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How do central bank collateral frameworks affect non-financial firms?

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Central banks implement monetary policy by extending credit to banks, for example via standing facilities or long-term refinancing operations. In addition to setting policy rates, central banks also specify in their collateral framework which financial assets banks can pledge to obtain central bank funding. Here we discuss the design of collateral frameworks for the case of corporate sector assets. This is particularly relevant in countries where the supply of safe government bonds is insufficient to satiate collateral demand.

Since corporate sector assets are subject to default risk, central banks expose themselves to additional risks when accepting these assets as collateral. Therefore, corporate bonds are only eligible as collateral if they satisfy a minimum rating requirement. During the financial crisis of 2008/09, several central banks started accepting corporate bonds and related debt instruments or relaxed the eligibility requirements for such assets (see table 1). By extending the pool of eligible assets, this so-called collateral easing policy ensures smooth conduct of monetary policy.

Table 1: Non-Financial Corporate Bonds in Various Collateral Frameworks

Central Bank	Pre GFC (Min. Rating)	Post GFC (Min. Rating)	Post Covid-19 (Min. Rating)
Australia	No	Yes (AAA)	Yes (BBB)
Eurosystem	Yes (A)	Yes (BBB)	Yes (BB, temporarily)
Japan	Yes (A)	Yes (BBB)	Yes (BBB)
Switzerland	Yes (AA)	Yes (AA)	Yes (AA)
United Kingdom	No	Yes (A)	Yes (A)
United States	Yes (AAA)	Yes (AAA)	Yes (BBB)

Assessing the effects of collateral easing must also consider endogenous responses of the non-financial sector – the collateral supply side. These responses stem from the eligibility premia that banks are willing to pay for holding eligible assets and are documented in Todorov (2020), Pelizzon et al. (2020) and Mesonnier et al. (2021). Grosse Rueschkamp et al. (2019) show that especially highly rated firms respond to lower eligibility requirements by increasing their debt issuance and leverage, which in turn has negative effects on their repayment performance.¹

In a new paper (Kaldorf and Wicknig, 2021), we study the impact of eligibility requirements on the debt issuance and default risk of firms and discuss how relevant these firm responses are for the effectiveness of collateral easing. Our analysis is based on a dynamic corporate capital structure model, augmented by eligibility premia. These premia reduce the costs of debt financing and therefore make debt issuance more attractive. We organize our analysis around the eligible debt capacity, which we define as the amount of bonds firms can issue before dropping below the minimum rating requirements.

Profitable firms – which do not exhaust their eligible debt capacity – respond to collateral easing by increasing their debt issuance: a risk-taking effect. Those firms take advantage of cheaper

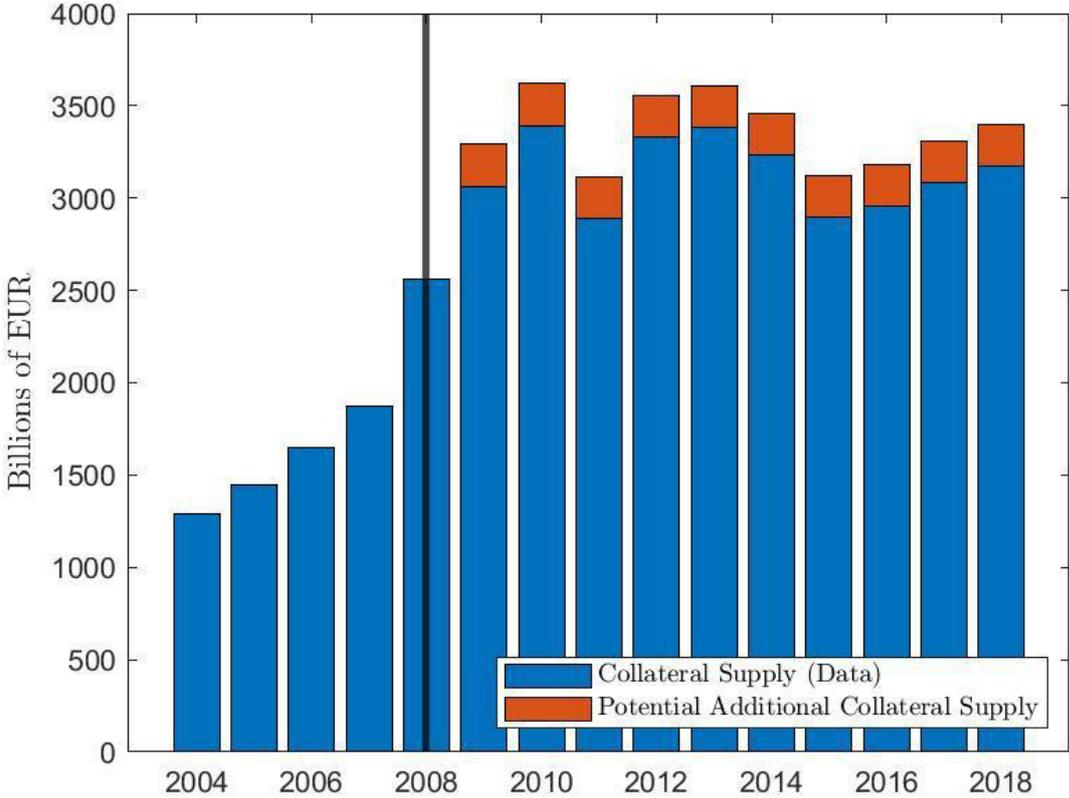
*This blog was [posted](#) on the World Bank Group [All About Finance](#).

¹ Van Bakkum et al. (2018) provide similar evidence using Dutch MBS data.

debt financing and increase dividends. By contrast, less profitable firms respond to the prospect of eligibility by constraining their debt choice to benefit from the eligibility premia banks are willing to pay on their bonds: a disciplining effect.²

We then evaluate the effects of collateral easing from A to BBB – consistent with the European Central Bank’s policy in 2008 – through the lenses of our model. A reduction of the minimum rating for eligibility mechanically increases the supply of collateral by a substantial amount. At the same time, endogenous firm responses have an adverse effect on collateral supply. While the total amount of corporate bonds outstanding goes up, elevated default risk (and the associated rating downgrades) depresses the amount of eligible bonds. Consistent with empirical evidence at the firm level, the risk-taking effect exceeds the disciplining effect on the macroeconomic level. We illustrate the macroeconomic relevance of firm responses in figure 1: the actual collateral supply is marked in blue, and the orange bars represent the additionally available collateral in the hypothetical scenario where firms do not change their behavior in response to collateral easing.

Figure 1: Collateral supply in the euro area over time



The dampening effect of firm responses is associated with the debt-overhang problem that eligibility inflicts on high-rated firms: increasing leverage in periods of high profitability has little effect on their current default risk and, therefore, makes it easy for firms to increase current dividends. Ultimately, however, firms will experience periods of low profitability – for example, if their business models deteriorate or their products become unfashionable. This makes their legacy debt unsustainable, such that firms drop below the minimum rating

² Our model is also applicable to other situations where eligibility induces a jump in bond demand, for example the eligibility on repo markets or for QE programs. Similar discontinuities are also induced by investment fund regulation: due to regulatory restrictions, bonds that are just rated Investment Grade (BBB-) experience large demand increases relative to those still rated High Yield (BB+).

requirement or even default. The underlying reason for these dynamics is the “stickiness of leverage” (see Gomes et al. 2016).³

Firm responses directly affect the central bank trade-off that guides the design collateral frameworks: increasing the supply of collateral ensures smooth conduct of monetary policy while the overall riskiness on the corporate bond market rises. Although our results suggest that central banks should consider firm responses when designing their collateral frameworks, we also propose a potential instrument to mitigate adverse collateral quality effects: conditioning eligibility on current leverage in addition to current ratings provides incentives to deleverage if firm profitability deteriorates and thereby softens the adverse consequences of the debt overhang. In practice, such conditioning can be implemented by rating outlooks in addition to current ratings. Our model predicts that an optimally designed eligibility covenant could have increased collateral supply by 12%, equivalent to EUR 225 billion for the euro area in 2009.

Finally, our paper speaks to the ongoing discussion on green central banking. This policy is supposed to stimulate the investment of green firms by relaxing their financing conditions through preferential treatment in collateral frameworks. Our analysis suggests that there may be nonnegligible feedbacks from firm risk taking to collateral supply and financial stability. We explore the effectiveness of this policy instrument in detail in a related paper (Giovanardi, Kaldorf, Radke, and Wicknig 2021).

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³ Our results primarily apply to permanent changes in collateral frameworks, rather than relaxations for a short predetermined period. However, as table 1 suggests, collateral framework changes have been very persistent.