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Economics Special Report

The Mechanics of Intra Euro Capital Flight

Special Report

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A cross-border payment between banks in two euro zone countries automatically generates equal credit claims between the national central banks and the ECB. This is the mechanism that irrevocably unifies the former national currencies, converting a set of currencies whose exchange rates are merely fixed at par into a single currency. But, it also allows any of the euro-zone countries automatically to draw vast credit from the rest of the euro-zone members via the ECB in the event of capital flight. This note provides a brief technical discussion of how the institutional arrangements of the European System of Central Banks generate this result.

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A cross-border payment between banks in two countries in the euro zone automatically generates balancing credit claims between the national central banks (NCB) and the ECB. This is the mechanism that irrevocably unifies the former national currencies, converting a set of currencies whose exchange rates are merely fixed at par into a single currency. But it also allows any of the euro-zone countries to draw vast credit from the rest of the euro-zone members via the ECB in the event of capital flight that arises from fears of default on sovereign debt, of systemic risks in the banking system, or even of the breakup of the euro itself. In this dimension, it is a mechanism that entwines the capital of the ECB in a default of any of the euro sovereigns. This note provides a brief technical discussion of how the institutional arrangements of the European System of Central Banks (ESCB) generate this risk. It also compares these arrangements to those among the district banks of the US Federal Reserve System. The Federal Reserve System has generally similar technical arrangements, but they are not set up in a way that ties the system automatically to the solvency of any US state.

The ESCB Automatically Takes Major Credit Risk in a Solvency Crisis of One of its Sovereigns¹

Naturally, as the lender of last resort, any central bank assumes major credit risk during a system-wide liquidity crisis, as it takes in collateral of less than normal quality against its loans. However, the ESCB's eligibility arrangements for collateral mean that it will lend automatically against large volumes of sovereign debt of a country undergoing a solvency crisis.

To see how this works, it is best to follow a cross-border payment as it is processed through the system. Suppose a payment of €1m is sent from a Greek bank to a German bank in Frankfurt for any normal purpose. The order is sent by the Greek bank on the TARGET2 system, the unified large value system operated by the ECB. Instantly, the TARGET2 software generates a deposit of €1m of irrevocable funds into the German bank's account in the Deutsche Bundesbank and subtracts €1m from the Greek bank's account in the Bank of Greece. The increase in liabilities of the Bundesbank is balanced momentarily by a "Due from" the Bank of Greece. Similarly, the Bank of Greece's reduced liability to the Greek bank is offset by a "Due to" the Bundesbank.

At the end of the day, all such bilateral "Due to" and "Due from" of the NCBs are netted and transferred to the books of the ECB, which intermediates and bears the risk of such unbalanced cross-border flows in the payments system.² If a NCB is a net claimant on the system from these payments, this claim appears as an asset on its balance sheet under the entry, "Other claims within the euro system". If the NCB has made outgoing payments on net, this appears as a liability on its balance sheet under the entry, "Other liabilities within the eurosystem". A central bank that owes the system funds via its TARGET2 operations pays

¹ I first wrote on the mechanics of a euro zone capital flight more than a decade ago in "The TARGET mechanism: will it propagate or stifle a Stage III crisis", *Carnegie-Rochester Conference Series on Public Policy* 51 (1999) 195-200, North Holland. This was part of a large literature, mostly by US academics in the mid-1990s that was skeptical about the viability of the euro. It quickly went into eclipse with the evident success of the euro in its early years. One difference between the description in my 1999 paper and the current system is that the original TARGET system was an add-on interface among the existing real time gross settlement systems operated by the NCBs. TARGET2 is a seamless, unified system like Fedwire that was inaugurated in 2007. By 2008, it had completely superseded the national payment systems, which were scrapped. Therefore, if a country were to leave the euro, it would first have to resuscitate its old system or go without a large value real-time payment system. This creates an added hurdle for secession that I did not consider in the original paper. A second difference is that ECB publications describing the operation of TARGET prior to the start of the euro indicated that cross-border payment imbalances would generate bilateral claims among the NCBs. In practice, the intermediation of these claims by the ECB means that they are claims against the system, just as in the Federal Reserve System.

² See ECB Annual Report 2009, p.207, p.212, www.ecb.europa.eu/pub/pdf/annrep/ar2009en.pdf for a description of this accounting.

the ECB's refinancing rate to the ECB, which in turn pays the refinancing rate to the creditor NCBs. There is no limit on the extent of the "Other liabilities within the eurosystem" that a NCB can incur; and these liabilities can be carried indefinitely as there is no time prescribed for settlement of imbalances.

If it lacks sufficient deposits at its NCB, a bank that experiences a withdrawal of funds for transfer outside or inside the country can tap the ECB's weekly or longer term refinancing facility.³ It gets the funds by delivering acceptable collateral, including its own government's bonds, paper guaranteed by its government, any other euro sovereign's bonds, or other eligible securities to its NCB. Then the outward-bound payment is made over TARGET2 as above. Since daylight overdrafts are permitted by the system and the bank can borrow at the marginal lending rate between the weekly access to funds from the refinancing facility, these payments can proceed seamlessly and instantly. In this way, the ECB can finance a capital flight out of the country mostly at a current interest rate of 1%. This can proceed as long as the local banks have collateral—or can get some from the government—and as long as the sovereign paper of the country is acceptable collateral at the ECB.⁴

Similarly, a euro-zone government could, if it had to, continue to finance itself via the ECB even if it could not sell new bonds to the market because of fears of default. Under this scenario, a government might sell its bonds to a local bank, which draws funds from the ECB through its NCB, depositing the new securities as collateral at the NCB. The government could then use the funds to pay private creditors in other countries who are not rolling over existing debt. The ECB then effectively replaces the old creditors of the sovereign and the lender for ongoing deficits—indirectly via the collateral at the NCB. This is how a sovereign debt crisis in one of the euro-zone sovereigns can become a problem for the euro currency and a risk that might overwhelm the capital of the ECB. This is especially so if a sovereign crisis is allowed to fester long enough that the ECB ends up with a significant direct or indirect claim on the sovereign before a default occurs.

The Greek rescue package and the establishment of the European Monetary Stability Facility in May 2010 can avoid this scenario by providing for inter-governmental financing for ongoing fiscal deficits and rollovers rather than de facto ECB financing. Nevertheless, major ECB financing support has not yet been supplanted by inter-governmental lending. Also, if bonds issued prior to 2013 in fact are guaranteed against restructuring, this fiscal solution would secure the position of the ECB.

Some Evidence on the ECB's Intermediation of Cross-Border Flows⁵

At the end of 2009, as the Greek phase of the euro sovereign crisis began, the ECB had assets of €138bn, capital and reserves of €4.1bn and revaluation accounts of €10.9bn. Its gross "Due from NCBs for TARGET2 operations" was €317bn, and its gross "Due to" was €310bn. The ESCB had assets of €1.85tr, capital and reserves of €73bn, and revaluation accounts of €192bn.⁶

By end-May 2010, "Other liabilities within the eurosystem" on the Bank of Greece's books were €79.5bn, up from €36bn in August 2009. This was closely in line with the amount of Bank of Greece lending to domestic financial institutions. ESCB lending to the banks of countries regarded as problematic within the euro zone generally continued to grow from the

³ These have been supplied via fixed rate tenders with full allotment since October 2008. Since May 2009, the rate has been set at 1%.

⁴ Prior to the 2008 crisis, only A- paper was acceptable collateral. This was reduced to BBB- in October 2008 to allow for the large expansion of ESCB credit. As Greece was being threatened with a credit rating below investment grade, the ECB dropped this minimum rating requirement for Greek government in May 2010.

⁵ Data in this section from: ECB, Deutsche Bundesbank, Central Bank of Ireland, Banco de Espana, Banco de Portugal, Deutsche Bank.

⁶ €99bn of this was in the Deutsche Bundesbank, mainly gold revaluation.

end of the Greek phase of the crisis in May to the start of the Irish phase in October. For Ireland, ESCB lending (gross loans less funds held in the deposit facility) to Irish banks rose from €84.3bn to €129.4bn. For Greece, the net ESCB lending rose from €84.3bn to €90.1bn. For Portugal, the increase was from €35.6bn in May to €39.9bn in October. Spain was the only country that had a decrease in net ESCB lending from €85.6bn in May to €67.9bn in October.

In total, net ESCB lending to euro area financial institutions fell from €499bn in May to €484bn in October. But net ESCB loans to these four countries rose from €290bn or 58% of the total in May to €327bn or 68% of the total in October.

Together, moving into the Irish phase of the crisis at end-October, these four countries held 19% of the banking system assets of the euro zone; yet they accounted for 68% of the liquidity lending of the ESCB via the refinancing facilities. In Greece, 17% of banking system assets was carried by central bank loans. For Ireland, Portugal, and Spain, the respective numbers were 8%, 7%, and 2%.

In contrast, the Deutsche Bundesbank was a net claimant on the ECB at end-2009 for "Other Claims within the Eurosystem", i.e. cumulated net payment inflows into Germany on TARGET2, for €177.7bn, or 30% of its overall assets of €588bn. In reporting its subsequent balance sheets, the category "Other Assets" reported in the Deutsche Bundesbank's Monthly Bulletin incorporates these claims on the ECB with some others. This category rose from €209bn at end-2009 to €286bn in May 2010 to €340bn in September 2010, mainly reflecting the inflow of funds from other euro member countries into the German banking system.

With these exposures, if any country were to default on its debt and the recovery value were sufficiently low, the collateral covering the NCB's loans to local banks would be worth far less than the booked loans. Of course, there would have been haircuts imposed as the collateral came in and was marked to market. Also, the NCB would have retained its claim against the local banks for the entire amount of the loans. But the NCB's claims against its banks would be effectively frozen pending a resolution.

The question then is what would the ECB do with its claim on the NCB? It might do nothing immediately, since this is an unprecedented event, treating this claim as still good pending resolution of the banks. The ECB claim, after all, is for a euro loan to the NCB, which need only pay interest at the refinancing rate. However, the loans would be insufficiently collateralized once the collateral is marked down. But if it were to mark the loans down significantly, then the ECB would severely reduce its capital and reserves.⁷

In the "Protocol on the Statute of the European System of Central Banks", Article 33.2 stipulates that: "In the event of a loss incurred by the ECB, the shortfall may be offset against the general reserve fund of the ECB and, if necessary, following a decision by the Governing Council, against the monetary income of the relevant financial year in proportion and up to the amounts allocated to the national central banks in accordance with Article 32.5". At end-2009, the ECB's capital and reserves amounted to €4.1bn, and its profit for 2009 was €2.25bn.

Euro area NCBs are liable for any losses of the ECB according to their subscription shares in the ECB, after excluding the non-euro area central bank shareholders.⁸ So, for example, the Deutsche Bundesbank would be liable for about 27% of the loss, the Banque de France about 20%, the Banca d'Italia about 18%, and the Banco de Espana about 12%. Thus, this is

⁷ Since May, the ECB has bought outright €69bn securities of the weaker euro zone countries. A default presumably would force a direct write down of these holdings.

⁸ Non-euro area national central banks subscribed 30.2% of the ECB's capital at end-2009. However, these have no share of the ECB's profits; nor are they liable for ECB losses.

not a question of ECB solvency: any recognized losses would be met from capital and reserves and by a call on the NCBs.

How these NCBs would account for transfers from their capital and reserves to the ECB is not certain, but the political fallout of a loss stemming from default of a euro sovereign would likely be large, especially in the more financially conservative countries. In September 2010, the Deutsche Bundesbank's capital and reserves were €5bn and its revaluation accounts (mostly gold mark-ups) were €99.9bn. A 27% share of even a relatively large admitted ECB loss would be financially manageable, but presumably unpopular.

The nation states own the NCBs. Their profits and losses then have direct fiscal impact on the national budget, so a loss due to a sovereign default will clearly indicate that a *de facto* fiscal transfer from one national government to another has occurred via the ECB. This is one among many reasons that the authorities might prefer to head off a default or kick it forward via bailout packages; this allows time for the ECB to extricate itself and consequently the NCBs from potential losses. The problem is that at the time of a sovereign debt crisis, large portions of a national balance sheet may suddenly flee to the ECB's books, possibly overwhelming the capacity of a bailout fund to absorb the entire hit.

Conclusion

In the first instance, an intra-euro zone capital flight appears as a credit from the ECB to the NCB of the country from where capital is fleeing. The flight may arise from a potential restructuring of sovereign debt, an insolvent banking system, or even a notion of secession from the euro. Whatever the case, the mechanics of ESCB operations finance the flight at low interest rates as long as collateral from the country is acceptable at the ECB.

If the fiscal authorities in the EU were tough and pushed for restructuring, then the flight would likely proceed to the point where a substantial part of the national balance sheet is intermediated by the ECB. If the ECB were to cease accepting the country's paper as collateral to end the hemorrhage, then outgoing payments could no longer be made and the country's banking system *de facto* would be cut off from the euro. If the country's authorities kept the banking system open for internal payments at least, the bank deposits in the country would float against the euro currency.

If the fiscal authorities in the EU instead adopted a credible rescue package to finance the government or capitalize its banks, then the flight might cease or reverse. This would shift the burden of financing the country from the ECB to the fiscal authorities in the EU and eliminate the direct threat to the ESCB.

An Afterword: How does the Federal Reserve System Handle Inter-District Imbalances?

It is helpful to compare the handling of inter-central bank imbalances in the ESCB to that of inter-district imbalances in the US Federal Reserve System. The individual institutional elements of the two systems are remarkably similar: the seamless real time gross settlement payment system, the obligations of the NCBs or district Federal Reserve Banks in cross-border payment imbalances, the collateralization requirements for NCB or district Fed loans to banks. But the detailed differences of how these fit together mean that a state in the US that experiences a default crisis on its debt cannot automatically offload the risk onto the Federal Reserve.

TARGET2 operation differs little from the US Federal Reserve's Fedwire. Both are unified, seamless real time gross settlement systems that can be accessed directly by member banking institutions. But policy and institutional arrangements on cross-border imbalances differ significantly. In the Federal Reserve System, daily imbalances between district Federal Reserve Banks, i.e. imbalances that arise when inter-bank payments are made across district

lines, are accounted by incrementing the claims of district Feds with net payment inflows against the Inter-district Settlement Account.⁹ Claims against this account by district Feds with net payment outflows are reduced. This process is repeated on each succeeding business day. The accumulated claims against or obligations to the Inter-district Settlement Account are settled once per year in April with the redistribution of gold certificates from district Federal Reserve Banks with a negative cumulated net payment position to those with a positive position. Imbalances arising from TARGET2 operations can accumulate indefinitely without settlement.

Unlike in the ESCB, accounting for accumulated inter-district positions and settlement in the Federal Reserve System do not require the use of accounts in an umbrella bank like the ECB. Specifically, the Board of Governors in Washington is not a bank in itself and has no separate balance sheet; rather, it is a supervisory body for each of the district Federal Reserve banks and it dominates the setting of monetary policy. Nevertheless, the Inter-district Settlement Account is a multilateral account, and not a bilateral account; claims against it are claims against the system. In the ESCB, claims arising from such inter-NCB imbalances, as claims against the ECB, also are claims against the system since the ECB has can call on the NCBs in case of losses.

The district Federal Reserve Banks are regional. Most cover multiple US states. They are not owned by the states, and member banks in their districts supply their capital for which they are paid fixed dividends. Their profits and losses impact the fiscal position of the US Treasury, not that of the states, and the profits are paid out to the Treasury as interest on Federal Reserve notes. The vast bulk of bank assets are in institutions supervised by federal regulatory authorities, not state authorities. The Federal Reserve normally implements monetary policy through open market transactions in US government securities. In the 2008-9 crisis, the Fed lent large amounts through the TAF and TALF windows and took large credit risks on the nature of the collateral used, but this did not center on the debt of state governments. It still takes credit risk on the large amount of mortgage-based securities of federal government agencies and GSEs in its portfolio, but again, these are not based on the credit of any given state. It can buy state securities outright or receive them as collateral on loans, but it generally has not done so in large amounts. Finally, its loans to banks are at the discretion of the Federal Reserve, and in normal times, are not at the heart of its provision of central bank liquidity to the markets. In the event of a state debt crisis, the Federal Reserve can always intervene in the municipal bond market if it aims to prevent a generalized financial instability. But while such intervention is an automatic feature of the institutional arrangements of the ESCB, it is at the discretion of the Federal Reserve.

⁹ Based on "Notes on Federal Reserve Accounting Structure", June 10, 1994, prepared by Bruce Summers.

Appendix 1

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