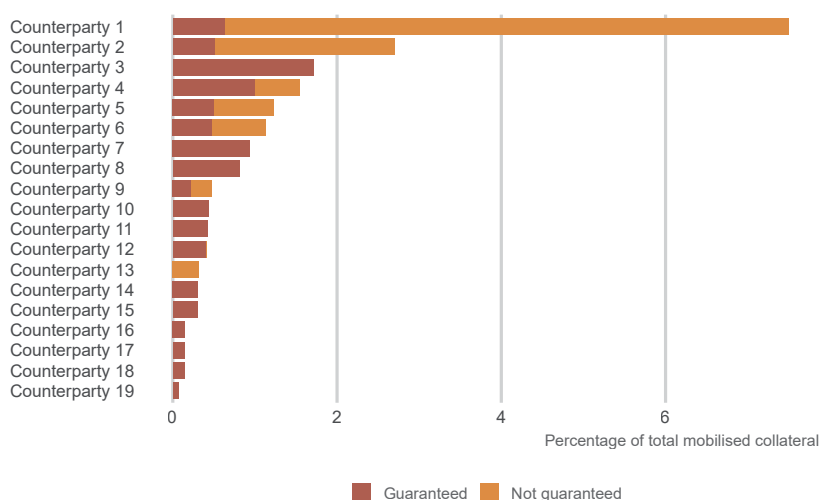
The Banco de España decided to eliminate the minimum size threshold. At 1 April 2021, this had enabled the pledge of more than 65,000 credit claims totalling more than €600 million by 13 Spanish entities. Analysing the situation at this date, it is apparent that this decision bolstered the measure mobilising guaranteed loans as collateral, since virtually all the credit claims totalling less than €25,000 when pledged were guaranteed credit claims and, furthermore, they were eligible thanks to being guaranteed.

4.4 Acceptance of the S-ICAS

The Eurosystem’s temporary measures enabled, among other alternatives, the use of systems based on purely statistical models to assess firms, provided that they were sufficiently conservative to mitigate the lack of expert analysis, in order to increase the number of firms assessed and, thus, the universe of eligible credit claims. The Banco de España’s Full ICAS comprises two stages: the first, based on a statistical model, provides an automatic assessment on the basis of the firm’s financial statements, while in the second an analyst incorporates the matters required to complete the first stage.²⁹ By implementing a purely statistical system in addition to the Full ICAS, the number of assessed debtors has been multiplied by 2,000, thus increasing the universe of eligible credit claims, particularly those relating to SMEs. Moreover, this measure, combined with the measure on guaranteed loans, means that many of the non-government guaranteed portions of the credit claims can be rated and, therefore, be eligible as collateral. It also reinforces the measure on the eligibility of credit claims at CQS5, since most of those debtors are not rated by any of the other accepted systems (Full ICAS or ECAIs).

Chart 15

PERCENTAGE OF CREDIT CLAIMS ELIGIBLE DUE TO THE DEBTOR’S S-ICAS RATING



SOURCE: Own calculations drawing on Banco de España data.

NOTE: Valuation of the credit claims that are eligible thanks to the debtor’s S-ICAS rating as a percentage of the total collateral mobilised by those counterparties that have pledged one or more credit claims with this characteristic at 1 April 2021. Colours are used to distinguish between the share of guaranteed credit claims and that of the other additional credit claims.

29 See S. Gavilá, A. Maldonado and A. Marcelo (2020).

At 1 April 2021 close to one million debtors had an S-ICAS assessment (compared with just over 500 debtors who had a Full ICAS assessment) (see Chart 15). At that date, almost 13,000 credit claims (valued for collateral purposes at more than €2.5 billion using the new haircuts and considering all credit quality steps, including CQS5) that were eligible thanks to these assessments had been pledged as collateral.

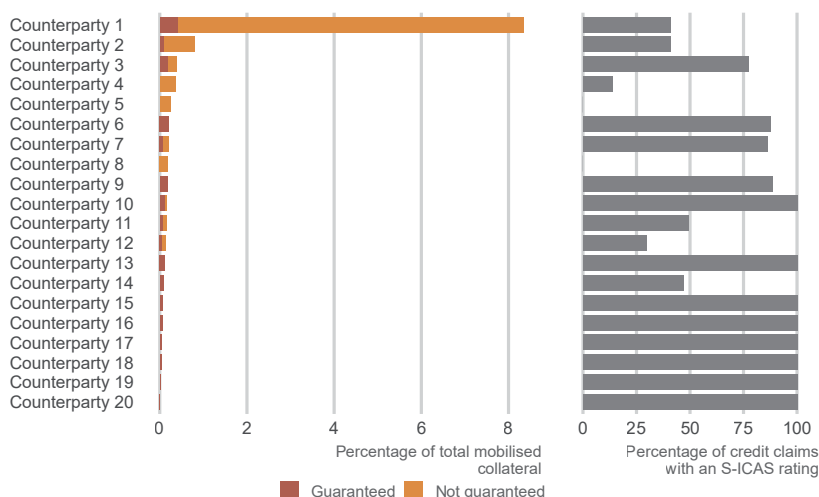
Analysing the effects by counterparty, we observe that for those whose proportion of credit claims that are eligible due to S-ICAS ratings exceeds 1% of their total collateral pool, these credit claims belong both to the guaranteed loan and to the other additional credit claims categories, while for counterparties with a share of less than 1%, guaranteed loans clearly predominate. This figure shows the interaction between the two measures: it can be interpreted that the latter group of counterparties has pledged the guaranteed credit claims and, on account of the measure accepting S-ICASs, has seen the unguaranteed portion also receive a positive assessment.

4.5 Eligibility of credit claims at CQS5

Coinciding with the Eurosystem’s April measures, the Banco de España lowered the minimum rating for additional credit claims to be eligible from CQS4 to CQS5 so as to facilitate the flow of credit required by the economy. Once again, this measure, combined with that on guaranteed loans, means that in many cases the unguaranteed portion of the credit claim that would not be rated does in fact have a credit rating and that, therefore, it is eligible as collateral. As discussed in the previous subsection, this measure and the S-ICAS measure also reinforce each other (see Chart 16).

Chart 16

PERCENTAGE OF CREDIT CLAIMS AT CQS5



SOURCE: Own calculations drawing on Banco de España data.

NOTE: Valuation of the credit claims at CQS5 as a percentage of the total collateral mobilised by those counterparties that have pledged one or more credit claims with this characteristic at 1 April 2021. Colours are used to distinguish between the share of guaranteed credit claims and that of the other additional credit claims. The right-hand panel shows the percentage of the valuation of these credit claims that is eligible thanks to an S-ICAS rating.

At 1 April 2021, 2,700 credit claims (valued for collateral purposes at more than €940 million) at CQS5 had been pledged as collateral. At the counterparties with a larger share of credit claims at CQS5, there is a greater split between guaranteed credit claims and the other additional credit claims. Meanwhile, at the counterparties with a smaller share, the credit claims at CQS5 are mostly guaranteed credit claims that, furthermore, are rated using the S-CAS assessment.

4.6 Acceptance of assets whose credit ratings are downgraded (rating freeze)

This measure, adopted on 22 April 2020, was initially going to remain in place until September 2021, but on 10 December 2020 the Governing Council decided to extend its validity to June 2022.

To date, Spanish counterparties have made scant use of marketable assets benefitting from the rating freeze. Only eight unsecured debt securities (for a joint valuation of €39 million) are being pledged as collateral.

However, this measure is a safeguard in the event the economic situation leads to issuers' and assets' ratings being downgraded across the board. The single list of eligible assets features securities at CQS3 or below whose overall nominal value exceeds €3.4 trillion. Meanwhile, Spanish counterparties have pledged as collateral assets whose valuation totals more than €26 billion.

4.7 Eligibility of Greek sovereign debt

The ECB measure enables national central banks to decide on the eligibility of this debt for their respective counterparties. Despite the Banco de España deciding to accept it, only one Spanish counterparty is pledging Greek sovereign debt (totalling €146 million) as collateral.

4.8 Other measures

The other measures adopted by the Eurosystem or by the Banco de España (pools of additional credit claims, credit claims stemming from reverse factoring contracts and increasing the concentration limit to 10%) have so far not been used by any Spanish counterparty.

5 Interaction between the measures

5.1 Contribution of the various measures

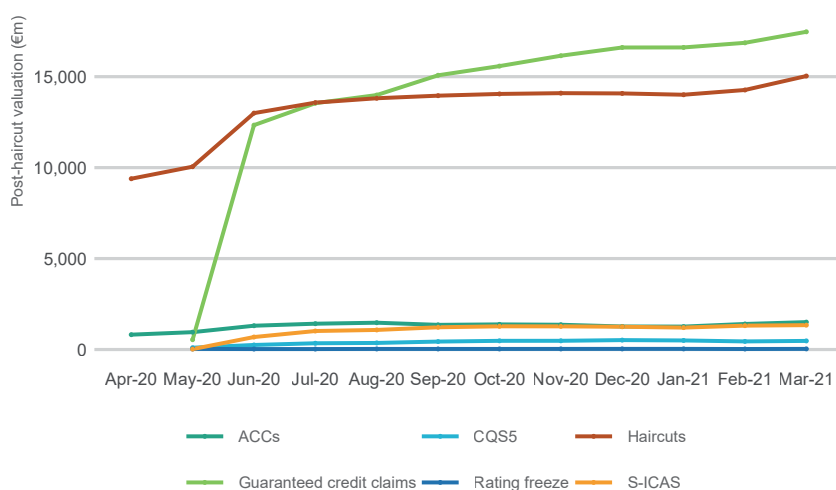
The measures approved by the Eurosystem and by the Banco de España have had different impacts, in terms of amount and over time, on the collateral pledged by Spanish counterparties.

Some measures had an immediate impact on the Spanish counterparties' collateral. From the moment they entered into force, the reduction in haircuts and in the valuation markdown on theoretical value had an impact on the collateral pledged by the counterparties. The effect of the valuation markdown on theoretical value has since remained constant (as has the balance of covered bonds used by the counterparties in the last year), while the impact of the haircut reduction has increased as the total amount of collateral pledged (especially guaranteed credit claims) has risen.

By contrast, other measures had an impact as counterparties began to use the assets that satisfied the measure's conditions (guaranteed loans and credit claims at CQS5 or that are assessed through an S-ICAS). The use of guaranteed loans is noteworthy on account of their amount. This use spiked in June, possibly due to counterparties mobilising the portfolio of guaranteed loans that they had already extended, and it has continued to grow markedly from July onwards, as they pledged newly extended loans or other counterparties began to pledge this type of credit claim as collateral for the first time (see Chart 17).

Chart 17

VALUATION OF MOBILISED COLLATERAL

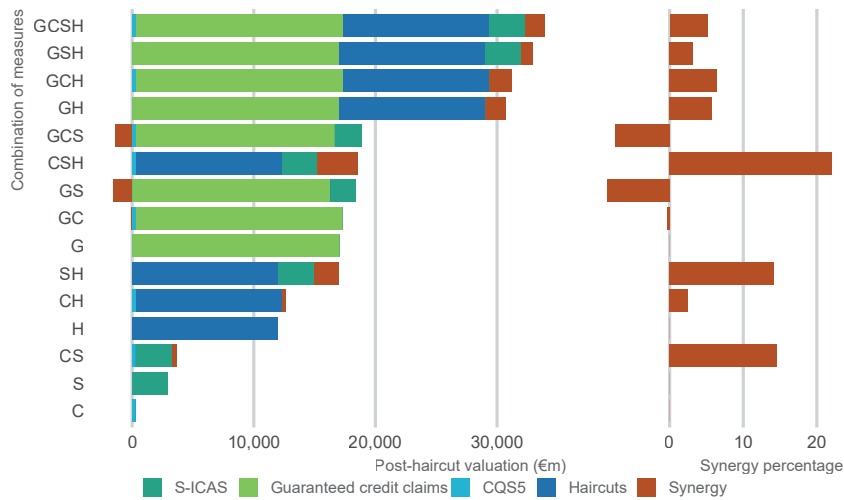


SOURCE: Own calculations drawing on Banco de España data.

NOTE: Change in valuation of mobilised collateral as a result of the above-mentioned measures. The valuation resulting from each measure has been calculated using the pre-20 April haircuts. The valuation resulting from the haircut reduction is the valuation difference between the former and new haircuts for all asset types, including those affected by the other measures. The assets that are eligible due to having an S-ICAS rating and being at CQS5 are included under the CQS5 measure. The chart also depicts the amount represented by the ACCs eligible as a result of additional pre-April 2020 measures.

Chart 18

SYNERGY TRIGGERED BY COMBINING MEASURES



SOURCE: Own calculations drawing on Banco de España data.

NOTE: Valuation resulting from combining different measures (G for guaranteed loans, S for credit claims with an S-ICAS rating, C for credit claims at CQS5 and H for total (temporary and permanent) haircut reduction). For each combination, the bar denotes the total valuation resulting from joint application of these measures. In each case, the valuation corresponding to application of the respective measures is depicted separately. The measures' synergy is defined as the difference between the valuation generated and the sum of the individual effects of the respective measures. Where the joint effect is smaller than the sum, the individual effect of the drivers will be reduced. The right-hand panel depicts the synergy as a percentage of the sum of the valuation resulting from the measures considered.

Interaction between the main measures:

If we analyse the effect induced by the different measures, we observe that the effect of several measures considered simultaneously differs from the sum of the individual measures (see Chart 18). The measures interact. For example, considering the CQS5-credit claim and S-ICAS measures, the credit claims benefitting from both measures would be eligible, whereas they would not be were we to consider each measure individually. Accordingly, the combined effect is greater than the sum of the individual effects (synergy). By contrast, if we consider the effect of the guaranteed loan and S-ICAS measures, even though they are measures that reinforce each other since the unguaranteed portions of the guaranteed loans can benefit from the S-ICAS rating, the net effect is smaller than the sum of the individual effects, as there will be guaranteed portions of the guaranteed loans that would be eligible under either measure, the difference being that the haircut will be smaller considering the guarantee (e.g. a guaranteed credit claim on a debtor with an S-ICAS rating at CQS4 would be eligible even without the guaranteed loan measure, albeit it with a high haircut. When factoring in the guarantee, the guaranteed portion will have a lower haircut).

Generally speaking, two conclusions can be drawn:

- The haircut reduction measure combined with another of the measures will always result in synergy, since the assets rendered eligible by the other measure will have a higher valuation.

Table 2

VALUATION CONTRIBUTED BY THE MEASURES

Measures	Valuation contributed
S	2,896
G	17,052
C	315
H	11,982
CS	3,679
GC	17,320
CH	12,608
GH	30,697
GS	18,393
SH	16,984
CSH	18,545
GCH	31,233
GSH	32,959
GCS	18,867
GCSH	33,902

SOURCE: Own calculations drawing on Banco de España data.

NOTE: S represents the measure enabling use of the Statistical ICAS (S-ICAS). G is the guaranteed loans measure. C is the acceptance of credit claims at CQS5. H is the total haircut reduction (including the temporary and permanent reduction due to the review of the risk control framework).

- Where the guaranteed loan measure is applicable simultaneously with either the S-ICAS or CQS5 measure (which render eligible debtors who were previously ineligible in the absence of a valid rating), the net effect is smaller, since some guaranteed portions of those loans would be eligible under either of the two measures, albeit it with a larger haircut.

Table 2 depicts, in millions of euro, the valuation that, at 1 April 2021, each of the measures is contributing individually and the possible combinations. To calculate this, we begin with a baseline valuation comprised of the pledged collateral's valuation should none of the measures apply and we find the differences vis-à-vis the valuations considering each measure or combination of measures.

By comparing the sum total contribution of the individual measures with the contribution of those very measures in combination, we obtain the synergies that are depicted in Chart 18.

Comparing the situation prior to entry into force of the measures with the current situation (see Chart 19), we observe that the nominal value of practically all the issuer groups and collateral types has increased (except for a decrease in the bonds issued by agencies (IG7) which in this case belong entirely to the Electricity Deficit Amortisation Fund (FADE)). Of note is the increased use of additional credit claims, due, primarily, to the acceptance of government-guaranteed loans (the measure with the greatest impact considering counterparties as a whole) and, secondly, to the measures making credit claims

Chart 19

CHANGE IN COMPOSITION OF COLLATERAL POOL



SOURCE: Own calculations drawing on Banco de España data.

NOTE: Change in nominal value between 1 May 2020 and 1 April 2021. For each issuer group and collateral type, the change is shown as a percentage. IG10 issuers (Households/Self-employed) had no collateral valuation (they were ineligible) in May 2020 and, therefore, the percentage increase is not indicated.

at CQS5 eligible and to the acceptance of the S-ICAS. These measures have also driven up, within the collateral pledged by counterparties, the proportion of items whose debtor is a corporate issuer (IG3), and brought about the appearance of the self-employed category (IG10), ineligible prior to the April measures. Another noticeable increase is that in unsecured bonds, largely prompted by the use of public debt issued by central (IG2) and regional and local (IG5) governments.

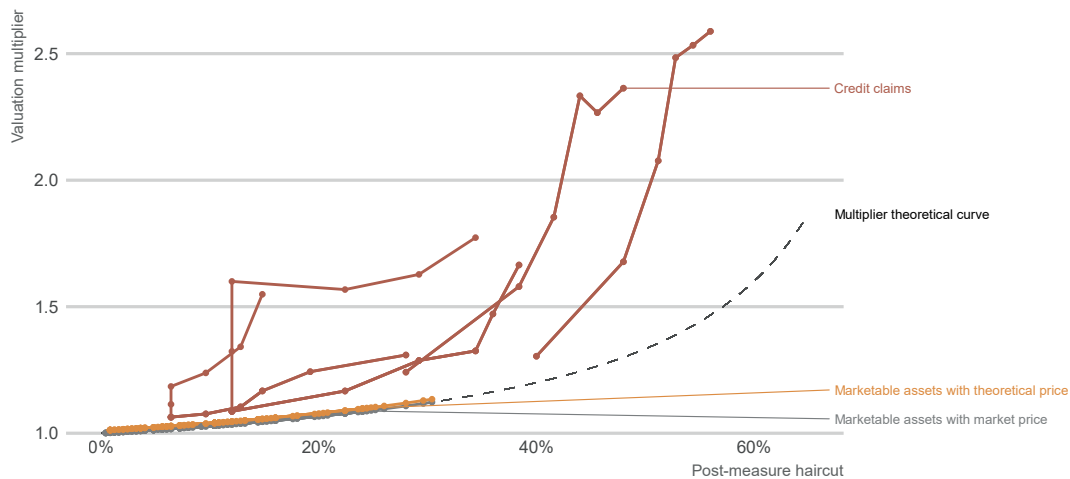
5.2 Potential impact of the measures coming to an end

As stated in the preceding subsection, several measures may interact and affect the eligibility or valuation of the same asset. For example, the haircut reduction affects all assets, both those eligible under the general framework and those that have benefitted from the temporary measures. Similarly, when calculating the effect of the measures coming to an end, the overall effect of eliminating several of them will not always be equal to the sum of the effects of withdrawing them individually. Thus, a credit claim on a debtor rated at CQS5 by the S-ICAS will cease to be eligible if either the CQS5 measure or the S-ICAS measure is lifted, or both. The loss of collateral for the counterparty will be the same in any of the three cases.

The previous subsection analyses the valuation generated by each combination of measures; this one analyses the decrease in the valuation of collateral pledged by the counterparties due to loss of eligibility or valuation reductions entailed in each measure, or several measures simultaneously, coming to an end (assuming the others remain in place). To calculate this, we began with the current total valuation, under all of the prevailing measures, and deducted the valuation under those still in place once each measure (or

Chart 20

VALUATION MULTIPLIER COMPARED WITH FRESH HAIRCUTS



SOURCE: Own calculations.

NOTE: Depiction of the current haircuts compared to the multipliers with the theoretical curve of the valuations whose haircuts increase by 20%. The credit claims do not fall on the curve because in their case there were two amendments: a recalibration of the haircuts and the 20% reduction of the recalibrated haircuts. In the case of credit claims, if the temporary haircut reduction is eliminated the recalibrated haircuts shall apply (a 25% increase with respect to the current ones) and, therefore, the multiplier (which, when undoing the change, will become a divisor) will be on the curve.

Table 3

DECREASE IN VALUATION DUE TO END OF THE MEASURES

Measures no longer in place	Decrease in valuation
S	2,669
G	15,356
C	943
h	10,020
CS	3,205
GC	16,918
Ch	10,717
Gh	25,407
GS	21,294
Sh	12,230
CSh	12,623
GCh	26,563
GSh	30,286
GCS	21,920
GCSH	30,746

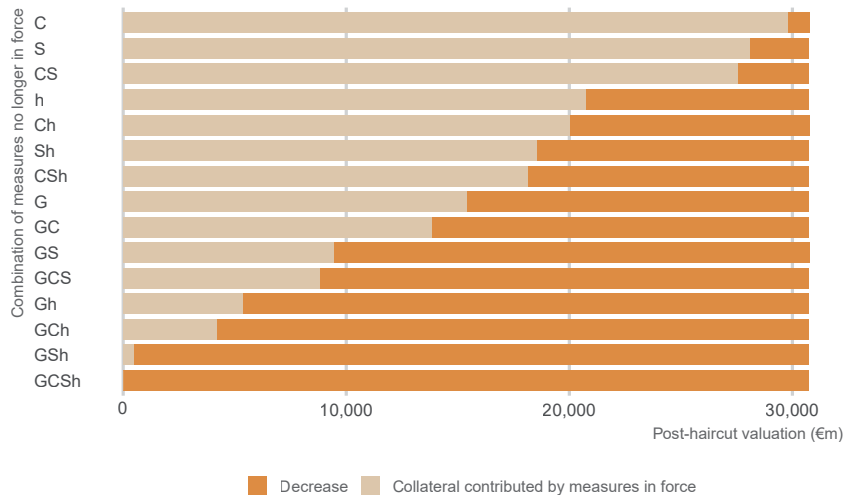
SOURCE: Own calculations drawing on Banco de España data.

NOTE: S represents the measure enabling use of the Statistical ICAS (S-ICAS). G is the guaranteed loans measure. C is the acceptance of credit claims at CQS5. h is the (temporary) linear reduction of 20% in all haircuts and the valuation markdown on theoretical value.

combination of measures) is withdrawn. For the haircut reduction measure, we assume that only the temporary reduction would be eliminated, with the reduction resulting from the regular review of the risk control framework remaining in place. Chart 20 shows that all credit claims increased in valuation due to the recalibration, since the multiplier increasing

Chart 21

EFFECT OF THE END OF THE DIFFERENT MEASURES



SOURCE: Own calculations drawing on Banco de España data.

NOTE: Depiction, based on the total collateral contributed by all the measures, of the valuation that would remain assuming the end of each measure or combination of measures.

the valuation (copper colour) is much larger than the multiplier decreasing it (the value of the curve corresponding to its current haircut). The total increase in valuation due to the recalibration amounts to €5 billion, which would not change even if the temporary haircut reduction measure was eliminated.

Table 3 shows, in millions of euro, the decrease in valuation of the collateral pledged by the counterparties that would result from the end of each measure or of several measures simultaneously (assuming the others remain in place).

Individually, withdrawal of the guaranteed credit claims would have the single largest impact. As seen above, this has been the measure most used by the counterparties. In this case, we consider that those credit claims on debtors with a sufficient rating (CQS5 or above), assessed by any valid system (including S-ICAS), would remain in the collateral pool, since they are eligible as collateral even without the government guarantee, and would be valued using the current haircuts.

The elimination of the 20% linear reduction in haircuts and the valuation markdown on theoretical value would also entail a sizeable decrease, as this measure affects all the assets in the collateral pool.

A situation where the four measures are eliminated would result in a decrease of more than €30 billion in counterparties' collateral (9% of the total pledged) (see Chart 21).

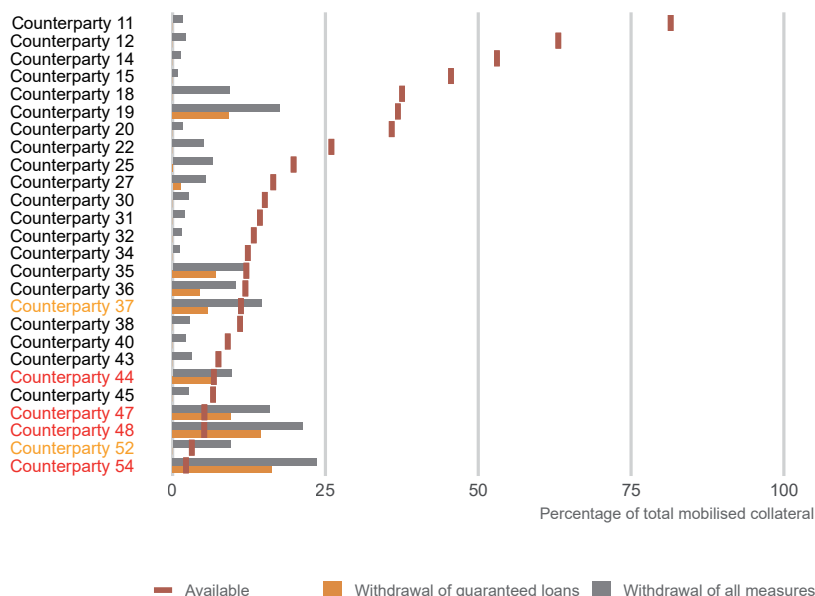
Impact of the withdrawal, by counterparty:

Conducting a counterparty-specific study of the impact withdrawal of these four measures, or of the biggest measure (the guaranteed loans), would have, and considering the collateral not pledged against credit operations, once again there would be large differences among counterparties (see Charts 22 and 23).

Ten counterparties would have a negative collateral position in either of the two cases, while three would have scant collateral in the face of the four measures being withdrawn, but not on account of the guaranteed loans measure alone. With regard to the composition of the pool, one counterparty stands out as all of its collateral is eligible under the temporary measures (all its pledged collateral items are guaranteed credit claims, one of which is extended to a debtor rated at CQS5).

Chart 22

DECREASE IN VALUATION DUE TO THE WITHDRAWAL OF MEASURES: LARGE COUNTERPARTIES

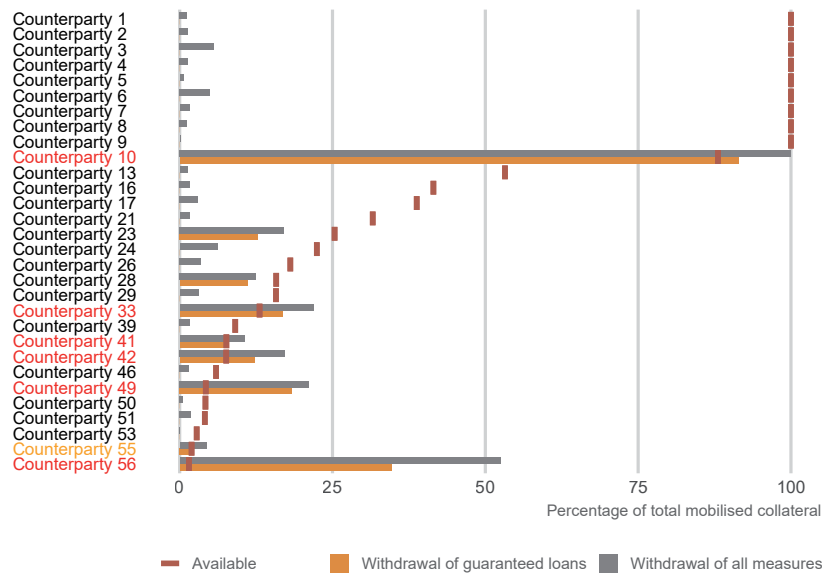


SOURCE: Own calculations drawing on Banco de España data.

NOTE: Depiction, for each counterparty with a collateral pool exceeding €1 billion, of the effect on the pool at 1 April 2021 of the end of all the measures (in grey) and of only the guaranteed loans measure (in ochre). The available collateral at that date is also depicted. The three aggregates are represented as a percentage of the total collateral pledged in the pool. The counterparties that would have a negative collateral position in either of the two cases are highlighted in red. Those which would only have a negative collateral position if all the measures are withdrawn are highlighted in orange. For this and the following chart, the counterparties are numbered by ordering them from largest to smallest percentage of available collateral vis-à-vis the total of their pool.

Chart 23

DECREASE IN VALUATION DUE TO THE WITHDRAWAL OF MEASURES: SMALL COUNTERPARTIES



SOURCE: Own calculations drawing on Banco de España data.

NOTE: Depiction, for each counterparty with a collateral pool of less than €1 billion, of the effect on the pool at 1 April 2021 of the end of all the measures (in grey) and of only the guaranteed loans measure (in ochre). For this and the previous chart, the counterparties are numbered by ordering them from largest to smallest percentage of available collateral vis-à-vis the total of their pool.

6 Conclusions

The measures applied to the collateral framework to combat the economic effects of the pandemic have been profound and diverse. The haircut reduction has automatically affected all assets, increasing their valuation for the purposes of loan collateralisation. The other measures have offered institutions the opportunity to use portfolio assets which were not eligible under the previous conditions, thus facilitating participation in operations to provide funding to counterparties. Also, they have helped to preserve the universe of eligible collateral in the face of a possible economic downturn and credit rating downgrades, thereby reducing uncertainty over collateral availability. Lastly, they have given impetus to the legal provisions adopted by the Government to support the flow of credit to the real economy.

As a result of the heterogeneous composition of each counterparty's collateral pools and the different extents to which they have used the measures to contribute additional assets, the effect has been uneven among the counterparties. Aside from the haircut reduction, the temporary measures with the greatest impact have been those which expanded the additional credit claims framework and, in particular, the eligibility of loans guaranteed by the public guarantee schemes established to combat the pandemic's economic effects. Despite the strong increase in the use of credit claims as collateral in Spain during the past year, boosted by these temporary measures, that use remains below the Eurosystem average.

The measures have achieved their goal: to increase the collateral available to counterparties in order to mitigate the adverse effects of the COVID-19 crisis. Just as the problem at hand is temporary, so too are the measures adopted. Focusing on the two measures which have contributed the most collateral, the inclusion of loans guaranteed by public guarantee schemes is temporary (as determined by its governing regulations), while the general haircut reduction is linear and entails the Eurosystem assuming greater risk. As regards other measures that have significantly expanded the collateral available, consideration could be given to retaining two in the temporary framework once the temporary measures to combat the effects of COVID-19 come to an end: accepting the S-ICAS as a source of credit assessment and easing the credit quality threshold. These measures would allow the use of a greater number of these assets (mainly relating to smaller firms and thus supporting the provision of finance to this more vulnerable sector) and would foster the use of technological developments implemented by institutions to manage large volumes of credit claims.

On 10 December 2020, the ECB's Governing Council decided to extend to June 2022 the duration of these measures. It will reassess the advisability of maintaining these measures to ensure that the participation of counterparties in TLTRO III operations³⁰ is not affected. Initially they were to be in place until September 2021, coinciding with the first

30 TLTROs are targeted longer-term refinancing operations. In these operations, counterparties obtain longer-term funding and more advantageous conditions than in conventional operations if they maintain or increase lending to firms and households. <https://www.ecb.europa.eu/explainers/tell-me/html/tltro.en.html>.

early repayments of TLTRO III. When the time for the review comes, consideration should be given to extending the duration of the measures until 28 June 2023, when the TLTRO III.4 liquidity provision operation, in which Eurosystem credit institutions received financing amounting to €1.3 trillion, expires.

Lastly, it should be noted that the analysis has been based on collateral pledged by Spanish counterparties, without taking into account other assets that may be or may have been available but were not provided as security. Given this limitation, there has been no study of how institutions would have behaved had the temporary measures discussed in this paper not been adopted, nor of the effect of these measures on assets potentially eligible as collateral.

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Annex 1 Haircuts before and after the April 2020 measures

Haircuts are determined based on four asset characteristics:

- The category to which the asset belongs (only for marketable assets)
 - **Category I:** debt instruments issued by central governments, the ECB or national central banks
 - **Category II:** debt instruments issued by regional and local governments, by multilateral development banks and international organisations or by entities classified as agencies by the Eurosystem and which meet certain quantitative criteria, and jumbo covered bonds
 - **Category III:** other legislative covered bonds; *multi cédulas*; and debt instruments issued by non-financial corporations, corporations in the government sector, and agencies which are non-credit institutions that do not meet the quantitative criteria
 - **Category IV:** unsecured bonds issued by credit institutions, by agencies which are credit institutions that do not meet the quantitative criteria and by financial corporations other than credit institutions
 - **Category V:** asset-backed securities, regardless of issuer rating
- Residual maturity or weighted average life for asset-backed securities (category V)
- Coupon structure
 - **CD1** - zero-coupon
 - **CD2** - floating coupon
 - **CD4** - fixed coupon
- Credit quality step, based on the Eurosystem's rating scale, to which the asset is allocated

- CQS1&2: maximum probability of default of 0.10% over a one-year time horizon
- CQS3: probability of 0.40%
- CQS4: probability of 1.00%
- CQS5: probability of 1.50%

Table A.1

HAIRCUTS BEFORE THE APRIL 2020 MEASURES

CQS Maturity (years)	Marketable assets													Credit claims				
	Category I			Category II			Category III			Category IV			Category V	General framework		Additional measures		
	CD1	CD2	CD4	CD1	CD2	CD4	CD1	CD2	CD4	CD1	CD2	CD4	All	CD2	CD4	CD2	CD4	
1&2	[0, 1)	0.5	0.5	0.5	1	1	1	1	1	1	7.5	7.5	7.5	4	12	12	12	12
	[1, 3)	2	0.5	1	2.5	1	1.5	3	1	2	10.5	7.5	10	4.5	12	16	16	16
	[3, 5)	2.5	0.5	1.5	3.5	1	2.5	4.5	1	3	13.5	7.5	13	5	12	21	21	21
	[5, 7)	3	1	2	4.5	1.5	3.5	6	2	4.5	15.5	10	14.5	9	16	27	27	27
	[7, 10)	4	1.5	3	6.5	2.5	4.5	8	3	6	18	13	16.5	13	21	35	35	35
	10 or more	7	2	5	10.5	3.5	8	13	4.5	9	25.5	14.5	20	20	27	45	45	45
3	[0, 1)	6	6	6	7	7	7	8	8	8	13	13	13	6	19	19	19	19
	[1, 3)	8	6	7	13.5	7	9.5	15	8	12	25	13	22.5	9	19	33.5	33.5	33.5
	[3, 5)	10	6	9	18.5	7	13.5	22	8	16.5	32.5	13	28	13	19	45	45	45
	[5, 7)	11.5	7	10	20	9.5	14	26	12	18.5	35	22.5	30.5	15	33.5	50.5	50.5	50.5
	[7, 10)	13	9	11.5	24.5	13.5	16	28	16.5	19	37	28	31	18	45	56.5	56.5	56.5
	10 or more	16	10	13	29.5	14	19	30	18.5	19.5	38	30.5	31.5	30	50.5	63	63	63
4	[0, 1)	8	8	8	10	10	10	16	16	16	25	25	25	14			42	42
	[1, 3)	13	12	12	19	15	15	23	20	20	37.5	35	35	19			61	61
	[3, 5)	15	14	14	25	20	20	29.5	24	24	46.5	42	42	22.5			68.5	68.5
	[5, 7)	17	15.5	15.5	31	25	25	35.5	28	28	50.5	46	46	31			76	76
	[7, 10)	18	16.5	16.5	35.5	27	27	40	31	31	56	50	50	38			76	76
	10 or more	21	18	18	39.5	29	29	43.5	33	33	58.5	52	52	54			78	78
5	[0, 1)	10	10	10	15	15	15	28	28	28	30	30	30				54	54
	[1, 3)	15	14	14	24	20	20	35	32	32	42.5	40	40				69	69
	[3, 5)	17.5	16.5	16.5	33	28	28	41.5	36	36	52.5	48	48				76.5	76.5
	[5, 7)	19.5	18	18	40	34	34	47	39.5	39.5	58.5	54	54				81	81
	[7, 10)	20.5	19	19	44.5	36	36	50.5	41.5	41.5	64	58	58				82	82
	10 or more	23.5	20.5	20.5	48.5	38	38	52.5	42	42	66.5	60	60				83	83

SOURCE: ECB.

Table A.2

HAIRCUTS AFTER THE APRIL 2020 MEASURES

CQS	Maturity (years)	Marketable assets													Credit claims				
		Category I			Category II			Category III			Category IV			Category V	General framework		Additional measures		
		CD1	CD2	CD4	CD1	CD2	CD4	CD1	CD2	CD4	CD1	CD2	CD4	All	CD2	CD4	CD2	CD4	
1&2	[0, 1)	0.4	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	6	6	6	3.2	6.4	6.4	6.4	6.4
	[1, 3)	1.6	0.4	0.8	2	0.8	1.2	2.4	0.8	1.6	8.4	6	8	3.6	6.4	9.6	6.4	9.6	
	[3, 5)	2	0.4	1.2	2.8	0.8	2	3.6	0.8	2.4	10.8	6	10.4	4	6.4	12.8	6.4	12.8	
	[5, 7)	2.4	0.8	1.6	3.6	1.2	2.8	4.8	1.6	3.6	12.4	8	11.6	7.2	9.6	14.8	9.6	14.8	
	[7, 10)	3.2	1.2	2.4	5.2	2	3.6	6.4	2.4	4.8	14.4	10.4	13.2	10.4	12.8	19.2	12.8	19.2	
	10 or more	5.6	1.6	4	8.4	2.8	6.4	10.4	3.6	7.2	20.4	11.6	16	16	14.8	28	14.8	28	
3	[0, 1)	4.8	4.8	4.8	5.6	5.6	5.6	6.4	6.4	6.4	10.4	10.4	10.4	4.8	12	12	12	12	
	[1, 3)	6.4	4.8	5.6	10.8	5.6	7.6	12	6.4	9.6	20	10.4	18	7.2	12	22.4	12	22.4	
	[3, 5)	8	4.8	7.2	14.8	5.6	10.8	17.6	6.4	13.2	26	10.4	22.4	10.4	12	29.2	12	29.2	
	[5, 7)	9.2	5.6	8	16	7.6	11.2	20.8	9.6	14.8	28	18	24.4	12	22.4	34.4	22.4	34.4	
	[7, 10)	10.4	7.2	9.2	19.6	10.8	12.8	22.4	13.2	15.2	29.6	22.4	24.8	14.4	29.2	36	29.2	36	
	10 or more	12.8	8	10.4	23.6	11.2	15.2	24	14.8	15.6	30.4	24.4	25.2	24	34.4	38.4	34.4	38.4	
4	[0, 1)	6.4	6.4	6.4	8	8	8	12.8	12.8	12.8	20	20	20	11.2			28	28	
	[1, 3)	10.4	9.6	9.6	15.2	12	12	18.4	16	16	30	28	28	15.2			38.4	38.4	
	[3, 5)	12	11.2	11.2	20	16	16	23.6	19.2	19.2	37.2	33.6	33.6	18			41.6	41.6	
	[5, 7)	13.6	12.4	12.4	24.8	20	20	28.4	22.4	22.4	40.4	36.8	36.8	24.8			44	44	
	[7, 10)	14.4	13.2	13.2	28.4	21.6	21.6	32	24.8	24.8	44.8	40	40	30.4			45.6	45.6	
	10 or more	16.8	14.4	14.4	31.6	23.2	23.2	34.8	26.4	26.4	46.8	41.6	41.6	43.2			48	48	
5	[0, 1)	8	8	8	12	12	12	22.4	22.4	22.4	24	24	24				40	40	
	[1, 3)	12	11.2	11.2	19.2	16	16	28	25.6	25.6	34	32	32				48	48	
	[3, 5)	14	13.2	13.2	26.4	22.4	22.4	33.2	28.8	28.8	42	38.4	38.4				51.2	51.2	
	[5, 7)	15.6	14.4	14.4	32	27.2	27.2	37.6	31.6	31.6	46.8	43.2	43.2				52.8	52.8	
	[7, 10)	16.4	15.2	15.2	35.6	28.8	28.8	40.4	33.2	33.2	51.2	46.4	46.4				54.4	54.4	
	10 or more	18.8	16.4	16.4	38.8	30.4	30.4	42	33.6	33.6	53.2	48	48				56	56	

SOURCE: ECB.

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