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Bank asset reallocation and sovereign debt

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ABSTRACT

This paper examines how banks around the world have resized and reallocated their earning assets in response to the subprime and sovereign debt crises. We also focus on the interaction between sovereign debt and the asset allocation process. We find that banks have readjusted asset shares and the overall regulatory credit risk by substituting government securities for loans. Furthermore, they have been sensitive to variables of direct interest to the regulator and the supervisor, a result that is consistent with high-debt governments having exerting moral suasion on banks to favor the purchase of government securities over loans to the private sector.

1. Introduction

This paper examines how banks around the world have resized and reallocated their earning assets in response to the subprime and sovereign debt crises. We focus on three aspects of the reallocation mechanism: the substitution between securities and loans, in particular government securities and loans to the private sector (de-risking for short); the impact of total assets on the asset shares of loans and securities (de-leveraging for short); and the sensitivity of banks' decisions to variables that are of interest to the regulator and the supervisor. In this paper, regulators and supervisors have different roles: the regulator determines explicit and transparent rules, for example by assigning zero credit risk on holdings of government securities; the supervisor, on the other hand, affects banks' behavior in an indirect and less transparent way, for example by discouraging an "excessive" accumulation of government securities in a bank's portfolio. Of the two, the supervisor has more opportunity to exert moral suasion on banks than the regulator.

The initial impact of the subprime financial crisis occurred through the re-pricing of risk across a variety of assets and the shrinking of balance sheets. Then, recapitalization became increasingly costly, and leverage was effected by selling assets in illiquid markets. In the absence of fresh capital and without significant profits to retire debt in the short run, the

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de-leveraging process necessarily forces distress sales and falling asset values (Adrian and Shin, 2008, Figs. 2 and 5). The failure of Lehman Brothers on September 15, 2008 prompted governments to implement vast and costly rescue operations of their banking systems (Fratianni and Marchionne, 2013). Banks that received government assistance bought valuable time to restructure. Banks that did not receive assistance had to adjust more quickly.

Bank bailouts shifted risk from banks to governments (Acharya et al., forthcoming; Hryckiewicz, 2014). The sovereign debt crisis of 2010 in the Eurozone and the subsequent rise in spreads of government yields in the Southern countries relative to Germany's drove banks to purchase massive amounts of government securities, motivated also by carry-trade strategies.[1] Acharya and Steffen (2015) present evidence of this strategy in which government securities with a preferential treatment in capital regulatory risk weights and in government guarantees are an ideal collateral to obtain central-bank funding at very low rates. This phenomenon reached its zenith when the South of the Eurozone, facing a sudden stop and later a reversal in capital flows, became disconnected not only from the non-Euro money market but also from the money market in the North of the Eurozone.[2] The European Central Bank (ECB) launched in 2011 and 2012 two rounds of exceptional long-term lending to banks to ease the fragmentation in the inter-bank market.[3]

Despite these interventions, high interest rates on sovereign debt encouraged banks to invest in bonds (Gennaioli et al., 2015). The shift from bank loans to securities occurred with a home bias (Popov and van Horen, 2013; Levy and Levy, 2014; Ongena et al., 2015). Battistini et al. (2014) suggest three reasons for this bias (which is positively correlated with sovereign yield spreads): moral suasion exerted by governments issuing high-risk debt on banks to purchase more of this debt; the mentioned carry-trade motive, mostly by undercapitalized banks in periphery countries; and the superior hedge that domestic government securities provide over foreign euro-denominated securities against the possibility that the country may re-introduce a national currency.[4] A fourth reason is that banks' informational advantage on domestic securities increases during turbulent times (Saka, 2016). Furthermore, Becker and Ivashina (2015) find a positive correlation of government control, effected through direct equity holdings and board appointments, with banks' propensity to buy domestic sovereign debt.[5] Whether with or without home bias, undercapitalized banks raised the share of their assets in securities at the expense of private-sector credit. The implication is a displacement of investments, as in the model by Broner et al. (2013) where the sovereign, in turbulent times, issues high-interest rate debt that is so attractive to crowd out alternative forms of debt.

The nexus between banks and sovereign debt may generate vicious circles. The traditional view is that a credit crunch worsens borrowers' prospect of repaying outstanding loans, making banks riskier and necessitating further de-leveraging and de-risking. Angelini et al. (2014) offer the alternative explanation that the risk of an insolvent government permeates the entire economy and not just the banking system, making the surge in government debt in banks' portfolio a consequence of the crisis. Both interpretations predict a shift towards government securities in banks' portfolio during a sovereign debt crisis.

There are some recent studies on this topic. In Crosignani's model (2015), undercapitalized banks prefer domestic securities during crises because they receive a higher payoff when the sovereign services the debt while being protected by limited liability should the sovereign defaults; hence, the gamble for resurrection occurs with a home bias. In Sandleris' model (2014), sovereign defaults can lead to a decline in foreign and domestic credit to the domestic private sector, even if domestic agents do not hold sovereign debt; stronger domestic financial institutions can amplify this effect. Acharya et al. (forthcoming) model and test a two-way feedback between sovereign risk and bank credit risk and obtain that the positive relationship between public debt-to-GDP ratios and sovereign CDS premia is larger in countries with pre-bailout highly stressed banking sectors and higher debt ratios. Using dynamic panel methods, Buch et al. (2010) show that banks' first reaction to a domestic shock is to reduce foreign assets. Bofondi et al. (2013) found that with the onset of the sovereign debt crisis lending by Italian banks grew by approximately 3 percentage points less than lending by foreign banks operating in Italy, thus corroborating the negative impact of a debt shock on bank loans. Popov and van Horen (2013) and De Marco (2014) underscore the impact of a debt shock on banks' capital and funding channels, both of which reduce the supply of bank credit. Adelino and Ferreira (2014) apply difference-in-difference methodology to test the effectiveness of ceiling policies on banks' holdings of sovereign debt set by credit rating agencies, and find that sovereign downgrades lead to a 30 percent reduction in loan amounts for those banks close to the ceiling.

[1] In a carry trade strategy, undercapitalized banks "go long on high-risk, high-yield sovereign debt, funding such exposures either by going short on low-yield debt or by borrowing from the ECB" (Battistini et al., 2014:207).

[2] On sudden stops of capital flows, see Merler and Pisani-Ferry (2012); on the underlying factors of rising spreads in the Eurozone, see Alessandrini et al. (2014).

[3] Long-term refinancing operations or LTRO had a three-year maturity and carried an interest rate of one percent, i.e. the average of main refinancing operations MRO rates. €489 billion were utilized in December of 2011 and €529 billion in February of 2012. Italian banks absorbed €281 billion and Spanish banks €365 billion.

[4] Other mechanisms are consistent with the substitution of securities for loans. Acharya and Rajan (2013) show that highly-indebted governments with a short horizon adopt financial repression to prevent the adverse consequences of a default on the domestic financial sector. Broner et al. (2014) propose a sovereign risk model with secondary debt market based on domestic-vs-foreign creditor discrimination and crowding-out effect. They show that domestic debt purchases may lead to self-fulfilling crises by reducing productive investments. Gennaioli et al. (2014) develop a sovereign debt model in which government defaults are costly because they destroy the balance sheets of domestic banks. The decline in private credit is bigger (and government default less likely) in countries where a more reputable financial system permits banks to be more leveraged and to hold more government bonds. Since these authors do not exclude moral suasion, we can consider their explanations complementary to ours.

[5] Reinhart and Sbrancia (2015) show that financial repression reduces real interest rates (acting as a tax on bondholders and savers) and is successful in liquidating debt, particularly when accompanied by inflation.

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