

Do TARGET balances determine the macroprudential policy effects?*

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Abstract

The cross-border payment transactions between countries of the Eurosystem originate the TARGET balances of the national central banks vis-à-vis the European Central Bank. This payment platform contributes to financial integration in the Euro Area, what brings numerous advantages for the national and worldwide economies. However, it also entails the risk of fast crisis contagion and widespread economic and financial destabilization. Thus, there is an important role for macroprudential policy in this context, to ensure a sustainable and stable financial integration. But the stabilization properties and spillovers of macroprudential regulation vary across countries. Using a two-country new Keynesian model for a monetary union I find that the international financial positions of the economies might determine the macroprudential policy effects after a symmetric financial shock.

Keywords: international financial markets, public leverage, stabilization.

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1 Introduction

The Euro Area is in the forefront of international financial integration. But, despite its advantages, financial integration might increase the speed of a crisis contagion entailing financial stability risks. This leads to consider the importance of macroprudential measures to achieve a sustainable financial integration by preventing excessive credit growth and limiting risk-taking in the financial sector.

In this analysis macroprudential policy seeks for economic stability after a financial shock that consists of a credit risk increase in the private sector. I borrow the relevance of financial shocks from Christiano et al. (2010), who find these shocks responsible for great part of business cycle fluctuations.

The analysis of macroprudential measures takes on particular significance in the context of the Eurosystem payment platform, TARGET2, that implies increasing financial integration. The cross-border money flows executed through TARGET2 generate the claims and liabilities of the national central banks vis-à-vis the European Central Bank (TARGET balances). This paper is motivated by the fact that TARGET balances determine the stabilization effects of macroprudential policy. The main novelty of the research lies on the analysis of the role of the international financial position in the transmission of macroprudential measures.

I model a two-country monetary union where a country is a net international lender, representing the countries with the largest target claims of the Euro Area (Germany, The Netherlands and Luxemburg). The other country of the model is a net international borrower, that could represent the countries of the Euro Area with the largest TARGET liabilities (Italy, Spain and Portugal)¹.

This paper is a follow-up of de Blas and Malmierca (2019). The authors explain, that after a financial shock, a negative correlation arises between private and public debt, which they call the *private-public debt channel* and amplifies the business cycle (see de Blas and Malmierca, 2019 for further explanation). One possible way to offset the channel and mitigate the effects of the financial shock is implementing macroprudential policy.

The contribution of this analysis is twofold. First, I compare, through a Dynamic Stochastic General Equilibrium (DSGE) model, the effects of a financial shock in countries with different international financial positions. Second, the paper analyzes the stabilization properties and spillovers, across countries of a currency area, of different macroprudential instruments and implementations.

¹Hereinafter, I will refer to the Net International Lender as the NIL country and to the Net International Borrower as the NIB country.

When implementing macroprudential policy, the corresponding authorities should consider a set of financial indicators depending on their objectives. This paper analyzes this particular area. I compare two macroprudential measures, differentiated by the financial indicator they target. Moreover, non coordinated macroprudential measures in the Euro Area might entail negative spillovers counteracting overall financial stability. This motivates the analysis of scenarios in which one country does not implement macroprudential regulation while the other does. However, as explained by Rubio and Carrasco-Gallego (2016), countries in the union might coordinate in the use of macroprudential policy. Thus, I also study a scenario in which both countries agree to implement macroprudential policy.

2 The model

I build a two-country DSGE model for a monetary union, which is an open economy version of the Fernández Villaverde (2010).² To isolate the effects of the international financial position, there are complete international financial markets in the model³ and both countries are of equal size and symmetric, except for the fact that one is a net borrower and the other a net lender.

There is a common monetary authority and two national fiscal authorities. I use a standard calibration of the Taylor rule based on the literature (Christiano et al., 2011). Therefore, monetary policy is active (following Leeper, 1991), so the interest rate stabilizes inflation. According to Leith and Wren-Lewis (2006), to attain a determinate equilibrium in a monetary union with active monetary policy, each nation needs to stabilize its public debt through fiscal policy. Thus, in line with Leeper (1991), fiscal policy is passive.

Macroprudential policy is set at the national level. Based on Quint and Rabanal (2014), the macroprudential instrument reacts to deviations of the nominal credit growth or the credit-to-GDP ratio from their steady state after a financial shock.

The calibration of the parameters is based on Malmierca (2020).

²See de Blas and Malmierca (2019) and Malmierca (2020) for a detailed description of the model

³As opposed to Malmierca (2020) and in line with the existing literature (Faia, 2001 or Gali and Monacelli, 2005).

3 Results

This open economy model evaluates the effects of macroprudential policy depending on the country being an international lender or borrower.⁴

Figure 1 depicts the percentage deviation of the main economic variables from their steady state after a private credit risk increase. In the event of this shock, both countries experience a financial destabilization, transmitted to the broader economy. The immediate consequence of the shock is that financial conditions to the private sector are toughened, decreasing private debt. Then private investment and GDP fall in both countries. In the NIL country, public revenues decrease due to proportional taxes, what raises public debt and generates the private-public debt channel (see de Blas and Malmierca, 2019). The financial shock also reduces international loanable funds, so the country borrowing from abroad increases national loanable funds (deposits) to satisfy its national demand for private credit. As deposits are taxable, the economic recession raises public revenues in the NIB country what brings down public debt and implies a positive correlation between the latter and private leverage. Therefore, the effects of the financial shock on an economy, and more concretely on government liabilities, vary depending on its international financial position. This reinforces the link between the private and the public sector and provides a rationale for the absence of the private-public debt channel in some countries after financial shocks.

Tables 1 and 2 show the stabilization divergences in both countries of the currency union after the financial shock. This shock destabilizes more the NIB country's GDP but implies higher private and public debt destabilization for the NIL country. The passive fiscal policies in place are responsible for the opposite government spending responses to the shock in each country, given that public leverage moves in opposite directions. Therefore, the decrease of government spending in the NIL country, contributes to a more persistent but less volatile fall of GDP than in the NIB country.

I analyze how the stabilization effects of macroprudential measures depend on the international financial position. With that aim, I study three different macroprudential scenarios: first macroprudential implementation only by the NIL country; second, macroprudential implementation only by the NIB country; and, finally, coordination in the macroprudential implementation.

Regarding financial stability, each country achieves the greatest stabilization of pri-

⁴The steady state values of imports in the NIL, $\frac{c_F}{y} = 0.2$, and the NIB country, $\frac{c_H^*}{y^*} = 0.1$, determine their international financial positions.

Table 1: Nominal credit growth target. Standard deviations for alternative macroprudential implementations under a credit risk shock.

Variable	No macroprudential tool	Lender macroprudential	Borrower macroprudential	Both macroprudential
<i>Net international lender</i>				
GDP	0.0154	0.0125	0.0166	0.0135
Private debt	0.0768	0.0434	0.0847	0.0468
<i>Net international borrower</i>				
GDP*	0.0184	0.0166	0.0121	0.0159
Private debt*	0.0725	0.0830	0.0426	0.0469

Table 2: Credit-to-GDP ratio target. Standard deviations for alternative macroprudential implementations under a credit risk shock.

Variable	No macroprudential tool	Lender macroprudential	Borrower macroprudential	Both macroprudential
<i>Net international lender</i>				
GDP	0.0154	0.0254	0.0167	0.0271
Private debt	0.0768	0.0114	0.0919	0.0118
<i>Net international borrower</i>				
GDP*	0.0184	0.0140	0.0264	0.0356
Private debt*	0.0725	0.0912	0.0106	0.0106

Note: These results are the standard deviations to a standard deviation credit risk shock with $\eta_\sigma = 0.560$. Variables with superscript * belong to the international borrower country while those without superscript refer to the international lender.

vate debt when it is the only one implementing macroprudential regulation. But, for each country, the scenario that destabilizes private debt the most is the one in which its neighbor implements macroprudential policy alone. Therefore, if a country seeks for stabilization of private debt it needs macroprudential measures in its policy mix, no matter the strategy undertaken by its neighbor.

Regarding macroeconomic stability, there are differences in the macroprudential spillovers across the union. On the one hand, when the NIB country implements macroprudential policy the lower fall of its private debt raises both deposits and international loanable funds. The rise of deposits results in a reduction of private consumption in the NIB country. Consequently, net exports and GDP of the NIL country go down. This explains how macroprudential policy implemented by the NIB country destabilizes the NIL country's GDP. On the other hand, if the NIL country uses macroprudential measures alone, the fall of international funds is moderated while the fall of NIB country's private debt is not smoothed by the lender's macroprudential policy. Thus, the need for an increase of deposits in the NIB country, to satisfy the demand of credit, disappears. The latter reduces tax revenues, increasing public debt and activating the private-public debt channel in the NIB country. Then, government spending in the NIB country goes down contributing to a more persistent and stable fall of GDP. Therefore, macroprudential policy implemented only in the NIL country stabilizes the NIB country's GDP with respect to the no macroprudential case. This evidences that macroprudential spillovers across the monetary union depend on the lender-borrower position of each country.

The macroprudential effects and spillovers also vary depending on the financial variable it targets. I consider two macroprudential instruments, one reacting to the nominal credit growth and another that targets the credit-to-GDP ratio. After a financial shock, a macroprudential instrument based on the nominal credit growth, attains both macroeconomic and financial stability in the country that implements it. When the credit-to-GDP is the target, macroprudential policy stabilizes private debt more than when it targets the nominal credit growth, at the cost of destabilizing GDP. These results are consistent with the findings of de Blas and Malmierca (2019). But, the effects of macroprudential policy might go beyond the national borders. The novelty of this analysis is that it allows to evaluate the spillovers across countries of a monetary union. Tables 1 and 2 show that the stabilization effects of macroprudential policy in a NIL and a NIB country differ, not only quantitatively but also qualitatively. The correlation between private and public debt for each macroprudential policy implementation, is contained in Table 3 or 4, depending on the financial indicator.

Table 3: Nominal credit growth target. Correlation between public and private debt under a credit risk shock.

	No macroprudential tool	Lender macroprudential	Borrower macroprudential	Both macroprudential
NIL	-0.2616	0.1446	-0.4235	0.5812
NIB	0.0460	-0.1286	0.3383	-0.2778

Table 4: Credit-to-GDP ratio target. Correlation between public and private debt under a credit risk shock.

	No macroprudential tool	Lender macroprudential	Borrower macroprudential	Both macroprudential
NIL	-0.2616	0.6291	-0.8880	-0.6532
NIB	0.0460	-0.2817	0.7238	0.7425

Note: NIL refers to the net international lender and NIB to the net international borrower.

If the macroprudential tool reacts to the nominal credit growth (see Table 1), national GDP is most stabilized by national macroprudential policy. Macroprudential implementation by the NIB country implies destabilization of the NIL country's GDP. Therefore, if the NIL country aims at macroeconomic stability it has no incentive to free ride. However, macroprudential implementation in the NIL country does not destabilize the NIB country's GDP. Actually, for the NIB country the most destabilizing scenario in terms of GDP is the no macroprudential case. Thus, when macroeconomic stability is the objective, an international borrower might have an incentive to free ride because it attains GDP stability from macroprudential spillovers.

If the credit-to-GDP ratio is the target (see Table 2), macroprudential policy always implies macroeconomic destabilization in the country that implements it. More concretely, the scenario in which GDP is most destabilized for both economies of the union is the one in which they coordinately implement macroprudential measures. For both

countries, the scenario that stabilizes GDP the most does not include national macroprudential policy. Concretely, the greatest GDP stability in the NIL country is reached when there is no macroprudential regulation while in the NIB country is attained when only the NIB country implements it.

4 Conclusion

The first relevant outcome of this analysis is that the international financial position of a country is key for the transmission of macroprudential policy to its national economy and the cross-border spillovers.

Secondly, there is a common macroprudential outcome for NIB and NIL countries. According to de Blas and Malmierca (2019), after a financial shock, macroprudential policies always contribute either to financial stability (targeting the private debt-to-GDP ratio) or to macroeconomic stability (targeting the nominal private credit growth).

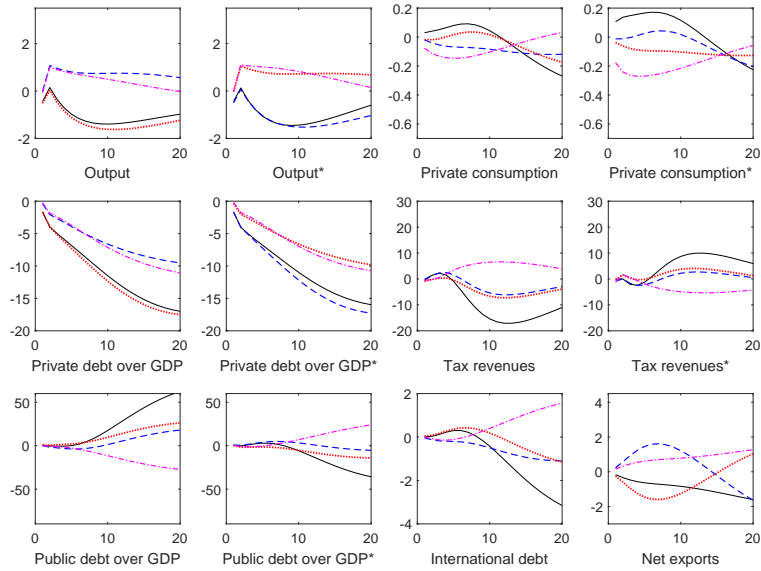
Finally, the private-public debt channel is not activated after a financial shock in the NIB country. The main reason is the effect of international financial markets on tax revenues. De Blas and Malmierca (2019) find that the private-public debt channel, originated after a financial shock, destabilizes the economy and that macroprudential measures might achieve economic stability by offsetting it. Malmierca (2020) explains that macroprudential policy might stabilize the economy even if it does not manage to offset the channel. This paper shows that the international financial position might cancel the private-public debt channel after a financial shock without stabilizing the economy.

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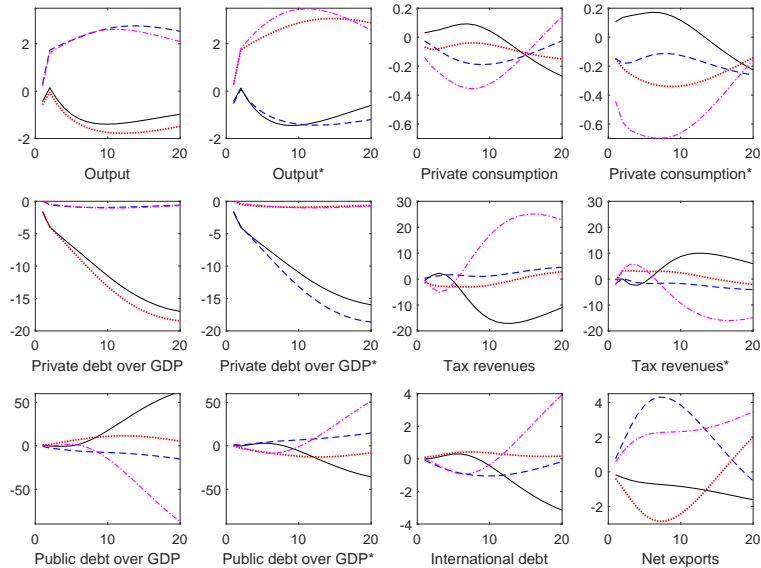
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Figure 1: IRFs to a 1 std. deviation rise in credit risk.

Nominal credit growth target:



Credit-to-GDP ratio target:



Note: The solid line is the No Macprudential scenario; the dashed line the lender macroprudential scenario; the dotted line the borrower macroprudential scenario; and the dash-dotted line to the coordinated macroprudential scenario. Superscript * denotes variables of the NIB country while NIL country variables are those without superscript.