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The 2012 eurozone crisis and the ECB's OMT program: A debt-overhang banking and sovereign crisis interpretation

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ABSTRACT

This paper develops a model that accounts for the main features of the eurozone crisis and studies the effect of a program of sovereign-debt purchases carried out by a central bank partly owned by the foreign sector. In the model, bank lending is distorted by debt overhang, banks hold sovereign debt, and the government taxes output and guarantees banks' liabilities. At the height of a crisis, there is uncertainty about whether the crisis is driven by self-fulfilling expectations (SFEs) or by weak economic fundamentals. A potentially unlimited program eliminates an SFEs-driven crisis, but can generate financial losses and moral-hazard distortions—adding conditionality avoids these losses and distortions.

1. Introduction

The sequence of events surrounding the 2012 eurozone crisis and the ECB policy response is striking. In 2011 and the first half of 2012, credit spreads of banks and governments in both Italy and Spain rose sharply. In response, the ECB introduced in early September 2012 the Outright Monetary Transactions (OMT) program, which was designed to purchase sovereign debt, under conditionality, for potentially unlimited amounts. Right after the introduction of the OMT program, credit spreads began a steady decline and returned to their pre-crisis levels, even though the program was not used. There is evidence that part of the credit spreads' decline was due to the introduction of the program (Altavilla et al., 2016; Krishnamurthy et al., 2017; Szczerbowicz, 2015).[1]

This paper develops a model that accounts for the main features of the eurozone crisis and studies the effect of a program of sovereign-debt purchases carried out by a central bank that is partly owned by the foreign sector.

In the model, banks have liabilities that distort their lending choices (Myers, 1977), and hold risky government bonds on their asset side. The government taxes output and guarantees the banks' liabilities. The tax revenue rises with output, while the cost of bailing out the banks declines with output, so the value of the risky government bonds increases with economic prospects. These features generate a feedback loop between banking and sovereign risk: an increase in banking risk raises the debt-overhang distortion and discourages lending and production, which lowers the value of government bonds and of banks' assets and further raises banking risk.

Under certain conditions on preferences and fiscal policy (high elasticity of intertemporal substitution and high tax rate), banks' lending decisions are strategic complements (Cooper and John, 1988), which can lead to multiple equilibria and to

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[1] A supplementary appendix available online reviews the main eurozone-crisis events that are relevant for this study.

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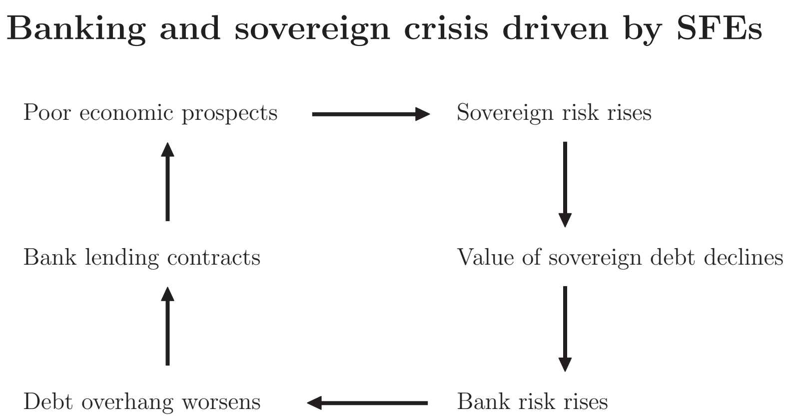

Fig. 1. Debt-overhang mechanism generating a banking and sovereign crisis driven by SFEs.

a crisis driven by self-fulfilling expectations (SFEs). If there are pessimistic economic expectations, the value of government bonds and banks' assets decrease, banking risk and the debt-overhang distortion increase, bank lending and economic activity contract, and this confirms the initial pessimistic expectations (Fig. 1).

First, the paper compares a model's crisis driven by SFEs to one driven by weak economic fundamentals (lower productivity and greater fiscal imbalance). Economic variables behave similarly in the two types of crises, which suggests that, at the height of a crisis, there is uncertainty about what is the crisis's main driver.

Next, the paper studies the effect of introducing a program of sovereign-debt purchases, for potentially unlimited amounts, without conditionality. The main effect of the program's introduction is to eliminate the multiplicity of equilibria. In the case of a crisis driven by SFEs, then, a commitment by the central bank to purchase the government bonds at pre-crisis market spreads manages to eliminate the crisis equilibrium.

The program, however, can generate financial losses and moral-hazard distortions. To model moral-hazard distortions, we let the government adjust its spending level in response to the introduction of the program. The government may have an incentive to expand its spending, since any financial loss associated with its own default is partly sustained by the foreign sector. In the case of a crisis driven by SFEs, whether the program encourages the government to expand its spending and to default depends on the benefit of the resulting transfer from the foreign sector and the cost of an inefficiently high level of government spending. In the case of a fundamentals-driven crisis, however, the government always defaults in equilibrium and the program always encourages the government to expand its spending.

The potential for losses and distortions suggests making the program conditional on a constraint on government spending. In the final section, the paper shows that a program with conditionality manages to eliminate a crisis driven by SFEs, while avoiding the losses and distortions that the unconditional program can generate. Taken all together, conditional bailout guarantees are effective in the SFEs case while protecting the central bank's balance sheet, whereas unconditional bailout guarantees risk losses and distortions.

The rest of the paper is organized as follows. Section 2 discusses the paper's contribution to the literature. Section 3 describes the model, the debt-overhang mechanism, the strategic complementarity of banks' lending decisions and the potential for multiple equilibria. Section 4 compares a crisis driven by SFEs and a crisis driven by fundamentals. Section 5 shows how a program of sovereign-debt purchases eliminates a crisis driven by SFEs and how conditionality avoids the financial losses and moral-hazard distortions. Section 6 concludes.

2. Contribution to the literature

This paper contributes to the recent literature that interprets the eurozone crisis as driven by SFEs in two ways.

First, the paper enhances our understanding of how to design an effective program when there is uncertainty about the crisis's main driver. It examines the different effects of the program in the cases where the crisis is driven by SFEs and by fundamentals. It highlights the program's effectiveness in the SFEs case and the potential for financial losses and moral-hazard distortions in both cases. It studies the effects of programs with and without conditionality and provides a rationale for adding conditionality by showing that a conditional program eliminates an SFEs-driven crisis while avoiding losses and distortions.

Second, the paper develops a new framework of equilibria multiplicity based on strategic complementarity of banks' lending decisions. The framework captures the interconnectedness and feedback loop between banking and sovereign risk that characterized the eurozone crisis. It allows the analysis of the effect of policies on key banking and sovereign variables such as banking and sovereign credit spreads, banks' lending, government spending, and banks' equity-asset ratios.

Some of the papers that interpret the eurozone crisis as driven by SFEs use mechanisms based on Calvo (1988), where pessimistic expectations on government solvency raise the risk premium and interest rate on government debt, which in