

The Role of Rating Agencies: Implications for the Financial System and Central Banks' Efforts to Reduce their Reliance



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1 Credit Ratings, the Financial System and Monetary Policy: An Overview

The financial crisis of 2008 and the sovereign debt crisis of 2010–11 have led regulators to seek ways to reduce reliance on rating agencies. In 2010, the Financial Stability Board (FSB) made a clear recommendation in this respect (FSB 2010). Since then, and with reference to monetary policy in the euro area, the Eurosystem has made some progress in the path towards reducing this reliance, thus finding itself better equipped to face the Covid-19 pandemic of 2020, the energy crisis of 2022 and the related possibility of rating downgrades.

The main reason behind the FSB's recommendation was the awareness that rating actions, and in particular sovereign downgrades, heavily affect the financial system—especially banks—and the real economy, also due to the existence of a 'sovereign ceiling' for domestic issuers, i.e. a practice whereby rating agencies seldom rate private sector issuers above their sovereign (see also chapter "Sovereign Ratings"). The impact may be quite significant if the sovereign rating falls below the investment grade threshold.¹

In such a scenario, sovereigns face the risk of a bond sell-off and an increase in the cost of funding. For banks, a drop in the market value of their portfolio of government bonds typically leads to a reduction of available collateral and a mark-to-market loss on their bond portfolio, ultimately resulting in a higher cost and a lower availability of wholesale funding, with unavoidable repercussions on bank lending. Also, insurance companies are exposed to sovereign and corporate downgrades via their impact on market prices, entailing capital losses; corporate downgrades imply higher capital requirements as well.

Asset managers are affected by sovereign downgrades via the impact on market prices; in the case of institutional investors, a downgrade below investment grade may create significant selling pressure. Sovereign and corporate downgrades can lead central counterparties and clearing members to adopt measures to mitigate their exposure towards counterparties and collateral issuers, with possible 'cliff effects' in the call and collection of margins.²

Non-financial firms' ratings too typically co-move with sovereign ratings, again as the result of the sovereign ceiling effect, and so do credit risk premia, although the link is weaker than in the case of banks. As a consequence, sovereign downgrades often imply a higher cost and a lower access to bank and bond funding for firms, with negative effects on their investment decisions.

Why does the Eurosystem need credit ratings for monetary policy implementation? In line with its statute, the Eurosystem provides credit to its eligible banking counterparties only against adequate collateral. For this purpose, the 'Eurosystem Credit Assessment Framework' (ECAAF) defines the procedures and rules for the

¹The investment grade label is assigned to issuers with a rating at least equal to BBB-. The sub-investment grade label refers to issuers with a rating below BBB-.

²This outcome is more likely for bilateral transactions than for centrally cleared transactions.

fulfilment of the Eurosystem requirement of high credit standards for all eligible assets. To assess the credit quality of assets for the application of haircuts in refinancing operations and for eligibility in the context of purchase programmes, the Eurosystem takes into account information (ratings or probabilities of default) from several credit assessment sources, including credit rating agencies.

Rating agencies are just one of three ECAF sources of valuation of collateral,³ but they play a special role because the Eurosystem relies on agencies for roughly two-thirds of monetary policy collateral (virtually all marketable assets) and for all the assets acquired under the purchase programmes. As a consequence, most of the financial risks borne by the Eurosystem's balance sheet arise from assets assessed by rating agencies.

In recent years, academics and practitioners have discussed the ways in which central banks may reduce their reliance on agency ratings, especially for sovereign assets. Recent studies⁴ recommend that the Eurosystem ends making use of agencies' sovereign ratings and rely instead on the assessment of sovereign risk either developed internally or provided by another EU public institution, such as the European Stability Mechanism (ESM).

The Eurosystem is making an effort to reduce its reliance on credit rating agencies. On the one hand, the Eurosystem is looking more closely into the methodologies adopted by the rating agencies accepted in the ECAF; on the other hand, it is strengthening its internal credit assessment capabilities, by increasing the number of national central banks' In-House Credit Assessment Systems (ICASs; see chapter "The Bank of Italy's In-House Credit Assessment System for Non-Financial Firms") for non-financial corporations and by adopting a due diligence process for the private sector asset purchase programmes (asset-backed securities, covered bonds, and corporate bonds).

In response to the coronavirus pandemic, in April 2020 the Governing Council of the European Central Bank (ECB) adopted a broad set of policy measures aimed at mitigating the economic impact of the crisis and, indirectly, at reducing its reliance on rating agencies. The first package consisted of collateral easing measures to increase the acceptance of credit claims as collateral and, as a consequence, foster the recourse to internal credit assessment systems, such as the Internal Rating Based models (IRBs) and ICASs, in alternative to agencies. In the second package, the ECB introduced a comprehensive set of measures to mitigate the impact of potential rating downgrades and avoid cliff effects on collateral availability.

The Eurosystem is still committed to reducing its reliance on rating agencies and is assessing possible ways to further strengthen the role of ICASs. Such a commitment is witnessed, although indirectly, also by the Eurosystem's Action Plan of July 2021, which includes climate change considerations in the monetary policy strategy. The Action Plan foresees, among other things, the development of minimum

³The other two sources (see Sect. 3.1) are national central banks' In-House Credit Assessment Systems (ICASs) and counterparties' Internal Ratings-Based (IRB) systems.

⁴See Orphanides (2017) and Claves and Goncalves Raposo (2018).

standards for the incorporation of climate change risks into the Eurosystem's internal ratings, namely, the ICASs. The first group of measures to incorporate climate change into monetary policy operations were announced in July 2022 and implemented soon afterwards.

The remainder of the chapter is organised as follows. Section 2 provides an overview and some empirical evidence about the effects of sovereign downgrades on the main economic and financial players. Section 3 describes the role of credit ratings within the Eurosystem's collateral framework and, for a comparison, in the monetary policy set-up of other major central banks. After an overview of the policy and academic debate, we examine the extent to which the Eurosystem has so far reduced its reliance on rating agencies.

2 The Impact of Rating Actions on the Financial System and the Real Economy

Sovereign downgrades have a significant impact on the financial sector and the economy at large. They often trigger a wave of domestic corporate downgrades that involves both financial and non-financial firms, implying that sovereign and corporate rating shocks tend to materialise jointly or with a short lag. Sovereign downgrades have important second-round effects also on other financial players such as insurance companies and asset managers; they also affect the functioning of central counterparties and collateralised markets.

2.1 *Sovereign Issuers*

In general terms, sovereign downgrades can have a negative effect on public finances through an increase in government funding costs. Although the information conveyed by sovereign downgrades is often anticipated by 'outlooks', 'reviews', and 'watches', market reactions confirm the importance of the ratings' certification role.⁵

When ratings remain within the investment grade category after the downgrade, the impact on yields and the cost of debt is usually modest. Research based on European data prior to the sovereign debt crisis of 2011–2013 suggests that a one-notch downgrade causes on average an increase by 8 basis points in the 10-year sovereign yield on the secondary market.⁶

In contrast, a sovereign downgrade from investment grade to sub-investment grade by one or more rating agencies has significant cliff effects, as it triggers forced

⁵See e.g. IMF (2010).

⁶Afonso et al. (2012) analyse credit events involving 24 EU countries between 1995 and 2010.

sales by some categories of investors and mechanically determines a structural reduction in the demand for government bonds.

First, investors such as pension funds are often restricted to holding investment-grade bonds or have caps on the amount of sub-investment-grade debt they can hold.

Second, investors frequently allocate a significant portion of their money to tracking indices in which only investment-grade bonds are included (e.g. the FTSE World Government Bond, Bloomberg Barclays Global Aggregate, and JP Morgan Global Government Bond indices). When a sovereign loses its investment grade status, it is automatically excluded from these indices. Consequently, investors tracking such indices quickly reduce their exposure to the downgraded sovereign. Notably, passive investors that have these indices as their benchmarks, such as ETFs and passive mutual funds, are likely to fully liquidate their positions within a short time frame.

These are not the only effects of a downgrade on the demand for bonds, but they are the most important and immediate ones. Other important effects, although more gradual, stem from the fact that sovereign ratings tend to be a ceiling for those of domestic financial and non-financial companies (see for instance Borensztein et al. 2013), so that a sovereign downgrade to sub-investment status tends to be followed by the loss of investment grade status of several financial and non-financial companies (see below, Sects. 2.2 and 2.5).

The downgrade to sub-investment grade by a single agency (if other agencies keep assigning an investment grade rating to the sovereign) may not be enough to trigger forced sales, as each investor or producer of bond indices relies on different agencies or different rules for combining their ratings. Typically, an issuer needs an investment grade rating from at least two of the three main agencies (FitchRatings, Moody's, Standard & Poor's) in order to be included in an index or portfolio.

However, several episodes suggest that a single downgrade is enough to cause a first significant wave of sales. In fact, rating-constrained investors are likely not to wait to become forced sellers and they often start selling when the first downgrade to sub-investment grade occurs. Evidence from a sample of 20 countries (Hanusch et al. 2016) indicates that the largest increase in short-term bond yields is observed after the first downgrade to sub-investment grade (on average around 140 basis points vs 60 after the second downgrade). Investors may as well start to reduce their positioning on expectations of a downgrade before the latter is officially announced.

The downgrade to sub-investment grade of the South African sovereign by Moody's on 27 March 2019 and the consequent exit from the FTSE World Government Bond index⁷ are a case in point: these events were followed by an *increase* (rather than a decrease) in bond prices, as the downgrade had been largely anticipated and investors were pre-positioned for it (Goko 2020).

The number of forced sales triggered by a downgrade is hard to predict, although it is often deemed closely related to the distribution of government bond holdings

⁷The previous downgrades to junk by Standard & Poor's and FitchRatings (on 24 November 2017 and 18 December 2019) had not been sufficient to exclude the country from this important index.

across economic sectors. Foreign investors are usually likely to hold bonds through index-tracking investment entities and are more rating-sensitive than domestic investors, who often hold domestic securities partly owing to a ‘home bias’ (possibly as a rational response to frictions⁸) and not simply as the result of risk-return considerations. In fact, several investors tend to exempt the securities of their domestic sovereign from restrictions based on ratings or risk, or they hold sovereign bonds indirectly through funds that track a domestic benchmark (so that no rules on ratings are involved). Furthermore, empirical evidence about advanced economies (Arslanalp and Tsuda 2012; Bank of Italy 2020) shows that domestic banks often step in to fill the financing gaps created by foreign sales and capital outflows. Incidentally, in recent years, domestic banks may have become less prone to do so, in order to avoid substantial mark-to-market losses and comply with more stringent banking regulations.⁹

Other factors beyond the relevance of foreign holdings¹⁰ and the shock-absorbing role of banks may contribute to the intensity of selling after a sovereign downgrade.

For example, front running by speculative investors such as hedge funds can be an amplifying factor, especially if the forced selling by rating-constrained investors is highly predictable and quantitatively important.

2.2 Banks

The downgrade of a sovereign issuer typically has a large impact on the domestic banking system, reflecting several transmission mechanisms (see e.g. Panetta et al. 2011, Angelini et al. 2014, and, more recently, Schnabel 2021).

The first channel is represented by losses on banks’ portfolios of government bonds. An unexpected sovereign downgrade causes a drop in the market value of government bonds, thus implying a loss on the banks’ bond portfolio, which weakens the balance sheet, increases riskiness, and ultimately raises the cost of funding.

The second channel is represented by the reduction of the value of collateral. In money markets, lower collateral availability may result in banks having to top up the collateral in mark-to-market transactions and/or facing higher haircuts on repo and secured loans (see also Sect. 2.4). Moreover, a lower value of collateral affects

⁸See, e.g. Levy and Sarnat (1970) and Coeurdacier and Rey (2012).

⁹On the one hand, domestic sovereign exposures keep enjoying a favorable prudential treatment, having zero risk-weights. On the other hand, the rules on leverage ratios and—in Europe—the supervisory exercises have tightened the prudential treatment of sovereign exposures (see Lanotte et al. 2016). Furthermore, banks might want to avoid the substantial mark-to-market losses that would emerge in case of a pronounced increase in bond yields (see, Fig. 1.17.3 in International Monetary Fund 2019).

¹⁰Foreign investors tend to be more reactive to news and change their holdings more rapidly than domestic investors.

banks' ability to tap central bank refinancing operations. In the adverse scenario in which government bonds lose eligibility as central bank collateral, additional tensions may materialise as these bonds would suddenly lose the 'eligibility premium' related to central bank operations (Corradin 2017).

The third channel is related to the existence of a sovereign ceiling for private borrowers: to the extent that sovereign downgrades raise the yields on domestic government bonds and/or lead to domestic bank downgrades, the cost of wholesale funding for banks increases.¹¹

Fourth, by reducing sovereign creditworthiness, sovereign downgrades may impair the effectiveness of the public guarantee schemes deployed in many jurisdictions (including Italy) to support bank lending to non-financial companies (NFCs), both in good and in bad times (such is the case of the public guarantee schemes put in place in 2020 to face the Covid-19 crisis).

The impact of a sovereign downgrade on the economy can be amplified by second-round effects. Banks may have to address liquidity and capital shortages by reducing credit supply and increasing capital. To the extent that raising capital is costly in an environment with higher risk premia, banks might opt for a contraction in lending, larger than it would have otherwise been. This deleveraging may further weaken the economy, hindering the government's fiscal outlook, and feeding back on sovereign stress.¹² In turn, a weakening of the banking system may be seen as a contingent liability for the Government and thus raise sovereign risk, giving rise to a vicious circle.

What is the empirical evidence about the sovereign-bank link in the euro area? One way of assessing it is to monitor the risk premia requested by investors to hold assets issued by sovereign entities and by banks, and in particular their links. A reliable proxy is the premium paid on credit default swaps (CDSs). Using the premia on the CDSs written on banks and sovereign issuers, we can assess how the joint riskiness of the two sectors has evolved in different countries and over time.

Figure 1 plots the correlation between sovereign and bank credit risk measured by CDSs for some major European countries since 2008. The co-movement shows a significant increase during the sovereign debt crisis in the years 2010–2012; since then, it has edged down in some countries but remains high in Italy, Spain and, to a lesser extent, France. In 2016, the correlation rose in Germany, Ireland, the Netherlands, and the United Kingdom, during the financial market turbulences that occurred around the UK referendum on European Union membership (Brexit). The correlation spikes again in Italy and Spain in 2018, when the appointment of new governments in both countries fuelled political uncertainty. In the first half of 2020, with the outbreak of the Covid-19 pandemic, the correlation has increased

¹¹ Sovereign ratings normally act as a ceiling for the ratings to corporate borrowers. Arezki et al. (2011) and Correa et al. (2014) find out a positive correlation between changes in sovereign ratings (especially downgrades) and bank stock prices. Adelino and Ferreira (2016) show that rating agencies downgrade intermediaries operating in countries where the sovereign has been downgraded and do so irrespectively of banks' health.

¹² See van Rixtel and Gasperini (2013) and Correa and Sapriza (2014).

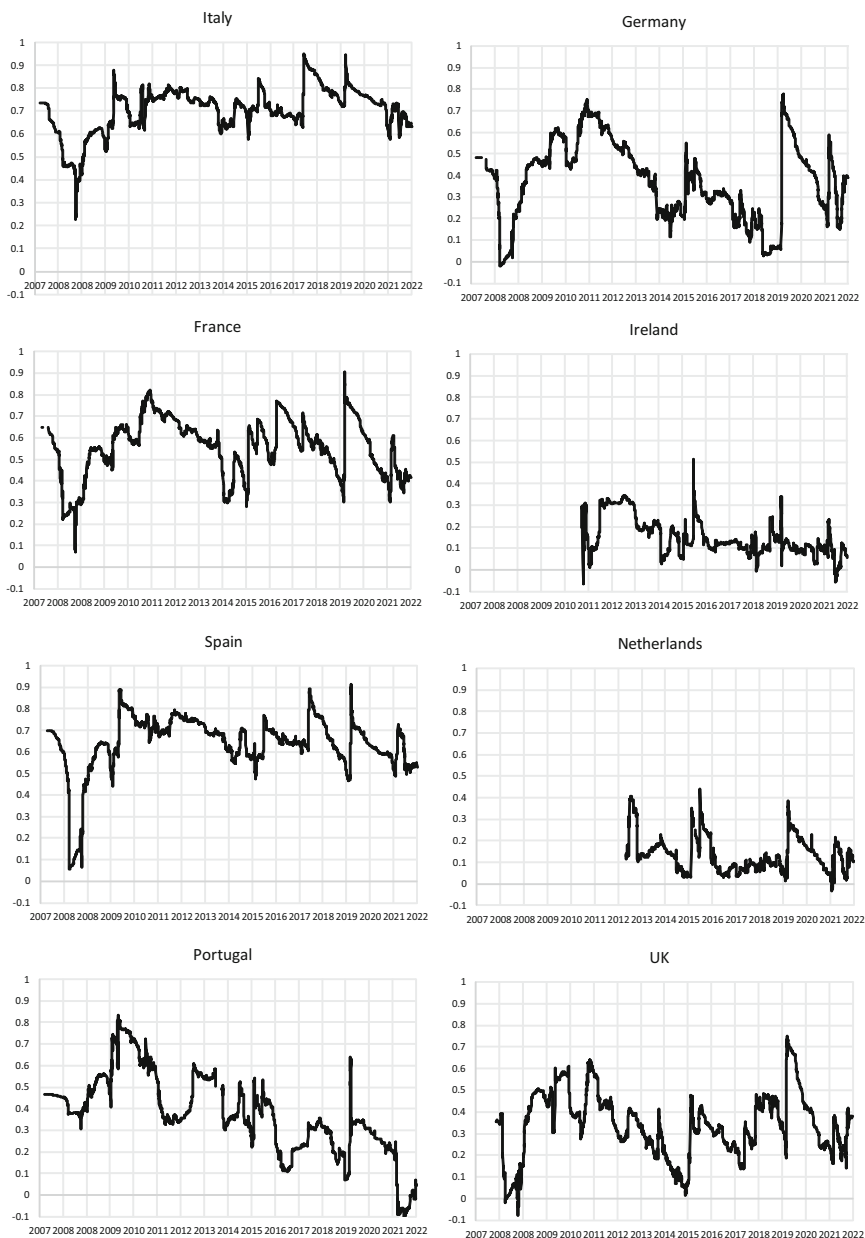


Fig. 1 Correlation between sovereign and banks CDSs premia (The correlation between daily changes in 5-year CDSs of sovereign bonds and bank bonds is computed as an exponentially weighted moving average). 1 January 2008 (2012 for Ireland, 2013 for the Netherlands) to 31 December 2022. (Source: own calculations based on daily data provided by ICE Data Derivatives UK Limited)

Table 1 Sovereign rating and Debt/GDP ratio. (Source: Bloomberg Finance L.P. and IMF Fiscal Monitor)

Country	Italy	France	Spain	Portugal	Germany	Ireland	The Netherlands	UK
Current S&P rating (as of end 2022)	BBB	AA	A	BBB+	AAA	AA-	AAA	AA
Debt/GDP ratio (% as of end 2021)	151	113	119	127	70	55	52	95

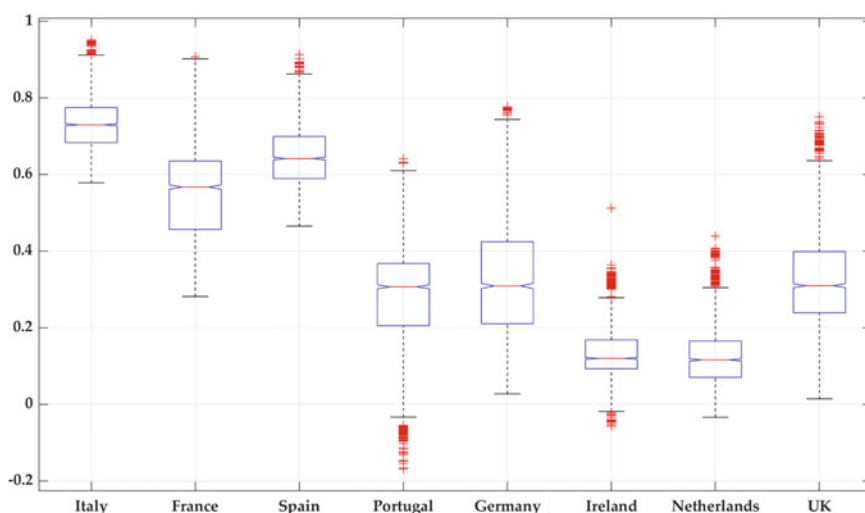


Fig. 2 Box plot of correlation between sovereign and banks CDS premia (The box plot shows descriptive statistics of the correlations displayed in Fig. 1, referred to a sample of daily data going from May 2013 to the end of December 2022. On each box, the central mark indicates the median, and the bottom and top edges of the box indicate the 25th and 75th percentiles, respectively. The whiskers extend to the most extreme data points not considered outliers, and the outliers are plotted individually (using the '+' symbol). (Source: own calculations based on daily data provided by ICE Data Derivatives UK Limited)

remarkably in all countries, alongside a general surge of risk premia across financial markets, even though it has gradually declined from the second half of the year onwards. In summary, this evidence confirms that changes in sovereign risk premia tend to transmit to the banking sector; the correlation rises sharply in times of tension and for some countries is higher than for others.

One may wonder whether there is a relationship between public debt, sovereign ratings, and sovereign-bank correlations. Table 1 shows the Standard & Poor's sovereign rating and debt/GDP ratio of the European countries considered.

Figure 2 compares the main descriptive statistics about the sovereign-bank credit risk premia correlation. On all these accounts, the countries look very

heterogeneous. The relationship between sovereign ratings and sovereign-bank risk premia correlation is weakly negative (high correlations are associated with low ratings). The risk premia correlation is the highest for Italy, Spain, and France, which, according to all rating agencies, currently have different levels of creditworthiness. In the case of Portugal, the sovereign-bank risk premia correlation is similar to that of Germany and much lower than that of Italy, despite the fact that Portugal and Italy have similar ratings and debt/GDP ratios. Among countries with a lower debt/GDP ratio and higher ratings, Ireland and the Netherlands show the lowest correlation over time. In 2020, the correlation in the UK, typically volatile, fell to very low levels, comparable to those observed in Germany and Portugal. To sum up, while no general pattern seems to link risk premia correlations, debt ratios, and credit ratings, one possible reading of these data is that in times of crisis correlations increase, especially for some countries with larger amounts of public debt or worse credit ratings.

2.3 Insurance Companies and Asset Managers

A sovereign downgrade usually entails significant capital losses for insurance companies. It often leads to portfolio adjustments by asset managers, especially when the sovereign loses investment grade status, with potentially important implications for market prices.

Insurers are exposed to sovereign and corporate downgrades via their impact on market prices and, in the latter case, also via higher capital requirements. Rating downgrades affect insurers' solvency ratios through three transmission channels: (1) they reduce the market value of corporate bond holdings, which decreases their excess of assets over liabilities and, proportionally, own funds (at the numerator of their capital ratio); (2) they increase the Solvency Capital Requirement (at the denominator of their capital ratio) charged for the bonds held by insurers because of their increased riskiness; and (3) they lower the market value of bonds considered in the capital requirement calculations (at the denominator of their capital ratio). When investment-grade bonds are downgraded to sub-investment grade, these effects may be highly significant.

Asset managers are exposed to a sovereign downgrade via its impact on market prices. Such effect may be large, partly because of the growing role played by passive funds (see also Sect. 2.1). Passive investors have more than quadrupled in the last decade, and their assets under management climbed from around USD 2 trillion in 2010 to USD 10 trillion at the end of 2020¹³; at that time they represented

¹³See Anadu et al. (2020) and ICI (2021).

about 20% of total managed funds worldwide.¹⁴ Managers are usually required to track financial market benchmarks, and the main bond index providers (Bloomberg, Barclays, ICE BofA, JP Morgan, Markit iBoxx, and FTSE) combine ratings in various ways, to obtain credit profiles for every issuer. Therefore, should a downgrade below investment grade occur, a significant selling pressure could arise, the latter's intensity depending *inter alia* on: (1) the amount of the downgraded sovereign bonds managed against a specific benchmark; (2) the selection criteria of assets for the benchmark; and (3) the asset management style and strategy.

As already mentioned in Sect. 2.1, if a sovereign issuer loses investment grade status and, as a consequence, it is excluded from the major global indices, then a negative impact on prices stems from both passive investors¹⁵ and active funds.¹⁶ Second-round effects may also play an important role: potential outflows related to investors' redemptions could contribute to exacerbate the reaction; furthermore, in recent years, hedge funds and proprietary trading firms have exploited automatic selling flows coming from passive investors,¹⁷ increasing their own selling activity. Conversely, such speculative players could have a stabilising effect, by covering their short positions and buying at prices viewed as very distant from fair values.

2.4 Central Counterparties and Collateralised Markets

Sovereign and corporate downgrades can affect the measures taken by central counterparties (CCPs) and clearing members to mitigate their exposure towards counterparties and collateral issuers. In recent years, the role of collateralised markets for short-term funding and collateral transformation (i.e. repo and securities lending) has grown, together with the increased reliance on CCPs in many market segments, fostered by post-crisis regulatory reforms to incentivise central clearing in derivative contracts. These phenomena have significantly increased the role of collateralised market segments in propagating tensions within the whole financial system, amplifying pro-cyclical developments in time of stress. The payment of

¹⁴See Sushko and Turner (2018): they estimated the share at 20% in 2018 but, given the significant increase of passive investment in recent years, at the end of 2020 the level was probably higher. Financial Times (2022) quoted a report by JP Morgan according to which in the United States, between end 2019 and end 2022, the share of passive funds has increased from 23 to 29% of total managed funds.

¹⁵See ESRB (2020a).

¹⁶According to Aramonte and Eren (2019), in the case of corporate bonds, active managers could sell up to one third of their holdings in case of downgrade below investment grade.

¹⁷Due to the technological developments that affected markets microstructure in recent years, this impact could be exacerbated by algorithmic and high frequency players (widely known as "momentum players"); their speculative, directional activity could amplify the degree of the movement, leading to so called "flash crash" events. See BIS (2016, 2018).

variation margins, the posting of initial margins, and the application of collateral haircuts to collateralised exposures may have helped prevent the build-up of excessive leverage in the financial system, thus mitigating counterparty credit risk. Conversely, the greater use of collateral and margin practices may have transformed part of the credit risk into liquidity risk, as market participants should be able to provide cash or high-quality collateral at short notice in response to sudden movements in market prices or to credit downgrades of counterparties/collateral issuers (European Systemic Risk Board 2020a).

Another side effect of sovereign and corporate downgrades is that they may lead to cliff effects in the demand for collateral. This occurs if, in case of downgrades, risk management procedures result in sudden and material margin calls or changes in collateral practices in derivatives and securities financing transactions (SFTs).¹⁸ This outcome is more likely for bilateral transactions than for centrally cleared transactions.¹⁹ After a downgrade, these linkages may: (1) force clearing members/counterparties to post or replace large amounts of collateral at short notice, especially if the credit event involves government bonds, which are frequently used as collateral; or even (2) cause their exclusion from clearing facilities as well as the bilateral segment of the market. The liquidity drain could spread into the broader financial system in an unpredictable way. The criteria for setting margins between CCPs and clearing members are explicitly dealt with in the EMIR regulation, whereas little is known about collateral practices in the relationship between clearing members and their own clients.

The episode of high market volatility experienced in March 2020, following the outbreak of the coronavirus pandemic, is a reminder that financial stability risks may result from large margin calls and that these risks should be mitigated in both centrally and non-centrally cleared markets. Although it was noted that even in the most stressful days the margin framework functioned without significant disruptions in Europe, that episode underscores the need to reduce reliance on credit ratings and adopt alternative approaches in risk management, such as the adoption of gradual steps in reaction to rating downgrades (ESRB 2020b).

¹⁸The European regulatory framework (EMIR) sets out minimum requirements for what concerns collateral eligibility criteria and, more generally, for margins, which primarily depend on the historical volatility observed on the market for each financial instruments. These requirements must be fulfilled by CCPs' internal models, which normally take into account a large number of indicators in addition to external credit ratings.

¹⁹The *ISDA Master Agreement* include references to 'credit events' and 'credit downgrade' by a rating agency. Furthermore, the parties can indicate 'additional termination events', which often include the downgrade of an entity's credit rating. The eligibility criteria of the securities posted as collateral in repo transactions are listed in the *Global Master Repurchase Agreement*, and subject to additional constraints related to counterparties risk management practices. In bilateral markets, these agreements typically contain a Credit Support Annex that clearly specifies type, credit quality, and applicable haircuts for all eligible collateral.

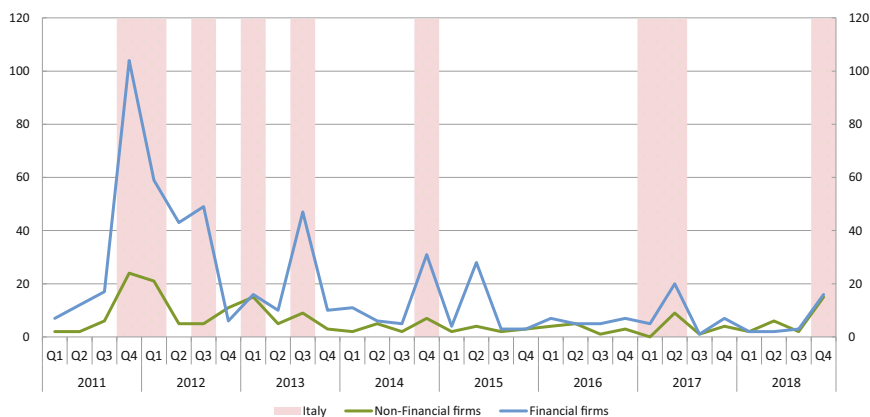


Fig. 3 Corporate downgrades following a sovereign downgrade in Italy (quarterly data from January 2011 to December 2018). Number of rating downgrades, net of upgrades, assigned to financial and non-financial firms by DBRS Morningstar, FitchRatings, Moody's, and Standard & Poor's. The shaded areas indicate the quarters in which the rating of the Italian Republic has been downgraded (Source: Bank of Italy (2018))

2.5 Non-financial Companies

Sovereign and corporate downgrades negatively affect firms' funding costs and can consequently reduce fixed investments, with negative effects on the real economy. Several transmission channels may be at work.

Non-financial company ratings co-move with sovereign ratings, though the link is weaker than for banks. The international evidence suggests that sovereign downgrades are often followed by a wave of credit downgrades of domestic firms. These linkages were at work in Italy during the sovereign debt crisis of 2011–12 (Fig. 3). The immediate risks for non-financial companies thus relate to their funding cost and access to the bond market.

Almeida et al. (2017) show that corporate downgrades following a sovereign downgrade also have adverse implications for investments. When corporate downgrades are caused by the downgrade of the domestic sovereign entity, (1) the most creditworthy firms are more likely to be downgraded, due to the ceiling role implicitly attached to the sovereign rating; and (2) the ensuing increase in funding costs has a significant impact on corporate investment decisions.²⁰ This may generate a sharp contraction in business investment, with adverse effects for the real economy both in the short- and long-term, through its impact on the capital stock. Investment falls relatively more for formerly highly rated companies that have strong cash flows and better investment opportunities.

²⁰The study uses a large sample of 80 countries between 1990 and 2013, thus capturing *inter alia* the rating dynamics observed during the European sovereign debt crisis.

Finally, volatility in credit ratings could affect the firm capital structure in the longer run. The US experience suggests that the risk of a forthcoming change in rating (either positive or negative) has by itself a small but significant impact on firm behaviour: firms that face a high likelihood of a rating revision issue less debt compared to their peers (up to 1% of their internal equity), presumably because of the uncertainty on their future funding costs (Kisgen, 2006).

3 Reducing the Eurosystem's Reliance on Credit Rating Agencies: Progress Made So Far

3.1 The Role of Credit Ratings in the Eurosystem's Collateral Framework

In line with the Statute of the European System of Central Banks and of the ECB, the Eurosystem provides credit to its eligible banking counterparties only against adequate collateral. Typically, eligible collateral includes marketable assets (such as bonds) and non-marketable assets (such as credit claims). The adequate collateralisation criterion aims at mitigating financial risks in monetary policy operations. To achieve this goal, the collateral accepted must not only be sufficient (i.e. it should cover the amount of refinancing granted to counterparties), but it shall also be of high credit quality such that, in the event of a counterparty default and a subsequent liquidation of the collateral in the market, it is highly probable that the Eurosystem would be able to recover the full amount of its claim (see chapter “The Eurosystem Collateral Framework and the Measures Introduced in Response to the Pandemic Emergency”).

For this purpose, the ECAF defines the procedures, rules, and techniques which ensure that the Eurosystem requirement of high credit standards for all eligible assets is met (ECB 2015). The assessment of the credit quality is the first step for establishing the eligibility of marketable assets and credit claims and for assigning a suitable haircut. The Eurosystem takes into account information (ratings or probabilities of default) from credit assessment systems belonging to one of the following three sources: (1) external credit assessment institutions (ECAIs); (2) national central banks' In-House Credit Assessment Systems (ICASs); and (3) counterparties' Internal Rating-Based (IRB) systems.

To bring together in a harmonised fashion the information provided by all of these credit assessment systems, the ECAF makes the credit ratings from all accepted sources comparable by mapping each of their rating grades into an appropriate ‘credit quality step’ (CQS) within the Eurosystem's harmonised rating scale. First, the minimum credit quality requirement for the eligibility of all assets in the general framework (where a first best rating rule applies) is CQS 3 (corresponding to a BBB rating level) of this scale. Additional requirements are set for asset-backed securities

(ABSs).²¹ Second, the Eurosystem applies larger valuation haircuts to assets of lower credit quality, to achieve risk equivalence across all eligible assets.

The ratings assigned by the four recognised ECAIs within ECAF (DBRS Morningstar, FitchRatings, Moody's, Standard & Poor's) are mainly used for assessing the credit quality of marketable collateral, whereas ICASs and IRB systems are mainly used for credit claims. ECAIs are employed to assess close to 100% of the 1642 billion euros marketable assets mobilised as collateral (net of haircuts) for Eurosystem credit operations at the end of 2022. As regards non-marketable instruments and the so-called Additional Credit Claims²² (ACCs, accepted since December 2011), which amount to a net value of 881 billion euros, IRB systems are the most important source of valuation, being used to assess around 355 billion euros worth of credit claims. NCBs' ICASs are employed to assess 224 billion euros of non-marketable assets and ACCs, while ECAIs are employed for about 104 billion euros. The remainder of non-marketable instruments is valued with other minor sources.

Ratings from ECAIs are also used for the eligibility of assets in the context of the Eurosystem's asset purchase programmes.

To sum up, most of the financial risks borne by the Eurosystem's balance sheet arise from assets evaluated by rating agencies, which therefore play a prominent role in the Eurosystem's risk assessment framework.

3.2 The Use of Credit Ratings for Monetary Policy by Other Major Central Banks and Recent Changes in Response to the Covid-19 Crisis

Similarly to the Eurosystem, other central banks rely on ratings issued by eligible rating agencies for the implementation of monetary policy. This section briefly illustrates current practices in the use of credit ratings by other central banks across the globe.

The Bank of Japan (BoJ) collateral eligibility guidelines²³ state that, with a view to maintaining the soundness of the central bank assets, the BoJ shall only accept collateral with sufficient creditworthiness. General eligibility standards for collateral require, among other things, that creditworthiness (i.e. repayment of principal and interest) should be considered high enough by the BoJ in light of various factors concerning the obligor, including its financial conditions and ratings by eligible rating agencies. In particular, bonds issued by the Fiscal Investment and Loan

²¹The Eurosystem accepts only most senior tranches of ABSs that have at least two 'single A' ratings and are backed by a homogeneous and publicly reported pool of assets.

²²Additional Credit Claims are those bank loans that do not fulfil the ordinary framework's eligibility requirements but satisfy the wider criteria set by each national central bank, which bears the related financial risks.

²³See "[Guidelines on Eligible Collateral](#)" of Bank of Japan.

Program (FILP) agencies (which belong to the General Government) should be rated A or higher by at least two eligible rating agencies; foreign government bonds should be rated AA or higher by at least two eligible rating agencies; ABSs should be rated AAA by at least one eligible rating agency; and corporate bonds should be rated A or higher by at least one eligible rating agency. The Terms and Conditions for Outright Purchases of Commercial Paper and Corporate Bonds²⁴ state that the following eligibility criteria, among others, should be satisfied: for commercial paper, an a-2²⁵ rating or higher by an eligible rating agency; for asset-backed commercial paper, an a-1 rating by an eligible rating agency; for corporate bonds a BBB rating or higher by an eligible rating agency; for bonds issued by Real Estate Investment Corporations an AA rating or higher by an eligible rating agency.

The Bank of England (BoE) publishes broad collateral eligibility criteria for its operations,²⁶ which set a baseline for collateral quality. Ratings assigned by rating agencies are only indicative of the broad standards of credit quality expected for eligible securities. The BoE develops its own independent view of the risks in the collateral it takes, by accepting only those securities that it can value and manage effectively from a risk perspective. In the context of the Asset Purchase Facility, in August 2016, the BoE launched the Corporate Bond Purchase Scheme (CBPS), which consisted in purchasing sterling-denominated non-financial investment-grade corporate bonds. The CBPS eligibility criteria provided, among others, that the BoE would offer to purchase sterling corporate bonds of eligible issuers as long as the bonds were rated investment grade by at least one major rating agency, subject to the BoE's assessment process. In February 2022, the BoE began to reduce the stock of corporate bond purchases, by ceasing to reinvest maturing assets and by carrying out corporate bond sales to be completed by the end of 2023, fully unwinding the Bank's corporate bond portfolio.

The Federal Reserve Collateral Guidelines²⁷ provide that securities must meet the regulatory definition of investment grade at a minimum, and in some cases must be of AAA-rating quality. If a security has more than one credit rating assigned, the most conservative (lowest) rating will be utilised. In the context of the measures adopted during the Covid-19 crisis, the Federal Reserve established on 23 March 2020 the Secondary Market Corporate Credit Facility. Under this programme, the US central bank lent, on a recourse basis, to a special purpose vehicle (SPV) that purchased, in the secondary market, corporate debt issued by eligible issuers.²⁸ To qualify as an eligible issuer, the issuer must satisfy, among others, the following conditions: (a) the issuer was rated at least BBB-/Baa3 as of 22 March 2020, by a major 'nationally recognized statistical rating organization' (NRSRO). If rated by

²⁴https://www.boj.or.jp/en/mopo/measures/term_cond/yoryo83.htm/

²⁵Such classification refers to short-term ratings.

²⁶See "Collateral management in central bank balance policy operations" of Bank of England.

²⁷See "Federal Reserve Collateral Guidelines".

²⁸The Facility ceased purchasing eligible assets on 31 December 2020.

multiple major NRSROs, the issuer must be rated at least BBB-/Baa3 by two or more NRSROs as of 22 March 2020; (b) an issuer that was rated at least BBB-/Baa3 as of that date but was subsequently downgraded, must be rated at least BB-/Ba3 as of the date on which the Facility makes a purchase. If rated by multiple major NRSROs, such an issuer must be rated at least BB-/Ba3 by two or more NRSROs at the time the Facility makes a purchase; (c) in every case, issuer ratings are subject to review by the Federal Reserve.

In its Terms and Conditions for its payment system and monetary policy instruments,²⁹ Sweden's Riksbank provides that a security must have at least the 'lowest acceptable' credit rating (corresponding to AA-) to be eligible as collateral; the credit rating must be confirmed by one or more of the rating agencies recognised by the Riksbank. In any case, the Swedish central bank reserves the right to rely on its own assessment to determine whether a security is accepted as collateral. As regards the purchase programme of corporate bonds, which was in place from September 2020 to December 2022, it involved corporate bonds issued in Swedish krona by Swedish NFCs and bonds had to meet, among others, the following criteria: (1) credit ratings no lower than Baa3/BBB-, from any of the credit rating agencies Standard & Poor's, Moody's, FitchRatings, Nordic Credit Rating or Scope Ratings or, if they had no such rating, be issued by companies with credit ratings no less than Baa3/BBB- from the same agencies; (2) if the company and/or the bonds had more than one credit rating, none of these could be below the lowest accepted credit rating; and (3) on the purchase date, there should be no indications that any of these credit ratings might have fallen below the lowest acceptable credit rating level.

In a slightly different context related to the management of foreign reserves, the Bank of Canada (BoC) has reduced its reliance on rating agencies. In 2017, the BoC published a detailed technical description of the methodology to assign internal credit ratings to sovereigns, using publicly available data only.³⁰ The methodology relies on fundamental credit analysis that produces a forward-looking and 'through-the-cycle' assessment of the investment entity's capacity and willingness to pay its financial obligations, resulting in an opinion on the relative credit standing or likelihood of default. This methodology is currently employed to assess eligibility and inform investment decisions in the management of Canada's foreign exchange reserves.

To sum up, the available evidence about other major central banks shows that they tend to rely on rating agencies for both collateral assessment purposes and for purchase programmes but they do so to a varying degree.

²⁹ See "Terms and Condition for RIX and monetary policy instruments" of Sveriges Riksbank.

³⁰ See Muller and Bourque (2017).

3.3 *The Recent Policy Debate*

In recent years, a number of academics and practitioners have discussed ways in which central banks may reduce their reliance on credit ratings, especially for sovereign assets. Orphanides (2017) and Clayes and Goncalves Raposo (2018) recommend that the Eurosystem discontinue making use of agency sovereign ratings and rely instead on the assessment of sovereign risk either developed internally by the Eurosystem or provided by another European public institution such as the ESM.³¹

The arguments put forward by Orphanides (2017) can be summarised as follows. The ECB has an obligation to ensure that the government debt it accepts constitutes ‘adequate’ collateral and protects the financial position of the ECB.³² While the ECB should not penalise governments by unnecessarily restricting the use of good collateral, the ECB cannot accept government bonds of a member state as collateral if it knows that the fiscal fundamentals of that member state are not sustainable. This suggests that the criterion for assessing collateral eligibility should be fundamentals-based sustainability analysis rather than agency ratings. In the author’s view, such analysis should be performed independently by the ECB. As long as debt is deemed sustainable on the basis of a fundamentals-based evaluation, it should be considered as eligible collateral regardless of credit ratings. Orphanides concludes that the ECB could protect its financial position in its collateral framework via the appropriate use of a graduated schedule of haircuts based on indicators of fiscal fundamentals.

Similar views have been expressed by the Bruegel think-tank (Clayes and Goncalves Raposo, 2018). An alternative to rating agencies in the collateral framework would be for the ECB to use its own assessment of a sovereign’s credit risk to set haircuts, as the Bank of England and other central banks do. The ECB is admittedly in a much more complex situation than a central bank that deals with a single fiscal authority, as it has to deal with the multi-country nature of the euro area and with the potential distributional consequences that significant ECB losses could induce across countries (through a reduction of future profits distributed to member states or even higher inflation). In this context, to avoid the risk of the ECB appearing politicised (as in February 2015, when it decided to withdraw the waiver that was making Greek bonds eligible as collateral despite their low rating), according to these authors, it might be preferable for the ECB to rely on the risk assessment provided by external entities, e.g. the ESM. Clayes and Goncalvo Raposo conclude that this situation would not be perfect either, as it could lead to

³¹In a similar vein, Vernazza and Nielsen (2015) suggest that credit rating agencies should be stripped of their regulatory powers for sovereign ratings.

³²This view has been expressed by the same author also in a more recent paper (Orphanides 2020); according to the author, the ECB should draw on the success of the temporary measures adopted in April 2020 in response to the pandemic and eliminate cliff effects in its collateral framework on a permanent basis, by ceasing the delegation of the determination of collateral eligibility of government debt to private credit rating agencies. In the same vein, see also Lengwiler and Orphanides (2021).

heated political debates among countries at the ESM. Nonetheless, they argue that it would still be better than delegating these decisions to rating agencies, which cannot be held accountable for their potential mistakes and for the pro-cyclicality of their ratings.

3.4 Reducing Reliance on Credit Rating Agencies: Progress Made So Far by the Eurosystem

Making the reliance on agency ratings less mechanistic was one of the recommendations issued by the FSB in 2010.³³ This recommendation was addressed to a broad range of private and public market players and investors, including central banks. The FSB Principles do not imply that market participants should avoid altogether the use of credit ratings but suggest that the use of such ratings be combined with their own judgement on creditworthiness. Furthermore, the FSB principles do not imply that market participants should mechanistically rely on another source, other than agencies, to provide credit ratings, as this could lead to pro-cyclicality in exactly the same way as the use of agency ratings.³⁴ In this respect, the Eurosystem is engaged in reducing its reliance on credit rating agencies along two paths.³⁵ The first one aims at better understanding the rating processes and methodologies adopted by the rating agencies accepted in the ECAF (ECB 2016). The second path is meant to enhance the Eurosystem's internal credit assessment capabilities, in particular by increasing the number of NCBs' ICAs for NFCs and by establishing a due diligence process in the context of the asset-backed securities, covered bond and corporate bond purchase programmes (Bindseil et al. 2017).

In principle, the ECAF provides the Eurosystem with a set of tools that prevent a mechanistic reliance on any rating system.³⁶ The first tool is an intensive monitoring process, in cooperation with the provider of the credit assessment system, including an investigation to determine whether and how a specific performance problem (e.g. realised defaults being higher than the relevant CQS threshold) is being addressed.

In addition, the ECB's Governing Council can: (1) remap a system's rating grades onto the Eurosystem's harmonised rating scale; (2) define specific eligibility requirements related to credit assessment systems; (3) apply discretionary measures; and (4) exclude or temporarily suspend a credit assessment system. Furthermore, regular

³³ See FSB (2010).

³⁴ See FSB (2014).

³⁵ See the Eurosystem reply to the European Commission's public consultation on credit rating agencies of February 2011.

³⁶ See the ECB's Public Guideline on ECAF rules.

surveillance reports published by the ECAIs are required for ABSs to be eligible as collateral; for covered bonds, new issue reports and quarterly surveillance reports are required to understand the credit ratings and to ensure their reliability both at the set-up of the covered bond programme and on an on-going basis. The Governing Council may also decide to suspend, subject to specific conditions, the credit quality threshold for debt instruments issued by certain euro area governments. Additional work has been done to improve the due diligence conducted on the ECAIs' ratings, rating processes, and methodologies, particularly in the areas of sovereign ratings and structured finance.³⁷

For asset purchase programmes, the Eurosystem conducts credit risk assessment and due diligence prior to the purchase of eligible assets in the context of the Covered Bond Purchase Programme 3 (CBPP3), the Asset-Backed Securities Purchase Programme (ABSPP), and the Corporate Sector Purchase Programme (CSPP). The due diligence aims at identifying those issuers which, although fulfilling the minimum rating criterion, are considered as risky and therefore are excluded or limited from purchases.

Finally, the increased number of ICASs developed by NCBs in recent years has enhanced the Eurosystem's internal capabilities in the field of credit risk assessment, providing an alternative to agencies' ratings.

All these enhancements of internal due diligence and risk assessment capabilities are steps towards further reducing the Eurosystem's reliance on credit rating agencies, in line with similar initiatives by international public authorities to reduce reliance on credit rating agencies in legal, regulatory and other public frameworks.

In response to the coronavirus pandemic, in April 2020, the ECB's Governing Council adopted a broad set of policy measures, temporary in nature, to mitigate the economic impact of the crisis, similarly to what was being done by other central banks (see Sect. 3.2). The first package consisted of collateral easing measures to facilitate banks' access to Eurosystem liquidity operations. A second set of measures aimed at alleviating the effects of potential rating downgrades on collateral availability (see chapter "The Eurosystem Collateral Framework and the Measures Introduced in Response to the Pandemic Emergency").

In March 2022, the Governing Council of the ECB decided to gradually phase out the pandemic-related collateral easing measures in place since April 2020 (see chapter "The Eurosystem Collateral Framework and the Measures Introduced in Response to the Pandemic Emergency"). On that occasion it was confirmed that *'the ECB's Governing Council reserves the right to deviate also in the future from credit rating agencies' ratings if warranted, in line with its discretion under the monetary policy framework, thereby avoiding mechanistic reliance on these ratings'*.

Such a commitment is witnessed, although indirectly, also by the Eurosystem's Action Plan announced in July 2021,³⁸ for the inclusion of climate change considerations in its monetary policy strategy, and by the additional steps to incorporate

³⁷ See ECB (2015).

³⁸ See Visco (2021) and NGFS (2021).

climate change into its monetary policy operations, announced in July 2022. These measures take into account climate-related financial risk in the Eurosystem balance sheet and support the green transition of the economy in line with the EU's climate neutrality objectives.

In particular, to improve the external assessment of climate-related risks, the Eurosystem will urge rating agencies to be more transparent about how they incorporate climate risks into their ratings and to be more ambitious in their disclosure requirements on climate risks, also closely liaising with the relevant European authorities. To enhance its internal ratings, the Eurosystem agreed on a set of common minimum standards for how ICASs should include climate-related risks in their ratings.³⁹ These standards will enter into force by the end of 2024.

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³⁹See ECB (2022).

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