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Forging monetary unification through novation: the TARGET system and the politics of central banking in Europe

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Abstract

When the European Monetary Union became effective in January 1999, the accounting treatment for claims and obligations which the Eurosystem's National Central Banks (NCBs) incur against each other in the 'Trans-European Automated Real-Time Gross Express Transfer' (TARGET) system remained unspecified. Only later in 1999, the Governing Council of the European Central Bank (ECB) decided that these claims and obligations should be shifted to the ECB's balance sheet as a central counterparty—a process called 'novation'. This ex-post decision completed monetary unification by uniquely 'stitching together' NCBs' balance sheets while profoundly transforming the role of the ECB's balance sheet. First, novation *centralised* it at the Eurosystem's apex, which had not been politically feasible ex ante. Secondly, novation *repurposed* it into a multilateral mechanism to provide automatic, unlimited funding for cross-border payment imbalances. Thirdly, novation allowed monetary technocrats to *operationalise* it as an autonomous 'firefighting' balance sheet for unconventional monetary policy.

Key words: critical macro-finance; monetary system; payment system; Eurocrisis; unconventional monetary policy; swap lines

JEL classification: E58—Central Banks and their Policies, F33—International Monetary Arrangements and Institutions, F45—Macroeconomic issues of Monetary Unions

1. Introduction

In 1999, the Governing Council of the European Central Bank (ECB) took a barely communicated decision that changed the fate of the European monetary integration project, even though it seemed like a mere technicality. The decision was about how to handle claims and obligations that National Central Banks (NCBs) of the European System of Central Banks (ESCB) incur against each other in the TARGET system. TARGET stands for 'Trans-European Automated Real-Time Gross Express Transfer' system and was introduced in January 1999 when the Economic and Monetary Union became effective (James 2012). Monetary unification was a key component of the European integration process, partly in reaction to problems of funding cross-border payment imbalances in the European Monetary System (EMS). When TARGET came live, however, one 'detail' remained unspecified: how to handle open claims and obligations of NCBs against each other. This question ended up on the table of the ECB's Governing Council, which comprises both the six permanent members of the Executive Board and the governors of the NCBs. The council decided that at the end of each business day, NCBs' bilateral claims and obligations against each other should be first netted out, and then all remaining claims and obligations should be shifted to the ECB balance sheet which would thus function as a central counterparty (CCP) for NCBs—a process that is called *novation*.

In this article, we investigate what implications the creation and evolution of the TARGET system had for the politics of European monetary unification. We contend that the ex-post 'novation decision' was crucial in a way that has so far been neglected by scholars of International Political Economy (IPE) and neighbouring disciplines. To operationalize this problématique, we address two research questions. On the one hand, we wish to understand the macro-financial context in which the novation decision was taken in order to analyse its effect on the European Monetary Union (EMU)—the real-world monetary arrangement created as the result of the Economic and Monetary Union project. On the other hand, we seek to examine the role that the ECB balance sheet has assumed in the TARGET system and its successor, the TARGET2 system, due to the novation decision, and how it has transformed throughout the different phases of the EMU.

Little can be known about how the novation decision came about—when exactly it was made, what the decision-making process looked like that led to it, or if any alternatives lay on the table. The Governing Council meets behind closed doors and keeps its decisions notoriously secret. Among publicly available sources, only indirect reference is occasionally made to the decision—for instance, in Banca d'Italia (2000) or Cour-Thimann (2013); nevertheless, novation is operational and embedded in the rules and decisions underpinning the Eurosystem today. This makes the novation decision a quintessential case of 'technocratic depoliticization' (van 't Klooster 2022) and 'quiet politics' (Culpepper 2021).

To study the political–economic implications of the novation decision and the related transformation of the ECB balance sheet in the TARGET system, we adopt the lens of critical macro-finance (CMF) (Dutta et al. 2020; Gabor 2020). We view the monetary and financial system as a hierarchical web of balance sheets, which interlock through different financial instruments that some balance sheets hold as assets and others as liabilities (Mehrling 2011; Guter-Sandu and Murau 2022). Money is a subset of credit instruments that exist in this web of interlocking balance sheets and that hierarchically higher institutions issue as liabilities for hierarchically lower institutions that hold them as assets. Liabilities of

central banks, notably reserves and notes, are the hierarchically highest forms of money within their jurisdictions; liabilities of commercial banks, notably deposits, are located one layer below (Murau and Pforr 2020). The TARGET system is the institutional structure at the apex of the Eurozone's monetary hierarchy to connect previously autonomous NCBs and the ECB, thus bridging the national monetary jurisdictions of the individual member states. As a balance sheet view is the only approach that can analytically do justice to the TARGET system (Bindseil and König 2012), the CMF methodology allows us to go beyond technocratic depoliticization and uncover the underlying quiet politics.

We argue that the novation decision has profoundly shaped the countenance of the EMU. European monetary unification did not only imply irrevocably fixing exchange rates, introducing the euro (EUR) as a single currency, and the setting up of a common monetary policy—as defined in the Delors Report (1989: 13), the blueprint provided by the European Commission for monetary union. Metaphorically, monetary unification was also a surgical operation to 'stitch together' the European monetary systems at the level of central banks, the apex of their domestic monetary hierarchies (Murau, Pape, and Pforr 2023). As the technique to achieve this, European central bankers chose to introduce TARGET as an automatic payment system that is unlimited in volume and can fund cross-border payment imbalances. The original design foresaw only a negligible role of the ECB balance sheet in the Eurosystem; novation fundamentally changed this. It set the basis for the ECB to lead the Eurosystem not only as decision-making body but also operationally, enabling the ECB balance sheet to become a key component of both EMU and the global US dollar (USD) system (Schwartz 2019; Braun, Krampf, and Murau 2021; Mehrling 2022) that crucially shapes the working of today's financial capitalism (Tooze 2018; Wansleben 2022).

Though masked from political discourse, the political importance of the novation decision cannot be emphasized enough. Decades of post-war monetary politics in Europe were shaped by conflict among deficit and surplus countries on how to fund cross-country payment imbalances—the origin of open claims and obligations of central banks against each other—all the while maintaining stable exchange rates (Eichengreen and Frieden 1993; McNamara 1998; Matthijs and Blyth 2015). The most contested points were how settlement should occur, if at all, and who should carry the burden of adjustment (Vermeiren 2013). When the EMU went live, these questions simply remained unsolved. Novation delivered the de-facto decision and settled the political conflict of unification through a technical tweak at the level of intra-Eurosystem accounting, while overthrowing previous power structures between deficit and surplus countries. It defined how monetary systems would be ultimately stitched together and thus 'completed' monetary unification, but only *after* the introduction of the TARGET system in a depoliticized setting behind closed doors. Still, the decision gave rise to new political–economic conflict lines over divergences in the TARGET balances and ECB policies—the world that we live in today.

Our analysis shows that novation has transformed the ECB balance sheet in three respects.

First, the ex-post novation decision *centralised* the ECB balance sheet at the apex of the Eurosystem—an outcome that would not have been politically feasible in the decision-making process ex ante. The original design of stitching together the NCB balance sheets with the TARGET system was not the only conceivable way to achieve monetary unification but the only plausible design that EMU member states could politically agree upon, given the nature of the political integration process. It neither required taking the symbolically

difficult step to give up their domestic central bank, nor was any individual central bank singled out to implement monetary policy for the entire monetary union. Rather, all NCBs could appear to remain in charge of implementing monetary policy set by the ECB Governing Council in what previously was 'their' domestic monetary jurisdiction, while the ECB balance sheet was added as a side-feature that seemed unimportant for operational purposes. Novation turned this institutional setting upside down and established the ECB as the hierarchically highest balance sheet against which all NCBs hold TARGET claims or obligations.

Secondly, novation *repurposed* the ECB balance sheet into a multilateral mechanism to provide automatic, unlimited funding for cross-border payment imbalances in the Eurosystem. While harnessing the in principle unlimited elasticity space of what we call the 'CCP Department' on the ECB balance sheet, novation advanced previous ways of funding cross-border payment imbalances—whether bilaterally through banks or central banks, or multilaterally through the European Monetary Cooperation Fund—and was decisive for defending the EMU's integrity during the Eurocrisis.

Thirdly, novation allowed monetary technocrats to *operationalise* the ECB as an autonomous 'firefighting' balance sheet for unconventional monetary policy operations. The part of the ECB balance sheet, which we analytically call 'Policy Department', was used as the Eurozone's conduit for swap lines with the Federal Reserve and to park the ECB's share of securities obtained via the different Asset Purchase Programmes.

These findings contribute to several strands of literature. Most specifically, they speak to the buoyant discourse on the politics of central banking in Europe. Scholars have analysed important topics such as market neutrality (van 't Klooster and Fontan 2020), securitization and repo markets (Gabor and Vestergaard 2018; Braun 2020), risk management (van 't Klooster 2023), unconventional monetary policy (van Doorslaer and Vermeiren 2021), central bank independence (Mudge and Vauchez 2022), state-economy boundaries (Mertens and Thiemann 2018; Coombs and Thiemann 2022;), communication (Diessner and Lisi 2020; Moschella and Diodati 2020), or the costs of exiting the euro (Durand and Villemot 2020). However, the TARGET system as the technical infrastructure underpinning the EMU's very existence has not been addressed, although it is an outcome of the political complications involved in monetary integration and shapes political interests across the EMU. We add a take on the politics involved with payment system questions, and the political economy of choosing different strategies of monetary unification connected to various techniques for stitching together previously independent monetary systems at their apex.

More broadly, we contribute to the debate on the Eurocrisis and the associated reactions of monetary authorities (Hall 2014; Germain and Schwartz 2014; Matthijs and Blyth 2015; Brunnermeier, James, and Landau 2016; Copelovitch, Frieden, and Walter 2016; Schelkle 2017; De Grauwe and Ji 2022). This literature does reflect upon the TARGET system, but its centrality for holding together the Eurosystem has never fully been spelled out. Hence, it remains poorly understood how the novation-based TARGET system has predetermined the dynamics of the Eurocrisis. We clarify that the novation decision enabled the ECB's crisis management capabilities by making its balance sheet the linchpin for all inter-NCB payments via the CCP Department, while aligning it with other advanced economy central banks and enabling it to do firefighting via the Policy Department.

Finally, we contribute to the wider IPE literature on international money and central banking (e.g. Broz and Frieden 2001; McDowell 2012; Schwartz 2019; Sahasrabuddhe

2019; Pape 2022; Özgöde 2022; Mehrling 2022; Wansleben 2022; Menand 2023; Musthaq 2023; Monnet 2024). We show that a small technical tweak of central bank accounting had paramount implications for the design of the EMU and, in consequence, for the global monetary system, underpinning the importance of technocratic agency in institutional change (e.g. Seabrooke and Tsingou 2014; Fioretos 2019; Kentikelenis and Babb 2019). Novation proved a technique to fundamentally alter the apex of one of the world's most important monetary systems and transformed the political conflict between deficit and surplus countries, traditionally a key theme in the political economy of international money (Eichengreen and Frieden 1993).

The remainder of this article is organized as follows. Section 2 reviews the literature on the TARGET system in the context of European monetary unification. Section 3 looks at the intricacies of organising cross-border payments and funding in Europe before monetary unification. Section 4 explains the centralization, section 5 the repurposing, and section 6 the operationalization of the ECB balance sheet as consequences of the novation decision. Section 7 concludes.

2. The TARGET system in the literature on European monetary unification

Figure 1 presents a timeline of the key events regarding TARGET and EMU. The TARGET system was planned and developed by the European Monetary Institute (EMI), the predecessor of the ECB which existed from 1994 to 1998, during Stage II of the Economic and Monetary Union process. Fighting against a tough schedule, TARGET was established as a

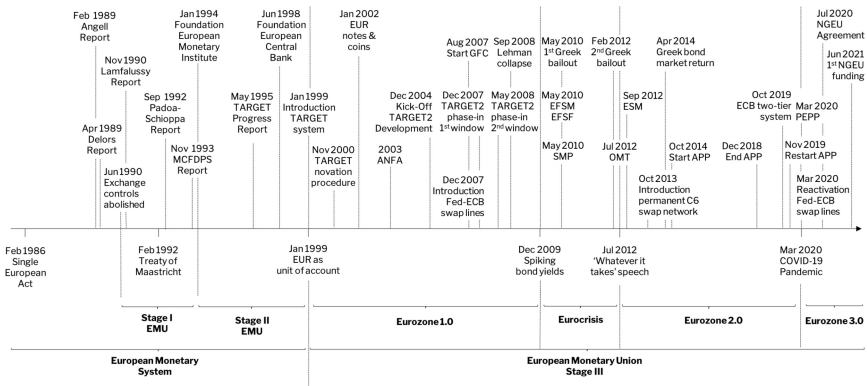

Figure 1. Timeline of European monetary unification and the TARGET and TARGET2 systems.
APP: Asset Purchase Programmes; ANFA: Agreement on Net Financial Assets; EFSF: European Financial Stability Facility; EFSM: European Financial Stability Mechanism; EMU: European Monetary Union; ESM: European Stability Mechanism; EUR: Euro; GFC: Global Financial Crisis; MCFDPS: Minimum Common Features for Domestic Payment Systems; NGEU: Next Generation EU; OMT: Outright Monetary Transactions; PEPP: Pandemic Emergency Purchases Programme; SMP: Securities Markets Programme; TARGET: Trans-European Automated Real-Time Gross Settlement Express Transfer System.

minimum viable product just in time for Stage III of EMU to start in January 1999 (EMI 1995). In the subsequent phase, which we call Eurozone 1.0 (1999–2009), the more technically advanced TARGET2 system was developed. It gradually replaced TARGET in 2007 and 2008. Shortly after, the Eurocrisis (2009–12) shook the original design and brought the EMU to the brink of collapse. The Eurozone 2.0 (2012–20) was a phase of restauration before the coronavirus disease pandemic triggered a new dynamic of institutional transformation, which we term Eurozone 3.0 (Guter-Sandu and Murau 2022).

As apparently not all details had been clarified regarding TARGET by January 1999, it was left for the ECB's Governing Council to decide only after the start of operations how the new apex of the Eurosystem's monetary hierarchy should work and how the 'surgical stitches' were supposed to keep the Eurosystem unified and the single monetary policy working smoothly. Its solution—the novation procedure—became effective in November 2000 (Banca d'Italia 2000: 266). Today, it is codified in Article 6 of the *ECB TARGET Guideline* (ECB/2012/27).

The novation decision follows a series of reports, published by committees at the Bank for International Settlements (BIS), on payment systems and interbank netting schemes. Chief among them are the Angell Report (BIS 1989) and the Lamfalussy Report (BIS 1990). These informed the activities of the Working Group on EU Payment Systems, established by EU central banks, which from 1994 were continued under the auspices of the EMI. As its milestones, the Working Group published the Padoa-Schioppa Report of September 1992 and the *Minimum Common Features for Domestic Payment Systems* report of November 1993 (Giovanoli 1997: 536; ECB 1999a). In these reports, novation features as the preferred technique for multilateral netting that would bring least credit and counterparty risk, provided that the CCP has a strong liquidity position (BIS 1989). Novation was notably absent, however, in the EMI's main progress reports on the development of the TARGET system (EMI 1995). It appears that as the development of the EMU project progressed, the question of how to handle open claims and obligations at the apex of the monetary hierarchy was either not discussed or kept confidential.

The paramount significance that the idiosyncratic design of the TARGET system and the novation decision have for the EMU in general is widely overlooked, just as the role of payment systems in the US Federal Reserve System has remained poorly studied for decades (Wolman 2013; Özgöde 2022; Menand 2023). Only during the Eurocrisis did the payment system between the ECB and the NCBs receive some academic scrutiny—then in the form of the TARGET2 system. While the TARGET balances of the NCBs and the ECB had remained low during the 'Eurozone 1.0' (see Figure 2), they started to increase with the Global Financial Crisis (GFC) and the Eurocrisis, which coincided with the long-planned phase-in of TARGET2. Structural and systematic TARGET2 balances arose with the Eurocrisis and have not abandoned EMU members ever since, despite moments of convergence in 2013 (see Figure 3).

The discussion was started by Sinn and Wollmershäuser (2012), who interpret the NCBs' TARGET2 positions as mirroring national current accounts and argue that the TARGET2 system allows illegitimate current account financing while granting a 'stealth bailout' to crisis-ridden deficit countries with a negative TARGET2 balance who can incur perpetual debts on the surplus countries. Drawing on Garber (1998), they expressed the worry that Germany as the largest TARGET2 surplus country lends money to the Eurozone periphery and would lose billions or trillions of euros in case of an EMU break-up. Some

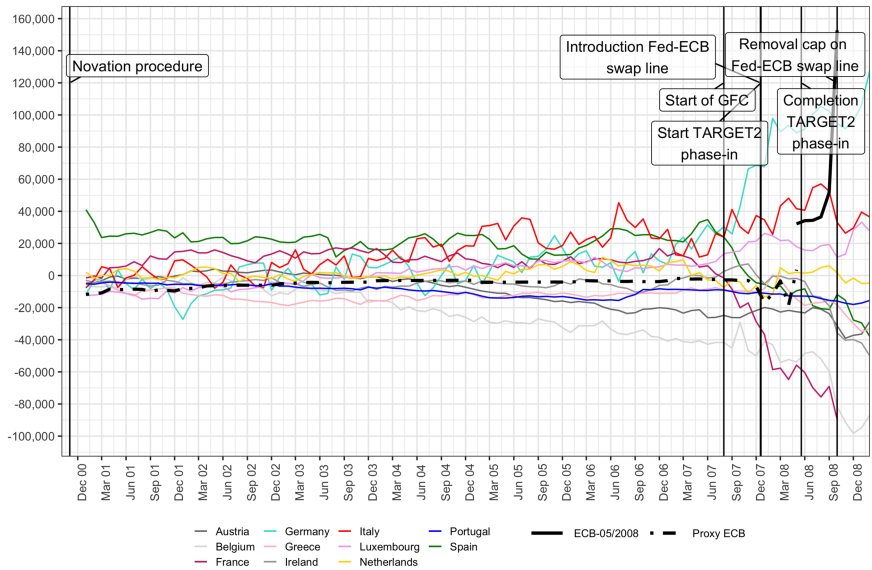

Figure 2. TARGET and TARGET2 balances for selected NCBs and the ECB (January 2001–December 2008).

ECB: European Central Bank; GFC: Global Financial Crisis; TARGET: Trans-European Automated Real-Time Gross Settlement Express Transfer System.

Source: ECB Statistical Data Warehouse 2022. Average of Observations data, in million euro.

Note: The 'Average of Observation' data is available from January 2001. Until May 2008, the official data on the ECB's TARGET positions is not available. As a proxy, we indicate the residual of all NCB TARGET balances, which must reflect both TARGET balances of the ECB and of EU-but-not-EMU central banks.

authors agree with them (Blake 2018), and they have later doubled down on their points (Sinn 2014). These arguments—revolving around a 'current account' explanation of TARGET2 imbalances—also gave rise to a streak of populist literature that outright vilified the EMU institutions, the TARGET2 system, and the 'profligate' deficit countries.

Among the first critical responses to Sinn and Wollmershäuser were Whelan (2011) as well as Cecchetti, McCauley, and McGuire (2012). The big issue was how to normatively interpret the TARGET balances. Do they matter or are they just 'statistical' features? Are they connected to the balance of payments or not? The two most detailed responses are Cour-Thimann (2013) and Bindseil and König (2012), both downplaying the role of TARGET2 balances as stealth bailouts, and emphasizing their necessity for the EMU's survival during the Eurocrisis. Cecioni and Ferrero (2012) introduced a 'monetary policy' explanation of TARGET2 imbalances, outlining that rising TARGET2 imbalances unintentionally substitute *official* for *private* flows. Other scholars have provided econometric studies of how to interpret TARGET2 balances (Auer 2014; Eisenschmidt et al. 2017), technical analyses considering how NCBs can exit the TARGET2 system (Papadia 2014), analyses of the TARGET2 system in relation to the 1944 Keynes Plan for an International Clearing Union (Kregel 2019), as well as interpretations of the TARGET2 system as a risk-sharing

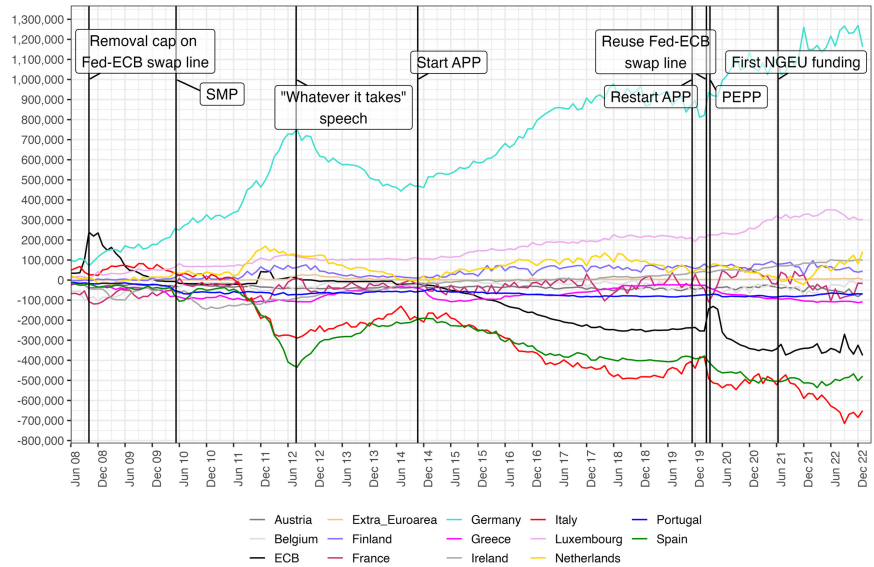

Figure 3. TARGET2 balances for selected NCBs and the ECB (June 2008–December 2022).
APP: Asset Purchase Programmes; ECB: European Central Bank; NGEU: Next Generation EU; PEPP: Pandemic Emergency Purchase Programme; SMP: Securities Markets Programme.
Source: ECB Statistical Data Warehouse 2022. End of period, in million euro.
Note: The 'End of Period' data are only available from May 2008 onwards.

mechanism (Schelkle 2017) or a tool of hegemonic power and control (Lapavitsas and Cutillas 2022).

However, the literature still lacks a proper political economy account of the role that the TARGET and TARGET2 systems have played for European monetary unification that includes the politics connected to their introduction, the institutional reality they have created, and the process of institutional transformation they have triggered. Most importantly, this gap pertains to the role that the ECB balance sheet has obtained due to the novation decision. The ECB's TARGET2 position actually was the first one to obtain a sharply rising surplus in the GFC. This has so far been ignored in the TARGET2 literature which has exclusively concentrated on NCB's TARGET2 positions and does not explain why the ECB has occasional positive spikes since 2008 and a gradual negative decline from the Eurozone 2.0 onwards.

This gap indicates a lack of analytical understanding how the Eurosystem works once we 'disaggregate' it by treating NCBs and the ECB as distinct entities, and 'deconsolidate' it by looking at positions in between them (see Appendix A). Such a deconsolidated view unveils the profound transformation that the ECB balance sheet has undergone, which is mirrored in its changing TARGET2 positions and can be ultimately traced back to the novation decision. This transformation is inherently a matter of political economy and not just a technical concern because the Eurosystem's architecture is the direct result of what was politically feasible during the monetary unification process.

3. The European Monetary System prior to monetary unification

To grasp the implications of the novation decision, we must look back to pre-EMU times when European states operated monetary systems with their own currencies while linking them with fixed but adjustable exchange rates regimes. The original pegging arrangement was the Bretton Woods System (1944–73), at the beginning of which European monetary systems were connected via the European Payments Union (1950–58) while direct convertibility between currencies hat not yet been restored after World War II. After the demise of Bretton Woods, the 'Snake in Tunnel' (1972–78) was an attempt for regional monetary coordination that sought to create a single currency band for the members of the European Economic Community (EEC), which had been founded via the Treaty of Rome in 1957 and is the predecessor of today's EU. When the Snake failed due to excessive exchange rate volatility and various states dropping out, the EMS (1979–99) replaced it as a multilateral system offering fixed but adjustable exchange rates (Mourlon-Druol 2012).

In these pegging arrangements, private correspondent banking structures facilitated the cross-border payments between EEC monetary systems. In case of payment imbalances, it was necessary to provide funding via cross-border loans on either public or private balance sheets. In absence of a public infrastructure comparable to the ECB and TARGET, such payment imbalances often necessitated exchange rate adjustments, which crushed the peg and stood against the goal of establishing a single market (Jabko 2006). Hence, monetary unification was on the agenda at least since the early 1960s (Szász 1999: 12, 20) and received a first big push through the Werner Report (1970). The main underlying problem of the pre-EMU era was the lack of a reliable mechanism between surplus and deficit central banks to organize funding for cross-border imbalances and thus maintain a stable peg.

3.1 Cross-border payment and funding in the correspondent banking system

To sketch the initial position for our argument, Figure 4 depicts the national monetary systems of Germany and Italy before monetary unification as an idealised model of hierarchical balance sheets. Following Murau (2020), this notation style places assets on the left-hand side and liabilities on the right-hand side of each balance sheet, while connecting them with one or more currencies—or more exactly: units of account—that the instruments can be

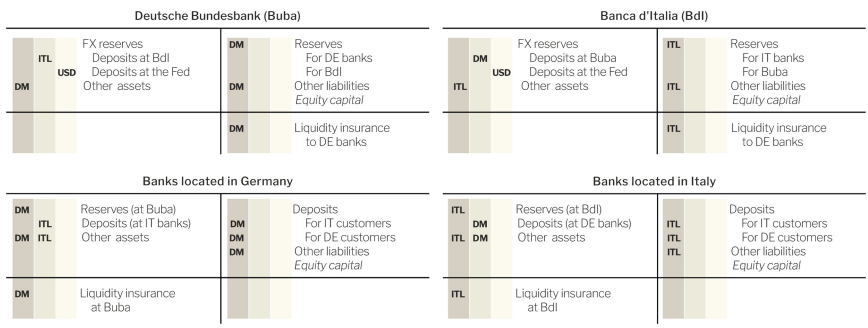

Figure 4. German and Italian monetary jurisdiction prior to European monetary unification.
Bdl: Banca d'Italia; Buba: Deutsche Bundesbank; DE: German (deutsch); DM: Deutsche Mark; Fed: Federal Reserve; FX: Foreign exchange; IT: Italian; ITL: Italian lira; USD: US dollar.

denominated in. Moreover, the methodology distinguishes *actual* from *contingent* assets and liabilities. Actual assets and liabilities are located in the upper part of each balance sheet. These are instruments that can in principle be observed on each balance sheet; the difference between both determines an institution's solvency position, expressed via its equity capital. Contingent instruments, placed in the lower part of each balance sheet, are implicit or explicit guarantees or insurances that hierarchically higher institutions grant to hierarchically lower institutions and that only become actual instruments in the moment of a crisis. While not observable during 'normal' times, contingent instruments are of paramount importance for the 'elasticity space' of a balance sheet—its ability to expand and create more money to avoid illiquidity or insolvency in the moment of a crisis.

Both the German and the Italian monetary jurisdiction have their own unit of account, the Deutsche Mark (DM) and the Italian lira (ITL). Its central banks—the Bundesbank and the Banca d'Italia—form the apex of the domestic hierarchy of money, commercial banks are situated hierarchically below them. The commercial banks issue deposits as liabilities both to domestic and international customers. As assets, they hold the reserves of their central banks and deposits at correspondent banks, next to various other loans and securities. The central banks issue reserves and other instruments such as notes as liabilities. Their assets, next to various loans and securities, comprise foreign exchange (FX) reserves, which include deposits that they hold with each other as well as the international reserve currency, here the USD. Central banks also provide liquidity insurance as contingent liabilities to banks in their monetary jurisdiction, for whom they are contingent assets.

Figure 5—proceeding in four steps that are separated with dotted lines—shows how cross-border payment flows are carried out in such a setting via correspondent banking relationships between German and Italian banks (cf. Giovanoli 1997; ECB 1999a) and how the funding of cross-border payment imbalances can be organized (Mehrling 2020). We assume in our example that an Italian consumer wants to transfer deposits held in ITL to a German consumer held in DM and that this transfer is the only net cross-currency payment flow, which makes Germany structurally a 'surplus country' and Italy a 'deficit country'.

The first step shows how a correspondent banking relationship is established: the German and the Italian bank grant deposits to each other in their respective currencies. The

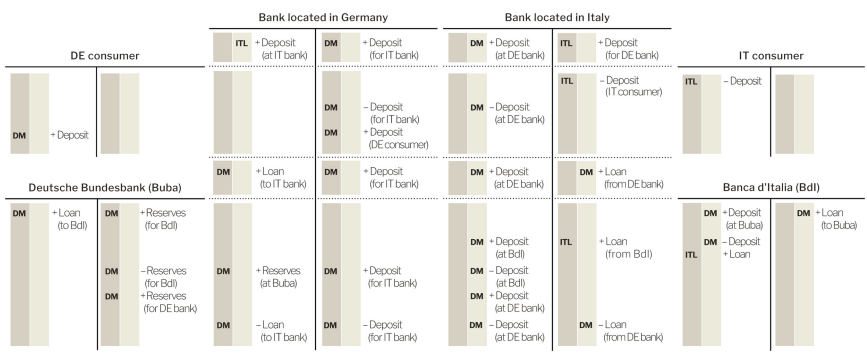

Figure 5. Cross-border payment and funding prior to European monetary unification.
BdI: Banca d'Italia; Buba: Deutsche Bundesbank; DE: German (deutsch); DM: Deutsche Mark; IT: Italian; ITL: Italian lira.

German bank issues a DM-denominated deposit as its liability, which the Italian bank holds as its asset. Vice versa, the Italian bank issues an ITL-denominated deposit as its liability, which the German bank holds as its assets.

The second step displays the cross-currency transaction. To transfer the deposit of the Italian consumer, the Italian bank symmetrically reduces the ITL deposits it has issued as liabilities and the DM deposits it holds as assets, while the German bank substitutes its DM deposit for the Italian bank with a deposit for the German consumer. This is the cross-currency leg of the transaction, which takes into account the prevailing exchange rate between both currencies. For simplification, we assume that the banks of the German and the Italian consumers both act as correspondent banks for each other. This case may apply if both consumers hold accounts at one of the large banks in the monetary jurisdictions. A more complex chain of payments would involve that the Italian consumer's bank is a small peripheral bank which has to make a domestic transfer settled through the normal procedure of shifting central bank reserves to a larger Italian bank, which in turn organizes the cross-border leg with a large German bank. The cross-border structure of the transaction, however, would remain fundamentally the same.

The structural payment imbalance endangers the fixed exchange rate system—be it the Bretton Woods System, the Snake, or the EMS—as it creates a pressure on the DM as surplus currency to appreciate vis-à-vis the ITL, unless a surplus balance sheet is willing to use its elasticity space to fund the imbalance. Accordingly, the third step depicts how this funding of the structural payment imbalance occurs via private balance sheets on the interbank market when the German bank grants a loan to the Italian deficit bank. This operation could also happen before the cross-border payment, but we show it as ex-post funding to emphasize the structural nature of funding the imbalance. The German bank charges the respective interbank rate as interest, which reflects market sentiments on the payment imbalance and would increase with worsening deficits. This allows that the payment imbalance does not immediately appear in the spot exchange rate, which would break the peg, but rather in the forward exchange rate, which is implied in the interest rate differential.

Should the German banks no longer be willing to lend to Italian banks, it is possible to substitute the private with public cross-border funding through central banks. This happens in the fourth step. Banca d'Italia takes a DM loan from the Bundesbank and lends the DM instruments on to the Italian commercial bank. When the DM instrument becomes the asset of the Italian bank, the Bundesbank has to shift its reserves from the Banca d'Italia's account to a German banks' account which grants a loan to the Italian bank as it cannot have a liability at the Bundesbank. Finally, the Italian bank uses the deposit acquired to pay off the private loan to the German bank. This demonstrates how central bank balance sheets are the last resort to fund payment imbalances and defend fixed exchange rates on the forward market before they can show up in the spot price.

This example, while idealized, explains the structural challenge European policymakers have been grappling with in their attempts to stabilize exchange rates and build the single market (James 2012). It demonstrates how private interbank markets are the first resort and central banks the last resort balance sheets to fund imbalances and stabilize the peg. The political conflict line was between surplus central banks, foremost the Bundesbank, which was unwilling to fund excessive imbalances and could insist on occasional settlement of the loans either with DM or USD, and deficit central banks, which had to accumulate increasing foreign indebtedness, pay interest, and eventually repay the loan, while mimicking the surplus

countries' monetary policy decisions. These conflicts also pinned the governments of surplus and deficit countries against each other, leading to diverging interests regarding reform and granting power to the surplus over deficit countries (Szász 1999). Compromises between surplus and deficit countries included repeated exchange rate adjustments, which reduced the need to fund imbalances but distorted economic integration and invited speculative attacks of large hedge fund investors against the fixed exchange rate regimes (McNamara 1998).

3.2 The European Monetary Cooperation Fund

In 1973, as a measure to stabilize the exchange rate peg and improve cross-border funding, the EEC central banks agreed on a compromise between surplus and deficit countries and established the European Monetary Cooperation Fund (EMCF)—a predecessor of the ECB balance sheet. While the Werner Plan of 1970 had suggested the introduction of a 'European Reserve Fund' for pooling FX reserves of EEC central banks, the EMCF had the lesser ambition to help stabilize the Snake and reduce exchange rate fluctuations. To this end, it offered the Very Short-Term Financing Facility (VSTFF)—a network of credit lines among EEC central banks to manage the public funding of imbalances in a more organized and multilateral way (EC Commission 1984; Louw 1987).

The VSTFF remained largely unused (Szász 1999: 46–49) until the EMCF received a makeover in 1978 when European policymakers established the EMS and introduced the European Currency Unit (ECU) as a new unit of account, defined as a basket of EEC currencies. The EMCF was authorized to receive reserves from EEC central banks and issue ECU-denominated instruments in return (cf. Article 1, Council Regulation (EEC) No 3181/78 of 18 December 1978). Figure 6 depicts this setting on-balance-sheet. As actual assets, the EMCF holds reserves of the Bundesbank and Banca d'Italia denominated in their national currencies. The VSTFF features as a contingent instrument on their balance sheets. It increases their elasticity space as it allows EEC central banks to borrow reserves from each other. The denomination of the contingent instruments in ECU offers a mechanism to determine the respective exchange rate for those transactions.

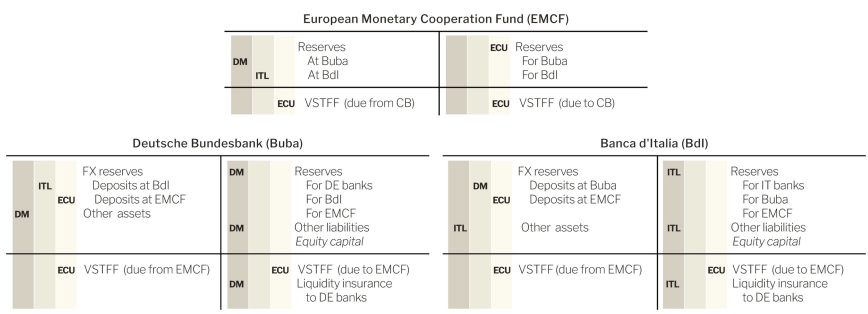

Figure 6. The European Monetary Cooperation Fund in the European Monetary System.
Bdl: Banca d'Italia; Buba: Deutsche Bundesbank; DE: German (deutsch); DM: Deutsche Mark; ECU: European Currency Unit; EMCF: European Monetary Cooperation Fund; FX: Foreign exchange; IT: Italian; ITL: Italian lira; VSTFF: Very Short-Term Financing Facility.

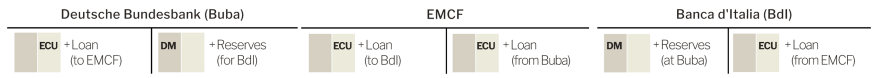

Figure 7. Cross-border funding via the Very Short-Term Financing Facility.
BdI: Banca d'Italia; Buba: Deutsche Bundesbank; DM: Deutsche Mark; ECU: European Currency Unit; EMCF: European Monetary Cooperation Fund.

Figure 7 shows the balance sheet mechanics if the Banca d'Italia borrows from the Bundesbank via the VSTFF—a new mechanism for public cross-border funding of payment imbalances, with the VSTFF acting as the linchpin (Vaubel 1980; Garber 1998). The two loans involved are no longer denominated in DM but ECU. This improves the cross-border funding for deficit central banks as the interest rate charged—computed as the weighted average of the discount rates of the currencies in the ECU basket (EC Commission 1984)—is lower than in the alternative case of a bilateral loan. Moreover, it distributes the exchange rate risk more evenly between both central banks because in case of an ITL devaluation, the value of the ECU would drop, affecting both the Bundesbank's asset and the Banca d'Italia's liability.

Although the VSTFF was supposed to reduce conflict between surplus and deficit countries by improving the ability of cross-border funding, it had significant shortcomings in practice. The 1987 Basle-Nyborg agreement marginalized the EMCF by emphasizing the use of interest rate differentials to maintain the pegs and relegated the VSTFF to a last resort mechanism (Gardner and Perraudin 1993). Moreover, borrowing via the VSTFF was limited in volume and not automatic. This made the EMCF unfit for purpose, ultimately proven in the ERM crisis of 1992 when the Bundesbank declined the Banca d'Italia's request to borrow DM via the VSTFF and drove Italy off the peg.

Given the EMS's failure to stabilize exchange rates, the Delors Report (1989) reiterated the case made in the Werner Report—that a monetary union was needed to complete the single market. While this project had been met with fierce resistance, foremost by the Bundesbank, the breakthrough came when the Iron Curtain fell. In a 'grand bargain', French President Mitterrand offered his agreement to German reunification to Chancellor Kohl against his commitment to give up the DM and introduce a single currency (Szász 1999). In the early 1990s, concrete steps were taken to complete Economic and Monetary Union.

4. The centralisation of the ECB's balance sheet through novation

Monetary unification required redesigning the apex of EEC monetary systems and complementing the existing private correspondent banking structure with a novel way to publicly fund cross-border imbalances. The EMI suggested early on that the technical solution should be a real-time gross settlement (RTGS) system between NCBs (EMI 1995). To help us understand how it came about that the central bankers and policymakers involved in the decision-making process opted for this solution, we propose a thought experiment. We can imagine three different technical options for achieving monetary unification in a coherent way; each represents a conceivable way of 'stitching together' the central bank balance sheets, creating a hierarchy of balance sheets, facilitating cross-border payments, funding payment

imbalances, and carrying out monetary policy. However, we show that the payment system dimension of monetary unification (Bindseil and König 2012) is affected by technical considerations as much as by political feasibility concerns: only monetary unification via an RTGS system between NCBs was politically feasible because it allowed to maintain a 'strategic ambiguity' (Best 2005; van 't Klooster 2022) in the planning stages about the future institutional design—in particular the relationship between deficit and surplus countries. This strategic ambiguity created technical difficulties that could only be resolved with the novation decision—taken behind closed doors once the TARGET system was up and running—which centralised the ECB balance sheet and positioned it at the Eurosystem's apex.

4.1 Option 1: Monetary unification with a Single Central Bank

The most straightforward option to achieve monetary unification would have been to replace the NCBs with one Single Central Bank (SCB) put in charge of both domestic banking systems. These would then, for all intent and purposes, become one banking system and one monetary jurisdiction (see Figure 8).

This outcome could be achieved if one of the two central banks takes over and replaces the other central bank—as happened in Germany after the reunification of 1990—or if a new central bank is created that replaces the previous ones. In both cases, there would be only one type of reserves issued by the SCB denominated in EUR as the single unit of account. All commercial banks would be connected to the SCB in the same way and be subject to the same types of liquidity insurance. Any problems related to cross-border payment and funding would become obsolete as both domestic monetary systems are fully merged.

Monetary policy would work exactly as in any national monetary system. The SCB determines the interest rate and hence the conditions under which commercial banks can borrow reserves via the liquidity insurance mechanisms or deposit reserves at the SCB. Moreover, the SCB could autonomously carry out open market purchases or sales of securities to expand or contract its balance sheet. Any monetary policy operation, whether conventional or not, would expand or contract the SCB balance sheet and the reserve accounts of the commercial banks within the monetary union, regardless of their location. Both German and Italian banks would have the same access to the SCB balance sheet if they possess the collateral meeting the requirements and could thus expand their reserve account.

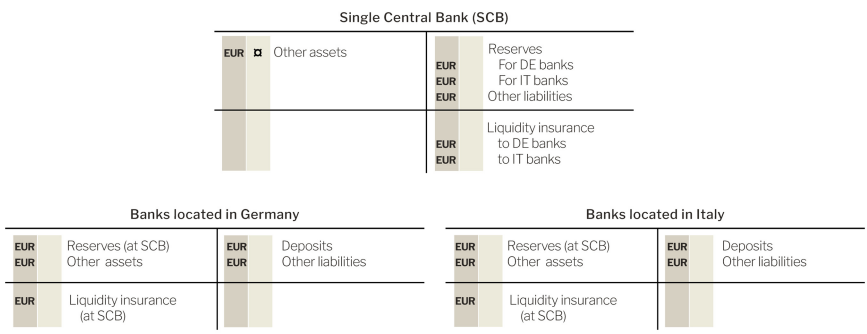

Figure 8. Option 1: Monetary unification with a Single Central Bank.
DE: German (deutsch); EUR: Euro; IT: Italian; SCB: Single Central Bank; ¤: other units of account.

While an elegant solution on-balance-sheet, it is hard to imagine how this option could have been politically feasible (cf. Szász 1999: Ch. 14). France or Italy likely would not have accepted that the Bundesbank, which was the leading central bank in the EMS, takes over the role of a European SCB and replaces the Banque de France and the Banca d'Italia. Vice versa, it can be ruled out that Germany would have accepted giving up the Bundesbank entirely and submit to the monetary authority of France or Italy. Moreover, for smaller member states such as the Netherlands, membership in the monetary union was not supposed to imply entirely submitting to one of their bigger neighbours. Hence, although the elevation of the ECB as entirely supranational bank with its own set of liabilities and acting as settlement institution has been proposed as a solution to the inconsistencies arisen with the Eurocrisis (Rossi 2016), it seems obvious that such a solution did not get adopted. No political decision-making process could have led to it as an outcome.

4.2 Option 2: Monetary unification with an Interdistrict Settlement Account

An alternative for monetary unification could have been to choose a similar institutional solution as the US Federal Reserve System. This would not have required the integration of different monetary jurisdictions into a single one with one SCB but setting up a new clearing and settlement system between District Central Banks (DCBs) within which claims and obligations against each other can emerge and be recorded. The commercial banks would have reserve accounts with the respective DCBs and receive different types of liquidity insurance from them. The DCBs' liabilities would be denominated in the same unit of account and valued at par (see Figure 9).

In contrast to the SCB model, cross-districts payments would be channelled through the DCBs' balance sheet. The reserve account of the bank that initiates a transfer would decrease, while the reserve account of the bank receiving the transfer would increase. To connect the DCB balance sheets, the Interdistrict Settlement Account (ISA) would operate as linking system and rebalancing item.

In line with the Financial Accounting Manual methodology (Federal Reserve System 2022), the ISA is recorded only as assets of the DCBs. ISA balances are bilateral claims between DCBs that arise with the changing reserve accounts. This accounting style seeks to make sure that an increase of the reserve account liabilities at a DCB caused by an inflow of

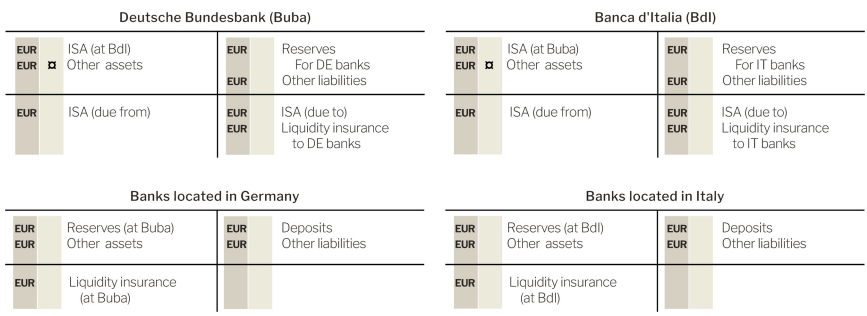

Figure 9. Option 2: Monetary unification with an Interdistrict Settlement Account.

DE: German (deutsch); EUR: Euro; ISA: Interdistrict Settlement Account; IT: Italian; ¤: other units of account.

liquidity is met with an increase of the assets shown on the DCB balance sheet, in this case interdistrict claims. These ISA increases ('due from') or decreases ('due to') can be thought of as contingent assets and liabilities that expand the elasticity space of the DCBs and provide the funding for payment imbalances between districts.

The settlement of ISA balances could follow the US model that has been refined throughout the century but still required tweaking during the global financial crisis (Koning 2012). The Fed's ISA are settled in April of every year based on the average yearly balance. The settlement assets have changed in 1975 from gold certificates to securities held in the System Open Market Account (SOMA) domestic and foreign portfolios (Wolman 2013). For the EMU, such interdistrict settlement of ISA balances would come with the problem that Europe lacks unified EMU debt securities and require the use of national government securities.

For the implementation of a single monetary policy across the monetary union, one of the DCBs must take the lead over the others—just as the Federal Reserve Bank of New York (FRBNY) does in the US system. Access to this DCB's balance sheet becomes paramount for banks across the monetary union because it is the only way to receive emergency liquidity in the form of final means of payments. Hence, the hierarchy among the DCBs in this option does not depend on the technical unification of the payment systems but on the operationalisation of the DCB balance sheets for monetary policy purposes.

This option could have been more politically feasible than the introduction of an SCB because no EMU country would have had to give up their central bank. However, using one of the DCB balance sheets to carry out monetary policy operations would not have offered a discernible improvement compared to the EMS in which only the Bundesbank had monetary policy autonomy—an institutional setting that countries such as France and Italy wanted to alter with the EMU project. An arrangement in which French and Italian banks depend solely on the Bundesbank's balance sheet for liquidity support would have been unacceptable for their governments. Unsurprisingly, the political process towards EMU led to a third option.

4.3 Option 3: Monetary unification with an interbank real-time gross settlement system

With the first two technical options politically unfeasible to bring the EMU project to fruition, the solution found was to introduce not only a clearing and settlement system between the central banks but also the ECB as an additional balance sheet next to the NCBs.

This form of monetary unification required, as a first step, that each central banking balance sheet destined to become part of the monetary union had to run its own RTGS system. Some smaller NCBs had to introduce new RTGS systems, while most other NCBs already operated an RTGS system and could keep it but had to align it to minimum standards for the purpose of harmonization. In addition, the ECB had to introduce its own RTGS system called 'European Payment Mechanism' (EPM) for its own central banking 'jurisdiction', which comprised primarily EU institutions such as the European Commission with ECB reserve accounts but no private banking system. As a second step, the individual RTGS systems of the NCBs and the ECB had to be 'interlinked' to allow 'inter-jurisdictional' payments (ECB 2001, L 140/72). This interlinking infrastructure coupled with the national RTGS allowed the processing of large-value payments across the EU and thus were the defining feature of the TARGET system. Planning for the TARGET system started in 1994 at the EMI. As it was not clear which of the EU member states would become part of the

monetary union, all of them were integrated into the TARGET system. When the TARGET system went live in 1999, all 15 EU NCB balance sheets and the ECB balance sheet became a part of it (EMI 1995; ECB 1999b, 2000a).

Figure 10 shows this system at work as it became operational in January 1999. To process a payment between banks with reserve accounts at different NCBs, the reserve account of the bank that initiates the transfer decreases, whilst the reserve account of the bank that receives the transfer increases. The national payment systems are integrated, and the liabilities of one NCB (Bundesbank) are maintained at par with the liabilities of another NCB (Banca d'Italia). If a payment imbalance remains, TARGET assets appear on the balance sheet of the surplus NCB as its reserve liabilities increase, and similarly TARGET liabilities are recorded on the balance sheet of the deficit NCB when its reserves liabilities decrease. The ECB balance sheet is not affected if there is no liquidity inflow or outflow from the ECB 'jurisdiction'.

For monetary policy implementation, the EMI foresaw a decentralized approach that would not make use of the ECB balance sheet at all (ECB 1998). The ECB Governing Council—as a *decision-making body*—would define the common monetary policy, drawing on open market operations, standing facilities, and minimum reserves as its three monetary policy instruments (ECB 2000b). These would be implemented by the different NCBs in their respective 'jurisdiction' in accordance with the ECB capital key (Bindseil 2014). This implied that the ECB *as a balance sheet* in the TARGET system was not 'operationalised': it did not have accounts of commercial banks, it did not carry out monetary policy, and its balance vis-à-vis the other 'jurisdictions' depended only on its role as correspondent banking service to a small group of ECB customers such as the EU Commission.

As to political feasibility, this solution was easier to sell than the others as it allowed prospective EMU members to keep their domestic central banks and their own payment systems. The concession was that a supranational institution, not a leading NCB, would set the common monetary policy but the NCBs would keep some form of autonomy. Moreover, as this solution left the accounting treatment of payment imbalances ambiguous, it did not represent a clear shift to the benefit of either deficit or surplus countries compared to the status quo ante under the EMCF. Deficit countries such as Italy could expect a further relief to the burden of adjustment, whereas surplus countries—foremost Germany—expected that policy harmonization would reduce payment imbalances in the first place (Szász 1999; James 2012).

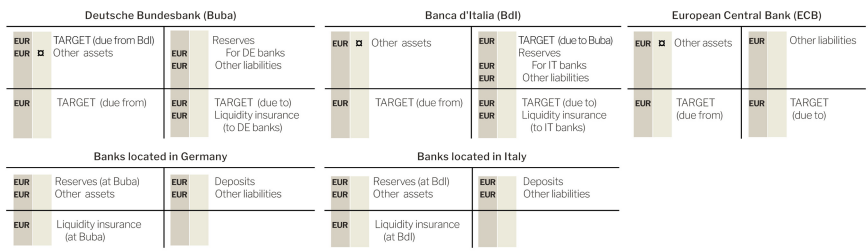

Figure 10. Option 3: Monetary unification with TARGET as an RTGS system (before novation).
Bdl: Banca d'Italia; Buba: Deutsche Bundesbank; DE: German (deutsch); ECB: European Central Bank; EUR: Euro; IT: Italian; RTGS: Real time gross settlement; TARGET: Trans-European Automated Real-Time Gross Settlement Express Transfer System; ¤: other units of account.

Unsurprisingly, the unavoidable decision on the accounting treatment of open TARGET claims and obligations was only taken after TARGET had gone live. In line with preceding BIS analyses, the Governing Council established the novation procedure and redefined the ECB balance sheet as a CCP for all NCBs whose balance sheet expands with the rise of cross-border imbalances.

Figure 11 demonstrates how the novation technique plays out on-balance-sheet when the payment imbalance between the Bundesbank and the Banca d'Italia is shifted to the ECB at the end of a business day. The Bundesbank receives a TARGET claim against the ECB balance sheet as an asset, the Banca d'Italia a TARGET obligation as a liability. This has implications for how the actual instruments on the ECB balance sheet are structured regarding TARGET instruments. To clarify this point, we analytically divide the ECB balance sheet into two 'departments'. This is a heuristic that helps distinguish two different roles carried out by the ECB balance sheet in the Eurosystem. To visually clarify the difference between both departments in the balance sheets, we separate them with a wavy line. In what we call the 'CCP Department' (above the wavy line), the ECB balance sheet acts as a central counterparty between NCBs and holds matching TARGET assets and liabilities, which can only be observed in gross terms as they net out in the consolidated Eurosystem balance sheet. The residual—we name it the 'Policy Department' (below the wavy line)—can comprise either TARGET assets or liabilities, or neither, depending on the 'autonomous' interactions of the ECB balance sheet with the other NCBs. While the Policy Department is the operational part of the balance sheet whose positions change directly with modifications of monetary policy, the CCP Department responds mechanically to intra-Eurozone liquidity flows and cannot be directly controlled or constrained by the ECB.

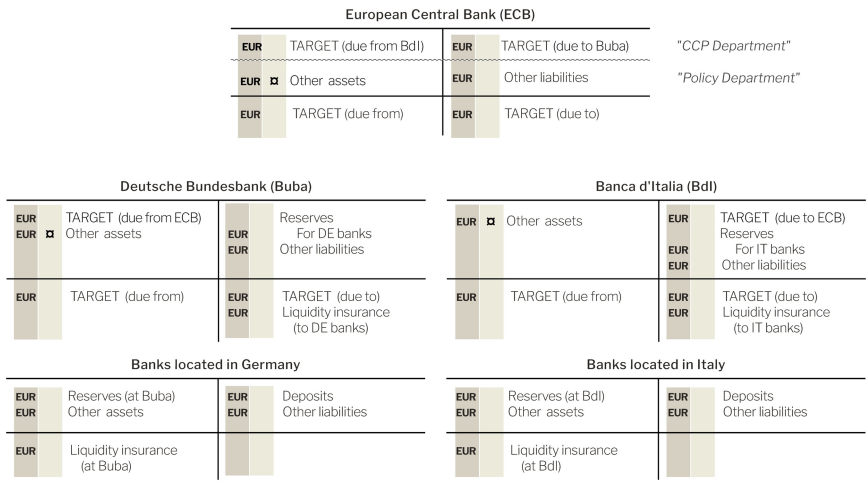

Figure 11. Option 3: Monetary unification with TARGET as an RTGS system (after novation).
Bdl: Banca d'Italia; Buba: Deutsche Bundesbank; DE: German (deutsch); ECB: European Central Bank; EUR: Euro; IT: Italian; RTGS: Real time gross settlement; TARGET: Trans-European Automated Real-Time Gross Settlement Express Transfer System; ¤: other units of account.

In effect, novation positioned the ECB balance sheet at the Eurosystem's apex and made it the 'central bank for the NCBs' against which they hold TARGET claims and obligations. This turned the EMI's original design for the Eurozone upside down and created a hierarchy of balance sheets in the Eurosystem that is much closer to the first option than could have been politically feasible ex ante.

5. Repurposing the ECB balance sheet to fund for cross-border payment imbalances

The centralisation of the ECB balance sheet at the apex of the Eurosystem through novation opened the door for further institutional transformation: By creating the CCP Department, it repurposed the ECB balance sheet into a multilateral mechanism to provide automatic, unlimited funding for cross-border payment imbalances in the Eurosystem.

The CCP Department parallels the VSTFF insofar as it acts as an intermediating balance sheet between surplus and deficit NCBs that hold claims against it. NCBs' TARGET claims and obligations to the ECB are functionally equivalent to central banks' loans to and from the EMCF. Both institutional settings 'multilateralise' the bilateral positions of NCBs against each other and provide an additional public mechanism to fund cross-border imbalances. In contrast to the VSTFF, however, the TARGET positions of the CCP Department vis-à-vis the NCBs emerge automatically and are not limited in volume. They are the result of the aggregate individual payment decisions of private TARGET participants—neither the ECB, nor surplus or deficit NCBs can prevent them from emerging.

To quantify the volume of funding provided via the CCP Department, Figures 12 and 13 present the assets and liabilities recorded on the ECB's Accounting Balance Sheet from the *Breakdown of Eurosystem Aggregated Balance Sheet* (ECB 2022). This shows the intra-EMU claims and obligations without netting them—which is the usual practice in the Eurosystem's public reporting—and thus reveals the claims and obligations that surplus and deficit NCBs have shifted to the ECB balance sheet. These positions are reflected in the yellow area (the ECB's loans to Monetary and Financial Institutions, MFIs) in Figure 12 and the complementary blue area in Figure 13 (the deposit liabilities of MFIs at the ECB). This disaggregated and deconsolidated view shows that the ECB today operates one of the Eurosystem's largest balance sheets, second only to that of the Bundesbank.

To prove that the loans to and deposits of MFIs are largely equivalent with the CCP Department, we have integrated the gross TARGET and TARGET2 assets and liabilities of the NCBs vis-à-vis the ECB as additional black and red lines in the figures. This demonstrates that—although the MFI category is not only composed of the NCBs but also other deposit-taking corporations and money market funds (ECB 2021)—the loans and deposit liabilities of the MFIs at the ECB consist almost entirely of the NCBs' TARGET2 claims and liabilities.

The volume of the CCP Department began rising as the GFC spilled over into the Eurozone and increased as the Eurocrisis worsened (Copelovitch, Frieden, and Walter 2016). The ability of the CCP Department to provide automatic and unlimited cross-border funding was the crucial factor that defended the integrity of the monetary union. When banks stopped to privately fund cross-border payment imbalances and a capital flight from deficit to surplus EMU members set in (Auer 2014), the NCBs' substantial TARGET2 positions emerged. While the TARGET2 literature tends to interpret NCBs' balances as a 'conscious' choice of deficit countries to borrow from surplus countries, a more accurate

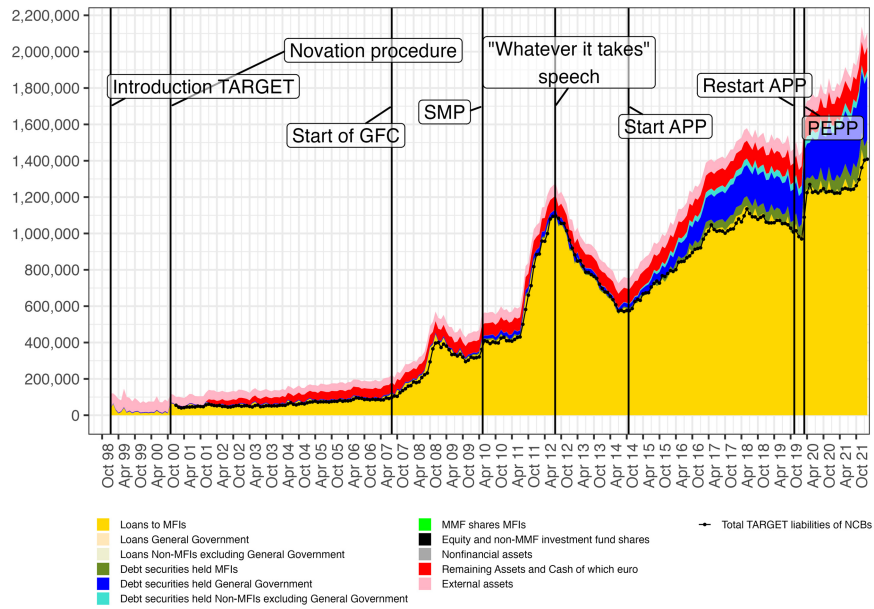

Figure 12. Assets on the ECB Accounting Balance Sheet and total NCB TARGET Liabilities.
APP: Asset Purchase Programmes; GFC: Global Financial Crisis; MFI: Monetary and Financial Institutions; MMF: Money Market Fund; NCB: National Central Bank; PEPP: Pandemic Emergency Purchase Programme; SMP: Securities Markets Programme; TARGET: Trans-European Automated Real-Time Gross Settlement Express Transfer System.
Source: Own elaborations on ECB Statistical Data Warehouse 2022. In million euro (see Appendix A).
Note: TARGET data comprises 'Average of Observation' and 'End of Period' data according to explanations for Figures 2 and 3.

interpretation views this as a substitution of private cross-border funding with multilateral public funding.

This substitution of private with multilateral public cross-border funding prevented that crisis countries broke 'par'—that is, it maintained a one-to-one exchange rate between EUR-denominated instruments in Germany and Italy. The CCP Department provided the necessary unlimited elasticity space which ensured that NCBs were able to process all incoming payment orders through the TARGET2 system. Hence, it remained continuously possible to exchange the Banca d'Italia's EUR-denominated liabilities—that is, the EUR reserves in the Italian banking sector—for other NCBs' liabilities automatically and without limits. Par would have been broken if any constraints on cross-border payment flows had been introduced—either through capital controls as in the case of Greece during the Eurocrisis, or simply by imposing a limit on the TARGET2 elasticity space, which in turn would have forced a country to impose capital controls once this limit is reached.

While the funding of cross-border imbalances via the ECB's CCP Department is unlimited and automatic, it is not cost-free. TARGET and TARGET2 balances carry a rate of interest equal to the ECB's main refinancing rate (ECB/2016/36). It still stood at four percent

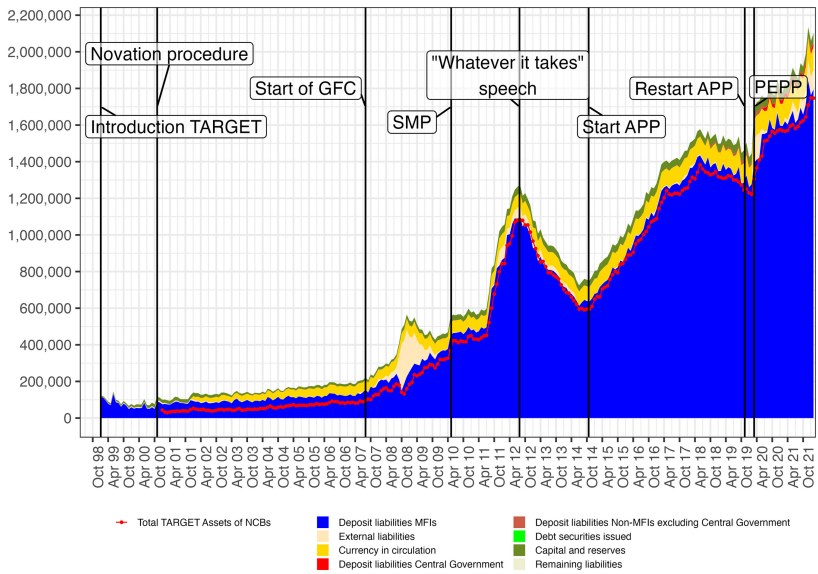

Figure 13. Liabilities on the ECB Accounting Balance Sheet and total NCB TARGET assets.

APP: Asset Purchase Programmes; GFC: Global Financial Crisis; MFI: Monetary and Financial Institutions; MMF: Money Market Fund; NCB: National Central Bank; PEPP: Pandemic Emergency Purchase Programme; SMP: Securities Markets Programme; TARGET: Trans-European Automated Real-Time Gross Settlement Express Transfer System.

Source: Own elaborations on ECB Statistical Data Warehouse 2022. In million euro (see Appendix A).

Note: TARGET data comprises 'Average of Observation' and 'End of Period' data according to explanations for Figures 2 and 3.

in 2008, dropped to one percent in 2009, and has been hovering around zero since 2014. However, there is no clear redistribution mechanism from deficit to surplus NCBs as in the case of the VSTFF. By contrast, the interest accrued on TARGET balances is pooled and redistributed according to country size because it falls under the category of primary interest income (ECB 2016b).

The visible increase of public cross-border funding via the CCP Department since 2008 also reflects that it comes at a more favourable rate than private funding in the interbank market, distorting the working of the rebalancing mechanism of the 2000s. Hence, the CCP Department facilitates that the intra-Eurosystem imbalances continue to be funded via the public multilateral mechanism, which should reasonably be the 'last resort' mechanism (cf. Auer 2014), and not via the private 'first resort' mechanism.

6. The operationalisation of the ECB balance sheet for unconventional monetary policy

Centralising the ECB balance sheet at the Eurosystem's apex also enabled its 'operationalisation' for unconventional monetary policy. These activities, carried out via its 'Policy Department', were not originally foreseen in the monetary policy framework. With its

repeatedly proven ability to address imminent threats to the EMU (Howarth and Verdun 2020; Schmidt 2020), the ECB has become an autonomous 'firefighting' balance sheet for monetary technocrats (Braun, Krampf, and Murau 2021; Murau, Haas, and Guter-Sandu 2023), whenever they find a discretionary intervention necessary. The ECB's role as firefighting balance sheet is visible in its changing TARGET2 positions from 2008 onwards.

In the EMI's preparatory work, monetary policy was assumed to be implemented by the NCBs with TARGET participants in their jurisdiction, using their national RTGS systems. The ECB was conceptualized as a passive balance sheet on which no sizable TARGET balances would emerge (EMI 1995). The ECB balance sheet played this attributed role for most of the time in the Eurozone 1.0. There is no clear information about the ECB's TARGET balances in the early years of the monetary union as the ECB's positions have only been officially published from May 2008. Nevertheless, the residual of all NCB balances, which can be treated as proxy of the ECB's TARGET balances, never deviates much from zero.

In 2003, the Agreement on Net Financial Asset (ANFA)—concluded between the ECB and the NCBs—enhanced the operational autonomy of the ECB balance sheet in the Eurosystem. Much like the novation decision, it was taken by the Governing Council and remained essentially secret until 2016 (ECB 2019). When EMU went live, only parts of NCBs' balance sheets related to monetary policy operations were integrated and limited by the ECB's capital key and monetary policy decisions, while the rest—the net financial assets—was left unrestrained, following the principle of subsidiarity. With ANFA, the ECB imposed limits on the NCBs' independent and nationally regulated operations, which were administered independently from the ECB and affected the amount of EUR-liquidity in circulation (Hansen and Meyer 2017).

The ECB first operationalised its balance sheet for autonomous firefighting in 2007 when it created reciprocal emergency swap lines with the FRBNY to provide liquidity insurance to offshore USD deposits in the EMU (McDowell 2012). Swap line drawings explain the temporary positive spikes in the ECB's TARGET2 position in Q3 and Q4 of 2008, and later in spring 2020.

When swap lines are used and the Eurosystem borrows USD-denominated instruments from the FRBNY, the ECB balance sheet functions as a conduit between NCBs in need for emergency USD liquidity and the FRBNY. Figure 14 depicts this process on-balance-sheet. The Bundesbank and the Banca d'Italia are assumed to be in acute need of emergency USD liquidity to pass it on to their domestic banking systems and ask the ECB to activate the swap lines. The ECB balance sheet serves as the EMU's entry-point for the FRBNY's USD liquidity and exchanges EUR-denominated against USD-denominated reserves. Subsequently, the ECB forwards the USD reserves to the NCB balance sheets. In this specific example, the Bundesbank starts with net TARGET2 claims against the ECB and sees a decrease in its TARGET2 balance, whereas the Banca d'Italia starts with net TARGET2 obligations to the ECB and sees them increase further. The reverse transactions would occur at the maturity date, typically three months later, when the ECB would return the EUR-liquidity to the NCBs and thus record a decrease in its TARGET2 claims or an increase in its TARGET liabilities. While the USD loan for this international lender of last resort operation is outstanding, the ECB's TARGET2 account exhibits a positive spike.

The second case of an autonomous firefighting role of the ECB's balance sheet, causing an increase of the ECB's TARGET2 liabilities, are the Eurosystem's Asset Purchase Programmes. Due to strict regulations about the NCBs' allowed on-balance-sheet activities,

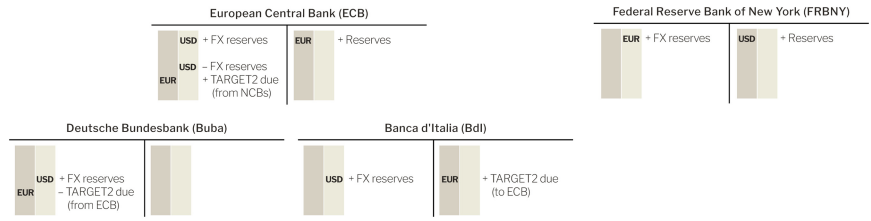

Figure 14. Impact of swap line drawing on the ECB's TARGET2 balance (first leg of the swap).
BdI: Banca d'Italia; Buba: Deutsche Bundesbank; ECB: European Central Bank; EUR: Euro; FRBNY: Federal Reserve Bank of New York; FX: Foreign exchange; TARGET: Trans-European Automated Real-Time Gross Settlement Express Transfer System; USD: US dollar.

the asset purchases were organized such that NCBs bought assets from domestic institutions, sometimes acting as counterparty for foreign investors offloading securities. Hence, NCBs' asset purchases came with cross-jurisdictional flows of liquidity, reflected in the widening of the NCBs' TARGET balances (Cecioni and Ferrero 2012; Della Corte, Federico, and Tosti 2018). Still, the various programmes strictly limited the volume of assets that NCBs could purchase—for instance, the Public Sector Purchase Programme (PSPP) requires NCBs to buy their respective government debt; the Corporate Sector Purchase Programme is carried out by six NCBs on behalf of the Eurosystem; the Asset-Backed Securities Purchase Programme is executed through six NCBs acting as asset managers; and the Covered-Bond Purchase Programme works via NCBs purchasing according to the ECB's capital key (ECB 2015). The ECB balance sheet, by contrast, remains de facto unregulated in those programmes. Therefore, the ECB itself began carrying out autonomous purchases via its Policy Department.

Figure 15 visualizes the mechanism that explains why asset purchases lead to a deteriorating TARGET2 position of the ECB from 2014 onwards. The ECB's rising negative TARGET2 balance suggests liquidity outflows in exchange for the securities it puts onto its balance sheet. This operationalisation of the ECB balance sheet was enabled by a legal provision that let the ECB carry some of the book values of the marketable securities purchased—for example, 10 per cent of the securities bought under the PSPP (ECB 2020)—due to the mechanical use of TARGET2 elasticity by the NCBs to implement monetary policy.

In sum, the operationalisation of the ECB as a 'firefighting' balance sheet brought the EMU also from a monetary policy perspective closer to the design of the first option that had not been politically feasible in the 1990s. With a Policy Department that runs swap lines and asset purchases, it increasingly resembles an autonomous Single Central Bank. This

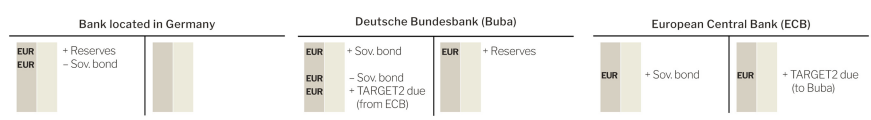

Figure 15. Impact of asset purchases on the ECB's TARGET2 balance.
Buba: Deutsche Bundesbank; ECB: European Central Bank; EUR: Euro; Sov.: Sovereign; TARGET: Trans-European Automated Real-Time Gross Settlement Express Transfer System.

transformation was achieved by removing politics from the decision-making process and invoking technical issues required for the working of EMU. The novation decision was the first in a chain of decisions that led to this outcome.

7. Conclusion

In this article, we have analysed the implications of the decision to apply novation in the TARGET system for forging European monetary unification.

As our primary contribution, we explain how the novation decision has not only completed monetary unification by setting the final stitches to tie together the formerly independent NCBs. It has also profoundly transformed the ECB balance sheet. Novation *centralised* it at the Eurosystem's apex and created a de facto Single Central Bank, which had not been politically feasible ex ante. Novation *repurposed* it into a multilateral mechanism to provide automatic, unlimited funding for cross-border payment imbalances via the CCP Department. And novation allowed monetary technocrats to *operationalise* it as an autonomous 'firefighting' balance sheet for unconventional monetary policy via the Policy Department, which was able to carry out swift and decisive technocratic action for crisis management where elected political actors failed. While the novation decision settled decade-long conflicts between surplus and deficit countries, it remains ambiguous who the winners and the losers are in the resulting setting. While surplus countries may be perceived as beneficiaries as their currencies no longer appreciate despite persistent export surpluses, they can also appear as disadvantaged because they have no other choice but to give unlimited credit to deficit countries. Given this ambiguity, the only clear winner is the ECB whose balance sheet is now located in an unconstrained way at the apex of the Eurosystem and has disempowered both the surplus and the deficit NCBs.

As a secondary contribution, we advance the discourse on the Eurocrisis and the role the TARGET2 system played in it. The TARGET2 debate, started by Sinn and Wollmershäuser (2012), too often neglects that the NCBs' TARGET2 positions must not be confounded with national current account positions but are an *ex-post* aggregate of countless private decisions—not the least of banks and their choices of whether to fund cross-border imbalances via first-resort mechanisms or to rely on public last-resort funding. While the existing literature focuses on imbalances between NCBs, our analysis clarifies that these positions actually exist between the NCBs and the ECB's CCP Department. The CCP Department provides cross-border funding and has led to a massive increase of the ECB accounting balance sheet but is not visible in the conventionally used TARGET2 data. Any reflections on the legitimacy of cross-border funding via TARGET2—whether or not this is a 'stealth bailout' as claimed by Sinn and Wollmershäuser—require a focus on the novation decision taken ten years before the Eurocrisis. Jointly agreed by the Executive Board and all NCB governors, the novation decision used 'quiet politics' to bring the CCP Department into being. If any 'stealth' was involved, it lies in the de-politicised and technical decision of introducing novation just a few months after the beginning of Stage III.

Finally, as its third contribution, our analysis speaks to the IPE literature on international money and central banking. We provide a case study in the critical macro-finance framework that underpins why we should think of the monetary system as a web of interlocking balance sheets and look behind the technicalities of payment systems. Albeit technical, decisions around the 'plumbing' of interlocking balance sheets are inherently political. Novation

seems like a small technical tweak but had the power to alter the Eurosystem's apex in a way that no political actor could have achieved.

Our analysis opens multiple avenues for future research. To further explore the political process related to introducing the EMU's payment system, our critical macro-finance approach can well be complemented by an interview-based analysis that investigates the exact actors involved, their motivations, and perceptions. Moreover, we offer a starting point for policy-oriented research that explores whether the unlimited funding of payment imbalances between NCBs is sustainable (Meyer 2022) and if the status quo could be rebalanced without a breakup of monetary union.

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Conflict of interest

We have no conflict of interest.

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Appendix A

Our analysis draws on data provided by the Eurosystem Statistical Data Warehouse and through the reports on Statistical and Accounting Balance sheets of the Eurosystem. The data available for TARGET balances are inherently limited because they come only in a *net* and highly aggregated format, which prevents analysis of gross flows across jurisdictions. Not only does this represent a major methodological challenge that has not been solved in the literature on TARGET balances, it also prevents a correct understanding of the specific drivers of such balances. These are residuals of payment flows that originated from participants in the system, which are strictly confidential and are not shared by the ECB even upon request. Our analysis, however, is not affected by these limitations as we seek to provide an understanding of the significance of both the TARGET system and TARGET balances for the process of monetary unification. While refraining from simplistically interpreting TARGET balances as 'stealth bailouts' or signs of financial instability, we draw balance sheets and balance sheet mechanisms, which we seek to reconcile with available TARGET data, taking into account its *ex post* nature as a residual that is difficult to interpret.

The data on the breakdown of Eurosystem aggregated balance sheet ('Statistical Balance Sheet') does not net the intra-NCBs positions, and differs substantially from the disaggregated financial statement of the Eurosystem ('Accounting Balance Sheet') or the contributions to the annual consolidated balance sheet of the Eurosystem. This allows us to define the access to the ECB balance sheet and thus make the case for the ECB as the apex of the EMU monetary hierarchy. More information on the differences between Statistical and Accounting Balance Sheet are to be found in the Explanatory Note and Bridging Tables:

https://www.ecb.europa.eu/press/pr/wfs/shared/pdf/disaggregated_explanatory_note.en.pdf
https://www.ecb.europa.eu/pub/pdf/other/bridgingtables201607.en.pdf