Exploitation of Eurosystem Loopholes and Their Quantitative Reconstruction

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Abstract

This paper identifies and analyzes six key strategies used to exploit the Eurosystem’s financial mecha- nisms, and attempts a quantitative reconstruction: inflating TARGET balances, leveraging collateral swaps followed by defaults, diluting self-imposed regulatory rules, issuing money through Emergency Liquid- ity Assistance (ELA), acquisitions facilitated via the Agreement on Net Financial Assets (ANFA), and the perpetual (re)issuance of sovereign bonds as collateral. The paper argues that these practices stem from systemic vulnerabilities or deliberate opportunism within the Eurosystem. While it does not advocate for illicit activities, the paper highlights significant weaknesses in the current structure and concludes that com- prehensive reforms are urgently needed.

Keywords: cbank failure, love lettters, capital controls, composition agreement, debt restructuring, devaluation, regu- lation, resolution, supervision

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1. **INTRODUCTION**

The inherent intangibility of fiat currencies, such as the Euro, presents opportunities for de- basement and resource reallocation strategies. This issue is exacerbated when nations with diverse economic conditions and demands form a monetary union. Moreover, the advanced and nuanced nature of these strategies surpasses traditional debasement and counterfeiting methods typically seen in commodity and (bi)metallic coin systems, such as those experienced by the Latin Mon- etary Union ([Einaudi](#_bookmark7), [2001](#_bookmark7); [Flandreau](#_bookmark13), [2000](#_bookmark13); [Preda](#_bookmark23), [2017](#_bookmark23); [Willis](#_bookmark34), [1901](#_bookmark34)), or tactics like issuing duplicate securities with identical registration numbers and codes.

In the following sections, we will briefly examine each of the six strategies identified, which could, at least in principle, be employed by any National Central Bank (NCB) within the Eurosys- tem (and one even from outside it). We shall not delve into detailed analysis, as there is some overlap with existing literature that explores, for example, a credit facility among the Eurosys- tem’s national central banks ([Blake](#_bookmark4), [2023](#_bookmark4); [Ojeda](#_bookmark21), [2024](#_bookmark21); [Perotti](#_bookmark22), [2024](#_bookmark22); [Sinn](#_bookmark27), [2017](#_bookmark27), [2020](#_bookmark28); [Sinn and](#_bookmark29) [Wollmersha¨user](#_bookmark29), [2012](#_bookmark29)), or, from a legislative perspective, the need for a reliable framework of operations ([Ojeda](#_bookmark20), [2022](#_bookmark20)). These strategies include: Inflating TARGET balances, exchanging fake collaterals and then defaulting, diluting self-imposed rules such as debt ceilings and collateral re- quirements, money printing through Emergency Liquidity Assistance (ELA), acquisitions through Agreement on Net Financial Assets (ANFA), and finally, the perpetual (re)issuing and chaining of sovereign bonds as Eurosystem collateral.

1. **STRATEGEM 1: INFLATE TARGET BALANCES**

To quote the European Central Bank’s (ECB’s) own publication on TARGET imbalances ([Eu-](#_bookmark8) [ropean Central Bank](#_bookmark8), [2015](#_bookmark8), Box 4, p. 42): *“TARGET balances are the net claims and liabilities of the euro area [[National Central Banks]] NCBs vis-a`-vis the ECB which arise through cross- border payments settled in central bank money of the respective national banking sectors or the NCBs themselves and are executed via the common euro area payment platform known as TAR- GET.*

*When a bank makes a payment to another bank via TARGET, the current account of the payer’s bank at its NCB is debited and the current account of the recipient bank at its NCB is credited. If both banks hold their current accounts at the same NCB there is no net impact on the aggregate*

*account of banks at the NCB and there are no implications for TARGET balances. However, in the case of cross-border transactions, the NCB of the paying bank sees a reduction in that banks account at the NCB, and the NCB of the recipient bank sees an increase in the recipient bank’s account. Such positions are balanced by a TARGET liability for the first NCB and a TARGET claim for the second NCB. TARGET liabilities and claims also result from cross-border transactions by NCBs themselves, such as the purchase or sale of securities held for investment purposes. At the end of each day, such intra-Eurosystem claims and liabilities are aggregated and netted out throughout the Eurosystem. This leaves each NCB with a single net bilateral position vis-a`-vis the ECB, in the form of a positive or negative TARGET balance. By design, all the TARGET balances (including the ECB’s balance) add up to zero.”*

Essentially, TARGET imbalances function as an automatic credit facility among the Eurosys- tem’s national central banks (NCBs), distinguished by the following features ([Blake](#_bookmark4), [2023](#_bookmark4); [Ojeda](#_bookmark21), [2024](#_bookmark21); [Perotti](#_bookmark22), [2024](#_bookmark22); [Sinn](#_bookmark27), [2017](#_bookmark27), [2020](#_bookmark28); [Sinn and Wollmersha¨user](#_bookmark29), [2012](#_bookmark29)): (i) no collateral require- ments, (ii) zero interest rates, (iii) no need for approval from any authority such as the ECB’s Governing Council or the Executive Board, (iv) unlimited duration, unlike the US Federal Re- serve System’s Interdistrict Settlement Accounts, which require an annual settlement through the transfer of primarily US Treasury Securities, and previously Gold Certificates and Special Draw- ing Rights, and (v) no caps or limit.

Currently, the consequences of a default by one of the participating national banks on this credit facility are undefined. The ECB’s statements do not address the possibility of default, instead im- plying that imbalances are resolved through mutual, collectivized credit lines among Eurosystem member countries. This means that, for example, if the Banco de Espan˜a were to default (partially) on this debt, the Bundesbank or the entire Eurosystem would need to absorb the losses, with the extent of the absorption (from all to none) unknown at present. It is highly probable that significant political pressures will influence the resolution of such a situation.

On request the Austrian O¨ NB, one of the national banks of the Eurosystem, issued the following

statement (in German, translation by deepl.com) ([Ackerler](#_bookmark1), [2024](#_bookmark1)): *“There is no list of TARGET balances between individual countries. The ECB acts as the central settlement centre for the central banks participating in TARGET; at the end of the day, the resulting claims and liabilities between the national central banks are netted out to form a claim on or liability to the ECB.”* This was corroborated by a statement of the ECB ([Putignano](#_bookmark24), [2024](#_bookmark24)): *“Please note that TARGET balances are computed automatically at the end of the day in TARGET Services. Unfortunately,*

*the data you are enquiring for, i.e. the balance position of each National Central Bank (NCB) vis-a`-vis all other NCBs, is not available.”*

We conclude that, at the end of each day, the TARGET balances are ‘collectivized’ or netted among all members of the Eurosystem, and no official record exists to delineate and analyze them, such as a skew-symmetric matrix with vanishing diagonal entries, showing the balances of each individual NCB against every other NCB.

The current reporting procedure for TARGET balances has significant implications for the po- tential collapse of the Eurosystem and the subsequent debt settlement among its member states. The procedure is inadequate and irreversible, as it does not permit the tracking of individual bal-

ances between National Central Banks (NCBs). To illustrate this, consider Austria’s O¨ NB, which

has a current negative TARGET balance of approximately −65 billion (outstanding) Euro ([Eu-](#_bookmark12) [ropean Central Bank](#_bookmark12), [2024](#_bookmark12)). This balance could have resulted from various (a continuity of) transactions, such as lending 100 billion to Italy and borrowing 165 billion from Germany, or al- ternatively borrowing 30 billion from Italy, lending 100 billion to Germany, and borrowing 135 billion from France. However, the current system does not allow for the identification of these specific transactions, and no official records are maintained.

Formally, the quantitative flows of inter-NCB Target balances can be represented by a skew- symmetric matrix with zero diagonal elements, where the entry *Ti j* in the *i*th row and *j*th column represents the respective TARGET balance of the *i*th NCB with respect to the *j*th NCB:

 0 *T*12 *T*13 · · · *T*1*n*

*T* = −*T*13 −*T*23 0 · · · *T*3*n* *.* (1)

−*T*12 0 *T*23 · · · *T*2*n*

 .

. . · · ·

. 

−*T*1*n* −*T*2*n* −*T*3*n* · · · 0

This representation excludes balances of the ECB and the Extra Euro Area (outside of the EU), whose inclusion is straightforward. There are currently 20 NCBs in the Eurosystem (excluding the ECB), so *n* = 20. Including the ECB and the Extra Euro Area would result in *n* = 21 and *n* = 22, respectively. The number of independent inter-NCB TARGET balances per day is (*n*2 − *n*)*/*2 = *n*(*n* − 1)*/*2, which equals 190 for *n* = 20, 210 for *n* = 21, and 231 for *n* = 22.

The current TARGET reporting aggregates these balances into *n* = 20, as it only captures the *n*

aggregate sums

*n*

*Ti* = ∑ *Ti j* (2)

*j*=1

for the *i*th NCB (noting that *Tii* = 0). Evidently, since *n*(*n* − 1)*/*2 *> n* for *n >* 2, this accounting is irreversible for *n >* 2, meaning it cannot be reconstructed for more than two NCBs.

1. **STRATEGEM 2: EXCHANGE FAKE COLLATERALS THEN DEFAULT**

Here is a quote from a crisis management paper by the Financial Stability Institute (FSI) of the Bank for International Settlements (BIS) exposing this scheme ([Baudino et al.](#_bookmark3), [2020](#_bookmark3), p. 9): *“... banks issued bonds and exchanged them between each other so that they could be pledged as collateral with the central banks. This allowed them to break free from central bank funding limits since they could issue such bonds (which became known as ‘love letters’) at will.”*

So the basic idea of this strategem is to create fake collateral, such as ‘I Owe (Y)Us’ (IOUs). Subsequently default on these worthless certificates. ([Flannery](#_bookmark14), [2009](#_bookmark14); [Hreinsson et al.](#_bookmark19), [2009](#_bookmark19); [Sib-](#_bookmark26) [ert](#_bookmark26), [2010](#_bookmark26)).

In a little bit more detail, Icelandic banks exchanged debt securities, using each other’s debt as ‘love letter’ collateral for central bank borrowing. The Eurosystem also accepted these, despite questionable correlation risks. Between February and April 2008, Icelandic banks borrowed Eur

2.5 billion from the Central Bank of Luxembourg using love letters. The European Central Bank (ECB) expressed concern, and an informal agreement was made to limit their use, but loans in- creased to Eur 4.5 billion by June. By July, love letters were prohibited, and lending fell to Eur

3.5 billion. In autumn 2008, five counterparties defaulted, three of which were Icelandic bank subsidiaries.

Finally, in March 2009, after a European Parliament member questioned the ECB about these loans, the strategem was publicly exposed.

This strategem bears some resemblance to a scheme in which two large European banks outside of the Eurosystem were allegedly involved. During the 2008 financial crisis, these banks allegedly created capital through a credit-share swap: They needed around £7 billion in new capital during the crisis. To raise this capital, they used a method that involved lending money to a sovereign wealth fund, who in turn agreed to buy newly issued shares in the banks. Essentially, the banks allegedly lent the sovereign wealth fund the money to invest back into them, inflating their eq- uity ([Werner](#_bookmark32), [2016](#_bookmark32), t=770). This transaction, while effective in raising capital—as it is unlawful

for a bank to lend itself money ([Westbrook](#_bookmark33), [2017](#_bookmark33))—got unsuccessfully flagged by one regulatory body.

1. **STRATEGEM 3: DILUTE SELF-IMPOSED RULES SUCH AS DEBT CEILINGS AND COL- LATERAL REQUIREMENTS**

The European Central Bank (ECB) has faced increasing scrutiny for diluting its self-imposed rules, particularly regarding debt ceilings and collateral requirements. These rules were initially designed to ensure fiscal responsibility among member states and maintain financial stability in the eurozone. However, as economic pressures have mounted—especially during crises like the Eurozone debt crisis and the COVID-19 pandemic—the ECB has relaxed these rules to provide more flexibility to member states.

One key area of dilution is the debt-to-GDP ratio. Originally, eurozone countries were expected to maintain a debt-to-GDP ratio below 60%, as stipulated by the Maastricht Treaty. However, many countries have consistently exceeded this limit. Instead of enforcing strict penalties, the ECB has allowed more leniency, fearing that rigid adherence to these rules could exacerbate economic downturns and stifle growth.

Additionally, the ECB has relaxed collateral requirements, allowing banks to use riskier assets as collateral for loans. While this move aims to ensure liquidity in the financial system, it also raises questions about the quality of assets being accepted. This leniency has been accompanied by the ECB’s practice of indirect monetization of budget deficits, by buying government debt on secondary markets. Some fear that by allowing questionable collateral, the ECB is taking on excessive risk, which could lead to financial instability if these assets fail to perform.

Here is a quote from an article published by The Brookings Institution ([Belz et al.](#_bookmark5), [2020](#_bookmark5)): *“The ECB now accepts as collateral an expanded set of non-marketable assets—including government guaranteed loans, lower quality loans, and small business loans—that are outside of the general framework. It also granted waivers to Greek sovereign debt, which, because of its non-investment grade status, was not previously considered eligible collateral. ‘Fallen angel’ bonds, those that have recently lost their investment-grade rating, are now accepted as collateral as well. In addi- tion, the ECB reduced haircuts, the amount of collateral required in excess of the loan amount, for its lending programs. In effect, the ECB decided that it is willing to temporarily increase its risk tolerance so banks can access the ECB’s liquidity operations.”*

At the moment, the central banks hold about one third of the long-term sovereign bonds issued. This makes them vulnerable against all sorts of attacks by speculators, and against the desires of the political bodies in their respective countries. If the trend of collectivizing risks and debt continues, this could, in principle, make it necessary to refinance these central banks and the Eurosystem in general ([Sauer](#_bookmark25), [2023](#_bookmark25)).

1. **STRATEGEM 4: MONEYPRINTING THROUGH EMERGENCY LIQUIDITY ASSISTANCE (ELA)**

Emergency Liquidity Assistance (ELA) loans are crisis loans built into the Euro system from the start but published only in 2017 ([European Central Bank](#_bookmark10), [2017](#_bookmark10)). A national central bank can declare a financial emergency, for instance by a bank or debt run. The national central banks can print unlimited money to lend to commercial banks within its jurisdiction, based on its own collateral rules, ‘rescue’, these banks, allegedly at the NCB’s own risk. This could also be used to delay a bankruptcy, and may have other negative side effects ([Sinn](#_bookmark27), [2017](#_bookmark27), Chapter 5).

ELA is by no means a small resource: For instance, at the height of Greece’s 2015 crisis, ELA borrowing by Greek banks reached 71% of the country’s nominal GDP ([Gibson et al.](#_bookmark15), [2020](#_bookmark15)).

The ECB Governing Council can block such loans with a two-thirds majority vote. However, if at least one-third supports the loans, they cannot be stopped. In 2013, over a third of the ECB Gov- erning Council members were from GIPSIC (Greece, Ireland, Portugal, Spain, Italy, and Cyprus) countries in need of cheap credit, making it impossible for others to form a blocking coalition. Un- til Latvia’s entry in 2014, these countries could theoretically secure unlimited central bank credit without opposition.

1. **STRATEGEM 5: AQUISITIONS THROUGH AGREEMENT ON NET FINANCIAL ASSETS (ANFA)**

Daniel Hoffmann’s doctoral thesis ([Hoffmann](#_bookmark17), [2015](#_bookmark17), [2016](#_bookmark18)) at the TU Berlin uncovered that national central banks had secretly created money to buy assets, generating profits for their gov- ernments. This practice, amounting to 650 billion Euro in ANFA credits in 2011, caused tensions within the ECB council. A confidential agreement was made to limit the activity, but Hoffmann’s work exposed it, leading to the eventual public release of the details ([European Central Bank](#_bookmark9),

[2016](#_bookmark9), [2022](#_bookmark11)).

1. **STRATEGEM 6: PERPETUAL (RE)ISSUING AND CHAINING OF SOVEREIGN BONDS AS EUROSYSTEM COLLATERAL**

It is common practice among all sovereign states to chain an unlimited number of sovereign bonds ([Hannoun et al.](#_bookmark16), [2019](#_bookmark16), 3), and thereby to roll over more and more debt without ever being able to pay it back. In this process, the original principal is devalued by compounded inflation— an effect welcomed by the (sovereign) deptors—while at the same time the required amount of money created grows exponentially (by that compounding inflation).

Instead of going into too much detail here I just recall the answer of a prominent OECD re-

searcher to my question *“will any government ever pay back this sovereign debt, or are they at least committed to do so?”* at a scientific meeting organized by the Austrian National Bank (O¨ NB): his answer was a staightforward *“no”*, after he checked that I am not a journalist. In that way the sovereign debt can be perpetually rolled over, and, without disruption, the required amount of money created grows exponentially.

1. **REFLECTIONS OF THE ORIGIN AND AVOIDANCE OF THE STRATEGEMS**

Many of the aforementioned strategems involve securing ‘free’ loans from the Eurosystem, followed by de facto default: With infinite time horizons and for practical purposes, repaying the collateral and compounded interest becomes illusory. Moreover, if the interest rate is effectively zero, the constraints on purchasing equity are primarily determined by the (im)possibility of con- cealing such transactions from public scrutiny. In the (unrealistic) limit, it would be theoretically possible to acquire ‘everything for nothing’.

The viability of these strategies relies on the utilization of non-physical fiat currencies, in con- trast to those backed by a limited medium of exchange, such as gold, silver, or algorithmically secured ‘hard’ currencies. I do not aim to dispute the advantages of fiat money in general, since I believe that only fiat currency can provide the necessary adaptability to meet the requirements of emerging technologies and an expanding economy. However, the intangible nature of fiat cur- rencies makes them vulnerable to manipulation, resulting in unintended wealth redistribution and concentration, as exemplified by the Free Rider Problem ([Congdon](#_bookmark6), [2022](#_bookmark6)). Consequently, it has

been proposed that “a new constitutional consensus for the EU, endowed with sound economic foundations, is [[*. . .*] indispensable” ([Ojeda](#_bookmark20), [2022](#_bookmark20)).

Even if money creation is executed in large quantities, it does not necessarily lead to ‘excessive’ (more than of the order of 100% per annum) inflation, regardless of the volume or quantity of money aggregate and demand-pull inflation—too much money chasing too few goods—might suggest ([Barth and Bennett](#_bookmark2), [1975](#_bookmark2)), even if the possibility of ‘hoarding’—stashes of money stowed away somewhere and suddenly released—is taken into consideration.

Because as long as this additional money does not show up at foreign exchanges, competing against other currencies, it will not lead to inflation ([Sauer](#_bookmark25), [2023](#_bookmark25)). This can, for instance, be corroborated by the Japanese example characterized by trade surplus and internal debt ([Werner](#_bookmark30), [2003](#_bookmark30), [2005](#_bookmark31)).

It is conceivable that, as long as the currency is in some way ‘demanded’ or ‘wanted’ in re- lation to other currencies—for example, due to a trade surplus, or the demand for commodities, especially those related to energy—there will be no excessive inflation. As a result, if you hold a reserve currency (that is always ‘wanted’), you can print ‘as much money as you want’, without causing excessive inflation.

The true nature of these alleged scenarios or strategems remains ambiguous to external ob- servers: are they the product of inadequate design and unforeseen repercussions, or are they delib- erately coordinated by factions within or outside the Eurosystem to, for instance, reassign wealth among member states ([Congdon](#_bookmark6), [2022](#_bookmark6))? Regardless of whether the impetus stems from systemic deficiencies or calculated maneuvers, the Eurosystem demands ([Ojeda](#_bookmark20), [2022](#_bookmark20)) a comprehensive overhaul.

1. **CONCLUSIONS**

This paper has identified and analyzed six key strategies employed to exploit the Eurosystem’s financial mechanisms, highlighting significant vulnerabilities within the current structure. These strategies include inflating TARGET balances, leveraging collateral swaps followed by defaults, diluting self-imposed regulatory rules, issuing money through Emergency Liquidity Assistance (ELA), acquisitions facilitated via the Agreement on Net Financial Assets (ANFA), and the perpet- ual (re)issuance of sovereign bonds as collateral that, through ever increasing compound interest, may enter an unsustainable regime.

The analysis highlights that these practices arise from either unintended systemic vulnerabil- ities or deliberate opportunism within the Eurosystem. The intangible nature of fiat currencies poses distinct challenges and opportunities for debasement and resource reallocation, which are amplified in a monetary union characterized by diverse economic conditions. This emphasizes the necessity for comprehensive reforms to address these vulnerabilities.

The Eurosystem’s current reporting procedures and lack of transparency in tracking individual balances between National Central Banks (NCBs) pose significant challenges. The irreversible nature of the current TARGET balance reporting makes it impossible to reconstruct detailed inter- NCB transactions, which is crucial for understanding and mitigating potential defaults and their implications.

Furthermore, the erosion of self-imposed regulations, including debt ceilings and collateral re- quirements, as well as the utilization of ELA and ANFA, emphasizes the necessity for more strin- gent regulatory structures and improved governance. The continuous (re)issuance of sovereign bonds as collateral also highlights the systemic risks linked to uncontrolled debt accumulation.

In conclusion, the Eurosystem’s vulnerabilities necessitate a comprehensive overhaul to ensure financial stability and prevent opportunistic exploitation. Only through robust reforms can the Eu- rosystem address these challenges and ensure a more resilient and transparent financial framework for all of its member states.

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Ackerler, M. (2024). OeNB-Website: Matrix der Target Salden nach La¨ndern (pro Jahr)? Abteilung fu¨r Kommunikation, Oesterreichische Nationalbank, Otto-Wagner-Platz 3, 1090 Wien, Austria, EU, email message, dated Sept. 12, 2024.

Barth, J. R. and Bennett, J. T. (1975). Cost-push versus demand-pull inflation: Some empirical evidence,

*Journal of Money, Credit and Banking* **7**(3): 391–397. <https://doi.org/10.2307/1991632>

Baudino, P., Sturluson, J. T. and Svoronos, J.-P. (2020). The banking crisis in Iceland. FSI Crisis Manage- ment Series, No 1, March 26, 2020, accessed Sept. 6, 2024. <https://www.bis.org/fsi/fsicms1.htm> Belz, S., Cheng, J., Wessel, D., Gros, D. and Capolongo, A. (2020). What’s the ECB doing in response to the COVID-19 crisis? The Brookings Institution, pub- lished June 4, 2020, accessed Sept 6, 2024. [https://www.brookings.edu/articles/](https://www.brookings.edu/articles/whats-the-ecb-doing-in-response-to-the-covid-19-crisis/) [whats-the-ecb-doing-in-response-to-the-covid-19-crisis/](https://www.brookings.edu/articles/whats-the-ecb-doing-in-response-to-the-covid-19-crisis/)

Blake, D. (2023). Target2: The silent bailout system that keeps the Euro afloat, *Journal of Risk and Finan-* *cial Management* **16**(12): 506. <https://doi.org/10.3390/jrfm16120506>

Congdon, T. (2022). Can the Eurozone manage its free rider problem?, *Future Europe Journal* **2**(1): 61–71. [https://feu-journal.eu/wp-content/uploads/2023/03/FEU-Journal-Issue-2\_](https://feu-journal.eu/wp-content/uploads/2023/03/FEU-Journal-Issue-2_Inflation-rising.pdf) [Inflation-rising.pdf](https://feu-journal.eu/wp-content/uploads/2023/03/FEU-Journal-Issue-2_Inflation-rising.pdf)

Einaudi, L. (2001). *Money and Politics: European Monetary Unification and the International Gold Stan- dard (1865-1873)*, Oxford University Press, Oxford, England, UK. [https://doi.org/10.1093/oso/](https://doi.org/10.1093/oso/9780199243662.001.0001) [9780199243662.001.0001](https://doi.org/10.1093/oso/9780199243662.001.0001)

European Central Bank (2015). Economic Bulletin Issue 6 / 2015. European Central Bank, publishing date September 17, 2015, accessed September 8th, 2024. [https://www.ecb.europa.eu/pub/pdf/ecbu/](https://www.ecb.europa.eu/pub/pdf/ecbu/eb201506.en.pdf) [eb201506.en.pdf](https://www.ecb.europa.eu/pub/pdf/ecbu/eb201506.en.pdf)

European Central Bank (2016). What is ANFA? European Central Bank, publishing date February 5, 2016, updated on February 24, 2023, accessed September 8th, 2024. [https://www.ecb.europa.eu/](https://www.ecb.europa.eu/ecb-and-you/explainers/tell-me-more/html/anfa_qa.en.html) [ecb-and-you/explainers/tell-me-more/html/anfa\_qa.en.html](https://www.ecb.europa.eu/ecb-and-you/explainers/tell-me-more/html/anfa_qa.en.html)

European Central Bank (2017). Agreement on emergency liquidity assistance. European Central Bank, publishing date June 16, 2017, accessed September 8th, 2024. [https://www.ecb.europa.eu/pub/pdf/](https://www.ecb.europa.eu/pub/pdf/other/Agreement_on_emergency_liquidity_assistance_20170517.en.pdf) [other/Agreement\_on\_emergency\_liquidity\_assistance\_20170517.en.pdf](https://www.ecb.europa.eu/pub/pdf/other/Agreement_on_emergency_liquidity_assistance_20170517.en.pdf)

European Central Bank (2022). Agreement on Net Financial Assets of 19 December 2022. European Central Bank, publishing date December 19, 2022, accessed September 8th, 2024. https://eur-lex. europa.eu/legal-content/EN/TXT/PDF/?uri=IMMC:AGR/2022/12191

European Central Bank (2024). TARGET balances of participating NCBs. accessed October 21st, 2024. [https://www.ecb.europa.eu/stats/policy\_and\_exchange\_rates/target\_balances/](https://www.ecb.europa.eu/stats/policy_and_exchange_rates/target_balances/html/index.en.html) [html/index.en.html](https://www.ecb.europa.eu/stats/policy_and_exchange_rates/target_balances/html/index.en.html)

Flandreau, M. (2000). The economics and politics of monetary unions: A reassessment of the Latin Monetary Union, 1865-71, *Financial History Review* **7**(1): 25–44. [https://doi.org/10.1017/](https://doi.org/10.1017/s0968565000000020) [s0968565000000020](https://doi.org/10.1017/s0968565000000020)

Flannery, M. J. (2009). Iceland’s failed banks: A post-mortem. Report prepared for the Ice- landic Special Investigation Commission, 9 March 2009. [https://www.rna.is/media/skjol/](https://www.rna.is/media/skjol/RNAvefVidauki3Enska.pdf) [RNAvefVidauki3Enska.pdf](https://www.rna.is/media/skjol/RNAvefVidauki3Enska.pdf)

Gibson, H. D., Hall, S. G., Petroulas, P., Spiliotopoulos, V. and Tavlas, G. S. (2020). The effect of emergency liquidity assistance (ELA) on bank lending during the Eeuro area crisis, *Journal of International Money and* *Finance* **108**: 102154. <https://doi.org/10.1016/j.jimonfin.2020.102154>

Hannoun, H., Issing, O., Liebscher, K., Schlesinger, H., Stark, J., Wellink, N., de Larosie`re and Noyer, C. (2019). Memorandum on the ECB’s monetary policy. Published October 4, 2019, accessed 9. Sep. 2024. <https://www.hanswernersinn.de/dcs/Memorand-ECB-Monetary-Policy-04102019.pdf> Hoffmann, D. (2015). *DIE EZB IN DER KRISE. Eine Analyse der wesentlichen Sondermaßnahmen von 2007 bis 2012*, PhD thesis, TU Berlin, Berlin, Germany, EU. Westarp BookOnDemand, Pro BUSINESS Verlag, Artikelnummer: 14603, Nr. 1 der Schriftenreihe zur Erforschung des Geldwesens.

Hoffmann, D. (2016). Erste Erkenntnisse zum ANFA-Abkommen: ANFA ermo¨glicht Fi- nanzierung von Bankenabwicklungen durch nationale Zentralbanken. ifo Schnelldienst 13/2016

- 69. Jahrgang - 14. Juli 2016, accessed 5. Sep. 2024. [https://www.ifo.de/DocDL/](https://www.ifo.de/DocDL/sd-2016-13-hoffman-anfa-irland%7B%25%7D20-2016-07-14.pdf) [sd-2016-13-hoffman-anfa-irland{%}20-2016-07-14.pdf](https://www.ifo.de/DocDL/sd-2016-13-hoffman-anfa-irland%7B%25%7D20-2016-07-14.pdf)

Hreinsson, P., Tryggvi, G. and Sigridur, B. (2009). Causes of the collapse of the icelanldic banks - respon- sibility, mistakes and negligence. Report prepared for the Icelandic Special Investigation Commission, 9 March 2009. <https://www.rna.is/media/skjol/RNAvefurKafli21Enska.pdf>

Ojeda, A. R. (2022). Which constitutional economics for the two-decade-old eurozone?, *Fu- ture Europe Journal* **2**(1): 42–49. [https://feu-journal.eu/wp-content/uploads/2023/03/](https://feu-journal.eu/wp-content/uploads/2023/03/FEU-Journal-Issue-2_Inflation-rising.pdf) [FEU-Journal-Issue-2\_Inflation-rising.pdf](https://feu-journal.eu/wp-content/uploads/2023/03/FEU-Journal-Issue-2_Inflation-rising.pdf)

Ojeda, A. R. (2024). El Eurosistema: dominancia monetaria o redistribucio´n mediante regulacio´n. En especial, los saldos TARGET2 (The Eurosystem: monetary dominance or redistribution through regulation. In particular, TARGET2 balances), *InDret (Revista para el Ana´lisis del Derecho)* **4**: 349–408. [https:](https://doi.org/10.31009/indret.2024.i4.11)

[//doi.org/10.31009/indret.2024.i4.11](https://doi.org/10.31009/indret.2024.i4.11)

Perotti, R. (2024). Understanding the German criticism of Target, *Economic Policy* **38**(116): 827–861.

<https://doi.org/10.1093/epolic/eiae009>

Preda, D. (2017). *The history of the European Monetary Union*, Vol. 99 of *Euroclio*, P.I.E. Peter Lang, Bruxelles, Bern, Berlin, Frankfurt am Main, New York, Oxford, Wien, EU. [https://doi.org/10.3726/](https://doi.org/10.3726/b10858) [b10858](https://doi.org/10.3726/b10858)

Putignano, A. (2024). accounting of TARGET (#4 – 175953). Public Communication, European Central Bank, email message, dated Sept. 18, 2024.

Sauer, I. (2023). The Lessons from 1923 for the Euro Area: Enlightening the Dark Side of (In-) Solvent Central Banks’ Balance Sheets, *SSRN Electronic Journal* pp. 1–360. [https://doi.org/10.2139/ssrn.](https://doi.org/10.2139/ssrn.4620462) [4620462](https://doi.org/10.2139/ssrn.4620462)

Sibert, A. (2010). Love letters from Iceland: Accountability of the Eurosys- tem. Vox posting from 18 May 2010. [https://cepr.org/voxeu/columns/](https://cepr.org/voxeu/columns/love-letters-iceland-accountability-eurosystem) [love-letters-iceland-accountability-eurosystem](https://cepr.org/voxeu/columns/love-letters-iceland-accountability-eurosystem)

Sinn, H.-W. (2017). *The Euro Trap: On Bursting Bubbles, Budgets, and Beliefs*, Oxford University Press, Oxford, England, UK. https://doi.org/10.1093/acprof:oso/9780198702139.001.0001

Sinn, H.-W. (2020). *The economics of TARGET balances: From Lehman to Corona*, Palgrave Macmillan imprint published by the registered company Springer Nature Switzerland AG, Cham, Switzerland. [https:](https://doi.org/10.1007/978-3-030-50170-9)

[//doi.org/10.1007/978-3-030-50170-9](https://doi.org/10.1007/978-3-030-50170-9)

Sinn, H.-W. and Wollmersha¨user, T. (2012). Target loans, current account balances and capital flows: The ECB’s rescue facility, *International Tax and Public Finance* **19**: 468–508. [https://doi.org/10.1007/](https://doi.org/10.1007/s10797-012-9236-x) [s10797-012-9236-x](https://doi.org/10.1007/s10797-012-9236-x)

Werner, R. (2003). *Princes of the Yen: Japan’s Central Bankers and the Transformation of the Economy*, second edn, Routledge, New York, NY, USA. https://quantumpublishers.com/uk-cart/index. php?route=product/product{&}product\_id=50

Werner, R. (2005). *New Paradigm in Macroeconomics: Solving the Riddle of Japanese Macroeconomic* *Performance*, Palgrave Macmillan, London, UK. <https://doi.org/10.1057/9780230506077>

Werner, R. (2016). Prof. Richard Werner - Banking Industry Exposed & Solutions Presented - Dublin April 2016. YouTube, Public Banking Forum of Ireland, November 28, 2016, accessed September 12, 2024. <https://youtu.be/MechH0ebs_c>

Westbrook, I. (2017). Why has Barclays been charged? BBC News, dated June 20, 2017, accessed September 12, 2024. <https://www.bbc.com/news/business-40341611>

Willis, H. P. (1901). *A History of the Latin Monetary Union: A Study of International Mone- tary Action*, University of Chicago Press, Chicago, IL, USA. [https://archive.org/details/](https://archive.org/details/historyoflatinmo00willuoft)

[historyoflatinmo00willuoft](https://archive.org/details/historyoflatinmo00willuoft)