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# Co-working in the collateral factory: analyzing the infrastructural entanglements of public debt management, central banking, and primary dealer systems

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## ABSTRACT



Scholarship on sovereign debt emphasizes the importance of central banks in backstopping markets, but less attention has been devoted to the interactions of debt management offices with private finance. To fill this gap, this article examines the market-based operations of debt management offices alongside those of central banks. Debt management has played a crucial role in constructing and nurturing liquidity conditions in primary and secondary markets for sovereign debt through the contracting of primary dealers as monetary and fiscal policy partners, the embrace of repo markets, and later, through the creation of special liquidity facilities. Co-working in the collateral factory of the modern financial system creates new forms of entanglements that we term the ‘collateral triangle’, linking together central banking, debt management, and primary dealer operations in a shared convergence on repo finance as integral to public sector governability and private sector business models. Debt management and central banking jointly created and now maintain the infrastructures of this ‘collateral triangle’, not least because the inherent stability risks of repo markets threaten market-based monetary policy and market-based debt management. Routine de-risking by both actors is a core feature of the collateral system.

## KEYWORDS

Critical macrofinance; sovereign debt; primary dealers; repo markets; monetary-fiscal coordination

## Introduction

The Covid-19 pandemic has caused central bankers to take on a substantive role in sovereign debt markets. Emerging not only as lenders but also as market makers of last resort, central banks have pumped liquidity into stricken markets and effectively bankrolled the pandemic-bill of governments’ crisis responses. Keen observers of central bank independence were quick to warn of a return of monetary financing in which central banks relinquish their operational independence to do

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fiscal authorities' bidding. These concerns have only heightened with the return of inflation, prompting central banks to go at great lengths to reassert their operational independence. This fear of institutional subordination is often based on an antagonistic view of debt management and monetary policy where central bankers and public debt managers are cast as foes in macroeconomic (power) plays. Yet what does this conventional view of fiscal vs. monetary policy miss out?

A key theme in recent political economy scholarship is the idea that financial system dynamics exert a direct influence on policymakers' capacity to implement policy successfully. This is because modern economic governance is market-based—it relies on markets as the key mechanism for policy implementation (Braun, 2020; Gabor, 2020; Walter & Wansleben, 2020). Strengthening their infrastructural capacity to govern through finance, public actors have therefore actively nurtured the growth of specific market segments, notably the repo market where banks and non-bank financial institutions (such as pension funds) secure short-term cash loans by offering collateral. Yet given the endemic instabilities of finance, monetary and fiscal interventions are increasingly motivated by a shared concern for stabilizing key market segments and infrastructures (Diessner & Lisi, 2020; Rommerskirchen & van der Heide, 2023). Gabor (2021) has termed this configuration the 'de-risking state': Here, public authorities seek to protect the viability and profitability of private investment strategies deemed in line with public policy preferences, for instance *via* central bank interventions that stabilise sovereign bond prices (cf., Musthaq, 2023).

This article contributes to the literature of the de-risking state by showing how financial stability considerations pervade not just the operations of central banks but also those of public debt management offices (DMOs)—those institutions responsible for the debt and cash management of their respective governments. By bringing in a so-far neglected actor, we highlight 'varieties of de-risking'. Drawing on the critical macrofinance view, we show that the growth of the 'repo—sovereign debt nexus' (Gabor & Ban, 2016) renders a clear-cut distinction between debt management and central banking increasingly tenuous. Across advanced economies, public debt management is substantively financialized (Fastenrath et al., 2017) and increasingly interlinked with private financial actors, notably primary dealers (PDs) (Rommerskirchen & van der Heide, 2023). As we argue, many DMOs have played a crucial role in constructing and nurturing liquidity conditions in primary and secondary markets for sovereign debt—through the creation of primary dealers as monetary and fiscal policy partners, the embrace of repo markets, and later, through the implementation of special liquidity facilities that support central banks in maintaining orderly market conditions. Debt management thereby aids central banks in their quest for monetary governability<sup>1</sup> (Braun, 2020; Dutta, 2020) and plays a significant role in institutionalizing the link between market-based finance and sovereign debt.

The article makes two central contributions. First, it brings an important empirical history of sovereign debt management to bear on the way the political economy literature approaches monetary-fiscal interactions. While recent scholarship has recognized the role of central banks in market-based governance, relatively little attention has been paid to the ways in which debt management supports and sustains central banks' capacity to govern effectively through markets. Drawing on the experience of states across Europe, we show that the push for financial

liberalization in sovereign debt markets was initially linked to efforts to enhance the monetary policy transmission mechanism, reduce debt servicing costs, and remain attractive in the eyes of investors throughout the process of European monetary integration. European states (partially) adopted the US blueprint for financial liberalization, including repo markets, where financial institutions borrow (usually short-term) against high-quality collateral; and primary dealer systems, where dealers enjoy privileged access to primary debt issuance in exchange for a commitment to ‘make’ a secondary market. The resulting macrofinancial architecture linked central banks and DMOs in a common outlook, namely one that is dominated by the production and support of liquid assets amidst exacerbated financial instability. By considering how debt management relates to this broader macrofinancial setup, we thus examine the financialization *of and by* the state (Schwan et al., 2021) from another angle.

A second, theoretical contribution derives from this. Analyzing the activities of central banks and debt management agencies together allows us to advance current International Political Economy (IPE) scholarship on monetary-fiscal interactions, which typically views them as having an adversarial relationship. By contrast, this article highlights that within sovereign debt markets, both central banks and debt managers depend on finance as crucial infrastructure for governance. We term this co-working relationship the ‘collateral triangle’—linking together central banks, debt management offices, and primary dealers in a shared convergence on repo finance as integral to public sector governability and private sector business models. In highlighting these entanglements of formally separate public authorities *within* their market-based operations, we refine existing accounts of infrastructural power (e.g. Braun, 2020). As we thereby show, the creation and nurturing of modern sovereign debt markets has infused monetary-fiscal relationships with financial stability motives. The advantages states derived from market-based debt management initially obscured well-known stability risk which the decade since the global financial crisis forcefully revealed: Within collateral-intensive financial markets, even sovereign debt can rapidly become vulnerable to liquidity spirals and collateral crises. While central banks typically emerge as the main stabilizer during large-scale crises (including those of their own making; refer to van ‘t Klooster, 2023), bringing debt management into the analysis of monetary governance allows us to better grasp the institutional settings that underpin modern infrastructural power relationships and create the conditions for large-scale instability in the first place.

The article draws on evidence from primary archival sources, public documents, and interviews. The archival material has been gathered during eight archival visits between 2019 and 2023 from archives at the German Finanzagentur, Bundesbank, and Bundesarchiv, the UK’s Bank of England and National Archives as well as UNCTAD’s Debt Management division; many of those files were closed until recently.<sup>2</sup> We present a new database of liquidity support (Table 1; see also Appendix) based on a systematic review of central bank and debt management offices’ documents. We furthermore draw on 36 interviews with current or former senior employees at national debt management offices, regulators, and private banks (including repo traders and primary dealers) conducted in-person and online between October 2018 and September 2023. Interview material is presented with two letter codes to preserve anonymity. Particularly useful was participation in three international meetings attended by staff of government debt management

**Table 1.** Primary dealer and repo market support, selected countries.

	Primary dealer and repo market support	Authority
Belgium	Secondary government debt market smoothing through selective provision of government securities	Belgian Debt Agency
Denmark	Securities lending facility provides government securities to primary dealers to support the functioning of the repo market	Danish Central Bank
France	Securities repo facility provides government securities to Primary Dealers to enhance the liquidity of government debt	French Debt Agency
Germany	Liquidity support and planning via 'Marktpflege'	German Debt Agency
Italy	Repo facility open to potentially all secondary market participants, designed to enhance goals of cash management and address situations of scarcity in specific securities	Italian Treasury
Netherlands	Repo facility allows Primary Dealers to obtain part of an unsold government debt auction via a repo transaction to maximize efficiency in debt auctions	Dutch State Treasury Agency
Portugal	Repo facility of last resort supports market-making obligations of primary dealers in secondary markets	Portuguese Debt Agency
Sweden	A standing repo facility governed by demand and offered irrespective of the borrowing requirement	Swedish National Debt Office
UK	Standing and special repo facilities to support primary dealers in their ability to make two-way prices in secondary markets and counteract severe market dislocations	Debt Management Office
Japan	Primary dealers can access auctions for enhanced-liquidity designed to maintain the liquidity of the primary sovereign debt market and avoid a decline in the liquidity of the secondary market	Ministry of Finance
US	Primary Dealer Credit Facility as well as Repo facilities (introduced at various points since 2008)	Federal Reserve

*Sources:* Various central bank and debt management office websites.

offices of many countries as well as one large banking industry conference: What participants said (though not quoted directly here) in informal discussion often helpfully complemented sometimes guarded formulations in interviews. We triangulated interview evidence with primary and secondary documentary sources, cross-checking what differently situated interviewees said about the same events or processes.

The article proceeds as follows. The first section introduces an infrastructural power argument to discussions of monetary-fiscal-financial interactions. Drawing on critical-macroeconomics, we analyze how co-working in the 'collateral factory' (Gabor, 2016) of the modern financial system creates new forms of infrastructural entanglements between public and private financial actors. The second section introduces the core features of the 'collateral triangle'. Section three discusses the role of central banks and debt managers in building and nurturing the new infrastructures of sovereign debt markets, a project pursued notably to increase the efficacy of the monetary policy transmission mechanism and reduce borrowing costs. The fourth section analyzes the shortcomings of the current macrofinancial architecture, showing the growing need to maintain and stabilize the infrastructure through (coordinated) policy interventions. The fifth section concludes.

## Infrastructural power and the de-risking state

Monetary policy and fiscal policy are typically understood as two functionally separate but deeply entangled spheres of government, in which one or the other exerts control over the shape of macroeconomic policy. Within the economics literature, the antagonistic view of the monetary-fiscal relationship is deeply rooted in the time-inconsistency critique (e.g. Kydland & Prescott, 1977), which sees fiscal politics as interfering with, and undermining, the central bank's inflation-targeting capacities. By contrast, political economy scholarship has long argued that far from de-politicizing economic governance, the move to central bank independence enshrines the power of sectoral, well-organized capital interests that prioritize low inflation over full employment (Best, 2018; McNamara, 2002). Yet both the time-inconsistency problem and its political economy critiques tend to downplay the independent role of financial system dynamics in shaping monetary-fiscal interactions: The roles of monetary and fiscal policy are seen as molded by political struggles that reside outside of the market itself, with little attention to how developments *internal* to markets reconstitute the financial structures through which states seek to govern. In viewing monetary-fiscal interactions as an antagonistic power play, both literatures thereby tend to underestimate how financial markets affect the relationship between the two.

One framework that can help in this regard is the emerging field of 'critical macrofinance', which is explicitly concerned with changes in the interactions between finance and public actors that take place within financial markets (e.g. Dutta et al., 2020; Gabor, 2020). Following the assumption that the successful implementation of economic and financial policy requires monetary and fiscal authorities to govern 'through' financial markets (Krippner, 2007), critical macrofinance places the 'infrastructural entanglements' (Braun, 2020) of states and finance at the centre of analysis (Dutta, 2020; Quinn, 2017; Walter & Wansleben, 2020). From this perspective, private finance and monetary governance co-evolve: As financial markets become more integral to the mechanisms whereby states govern, states often act in ways that are designed to stabilize or accommodate market structures upon which economic governance depends.

This analysis of state-finance entanglements builds substantively on Michael Mann's (1984) concept of 'infrastructural power'—that is, the idea that power hinges on access to resources, which can be more efficiently acquired through routine compliance rather than forceful coercion. Unlike their historical counterparts, bureaucratic-democratic states' ability to govern depends on their capacity to 'penetrate civil society, and to implement logistically political decisions' (Mann, 1984, p. 189). Benjamin Braun's work on market-based central banking (Braun, 2020; Braun & Gabor, 2020) brought the concept of infrastructural power to the fore of a new wave of critical macrofinance scholarship (e.g. Braun et al., 2021; Walter & Wansleben, 2020), notably by showing that infrastructural power operates as 'a two-way street' with private actors also being able to influence the state (Mann, 1993, p. 59). This makes the theory a particularly useful one for scholarship looking at market-based governance: It allows us to understand how power operates at the level of markets—how the entangled interactions of fiscal authorities, central banks, and private finance inform the evolving practices of macroeconomics policies as public officials try to govern through and transact with increasingly financialized economic actors.

Taking account of the infrastructural co-evolution of financial markets and their governance structures, we approach the question of monetary-fiscal interactions in a new light. States have played a key role in the development of market-based finance (Gabor, 2016). As we show in the following section, the resulting innovations in sovereign debt markets, such as the use of sovereign debt as collateral in private market transactions, have reconstituted both central banking *and* public debt management. While the role of central banks in market-based governance has been extensively studied (e.g. Braun, 2020; Gabor, 2016; Walter & Wansleben, 2020), that of debt managers is less known. Indeed, with states typically seen as passive recipients of creditor demands (e.g. Streeck, 2014), the literature has tended to ignore the ways in which markets depend on and ‘also present opportunities for states to shape and improve the terms by which they obtain finance’ (Dutta, 2018, p. 4). To overcome this blind spot, a first helpful distinction is between fiscal policy as such, which affects *to what end and how much* countries borrow, and debt management policy, which is about *how* countries borrow—that is, how they act within markets and nurture their capacity to trade sovereign debt. As we show in the next section, the development of sophisticated market-based governance techniques transferred a high degree of operational independence onto such debt management units, regardless of whether they are located within Finance Ministries or not. In carving out a separate technocratic domain, public debt management occupies a space of ‘quiet politics’ in which ‘private actors and government officials can cooperate in maintaining a stable market for public debt’ (Rommerskirchen & van der Heide, 2023, p. 1153).

This reorientation of monetary-fiscal interactions around public and private financial stability is a hallmark of what Daniela Gabor (2021) termed the ‘de-risking state’. De-risking entails enlisting private capital, in this case primary dealers, into achieving public policy priorities (monetary governability and sound debt management) by adjusting the risk/returns trade-off on private investments in sovereign bonds. While ‘de-risking’ operations should not be equated with a simple turn towards financial dominance,<sup>3</sup> the de-risking state reorganizes its intervention toolkit and market-shaping capacities towards prioritizing policies that remove private sector risks from specific asset classes and market segments. In the context of the sovereign bond market, we argue that building market structures capable of absorbing large quantities of public debt has prompted public authorities to share the burden for providing liquidity support between debt management agencies and central banks. While increased liquidity provision directly benefits the interests of finance, states have historically also derived significant advantages from their generative and ordering interventions into market structures and market activities. In the following, we suggest the term ‘collateral triangle’ to capture the shared process of market infrastructure building and maintaining between central banks, debt management offices, and private finance (primary dealers).

Our arguments also speak to the recent literature on central bank loneliness. Within the literature, central banks are often described as effectively the ‘only game in town’ (Rajan, 2012) ‘shouldered with the responsibility of using monetary policy to stimulate the economy’ (Coombs & Thiemann, 2022, p. 549). IPE scholars have questioned how lonely these actors are in practice. Deborah Mabbett and Waltraud Schelkle (Mabbett & Schelkle, 2019, p. 440) pose that, ‘If forced to act alone to maintain financial stability, the central bank will be subject to adverse assessments

from audiences which judge the expansion of liquidity excessive and criticize the apparent accommodation of the financial sector'. Manuela Moschella (2024) extends this point to unconventional monetary policy at large and finds that coordination with fiscal authorities is needed to help protect central banks reputation and legitimacy as conservative and neutral institutions. Our analysis adds to Moschella's argument that central banks 'cannot do it alone': In the infrastructural entanglement of modern sovereign debt markets, central banks are not lonely.

In summary, understanding infrastructural entanglements is particularly helpful for analysing the shifting relationship between monetary, fiscal, and financial actors. As Mann (1984, p. 193) argues, infrastructural power depends on adopting practices and techniques from civil society. This insight applies to the sovereign bond market as well, where the (increasingly technically complex) tools of trade are neither discovered from, nor restricted to, state actors alone. Yet, whereas the literature has primarily identified central banks as 'decisive catalysts' (Braun & Gabor, 2020) of the rise of shadow banking and financialization (see also Walter & Wansleben, 2020), we wish to add the following: Decisive as central banks were, public debt managers played an important role, first at debt management desks within central banks and later in separate debt management offices. This article therefore accompanies the literature on 'the cultivation of collateral markets by central banks to institutionalize and stabilize liquidity' (Birk & Thiemann, 2020). We argue that analyzing monetary governance as an entangled domain allows us to grasp an important and so-far underappreciated dimension of the institutional setting of the de-risking state. To make sense of this entanglement, the next section introduces the term 'collateral triangle' to describe how the operations of central banks, debt management offices, and primary dealers have become deeply entangled in the management and governance of modern sovereign debt markets.<sup>4</sup>

### **The collateral triangle of modern sovereign debt markets**

The collateral triangle links central banks, debt management offices and primary dealers through their shared reliance on sovereign collateral in repo transactions. The repurchase agreement, or repo, is a financial agreement in which the borrower agrees to buy back (repurchase) the security sold to the lender at a later date. If the counterparty is unable to meet the repurchasing obligation, the lender can liquidate (or simply keep) the assets serving as collateral. Repos are therefore considered 'secured', and an attractive funding instrument for institutional investors and market makers (usually banks or dealers) with short-term liquidity requirements. Sovereign debt securities serve as a major source of collateral for repo transactions.

The emergence of the collateral triangle in sovereign debt markets can be traced back to a series of institutional reforms from the 1980s onwards. To enhance the attractiveness of their sovereign debt markets for international investors, states sought to modernize following the blueprint of the US Treasury market, notably by introducing primary dealer systems for market making and by nurturing the growth of repo markets. Repo finance offered concrete advantages to each constituency of the collateral triangle. For central banks, repo finance enhanced control over the monetary policy transmission mechanism (Borio, 1997). As central banks realized, repos offered a flexible instrument to meet banks' demand for reserves and thereby influence interest rates more broadly (Gabor & Ban, 2016). For debt managers,



repo finance offered to increase demand for sovereign debt as collateral, and thereby helped to furnish liquidity in sovereign debt markets and bring down borrowing costs. Repo finance was further seen as useful for everyday cash management, as it offered relatively secure and cost-efficient overnight investment opportunities for debt managers' cash balances.

On the private sector side, repo finance allowed primary dealers to assume a key role in connecting macroeconomic policy to broader market structures. Primary dealers serve as *liquidity partners* for central banks in open market operations, and for debt managers by bidding for primary auctions of sovereign debt and market making (buying and selling) in secondary markets. Repos allow primary dealers to absorb large issuances of sovereign debt and refinance them directly in the repo market, thereby ensuring that primary dealers' 'lack of money' does not reduce demand for bonds. It thereby ensures primary dealers' market-making capacity in secondary markets, and in the transmission of interest rate changes (Figure 1).

The 'divine coincidence' of the mutually shared benefits of repo finance in the collateral triangle is complicated by the financial stability implications of repo finance. The global financial crisis showed how the collateral dynamics that underpin repo transactions can destabilize financial markets, including sovereign debt markets. Within a repo transaction, the value of the underlying collateral (such as a sovereign bond) is marked-to-market on a daily basis. When collateral assets fall in price, cash borrowers are required to provide additional collateral or cash to satisfy margin requirements. The need to obtain additional liquidity through expensive borrowing or fire sales can further destabilize asset prices and contribute to a downward spiral in liquidity that can spread across markets and become systemic (Gabor, 2016).

In response, both central banks and DMOs have become more active in managing sovereign debt market liquidity, notably through large-scale market-stabilizing asset purchases, and by extending private sector backstops offered by central banks and DMOs. The need to stabilize collateral asset prices underpins the move of these

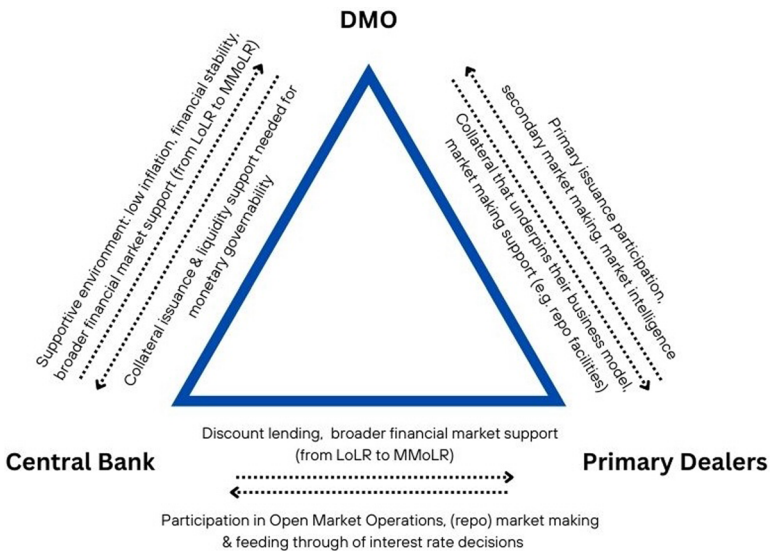


Figure 1. The collateral triangle.

institutions from lenders of last resort (LoLR) to more comprehensive market-makers of last resort (MMoLR), stabilizing not just institutions but markets (including sovereign debt markets) more broadly (Musthaq, 2023). Collectively, such interventions are designed to de-risk the institutional configurations underpinning the collateral triangle. While such de-risking operations have proliferated since the global financial crisis, our account of this entanglement begins in the 1980s with the rise of the primary dealer framework. This historically wider lens allows us to argue that in contrast to the de-risking tools identified in the literature on ‘central banking in hard times’, the de-risking tools of infrastructural entanglement clearly precede the 2008 financial crisis. Analysing the question of managing repo finance before and after the global financial crisis, we find that central banks and DMOs have been and appear increasingly entangled in their market operations: Given their respective infrastructural reach into the market, it is no surprise that they have both taken on broader responsibilities with regards to maintaining stability.

## **Building the infrastructure of sovereign debt markets**

In the following section, we will examine two connected building blocks of the collateral triangle described above. First, we consider the proliferation of primary dealer systems, where a group of dealer banks is tasked with being primary market buyers and secondary market makers. Secondly, we examine the role of repo finance as serving both monetary policy and debt management functions.

### ***The primary dealer system***

The rise of the primary dealer system marks the arrival of the financialization of public debt management. While the specific design and adoption of primary dealer systems differs from country to country, the core model is recognizable across countries. The system can be described by its obligations on the one hand and its perks on the other. Regarding the first, primary dealer institutions obtain the exclusive right to submit (competitive) bids in auctions for government bonds and are required to do so in ‘substantial’, predefined ways. Dealers need to contribute to market liquidity by quoting executable two-way prices for government bonds on secondary markets according to set rules about the maximum spread or turnover requirements. Regarding the perks of the system, primary dealers enjoy the right to participate in (usually profit generating) syndications, have access to special (repo) financing facilities, and may benefit from any reputational gain stemming from their PD status as well as from informational advantages due resulting from the ongoing dialogue between primary dealers and public bodies, notably DMOs, central banks, or treasuries.

### ***The central banking side***

The pre-history of the US primary dealer system dating back to the 1920s is best understood in monetary policy terms, a link that persists to this day. Back then, the New York Fed set up a monetary coordinating committee through which it started transacting with specific private sector counterparties (the early open

market operations) which were later formalised as ‘recognized dealers’. In the 1960s, the Fed and Treasury pushed for the creation of a Primary Dealer (PD) Association to address a lack of effective regulatory oversight over the US Treasuries market (Garbade, 2021). The PD Association would set common trading standards and discourage undesirable practices, although concerns over primary dealer behaviours and fragmented oversight continue to this day (Yadav, 2016). At the same time, the Association has been a crucial and effective partner to public officials from the beginning, notably during the 1970s when despite soaring government debt levels, the Treasury was able to finance its deficit at relatively favourable terms; the primary dealer model gained a positive reputation abroad for facilitating debt management.

Beginning in the 1980s, the PD system began to spread abroad. This timing is no coincidence: By the 1970s central banks started to retreat at various speeds from debt management support. This move was motivated by an attempt to get serious about inflation and by ushering in marked-based debt management<sup>5</sup> to discipline spendthrift governments. Yet central banks’ retreat rubbed against their preference for a liquid bond market, which was increasingly seen as indispensable for monetary governability via rate targeting which relied on the monetary transmission mechanism of interest rate decisions. This is where primary dealer banks as liquidity partners in the collateral triangle come in.

PD systems have become commonplace across EU member states, with a few notable exceptions.<sup>6</sup> One example is the UK, where the introduction of the primary dealer system in 1986 was explicitly modelled after the US and spearheaded by the Bank of England (Reid, 1988). The PD system was not only meant to raise finance on better terms, but to improve the Bank’s capacity to conduct monetary policy by bringing in well-capitalised (foreign) dealer banks (Dutta, 2018). Reforms thought to address problems in managing the pace of gilt sales, and in this way gain control on broad money growth, which were hampered by jobbers limited market-making power: ‘with the jobber system, government funding had to go through insufficiently robust plumbing to do the job’ (interviewee AF). As the UK case illustrates, central banks, whether they held debt management functions or not, had a keen interest in a smooth government bond market given dealers role in the monetary policy transmission.

### ***The debt management side***

The primary dealer system arrived at a time when debt burdens were rising sharply. Across Europe, we find examples of both monetary and fiscal authorities welcoming the PD system as an innovation to facilitate both central banking and debt management (interviewees AG & AH). In Italy, for example, the precursor of a primary dealer system can be traced back to broad reforms of 1981 (including central bank independence) after which sales of government bonds were done *via* a private banking consortium that had to sell at market prices. These reforms also put an end to the Banca d’Italia large scale bond purchases. As a result, interest payments increased. Especially considering tight Maastricht targets for entry into monetary union, the new primary dealership model promised to bring funding costs down (interviewees AK & AG). Writing on France, Benjamin Lemoine (2013) argues that the arrival of primary dealers, the *Spécialistes en valeurs du Trésor*,

needs to be appraised against the need of the state ‘to form a partnership with the banks in order to implement a series of innovations and set up bureaucratic structures dedicated to winning financial liquidity’. In short, for debt managers, primary dealers were thought to improve the state’s capacity to minimise the costs of borrowing, subject to risk (see also Lemoine, 2017; Monnet, 2018).

The introduction of the common currency, which would strengthen the marketization and trans-nationalization of Europe’s public debt markets, proved to be an important catalyst for debt management reform.<sup>7</sup> The removal of currency risk within the Economic and Monetary Union (EMU) weakened the ties between governments and their domestic investor-base. Europe would see the rise of a ‘pan-European government bond market’, forcing member states to compete for capital. Direct competition between sovereign issuers over investor demand in turn favored the development of new debt management products and techniques (Preunkert, 2017). For debt managers, the creation of ‘modern’ bond markets featuring a predictable auction calendar, primary dealer system and free repo markets were intended to provide a competitive edge (Gabor, 2016).

An infrastructural power view tells us that market-based state agency can allow state actors to exercise power over financial market actors. This is what we find with the electronification of sovereign debt trading. This infrastructure enabled debt managers to monitor their primary dealers to a much greater degree than the old system of trading floor observation, self-reporting and paper-ledgers could. Although primary dealer models in the EU were first introduced in France and the UK, it was reforms in Italy that ushered in a new system of surveillance (van der Heide, 2024). In Italy, the PD system is intrinsically linked with the Mercato dei Titoli di Stato, the so-called MTS platform. Set up in 1988, and thus predating the establishment of primary dealers, to improve the ‘transparency’ of the ‘price discovery’ process, MTS provided a platform where dealers (call Specialists) could stream prices to each other, and Treasury officials could monitor dealers’ commitment to market making. The Italian Treasury periodically started publishing ranking of specialists’ market making, as MTS allowed for an ‘objectified’ measure of performance. MTS became ‘almost part of the European *acquis*’ (MacKenzie et al., 2021, p. 1401). Today, league tables that rank PDs are widespread practice (e.g. Lemoine, 2013), they are not just a monitoring device (improving debt managers’ hold over large dealer banks and fostering competition among them), but also linked to the franchise’s main incentives: Reputation and syndication (the place in the ranking matters for being awarded a place in the syndicate).

The electronification of the bond market, it is important to stress, was not built by debt managers alone. First, primary dealer banks were repeatedly consulted and in the case of MTS, private financial actors played an important role in its creation and later its running. Secondly, and as the following sections will further examine, the bond infrastructure is shaped and used by both central bankers and debt managers. For example, the Bundesbank and the Finanzagentur co-developed a new electronic bidding system (the BBS) introduced in April 2005. The BBS in turn functioned as the model for the auction system used by first the European Financial Stability Facility and now the European Stability Mechanism which the Bundesbank acts in the name and for the account of (interviewee AI; Bundesbank, 2023). Indeed, primary dealers indeed have also arrived at the European level. As part of the NextGenerationEU funding strategy, the European Commission (2021) has set

up a Primary Dealer Network for European supranational issuers, including the European Stability Mechanism and the European Investment Bank ‘to facilitate the efficient execution of auctions and syndicated transactions, support liquidity in the secondary markets, and ensure the placement of our debt with the widest possible investor base’. The European Central Bank continues to have a natural interest in the infrastructure of the Eurozone bond market. For instance, the Debt Issuance Market Contact Group (2023), an informal forum of EU level and domestic state officials as well as industry members seeks ‘to identify issues that prevent further improvements in efficiency and integration in the area of debt issuance and initial distribution, covering the full transaction chain from pre-issuance to post-trade, and to investigate how these issues may be addressed.’<sup>8</sup>

### **Repo markets**

Again, a repo is a short-term loan backed by high quality collateral (sovereign bonds). From the central bank’s perspective, the focus here is on monetary policy transmission and wider financial stability concerns. From the DMO’s perspective, repo finance not only promised to improve the availability of access to cheap and stable funding, but also to prove useful as a tool for cash management and liquidity support.

#### ***The central banking side***

In the United States, the incipient repo market began to develop rapidly after the Treasury-Federal Reserve Accord of 1951 ended the Fed’s subordination to the US Treasury. The dawn of repo finance represents an important liquidity transformation in government debt. By the 1970s, cross border securities lending grew rapidly, driven in part by US broker dealers and custodian banks venturing abroad and ‘running riot in Euroland’ (interviewee DB). In the UK, for instance, the Chief Executive Officer of JP Morgan lobbied the Treasury arguing that a repo market ‘should make the gilts market more competitive and liquid. He said it would be very helpful for JP Morgan and its clients’ (National Archives, 1995). The repo pitch to foreign jurisdictions was appealing; developing a repo market, so the argument goes, would not only increase the demand for government debt (and thereby bring yields down), but also enable managing market expectations *via* interest rates which required liquid markets where rate changes would transmit rapidly.

The US Federal Reserve and later the Banque de France became key champions for the repo-sovereign bond market nexus (Gabor, 2016). In Germany, the Bundesbank, although using repos to manage liquidity from 1979 onwards, was skeptical on the merits of a deregulated repo market fearing that it would encourage short-term, fragile finance. Germany liberalized its repo markets in 1997 after pressure from its Ministry of Finance who was eager to get DM repo business back from London where it was not subject to the high minimum reserve requirement set by the Bundesbank (interviewee AE). The Bank of England, though initially similarly hostile to repo deregulation, encouraged banks to start a repo market in sterling from the mid-1990s (Walter & Wansleben, 2020) and supported a nascent domestic market by using gilt repos for its daily money market operations since: ‘one of the main attractions was that it looked compatible with international

practice, and above all with the Bundesbank's approach' (James, 2020, p. 361). The Bank of England (1997) noted that 'the main impact of introducing a gilt repo market was to enhance the liquidity of the gilt market and hence the attractiveness of gilts'—highlighting both a fiscal and a monetary policy appeal.

By 1997 most EMU central banks had converged on reverse repurchase transactions as their primary reserve-providing instrument (Borio, 1997, p. 40). Already in the run-up to EMU, a consensus was then reached regarding the European Central Bank's (ECB) use of open-market transactions in the repo market to management liquidity (Nautz & Oechssler, 2003). This differentiates the ECB from the US Fed, which conducts open market operations by buying Treasury bonds. The ECB worried that the transmission mechanism of monetary policy would be hampered by persisting differences in liquidity and yield across applicant states (Braun & Gabor, 2020, p. 48). 'Shadow euros' treating all Eurozone government bonds as equal collateral in repo transactions provided a solution to this problem and were championed by several high-profile studies, chief among them the Giovannini Group report (for a detailed discussion, see Braun, 2020). Once again, repo finance offered a way to enhance central banks' infrastructural reach into private markets.

### *The debt management side*

Debt managers first considered repo finance effective in increasing the demand for government debt and thereby bringing yields down. According to interviewee DB who had worked both at the private and the public side of repo trading 'there was music' in the repo pitch at the turn of the century. The development of a repo market was seen as a key infrastructure to finance the state in an increasingly competitive international market environment. Monetary integration in Europe was again an important catalyst. As repo boosted bond market liquidity, this was thought to contribute 'more than fiscal probity for the benchmark issuer position' (Gabor, 2016, p. 978). And even where the benchmark position was not in the cards, repo finance promised clear dividends from a debt management perspective. Debt managers discovered repo finance at a time when the task to improve government's borrowing conditions mattered not only for public coffers but was a key target to meet the entry requirements for monetary union; for debt managers in the late 1990s this meant 'all eyes on meeting the [Maastricht] targets' (interviewee AB, also AM). Specifically, these targets relate to long-term government bond interest rates not exceeding two percentage points above the rate of the three best performing Member States, as well as government deficits and debt levels not breaching a 3% of GDP and 60% of GDP threshold.

Primary dealers were just as interested in the development of a repo infrastructure. Repos enable banks without otherwise sufficient liquidity to engage in arbitrage and thus ensure that primary dealers' 'lack of money' does not reduce demand for bonds. Even where counterparties do not have the necessary reserves available, the repo trade helps debt managers find buyers for their assets. Market makers' ability to quote immediately executable selling prices often requires them to hold a considerable bond inventory (the warehousing risk). This is where the repo market comes in for primary dealers: Repo offers a way to finance and hedge this inventory. For example, interest rate risks on inventory are frequently hedged by taking an offsetting short position in another security borrowed in the repo market. Repo

hedging is meant to reduce the cost of borrowing for governments because it reduces risk for primary dealers. DMOs and central banks are aware of the mutual interest with primary dealers in a functioning repo market. In the UK, for example, the gilt dealer sector is the largest net borrower in the overnight gilt repo market (Huser et al., 2021).

Second, in the 1990s repos became a cash management tool for public debt managers. Cash management is principally concerned with 'having the right amount of money in the right place and time to meet the government's obligations in the most cost-effective way' (World Bank, 2017). The repo market offers debt managers a relatively secure and cost-efficient parking space for cash in the form of short-term investments, such as overnight reverse repos (interviewees AD & BA). Here DMOs use their otherwise 'unproductive' cash balances to buy bonds from (usually) banks with the provision that they will resell the same assets for an agreed-upon price at a certain time.

Yet repo has also emerged as a cost-efficient way to raise short-term cash when needed. Central bankers routinely used to provide governments with a line of credit until the Maastricht Treaty introduced a new constraint on governments' cash management. New rules prohibited the establishment of overdraft facilities or any other type of credit facility from the (future) European Central Bank or national central banks. The French government was among the first to discover repos as a solution to this (interviewee AA, National Archives 23/5/2). Repos allowed instant access to cash in short-term private money markets, thereby ensuring that debt managers cash buffers at the Banque de France could be maintained and would not dip below zero. Though clearly not as cost-efficient as a cash advance from the central bank (which used to be commonplace across the OECD; Cottarelli, 1993), a repo transaction costs the DMO less than obtaining cash at unsecured money market rates. This Maastricht constraint also made its way into the UK's EMU readiness exercise in case the country was to decide in favour of joining the single currency at a future date (interviewees AD & AF, National Archives 23/5/1 & 23/5/2) The UK's DMO took over cash management functions from the Bank of England in 2000. Cash management was now to be achieved via treasury bills as a primary short-term financing instrument and, drawing on the French experience, repo trades to meet any fluctuation and shortfalls, a function that had hereto been performed by the so-called 'Ways and Means Advance', and overdraft with the Bank of England (Bank of England, 1999, p. 361).

For the UK's DMO (National Archives, 1998) the embrace of repos for cash management was compatible with the 'trading ethos' the newly created agency aspired to. Repos for cash management purposes not only put otherwise 'idle' assets to use, but it also allowed DMO's to operate with a lower cash balance and to reduce net interest costs. Some debt management agencies vary in their funding approach of being long or short of cash. Repo here makes an over- or under-funding strategy less costly. For example, the French debt agency, like Spain, routinely issues more debt than needed based on its forecast with a view to investing surplus funds. Reverse repo investments (the 'pension livrée') are an integral part of this strategy. Reversely, the Dutch State Treasury Agency is known to favour a short position using swaps and again repos (interviewee AN).

This section has shown that debt management and central banking shared a mutual interest in the development of a new infrastructure of sovereign debt

markets, organized around both PD systems and repo trading. As the next section shows, the growing reliance on market structures inherent in this form of market-based governance came with significant stability risks. These risks exposed substantial deficiencies within the macrofinancial structure of the collateral triangle.

## **Managing the infrastructure of sovereign debt markets**

Infrastructures require maintenance. For bridges, such maintenance focuses on structural integrity, for sovereign bond markets attention is on financial stability and liquidity within the repo market. Repos are now not only a standard, but the key infrastructure maintenance tool of debt management offices in advanced economies. As the ‘instrument of choice for fine tuning’ cash management (Williams, 2010), repo has been recognized as the ‘seemingly ideal instrument for government deposits’ (John, 2013). Yet the embrace of repo by debt managers and central bankers risks ignoring important stability concerns. On the one hand, repo finance raises concerns about the potentially destabilizing effects of the market power of primary dealers. On the other hand, repo finance itself has proven increasingly unstable: These risks, while long known by policymakers, were dramatically exposed by the global financial crisis. This section discusses these concerns in turn and shows how infrastructural entanglements have been strengthened by central bank and DMO’s efforts to manage the systemic liquidity challenges posed by repo finance, before discussing the issue of coordination between debt management and central banking.

### ***Managing sovereign debt markets (and their dealer banks) through repo***

The challenge to maintain an orderly and affordable public bond market dates back centuries. Within modern markets, debt managers and central bankers were working on issues surrounding the fragility of repo finance from the onset and not only since of the global financial crisis. As a broader history shows, the partnership between public officials and their dealer banks has always been accompanied with differing degrees of mutual suspicion. Repo finance was identified early on not just as a cost saving tool, but also as an instrument for bond market stabilisation capable of countering the impact of rouge primary dealers.

In the 1990s, in preparation of the creation of repo markets, the Bank of England (then in charge of debt management) was working on a scenario where ‘the Bank would want to repo stock into the market in order to relieve a squeeze [i.e. shortage] that was being deliberately created in the gilt repo market by one or more institutions’ (National Archives, 23/5/2). Indeed, the same year, the BOBL<sup>9</sup> future squeeze in Germany made headlines followed by a squeeze in Italian bond futures the following year. As one former repo trader recalls, ‘those early years of repo were a wild ride’ (interviewee DB). Bank of England officials had watched particularly the US repo market with suspicion. One member of the central banks’ gilt desk at the time recalled that scandals in the US had delayed the introduction of repos in the UK as part of the 1986 Big Bang reform package which would have been the ‘obvious moment’ (interviewee AL). Voices within the Bank of England remained sceptical and warned against an open gilt repo market, ‘essentially for



prudential reasons’ (Bank of England Archive 2A65/57). For the Treasury, too, it was ‘imperative to prevent the UK market being ‘tainted by some of the lower standards prevalent in certain international repo business’ (National Archives, 23/5/2). According to one UK debt manager at that time: ‘We were well aware of all the things that could and did go wrong in the US system and we sought safeguards against them’ (interviewee AL). A debt manager from Southern Europe recalls similar discussions in his department during the aughts with officials ‘wary of repos and their volatility’ (interviewee AJ). The Asian financial crisis of 1997 further added to concerns about repo markets in the international central banking community (Gabor & Ban, 2016).

Yet as a liquidity tool, repo also presented a solution to new cornering opportunities that arose for primary dealers out of repo finance—cause and cure in one market. The repo market was furthermore considered useful beyond primary dealers’ possible malfeasance to counter financial instability more generally. The UK was first to fully embrace repos as a stabilisation tool. In the runup to the new millennium, as tensions over how the financial plumbing would deal with any Y2K challenges mounted, the UK ‘DMO was ready to increase repo as needed’ (interviewee AF). This support became a permanent feature with the UK DMO’s Standing Repo Facility in June 2000.

Repos can be a maintenance tool even in the absence of a primary dealer system. An extreme case of this blending of cash management and liquidity curation within the market is witnessed in Germany. Germany has never established a firm primary dealer system. Instead, the German Finanzagentur, Germany’s debt management agency, acts as market-maker, predominantly through repos. This is referred to as ‘Marktpflege’ where the finance agency keeps a substantial share of the emission in its own books for the purpose of market making (Bundesbank Archive; Bundesarchiv). The Finanzagentur continuously sells securities or uses them for the repo market in consideration of secondary market condition averaging around 20% since 2006. The futures market serves as market reassurance. Picking up on our above point on ‘mutual suspicion,’ market participants are assured by the fact that ultimately the futures market is ‘too big even for the Finanzagentur to manipulate’ (interviewee AN)—this limits their pricing ability via Marktpflege, although by supporting market participants, the Finanzagentur obviously also contributes to a better funding environment.

Marktpflege empowers debt managers to act as market maker if needed, nowadays primarily via repo: ‘this is a highly flexible debt management tool’ (interviewee AE). In a peer group where the primary dealer system has swept the board, this approach to market making by ‘the traders in Frankfurt’ (Interviewee AA) stands out. A presentation to private investors explains under the rubric ‘liquidity risk’: ‘The risk of not being able to sell Bunds at any time before maturity is extremely low, as Bunds are the most heavily traded government bonds in the euro area and the Finance Agency and the Bundesbank carry out “Marktpflege”’ (Finanzagentur, 2021). The Bundesbank (2007) puts it thus: ‘Through their trading activities, the Finance Agency and the Bundesbank are permanently present on the market and thus make an important contribution to securing liquidity in the market for German Government securities’. While this in-house market making is unusual, the idea that debt managers should maintain a liquid infrastructure is not. The Dutch State Treasury Agency (2023) for example promises that ‘[l]iquidity of

the bond will be guaranteed through a repo facility available to the Primary Dealers'. Through repo, debt managers thus extended their infrastructural reach into markets and developed techniques to counter market failures and manipulation that could arise out of the use of repo finance.

### ***Managing repo volatility: the turn to quantitative easing***

Since the global financial crisis, repo market volatility has constituted a key concern for central bankers and debt managers. As the Eurozone crisis subsequently showed, the liquidity dynamics of collateralized lending can destabilize sovereign bond markets (cf. Gabor & Ban, 2016). During the COVID-19 pandemic, repo volatility even affected the US Treasury market, long considered the deepest and most liquid financial market in the world (Tooze, 2021). To understand the modern collateral factory, we need to consider the infrastructural entanglements that have been strengthened in response to central bank and DMO's efforts to manage the systemic liquidity challenges posed by repo finance. One notable feature has been the increasingly active involvement of many DMOs in managing liquidity within sovereign debt markets, including through their own repo facilities (Table 1). These facilities sometimes exist alongside those of central banks and play a key role in smoothing over liquidity conditions during periods of market adjustment or around debt market issuance.

DMO facilities provide liquidity to primary dealers similar to the liquidity backstops offered by central banks. The first such facility was the UK's Special Liquidity Facility (SLF) instituted in 2000. The coexistence of such a DMO facility next to central bank backstops raised questions over market distortions. To avoid such issues, primary dealers are expected to first try to cover their positions by finding securities in the market, and the DMO is meant to act as *securities lender of last not first resort*. A key issue here is the pricing framework. Setting a lending fee at a premium in relation to short-term funding market rates should help to ensure that its SLF is used only as a last resort. This reduces the risk of primary dealers extracting rents from non-primary dealers. It is also intended to reduce dealers' ability to exploit price differences, first domestically between central bank's discount window and the DMO's support facilities, and secondly between facilities' different terms of conditions internationally (particularly relevant for trans-Euroland dealer banks). Despite these institutional features, there is a growing awareness within the debt management community that these special lending facilities could provide primary dealers with arbitrage opportunities (cf. Grimaldi & Hirvonen, 2022).

Unlike the UK's SLF, most DMO liquidity facilities have been created following the global financial crisis. These facilities play a key role in the implementation (and reversal) of Quantitative Easing (QE). For one, QE has resulted in collateral scarcity. This has been shown to lead to a so-called specialness premium with certain bonds being more expensive to borrow against cash (Jank et al., 2021; Schaffner et al., 2019). Collateral scarcity is neither in the interest of central banks nor of debt managers because repo trading lubricates the credit creation and securities trading machinery. As repo liquidity diminishes in times of financial strain, debt management can play a key role in supporting market liquidity without sending overt policy signals that would be associated with a reversal in policy stance by the

central bank. As one former debt manager states, ‘You need a DMO to do QE. It would look very strange for a central bank to sell in the morning and buy in the afternoon.’ (interviewee AF). DMOs thereby can counteract liquidity pressures without undermining the overall trajectory of central bank policy and, for those concerned, can help to keep the spectre of monetary financing at bay (interviewee AJ & DB).

Monetary policy and debt management here work effectively in tandem. Take the example of Sweden where, ‘[i]t is obviously in the [central bank’s] interest that [the debt management office] or some other authority takes on the responsibility for the satisfactory functioning of the financial markets to ensure that monetary policy has an effective impact’ (Sellin, 2018). As DMOs thus themselves understand, their ‘approach to repos is also in the interest of central banks’ (interviewee AJ, see also DB). Across Europe—both within the EMU and beyond, as in the UK—DMOs thus lend a ‘helping hand’ to central banks in lubricating the repo market and smoothing over the volatilities of collateral-intensive finance. While both monetary policy and cash management operate in the overnight market (as the name suggests overnight funds) and the term money market (up to 1 year), their interests in bond market stability normally coexist harmoniously. QE furthermore strengthened the links between central banks and primary dealers that were tied in the repo market. For example, ‘[w]hen the Riksbank began buying Swedish government bonds in February 2015 as a complementary monetary policy measure, it turned to National Debt Office government bond dealers’ (Sellin, 2018).

A good co-working relationship between central banks and DMOs is even more relevant during times of crisis or policy tightening, as debt managers can even in adverse conditions maintain market functions for primary dealers—debt managers thus help maintain a key part of the collateral infrastructure and smooth its exposure to volatility during difficult times. DMOs here play an important role in allowing Quantitative Tightening to proceed smoothly, as the unwinding of central bank balance sheets puts additional pressure on primary dealers’ balance sheets as they must absorb more sovereign bonds. In Sweden, dealer banks correctly inferred that trading opportunities with the central bank would significantly diminish as the central bank reduces its footprint in the market, some of which can be compensated for by trading more with the DMO (Grimaldi & Hirvonen, 2022). At times, the needs of monetary policy and cash management can be mutually beneficial. For instance, following the pandemic bond purchasing programs, liquidity and cost motives aligned: Central bank purchases of sovereign debt meant that there was a higher demand for government bonds than was supplied by the market and debt managers stepped in to supply collateral in what they considered a win-win situation. As Tammo Diemer (quoted in Orchard, 2020), head of the German Finanzagentur put it: ‘We are not only supporting the security market, but also taking advantage of the funding.’

In summary, this section has examined how debt management and central banking can pull together in maintaining the infrastructure of the collateral triangle. In practice, however, the coordination between debt management and monetary policy is far from assured, as we discuss next.

## ***Coordinating public debt and monetary management***

The separation of central banking and debt management that was institutionalised from the 1980s onwards is premised on the assumption that both institutions serve independent functions. On the one hand, inflation-targeting central banks would seek to shape short-term interest rates, rather than interfere with the structure or quantity of debt issuance. On the other hand, debt management became solely focused on minimising the costs of borrowing (subject to risk) without broader macroeconomic policy considerations such as macroeconomic stabilization, tax smoothing, or monetary policy (see Blommestein & Hubig, 2012; UNCTAD, 1997). What this portrait ignores is that both new modes of monetary and public debt management became market-based and entangled in the collateral triangle where they transact through shared infrastructures and collateral. As we have described in this article, this entanglement renders coordination necessary.

Quantitative Easing has brought the necessity for coordination to the fore (Blommestein & Turner, 2011). And indeed, the recent decade has provided numerous case studies for what can go wrong without coordination. One example is the above-mentioned dealer arbitrage opportunities arising out of the non-coordinated de-risking from central banks and debt managers. Elsewhere, a study on QE (Greenwood et al., 2015) in the US found evidence that one-third of the decline in long-term rates engineered by the Fed's QE was undone by the Treasury's decision to sell more long-term bonds (and thus pushing up rates). Repo market volatility in 2019 in the United States also shows how a lack of coordination between debt management and central banking can affect sovereign debt market stability. Between 2017 and 2019, the Federal Reserve sought to lift interest rates and scale back its balance sheet to unwind its QE-era purchases. Yet as the Fed's monetary policy normalization strategy proceeded without coordination with the Treasury's cash management strategy, Fed officials failed to account for the effect of the Treasury's highly volatile cash management on banks' reserve positions: As the Treasury was moving cash out of the banking system at the same time the Fed scaled back its balance sheet, banks saw their liquidity buffers progressively squeezed until they had to scale back repo market lending, contributing to acute volatility in the market (Interviewees DA, CA). To calm markets, the Fed re-entered the repo market as a lender for the first time since 2008 (Afonso et al., 2020). As a public debt manager admitted, 'we have always known that at a high-level monetary policy and debt management have to cohere [...] getting coherence was more straightforward pre-QE' (interviewee AD).

In summary, the institutional separation between central banking and debt management has always been tenuous, and infrastructural entanglements clearly precede the post-2008 environment. Periods of crises bring to the fore what a history of the infrastructures of debt management and monetary policy already reveals. Routine de-risking by debt management and central banking is a feature of the collateral system, not a crisis bug. The spick and span separation of debt management and central banking was never what it seemed.

## **Conclusion**

The shift of central bankers from lenders of last resort to market makers of last resort has been well documented. This article has shown that central bankers'

market making activities get a helping hand from public debt managers in maintaining repo liquidity. As European fiscal actors discovered early on, the pursuit of liquidity governance cuts across the monetary-fiscal divide. Repo finance and primary dealer systems not only support the transmission mechanism of monetary policy, but are integral to market-based public debt management. Seen through a critical macrofinance lens, the maintenance of the collateral triangle thus renders a clean separation between debt management and central banking increasingly tenuous.

In bringing sovereign debt management to the study of central banking and repo finance, this article has shed a new light on key questions of monetary governance. First, in charting the historical trajectory of the entanglement between central banking and public debt management, we have shown that the current role of repo finance is not an accident: Central bankers and debt managers emerged as ready midwives in the financialization of sovereign debt markets. Second, while states have been supportive of the growth of these financial infrastructures, the inherent instability of repo finance poses problems for existing macrofinancial infrastructures. The reliance on repo markets as crucial infrastructure for monetary governance imports liquidity risks directly into the primary dealer model. As a system geared towards permissive liquidity provision, the move to monetary tightening in response to the resurgence of inflation following the pandemic further raises important questions about the capacity of central banks and debt managers to unwind crisis-era purchase programs and tighten markets without stifling liquidity more broadly—an issue that recent failures of banking institutions such as Silicon Valley Bank in the US aptly showcased. Post-pandemic reviews of sovereign debt market structure and primary dealer systems (cf. OECD, 2022) will not only need to grapple with these broader macro-financial questions but also reconsider the necessity for coordination between debt management and central banking.

Collectively, these issues point to the ongoing relevance of understanding the actors and infrastructures of the collateral triangle where monetary and fiscal authorities typically shy away from imposing losses on (systemic) financial actors and have come to embrace the role of de-risking agents that underwrite collateral values. Not only have central banks received support from public debt managers in their quest for monetary governability; but in recognition of the systemic financial stability imperatives embedded within safe asset collateral, central banks have also increasingly dropped the aversion to covert monetary financing (Bateman & van 't Klooster, 2023). Moving forward, the co-working relationship between central bankers and debt managers in modern financial markets' collateral factory will continue to merit our attention.

### List of quoted interviews

Interviewee AA: Employee at European national debt management agency (in person, September 2019)

Interviewee AB: Employee at European national debt management agency (videoconference, June 2021)

Interviewee AC: Employee at European national debt management agency (videoconference, June 2021)

Interviewee AD: Former European national debt manager (telephone, September 2019)

Interviewee AE: Former European national debt manager (videoconference, May 2022)

Interviewee AF: Former European national debt manager (videoconference, June 2022)

Interviewee AG: Employee at European national debt management agency (in person, June 2022)

Interviewee AH: Former European national debt manager (videoconference, June 2022)

Interviewee AI: Former European national debt manager (videoconference, June 2022)

Interviewee AJ: European national debt manager (in person, September 2022)

Interviewee AK: Former European national debt manager (videoconference, March 2023)

Interviewee AL: Former European national debt manager (videoconference, March 2023)

Interviewee AM: Employee at European national debt management agency (in person, April 2023)

Interviewee AN: Employee at European national debt management agency (in person, April 2023)

Interviewee BA: EU-level regulator (in person, September 2018).

Interviewee CA: Former US Treasury official (videoconference, September 2020)

Interviewee DA: Economist, global regulatory institutions (telephone, July 2020)

Interviewee DB: Former repo trader and current employee at national debt management agency (videoconference, March 2023)

## Notes

1. Braun et al. (2021, p. 800) define monetary governability as 'the ability to use monetary policy instruments, such as open market operations, to achieve specific policy objectives, such as price stability'.
2. Disclosure periods vary between countries, 20–30 years is common. Some files, notably those that contain potentially sensitive personal information, continue to be under lock. We have not made use of freedom of information requests or similar for this project.
3. Indeed, viewing state capacity purely in terms of their ability to smooth the functioning of financial markets 'implicitly frames states and their central banks as external actors, and their interventions merely technocratic adaptations to the needs of capital' (Pape, 2020, p. 70). Such a framing significantly underestimates the agency of public actors in nurturing particular market structures.
4. Gabor (2016) considers another repo threesome, namely that of the incompatibility between financial stability, liquid government bond markets and free repo markets.
5. An important aspect of this is the arrival of auctions, which means that prices of government securities are determined through arm's length, competitive bidding by (international) investors. Before governments relied on syndications or tap sales to issue bonds. Tap issuance refers to debt managers placing bond issuances in the market through a continuous selling process ('on tap'). Syndication refers to debt managers using a syndicate of banks to place a public issue in the market. Syndications are still in use and, due to their fees, an important sweetener (or as Lemoine (2013) calls it a 'subtle game of mutual services') of the PD franchise. What is more, according to one debt manager, they are 'a way for us to sell 30- or 50-year bonds, or green bonds, where they may not even be a market price' (interviewee AC).

6. As of 2022, only five EU member states do not have a PD system in place, namely Croatia, Estonia, Luxembourg, Malta and Germany. The primary dealer model has been embraced by emerging market economies, too.
7. See also Lemoine (2016) on how the alignment of European accounting systems impacted on the financialization of public debt management in France.
8. The member's list makes for an interesting reading of infrastructural entanglement. [https://www.ecb.europa.eu/paym/groups/dimcg/shared/pdf/dimcg\\_members.pdf?48d9fe8a1c120fac5f46bf14a4608859](https://www.ecb.europa.eu/paym/groups/dimcg/shared/pdf/dimcg_members.pdf?48d9fe8a1c120fac5f46bf14a4608859).
9. BOBL stands for Bundesobligationen, a futures contract used to trade medium-term German bonds.

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## References

- Afonso, G., Cipriani, M., Copeland, A., Kovner, A., La Spada, G., & Martin, A. (2020). *The market events of mid-September 2019* (New York Fed Staff Report, no 918). Federal Reserve Bank of New York.
- Bank of England Archive, 2A65/57, H16/611, Note on the open gilt repo market, London, UK.
- Bank of England. (1997, May). The first year of the gilt repo market. *Quarterly Bulletin*, 37, 187–197.
- Bank of England. (1999, May). *Quarterly Bulletin*, 39(2).
- Bateman, W., & van 't Klooster, J. (2023). The dysfunctional taboo: Monetary financing at the Bank of England, the Federal Reserve, and the European Central Bank. *Review of International Political Economy*, 1–25. <https://doi.org/10.1080/09692290.2023.2205656>
- Best, J. (2018). Technocratic exceptionalism: Monetary policy and the fear of democracy. *International Political Sociology*, 12(4), 328–345. <https://doi.org/10.1093/ips/oly017>
- Birk, M., & Thiemann, M. (2020). Open for business: Entrepreneurial central banks and the cultivation of market liquidity. *New Political Economy*, 25(2), 267–283. <https://doi.org/10.1080/13563467.2019.1594745>
- Blommestein, H., & Hubig, A. (2012). Is the standard micro portfolio approach to sovereign debt management still appropriate? BIS Paper 65i, Bank for International Settlements.
- Blommestein, H. J., & Turner, P. (2011). Interactions between sovereign debt management and monetary policy under fiscal dominance and financial instability, BIS Paper 65, Bank for International Settlements.
- Borio, C. E. (1997). *Monetary policy operating procedures in industrial countries*. BIS Working Paper No 40. <https://www.bis.org/publ/work40.pdf>.
- Braun, B. (2020). Central banking and the infrastructural power of finance: The case of ECB support for repo and securitization markets. *Socio-Economic Review*, 18(2), 395–418. <https://doi.org/10.1093/ser/mwy008>

- Braun, B., & Gabor, D. (2020). Central banking, shadow banking, and infrastructural power. In P. Mader, D. Mertens, & N. van der Zwan (Eds.), *The Routledge international handbook of financialization* (pp. 241–252). Routledge.
- Braun, B., Krampf, A., & Murau, S. (2021). Financial globalization as positive integration: Monetary technocrats and the Eurodollar market in the 1970s. *Review of International Political Economy*, 28(4), 794–819. <https://doi.org/10.1080/09692290.2020.1740291>
- Bundesarchiv, B126/12033 (folder), Koblenz, Germany.
- Bundesbank. (2007). Monatsbericht, July 59. Frankfurt, Germany.
- Bundesbank. (2023). *ESM/EFSF bidding system (EBS)*. <https://www.bundesbank.de/en/service/banks-and-companies/ebs/esm-efsf-bidding-system-ebs—620550>.
- Bundesbank Archive, B330/49065 & B330/45809 (folders), Frankfurt, Germany.
- Coombs, N., & Thiemann, M. (2022). Recentering central banks: Theorizing state-economy boundaries as central bank effects. *Economy and Society*, 51(4), 535–558. <https://doi.org/10.1080/03085147.2022.2118450>
- Cottarelli, C. (1993). *Limiting central bank credit to the government: Theory and practice*. International Monetary Fund.
- Debt Issuance Market Contact Group. (2023). Debt Issuance Market Contact Group, European Central Bank. <https://www.ecb.europa.eu/paym/groups/dimcg/html/index.en.html>.
- Diessner, S., & Lisi, G. (2020). Masters of the ‘masters of the universe’? Monetary, fiscal and financial dominance in the Eurozone. *Socio-Economic Review*, 18(2), 315–335. <https://doi.org/10.1093/ser/mwz017>
- Dutch State Treasury Agency. (2023). Dutch State reopens the DSL 2052. News item, 22 March. <https://english.dst.nl/news/news/2023/03/22/dutch-state-reopens-the-dsl-2052>.
- Dutta, S. (2018). Sovereign debt management and the globalization of finance: Recasting the city of London’s ‘Big Bang’. *Competition & Change*, 22(1), 3–22. <https://doi.org/10.1177/1024529417734524>
- Dutta, S. (2020). Sovereign debt management and the transformation from Keynesian to neoliberal monetary governance in Britain. *New Political Economy*, 25(4), 675–690. <https://doi.org/10.1080/13563467.2019.1680961>
- Dutta, S., Kremers, R., Pape, F., & Petry, J. (2020). Critical macro-finance: Introduction to the special forum. *Finance and Society*, 6(1), 34–44. <https://doi.org/10.2218/fin soc.v6i1.4407>
- European Commission. (2021). *How EU issuance works*. [https://commission.europa.eu/strategy-and-policy/eu-budget/eu-borrower-investor-relations/how-eu-issuance-works\\_en](https://commission.europa.eu/strategy-and-policy/eu-budget/eu-borrower-investor-relations/how-eu-issuance-works_en).
- Fastenrath, F., Schwan, M., & Trampusch, C. (2017). Where states and markets meet: The financialisation of sovereign debt management. *New Political Economy*, 22(3), 273–293. <https://doi.org/10.1080/13563467.2017.1232708>
- Finanzagentur. (2021). German government securities, Frankfurt. <https://www.deutsche-finanzagentur.de/bundeswertpapiere/bundeswertpapierarten/bundesanleihen>.
- Gabor, D. (2016). The (impossible) repo trinity: The political economy of repo markets. *Review of International Political Economy*, 23(6), 967–1000. <https://doi.org/10.1080/09692290.2016.1207699>
- Gabor, D. (2020). Critical macro-finance. A theoretical lens. *Finance and Society*, 6(1), 45–55. <https://doi.org/10.2218/fin soc.v6i1.4408>
- Gabor, D. (2021). The wall street consensus. *Development and Change*, 52(3), 429–459. <https://doi.org/10.1111/dech.12645>
- Gabor, D., & Ban, C. (2016). Banking on bonds: The new links between states and markets. *JCMS: Journal of Common Market Studies*, 54(3), 617–635. <https://doi.org/10.1111/jcms.12309>
- Garbade, K. (2021). *After the accord: A history of Federal Reserve open market operations, the US government securities market, and treasury debt management from 1951 to 1979*. Cambridge University Press.
- Greenwood, E., Hanson, S., Rudolph, J., & Summers, L. (2015). Debt management conflicts between the US Treasury and the Federal Reserve. In D. Wessel (Ed.), *The \$13 trillion question*. Brookings Institution Press.
- Grimaldi, M. B., & Hirvonen, J. (2022). *Government bond market developments and the usage of the DMO’s security lending facility-evidence from Sweden*. [https://www.publicdebt.net/export/sites/pdm/pdm/.content/attachment/conference\\_052022/papers/Blix-Grimaldi-and-Hirvonen-Government-Bond-Market-Developments-and-the-Usage-of-the-DMO-Security-Lending-Facility-Evidence-from-Sweden.pdf](https://www.publicdebt.net/export/sites/pdm/pdm/.content/attachment/conference_052022/papers/Blix-Grimaldi-and-Hirvonen-Government-Bond-Market-Developments-and-the-Usage-of-the-DMO-Security-Lending-Facility-Evidence-from-Sweden.pdf).



- Huser, A., Lepore, C., & Veraart, L. (2021). *How do secured funding markets behave under stress? Evidence from the gilt repo market*. Staff Working Paper No. 910, Bank of England.
- James, H. (2020). *Making a modern Central Bank: The Bank of England 1979–2003*. Cambridge University Press.
- Jank, S., Mönch, E., & Schneider, M. (2021). *Safe asset shortage and collateral reuse* (No. 39). Deutsche Bundesbank.
- John, G. (2013). Cash management and debt management: Two sides of the same coin? In M. Cangiano, T. Curristine, & M. Lazare (Eds.), *Public financial management and its emerging architecture*. International Monetary Fund.
- Krippner, G. R. (2007). The making of US monetary policy: Central Bank transparency and the neoliberal dilemma. *Theory and Society*, 36(6), 477–513. <https://doi.org/10.1007/s11186-007-9043-z>
- Kydland, F., & Prescott, E. (1977). Rules rather than discretion: The inconsistency of optimal plans. *Journal of Political Economy*, 85(3), 473–491. <https://doi.org/10.1086/260580>
- Lemoine, B. (2013). Dealing with the state: The politics of French sovereign bond transactions and wholesaling. *Societes Contemporaines*, 92(4), 59–88.
- Lemoine, B. (2016). *Lordre de la dette. Enquête sur les infortunes de l'État et la prospérité du marché*. La Découverte.
- Lemoine, B. (2017). The politics of public debt financialisation: (Re)inventing the market for french sovereign bonds and shaping the public debt problem (1966–2012). In M. Buggeln, M. Daunton & A. Nützensadel (Eds.), *The political economy of public finance. Taxation, state spending and debt since the 1970s* (pp. 240–261). Cambridge University Press.
- Mabbett, D., & Schelkle, W. (2019). Independent or lonely? Central banking in crisis. *Review of International Political Economy*, 26(3), 436–460. <https://doi.org/10.1080/09692290.2018.1554539>
- MacKenzie, D., Hardie, I., Rommerskirchen, C., & Van der Heide, A. (2021). Why hasn't high-frequency trading swept the board? Shares, sovereign bonds and the politics of market structure. *Review of International Political Economy*, 28(5), 1385–1409. <https://doi.org/10.1080/09692290.2020.1743340>
- Mann, J. (1984). The autonomous power of the state: Its origins, mechanisms and results. *European Journal of Sociology*, 25(2), 185–213. <https://doi.org/10.1017/S0003975600004239>
- Mann, M. (1993). *The sources of social power*. Vol II: *The rise of classes and nation-states, 1760–1914*. Cambridge University Press.
- McNamara, K. (2002). Rational fictions: Central Bank independence and the social logic of delegation. *West European Politics*, 25(1), 47–76. <https://doi.org/10.1080/713601585>
- Monnet, E. (2018). *Controlling credit: Central banking and the planned economy in Postwar France, 1948–1973*. Cambridge University Press.
- Moschella, M. (2024). *Unexpected revolutionaries. How Central Banks made and unmade economic orthodoxy*. Cornell University Press.
- Musthaq, F. (2023). Unconventional central banking and the politics of liquidity. *Review of International Political Economy*, 30(1), 281–306. <https://doi.org/10.1080/09692290.2021.1997785>
- National Archives. (1995). NDO 23/5/2 (folder), Note from G Pulman, 10.1.1995, NDO 23/5/2, Kew, UK.
- National Archives. (1997). NDO 23/5/2 (folder), Gilts market surveillance, 21/1/97, Kew, UK.
- National Archives. (1998). NDO 23/2/1 (folder), UK Debt Management Office: Establishment of the UK Debt Management Office, Kew, UK.
- Nautz, D., & Oechssler, J. (2003). The repo auctions of the European Central Bank and the vanishing quota puzzle. *The Scandinavian Journal of Economics*, 105(2), 207–220. <https://doi.org/10.1111/1467-9442.t01-1-00005>
- OECD. (2022). *OECD Sovereign Borrowing Outlook 2022*. OECD Publishing.
- Orchard, J. (2020). *Refinancing the German crisis measures*. OMFIF.
- Pape, F. (2020). Rethinking liquidity: A critical macro-finance view. *Finance and Society*, 6(1), 67–75. <https://doi.org/10.2218/finsoc.v6i1.4410>
- Preunkert, J. (2017). Financialization of government debt? European government debt management approaches 1980–2007. *Competition & Change*, 21(1), 27–44. <https://doi.org/10.1177/1024529416678072>
- Quinn, S. (2017). “The miracles of bookkeeping”: How budget politics link fiscal policies and financial markets. *American Journal of Sociology*, 123(1), 48–85. <https://doi.org/10.1086/692461>

- Rajan, R. (2012, October). *The only game in town*. Project Syndicate.
- Reid, M. (1988). *All-change in the city: The revolution in Britain's financial sector*. Springer, MacMillan.
- Rommerskirchen, C., & van der Heide, A. (2023). The quiet side of debt: Public debt management in advanced economies. *Socio-Economic Review*, 21(2), 1151–1170. <https://doi.org/10.1093/ser/mwac070>
- Schaffner, P., Ranaldo, A., & Tsatsaronis, K. (2019, December). Euro repo market functioning: Collateral is king. *BIS Quarterly Review*, 95–108.
- Schwan, M., Trampusch, C., & Fastenrath, F. (2021). Financialization of, not by the state. Exploring changes in the management of public debt and assets across Europe. *Review of International Political Economy*, 28(4), 820–842. <https://doi.org/10.1080/09692290.2020.1823452>
- Sellin, P. (2018). The Riksbank's operational frameworks for monetary policy, 1885–2018. *Sveriges Riksbank Economic Review*, 2, 49–81.
- Streeck, W. (2014). *Buying time: The delayed crisis of democratic capitalism*. Verso Books.
- Tooze, A. (2021). *Shutdown: How Covid shook the world's economy*. Viking.
- UNCTAD. (1997, December). *Proceedings of the first inter-regional debt management conference* (pp. 10–19). UNCTAD Archive.
- van der Heide, A. (2024). Dealing in government bonds: Infrastructural power in European markets for sovereign debt. *MPIfG Discussion Paper* (forthcoming).
- van't Klooster, J. (2023). The politics of the ECB's market-based approach to government debt. *Socio-Economic Review*, 21(2), 1103–1123. <https://doi.org/10.1093/ser/mwac014>
- Walter, T., & Wansleben, L. (2020). How central bankers learned to love financialization: The Fed, the Bank, and the enlisting of unfettered markets in the conduct of monetary policy. *Socio-Economic Review*, 18(3), 625–653. <https://doi.org/10.1093/ser/mwz011>
- International Monetary Fund, (2010). Government cash management: Its interaction with other financial policies. *Technical Notes and Manuals*, 13(1), 2010. <https://doi.org/10.5089/9781462318254.005>
- World Bank. (2017). *Government cash management: Trends and challenges*. <https://www.publicdebt.net.org/pdm/archivio-focus/detail-focus/Government-Cash-Management-trends-and-challenges-00001/>.
- Yadav, Y. (2016). Insider trading and market structure. *UCLA Law Review*, 63, 968.