

Restructuring Europe's Monetary and Financial Architecture in a Fragmenting World Order

Most analyses of central bank digital currencies (CBDCs) focus on how to integrate them into existing bank-based architectures alongside bank deposits and cash. This paper takes a different perspective and explores how digital public money could be introduced and developed in Europe to reshape the underlying monetary and financial architecture gradually. That way, public money could, over time, become the dominant settlement asset for households and firms, and financial intermediation presently dominated by public-private banks gradually moves towards transparent competitive market processes. The motivation for adopting this perspective and the focus on Europe is threefold: the current architecture has structural weaknesses; digital technologies and especially tokenisation offer new possibilities; and increasing geopolitical tensions increase the need and opportunities for an independent, robust and effective European monetary and financial infrastructure. A four-phase transition to a public money system and privatised financial intermediation is proposed, with each phase designed to be valuable on its own terms while also enabling the next. In the long run, the envisaged architecture aims to deliver a safe monetary core, full competition in payments and financial intermediation, a simpler and more robust regulatory framework, more direct and transparent monetary policy instruments, and the alignment of the institutional architecture with principles of a competitive social market economy.

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1. Introduction

In the aftermath of the systemic financial crisis of 2008, policymakers, supervisors and bankers in advanced economies largely converged on the view that banking repair was needed rather than a fundamental redesign or restructuring of the monetary and financial architecture. In Europe, for example, the De Larosi re Group (2009) identified four causes of the crisis: excessive leverage, opaque securitisation, risks in the shadow banking system and a fragmented EU supervisory framework. The expert group concluded that “*repair* is necessary and urgent” (Ibid.: 3, italics added). The repair centred on three pillars: a new regulatory agenda, stronger and more coordinated supervision, and more effective crisis management procedures (Ibid. 3-4). On this basis, European policymakers embarked on a comprehensive programme of ‘more and better’ regulation, supervision and resolution, reflected in successive Basel reforms, the creation of the Banking Union and the development of macro-prudential frameworks.

Internationally, China proposed the creation of an international reserve currency that “is able to remain stable in the long run, thus removing the inherent deficiencies caused by using credit-based national currencies” (Xiaochuan 2009: 2). The US, however, wanted to maintain the dollar-based system and the Fed turned into the global market maker of last resort (Buitter 2018). China subsequently pivoted toward building alternative infrastructures to decouple from the dollar system. Examples are the development of the Cross-border Interbank Payment System (CIPS) and the digital yuan (e-CNY), the establishment of (public) international investment and development banks, and experiments with multilateral CBDC arrangements such as mBridge.¹

Alongside this mainstream *repair* agenda in advanced economies, a diverse group of economists and policy thinkers on both sides of the Atlantic argued that the key problem was the inherent fragility of deposit-funded banking and the dependence of money and payments on fragile bank balance sheets (e.g., De Grauwe 2008; Kay 2009; Flaschel et al. 2010; Kotlikoff 2010; Chamley et al. 2012; Jackson & Dyson 2012; Daly 2013; Huber 2013, 2017; Cochrane 2014; McMillan 2014; Sigurj nsson 2015; Ricks 2016). In this view, the crisis of 2008 was not caused by exceptional risk-taking and fragmented supervision, but a manifestation of deeper vulnerabilities in the bank-based architecture of the monetary and financial system. Therefore, these scholars called for the *restructuring* of money and banking instead of *repairing* banking.

In 2014, the People's Bank of China began its work on the digital yuan, acting early in the development of digital public money. In advanced economies, several authors who had initially advocated monetary reform (e.g. Jackson & Dyson 2012; Benes & Kumhof 2012; Ricks 2016) came to view central bank digital currency (CBDC) as a pragmatic pathway toward greater monetary stability and public control (Dyson & Hodgson 2016; Barrdear & Kumhof 2016; Ricks, Crawford & Menand 2018, 2021). The European Central Bank formally launched its investigation phase for a digital euro in 2021, while the Federal Reserve published a discussion paper on a digital dollar in 2022. However, in 2025, the Trump II Administration prohibited further development of a digital dollar. Since then, the US has pursued a market-driven strategy of private monetary innovation,

¹ mBridge is a multi-CBDC platform that enables participating central banks and commercial banks to settle cross-border transactions directly in tokenised central bank money of the participating countries, reducing reliance on SWIFT messaging.

particularly by promoting stablecoins. This approach stands in sharp contrast to China's state-led model, highlighting a divergence in the governance of digital money.

In the EU, geopolitics and geoeconomics have moved to the centre of policymaking over the last decade, and money, payments and finance are now much more often viewed from a strategic autonomy perspective. Concerns range from European banks' reliance on US-dollar funding to the reliability of Federal Reserve swap lines under the Trump II administration, the rapid growth of US-dollar-denominated stablecoins and the overdependence on US payment infrastructure providers (Financial Times 2025; Lane 2025a, 2025b; Cipollone 2025). For Europe, a strategic question is: do we accept a structurally subordinate position within the US dollar system, or do we aim to develop an autonomous monetary and financial architecture?

Most of the literature of the last decade asks how a CBDC could be integrated into the existing bank-based system, as an addition to bank deposits and cash (e.g., Barrdear & Kumhof 2016; Brunnermeier & Niepelt 2019; Bindseil 2020; BIS 2018, 2020; ECB 2020, 2022a, 2022b, 2023). This paper adopts a different perspective and explores how digital public money could be introduced in a stepwise manner to restructure the monetary and financial architecture gradually. Haldane (2021) argues that a widely used public digital currency could separate safe, payments-based activities from riskier credit-provision. In his view, this "radically different topology" of banking would not be costless, but it could reduce at the source fragilities that have repeatedly led to systemic financial crises over centuries. Similarly, Niepelt (2025) emphasises that CBDC can induce a fundamental shift in the typology of banking and the broader monetary architecture; accordingly, the macroeconomic effects of a CBDC will depend less on the act of introduction than on concrete design choices and the complementary policies adopted alongside it. Building on these insights, this paper thus takes a long-term and systemic view.

This paper makes three contributions to the debate on the digital euro and on CBDCs more generally. First, it develops a systemic design perspective on the euro area's bank-centred monetary system, highlighting (historical) benefits and systemic weaknesses that the repair banking agenda has been unable to solve in the aftermath of 2008. Second, it proposes a concrete four-phase restructuring path, centred on a general-purpose digital euro and digital securities, that remains compatible with existing EU Treaties for its initial three phases. Third, it connects CBDC design choices to Europe's broader goals of financial stability, competition, and strategic autonomy in a fragmenting international order. In a world where the US seeks to entrench dollar dominance via private monetary innovation, and Chinese public institutions are building their own digital payment sphere, the design of the digital euro and the European monetary and financial architecture in a broader sense have become geopolitical choices.

The remainder of the paper is structured as follows. Section 2 reviews the historical merits and weaknesses of the current bank-based architecture and discusses vulnerabilities that are specific to Europe. Section 3 outlines a monetary and financial architecture for the digital age. Section 4 proposes a stepwise transition path for Europe. Section 5 discusses four key intellectual, practical and geopolitical challenges, and Section 6 concludes.

2. The current architecture

The reform proposed in this discussion paper targets the current bank-based monetary and financial architecture in Europe. To assess both the need for reform and the feasibility of a stepwise implementation strategy, it is necessary to begin with a clear analysis of the architecture's merits and weaknesses. This chapter therefore proceeds in three steps. Section 2.1 summarises the main merits of the current architecture. Section 2.2 discusses its general weaknesses. Section 2.3 then identifies vulnerabilities that are particularly relevant in the European context. Together, these sections provide the analytical starting point for the subsequent chapters, which develop a phased reform trajectory that aims to preserve core functionalities, reduce structural fragilities, and separate public and private responsibilities.

2.1 Merits

From a historical perspective, the bank-based monetary and financial architecture that underpins most advanced economies has delivered several benefits. Four merits are particularly relevant for the analysis in this paper: lower transaction costs (2.1.1), an elastic supply of liquidity (2.1.2), a link between money creation and investments (2.1.3), and the emergence of central banks as stabilisers and guardians of the singleness of money (2.1.4).

2.1.1 Reducing transaction costs

A merit of the transition from commodity money to bank money has been a substantial reduction in transaction costs. The increasing use of banknotes and entries in the bookkeeping of banks reduced the need to transport, store and verify coins made of precious metals, and thereby improved the efficiency of trade. Over time, the digitisation of bank deposits, the development of electronic payment systems, and more recently, instant payment infrastructures have further increased the efficiency of private bank money, especially for domestic retail and wholesale transactions (G30 Working Group on the Future of Money 2025). At the same time, significant parts of the payment landscape remain comparatively slow and costly. International payments and the settlement of cross-border financial transactions are prominent examples. The average cost of sending cross-border remittances, for instance, still amounts to around 6.3% of the total payment amount (Carstens & Nilekani, 2024), suggesting that there remains significant scope for improvement and for harnessing new technologies in the payment domain.

Since the end of World War II, the international monetary architecture has been based on the US dollar, with the dollar being the most widely used currency for international payments and the world's principal reserve currency. Between 2000 and 2021, the number of financial sanctions imposed by the U.S. increased by 933 per cent (Bilotta 2024). Following the invasion of Ukraine, the dollar-based system has been further weaponised, with large-scale sanctions and the freezing of Russian assets. This has incentivised other countries to seek and develop other payment infrastructures.

Developments in emerging and developing economies underline what is technologically feasible and what is at stake. Brazil's Pix and India's Unified Payments Interface (UPI) have created low-cost, real-time public payment systems for citizens and businesses. China is continuously further developing the e-CNY and experimenting with multinational initiatives such as mBridge, BRICS Pay, and related regional schemes to build new cross-border rails that bypass dollar-centred networks and have the potential to significantly reduce transaction costs.

2.1.2 Introducing elasticity

A second historical merit of bank money is that it made the money supply more elastic. Under metallic standards, the quantity of money was closely tied to the availability of precious metals such as silver and gold. The discovery and mining of new metals were essential for the minting of additional coins, and the pace of economic expansion could be constrained when the supply of metal lagged the demand for transactions and savings.

The emergence of money-creating banks gradually decoupled the money supply from precious metals. By extending loans and simultaneously issuing monetary liabilities, private banks were able to create 'inside money' in response to the evolving needs of the economy, based on their own risk assessments, and later also on the constraints imposed by regulations and central bank policy.² This increase in elasticity has supported economic development and the Industrial Revolution. It allowed the monetary and financial system to respond more flexibly to productive investment opportunities. Following the abolition of the gold standard in the 1970s, elasticity increased further.

Monetary systems are inherently hierarchical, and these hierarchies evolve and are shaped by institutional design choices (Mehrling 2012a, 2012b; Pistor 2013; van der Linden 2022; Murau & van 't Klooster 2023). For example, the abolishment of the gold standard changed the composition of the hierarchy. Figure 1 visualises today's architecture.

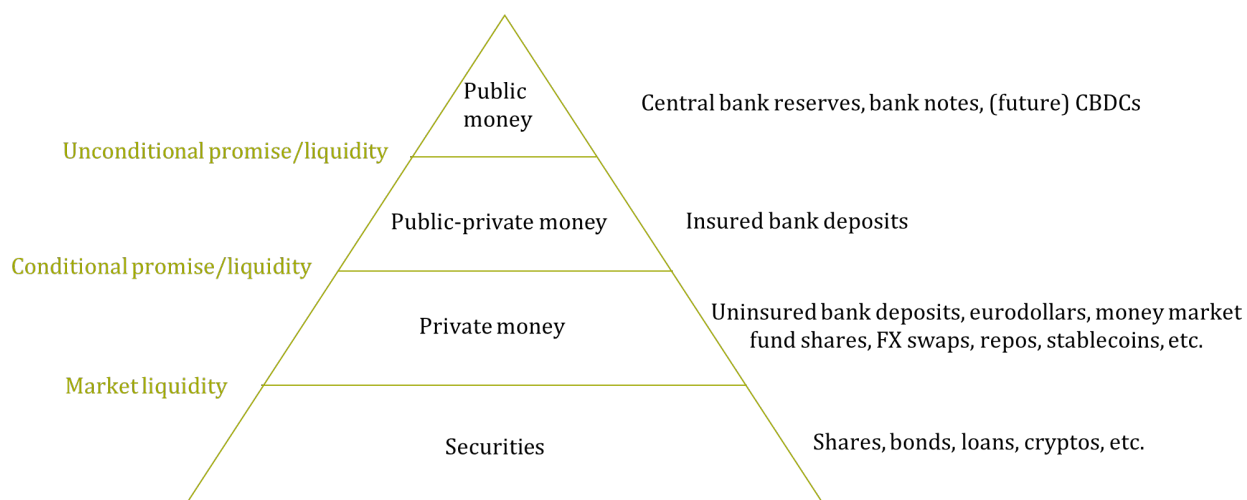


Figure 1: The domestic hierarchy of money

The first tier consists of public (central bank reserves to which only certain actors have direct access and generally accessible banknotes), the second tier is formed by public-private money (insured bank deposits), the third tier comprises forms of private money (such as money market

² For an explanation of money creation by banks, see McLeay et al. (2014) and Cliffe & Brosens (2018). Van der Linden (2022: 105-134) includes money creation through shadow banking and deficit spending. In the current architecture, the quantity of broad money is the outcome of three factors: the willingness of the non-bank sector to borrow, the willingness of banks to lend, and monetary policy, which influences but does not determine the first two.

instruments, including stablecoins), and the fourth tier consists of securities (van der Linden 2022; Huber 2023).

Within this hierarchical architecture, the singleness of money is pivotal. Singleness means that all monetary instruments denominated in the public unit of account (e.g., the euro) and regarded as money should be exchangeable at par and on demand with each other and with central bank money. This concerns the first three tiers. On the one hand, par convertibility has delivered important benefits in terms of uniformity, risk-sharing and thus elasticity (G30 Working Group on the Future of Money 2025). On the other hand, it also implies that stress in one part of the hierarchy can propagate quickly to others, and that run risks on deposit-like instruments must be contained through public backstops and regulations. This will be discussed in more detail in section 2.2.

2.1.3 Aligning money creation with investments

A third merit of the current architecture is that banking has linked the creation of money to investments in productivity. Whereas monarchs historically brought coins into circulation mainly through fiscal expenditures and purchases of goods and services, early banks operated – much like banks today – with a profit motive and a need to preserve their solvency. Extending credit, and thereby creating new monetary liabilities, required the assessment of borrowers' creditworthiness and of the viability of their projects. In standard intermediation theory, this screening and monitoring role is one of the channels through which bank lending supports growth (e.g., Diamond 1984).

Since the 1980s, however, the composition of bank lending in many advanced economies has shifted away from loans to non-financial corporations towards mortgage lending and lending to other financial institutions. Empirical work after the systemic financial crisis of 2008 shows that a growing share of bank money has been directed to real estate and other asset markets rather than to productive capital formation (Beck et al. 2012; Bezemer 2014; Jordà et al. 2013, 2014; Bezemer & Hudson 2016; Bezemer, Grydaki & Zhang 2016). More recent research, using richer sectoral credit data, reinforces this picture (Müller & Verner 2023).

Bezemer et al. (2023) document a long-run “debt shift” in advanced economies from credit to firms towards credit to households and to real estate and show that macroeconomic instability is more likely when the share of productive credit falls relative to more speculative and unproductive credit uses. Kharroubi et al. (2023) similarly find that credit booms are often accompanied by a reallocation of labour and capital into sectors with lower productivity growth and that these patterns are associated with weaker subsequent aggregate productivity performance. Micro-level evidence also suggests that expansions in mortgage lending can crowd out lending to firms. For Spain, the ECB (2019) finds that housing booms initially crowded out credit to non-housing firms and distorted investment, before later phases of the boom partially reversed this pattern. Recent work on housing booms and local capital misallocation reports similar credit-reallocation effects in China (Liu et al. 2025).

Meredith (2025) argues that this shift reflects a deeper structural weakness of bank-based money creation in economies (like the EU) where productive capacity is increasingly embodied in intangible assets such as human capital, data, intellectual property and network relationships. Because such assets are neither adequately recognised in prevailing accounting standards nor

easily collateralised, banks tend to underprovide credit to SMEs and intangible-intensive sectors, reinforcing the bias of bank balance sheets towards real estate and other collateral-rich activities.

Taken together, this body of evidence suggests that while the historical merit of linking money creation to investment remains valid, it is much less clear that it holds in practice today. This weakening of the link between money creation and productive investment is one of the motivations for reconsidering the institutional design of money and financial intermediation in the digital age.

2.1.4 Central banks as stabilisers and guardians of the singleness of money

A fourth merit of the current architecture is that, over time, public institutions have been developed to provide system-wide liquidity backstops and support the uniformity ('singleness') of money across private issuers. Many early central banks were founded primarily to finance governments, especially in wartime (Edvinsson, Jacobson & Waldenström 2018).³ The Bank of England (BoE), established in 1694 to help finance England's war with France, is often presented as the archetypal example. Yet the BoE was not the beginning of publicly backed monetary infrastructure in Europe. Already before 1694, continental public payment banks, for example, in Amsterdam, Hamburg and Venice, were created to provide merchants with safer and more efficient settlement and payments (Edvinsson, Jacobson & Waldenström 2018; Bindseil 2019).

Over the course of the nineteenth and early twentieth centuries, central banks in a growing number of countries gradually assumed the role of lender of last resort (LOLR) to the banking system. Following the principles articulated by Thornton (1802) and Bagehot (1873), the BoE became, in the 1870s, the first bank to officially accept responsibility for providing liquidity support in times of crisis, by lending freely at a penalty rate against good collateral. The aim was to prevent liquidity problems at individual institutions from triggering wider runs, and to preserve confidence in the convertibility of private bank money into central bank money, that is, to protect the singleness of money.

As central banks took on this role, they also became increasingly concerned with crisis prevention rather than mere crisis management. They began to monitor and manage the hierarchy of money, to assess systemic risks on banks' balance sheets and, over time, to influence credit conditions more broadly (Mehrling 2012). In the late twentieth century, most central banks were given explicit mandates to maintain low and stable inflation. Central banks developed monetary policy frameworks aimed at delivering price stability and, in many cases, smoothing the business cycle.

In short, the development of central banks as providers of public money, lenders of last resort and guardians of monetary and financial stability has been central to the functioning of banking systems and has contributed to economic welfare. At the same time, the close intertwining of public money and public backstops on the one hand, and private bank balance sheets on the other hand, has created interdependencies and moral hazards, and has required increasingly complex regulatory and resolution frameworks. These issues will be discussed in more detail in section 2.2.

2.2 Weaknesses

The existing architecture and bank money have clear (historical) merits. From a systemic and societal perspective, however, the architecture also exhibits at least three structural weaknesses:

³ There is not one path to banking, but "many paths to banking", as noted by Kindleberger (1984:35).

the recurrence of systemic financial crises (2.2.1), pervasive reliance on state support and privileges that sit uneasily with standard market principles (2.2.2), and the dependence on indirect monetary policy instruments (2.2.3).

2.2.1 Recurrent systemic financial crises and their consequences

The first weakness is the recurrence of systemic financial crises and the continued risk of such crises. Historical work shows that the growth of banking and credit since the seventeenth century has gone hand in hand with an increase in the frequency and economic cost of systemic banking crises, apart from the comparatively crisis-sparse post-war period from 1945 to 1970 (Kindleberger 1984; Kindleberger & Aliber 2005; Reinhart & Rogoff 2009, 2013; Cencini & Rossi 2015). Kindleberger (1984: 283) emphasises that “it is virtually impossible ... to compare financial crises before and after about 1700”, and more recent macro-historical databases confirm that modern crises are associated with deep output losses and prolonged recessions (Ricks 2016; Laeven & Valencia 2018).

From a systemic perspective, this pattern is related to the liability structure of banks and other intermediaries. The current architecture is fragile because a large share of financial intermediation is funded by short-term, par-redeemable claims that function as money. Private banks not only issue book-entry money but also commit to the *unconditional* conversion of their liabilities on demand, at a one-to-one exchange rate, into central bank money or the liabilities of other banks. Several short-term money market instruments and stablecoins exhibit similar *unconditional* promises – that fundamentally conflict with the radical uncertainty that is central to market economies.

These private institutions have incentives for balance sheet expansion because they capture the benefits of issuing additional money-like liabilities while a significant share of the tail risk is externalised via public backstops. This combination of liquidity provision, *unconditional* par convertibility and incentives to (over)issue money-like liabilities makes the system vulnerable to runs and panics, a mechanism that is central to the canonical theory of banking and financial fragility (Diamond & Dybvig 1983; Holmström & Tirole 1998; Gorton & Metrick 2012; Gertler, Kiyotaki & Prestipino 2020).

In the wake of the global financial crisis of 2008–09 and, more recently, after the collapses of Silicon Valley Bank and Credit Suisse in 2023, a diverse group of economists, legal scholars and former central bank governors has underscored the fragility of the current architecture and the central role of runnable short-term debt (Gorton 2012a, 2012b, 2019; Gorton & Metrick 2012; Gorton et al. 2018; Cochrane 2014; McMillan 2014; Ricks 2016; King 2010, 2016; Fernández Ordóñez 2018a, 2018b; Kotlikoff 2010, 2018; Haldane 2021; van der Linden 2022; Menand 2022; Drees & Sharma 2023). Recent theoretical contributions develop macroeconomic frameworks in which endogenous bank fragility arises from maturity mismatch and run risk, and in which higher capital ratios, broader deposit insurance and central bank backstops reduce run probabilities but cannot eliminate them (Porcellacchia & Sheedy 2023; Ahnert et al. 2025).

Addressing recurrent systemic financial crises is important because of their high and multifaceted costs. These can be classified into three broad categories (van der Linden 2022: 160–162). The first category consists of direct fiscal costs: the immediate expenditures that governments incur in

response to a systemic financial crisis, including recapitalisations, guarantees and other support measures. The second category comprises indirect fiscal and economic costs: increased unemployment, reduced output, bankruptcies, and strains on social welfare systems. Empirical work suggests that output losses from systemic banking crises are typically large and persistent (Reinhart & Rogoff 2009; Laeven & Valencia 2018). Thirdly, and arguably most importantly, systemic crises erode credibility and trust in institutions and elites. A growing literature in political economy links the global financial crisis and its aftermath to declining trust in governments, central banks and financial institutions, and to the rise of populist movements (Wolf 2014, 2023; Goodhart 2015; Tooze 2018; Fernández Ordóñez 2018a, 2018b; Cochrane 2019, Carney 2019; Tucker 2019a, 2019b; OECD 2019; de Vries 2020; Menand 2022; McMillan 2024). As Cochrane (2019) puts it, “the revelation that elites didn’t know what they were doing [before the 2008 crisis] led to today’s populism.” While these social and political costs are less easily or even not quantifiable, they are highly damaging, as they undermine the trust in institutions that is important for social cohesion, democratic governance and economic development.

As Pistor (2013) emphasises, it is well-known that the elasticity provided by private bank money creation underpins both growth and fragility, and that crises often lead to the “elasticity of law”, i.e., the ex post re-writing or creative interpretation of legal and regulatory constraints to prevent a collapse of the bank-based monetary and financial architecture. This elasticity of law is an important stabilising mechanism in the current architecture, but it comes at the cost of undermining the credibility of pre-crisis rules and feeds perceptions of unfairness, double standards, and “bailouts for the few”. Over time, this weakens trust in financial, regulatory, and political institutions.

In summary, the bank-based architecture is fragile because it relies heavily on large volumes of privately issued, *unconditional* par-redeemable short-term debt. Theoretical and empirical work confirms that such structures are inherently prone to runs and systemic crises, even under sophisticated backstopping and regulation. Unconditional promises are difficult to reconcile with radical uncertainty in market economies.

2.2.2 Tension with market principles

A second weakness of the current architecture concerns the extent to which its central institutions – banks – deviate from the textbook descriptions of actors in competitive market economies. In standard descriptions, banks are private intermediaries that bear the consequences of their investment choices and are disciplined by market entry and exit. In practice, because banks create money liabilities and provide essential payment services, they are treated as special. They are subject to extensive prudential regulation and have access to public guarantees, backstops and other privileges. Some justify the “specialness” of banking in terms of externalities and the social costs of runs.⁴ Others point out that the cumulative effect of these protections is to embed

⁴ Critics may reply that banks deserve special privileges because they are different: they create money. My claim is the opposite: *precisely because money is a public utility and runs impose large externalities, money creation should not be tied to private risk-taking intermediation*. The current architecture makes backstops and complex regulations unavoidable and thereby embeds subsidy and moral hazard. Separating the monetary function (a safe, non-runnable payments medium) from intermediation (risk-bearing credit

significant public subsidies and moral hazard in the banking model, and to shield incumbent institutions from full competitive pressure (Admati & Hellwig 2013, 2024; Omarova & Steele 2024).

Table 1 lists seventeen protections and privileges that incumbent banks have and are not, or only to a much more limited extent, available to other financial intermediaries.

I. Access to safe digital money	Banks hold reserve accounts at central banks (the top of the hierarchy), granting them privileged access to safe digital public money.
II. Remuneration on safe money	Banks receive interest on safe public money (central bank reserves), whereas people and non-bank corporations do not receive interest on safe public money (physical cash).
III. Liquidity support	Banks have exclusive access to lender-of-last-resort facilities.
IV. Money creation	Banks have the privilege of creating money in the public unit of account.
V. Seigniorage	Although it is difficult to calculate the exact amount, banks earn from the privilege of money creation.
VI. Means of tax payments	Bank deposits function as money not only because of network effects, but also because they are widely accepted in tax payments and public sector transactions. This creates significant demand that does not exist for other forms of liquidity.
VII. No actively managed public money alternative	Several countries, including the eurozone, have built strong legal and institutional constraints on (discretionary) public money creation, and therefore, a public option is not actively managed and organised. New money is predominantly created through banks, and public money comes only into circulation via substitution.
VIII. Provision of public physical money	Central banks provide public cash to banks, which allows banks to provide customers with a public substitute for bank deposits.
IX. Entry licence	A licence is necessary to enter the banking market and serves as protection for incumbents. Obtaining a banking licence is challenging, as demonstrated by the number of unsuccessful applications for new banks, including full reserve banks and narrow banks, in various countries since 2009.
X. Deposit insurance schemes	Banks are eligible to participate in the legally mandated deposit insurance schemes, leading to lower funding costs; non-banking institutions are prohibited from participating.
XI. Bailouts	In the event of a systemic financial crisis, policymakers are more inclined to bailout banks than non-bank financial institutions because, in the case of banks, the savings of the public and the payment system

provision funded by equity and other loss-absorbing liabilities) preserves the public-interest role of money while subjecting banks to clearer discipline and competition

	are at risk. This implicit guarantee leads to lower funding costs, especially for larger banks. ⁵
XII. Special resolutions	Banks are subject to special bankruptcy laws, and in several cases, exceptions are granted (e.g., Credit Suisse).
XIII. Tolerated oligopolies	In the banking sector, competition and antitrust laws are frequently neglected, and quasi-oligopolies exist in numerous (European) countries, leading to higher prices for consumers and non-bank corporations. ⁶
XIV. Consumer protection waivers	Banks use ambiguous language to describe their business, e.g., their business is for a large part 'creating' bank deposits instead of 'accepting' and 'taking' deposits. Banks generally do not use risk alerts for investments in their deposit liabilities. Risk alerts are, in contrast, mandatory for non-bank financial corporations.
XV. Prospectus exemption	Banks are not obligated to release a prospectus when raising deposits, whereas non-bank financial corporations are always required to publish a prospectus if they attract funding.
XVI. Special tax regime	In most countries, investments in bank deposits are taxed at a lower rate than investments in government bonds and other securities. An investment in a bank is considered a 'saving' and an investment in a security is regarded as an 'investment'.
XVII. Limits on digital public money	The implemented and proposed limitations on CBDCs protect the business model of incumbent banks and limit competition between public money and bank deposits. For example, in the eurozone, a limit of 3,000 euros is proposed.

Table 1: Private banking protections and privileges⁷

These protections and privileges allow highly leveraged institutions to operate with relatively low funding costs and lead to an uneven playing field vis-à-vis other financial intermediaries. Moreover, protections and privileges create well-understood moral hazard problems. For example, deposit insurance weakens depositors' incentives to monitor bank risk-taking (Admati & Hellwig 2013, 2024).

To limit moral hazards, banks are subject to an ever more complex framework of capital and liquidity requirements, remuneration rules, governance standards and exposure limits. Over the past decades, a spiral has emerged. Each systemic financial crisis leads to extensive public support for the banking system – recapitalisations, guarantees, emergency liquidity, and, increasingly, central banks and especially the Fed acting as market makers of last resort in funding and securities markets – followed by another round of regulatory tightening (Wullweber 2021; van der Linden

⁵ The “too-big-to-fail” (TBTF) problem is another example: large, complex institutions can fund themselves more cheaply because investors expect that they will be rescued in a crisis, even after post-2008 reforms that sought to end TBTF (Omarova & Steele 2024).

⁶ See for example, research into the Dutch savings market by the Autoriteit Consument & Markt (2024) and The Global Economy (2021).

⁷ Identified together with Miguel Fernández Ordóñez and Sam Hummel.

2022; Wansleben 2023). The global financial crisis and, more recently, the market turmoil around the COVID-19 shock and the failures of Silicon Valley Bank and Credit Suisse, have again resulted in large-scale central bank interventions and ad hoc resolution solutions. Cochrane (2024) characterises the current regime succinctly: “bailouts are the new norm, and expected by financial market participants in the next crisis.” Admati & Hellwig (2024) similarly conclude that, despite reform efforts, the system remains unconscionably fragile and heavily reliant on public backstops.

From a design perspective, the point is not that any individual protection is unjustified, but that the combination of extensive safety nets, regulatory complexity and limited entry has turned banking into a partially socialised, heavily protected sector that nonetheless remains formally private and profit-oriented. This configuration leads to an uneven playing field between public-private banks and private non-bank intermediaries in payments, investment and financial intermediation, significant compliance, regulatory and supervisory costs, weak market discipline, high barriers to entry and persistent quasi-oligopoly in many national banking markets. In several eurozone countries, especially the smaller ones, three banks hold more than 70 per cent of bank assets. On average, the five largest credit institutions in the EU collectively own 68% of assets, up from 60% in 2000 (ECB 2025b, see also The Global Economy 2021).

Taken together, the current situation is an uneasy hybrid: banks are treated as competitive private intermediaries in normal times, yet they operate with a dense layer of explicit and implicit public support because their liabilities function as money. This hybridisation embeds persistent subsidies and moral hazard, favours scale and concentration, and pushes policymakers into ever more complex regulation and discretionary crisis interventions. In turn, it reinforces a system in which key public objectives—stability, competition, and monetary control—are pursued indirectly, through the balance sheets of a protected oligopoly.

2.2.3 Indirect monetary policy instruments

A third systemic weakness of the current architecture is the indirectness of monetary policy instruments. The primary instrument is currently the short-term policy rate, implemented through the remuneration of reserves and standing facilities to which only banks and a limited set of other financial institutions have direct access. Central bank policy only indirectly influences households and non-financial firms, via the retail interest rates set by commercial banks. This primary instrument is thus dependent on transmission mechanisms and relies, by design, on private intermediaries' incentives and balance sheet decisions to pass on monetary policy to the broader economy.

The recent tightening cycle in the euro area illustrates both the limited effectiveness and the distributional side effects of this indirect policy instrument. Between mid-2022 and late 2023, the ECB raised its deposit facility rate to 4%, and banks holding large amounts of excess reserves received substantial interest income on these balances. Euro area banks earned €130–140 billion in net interest income on their excess reserves in 2023 and 2024, an amount close to the entire annual budget of the EU (De Grauwe & Ji 2023, 2024). At the same time, pass-through to deposit interest rates was limited. While policy rates increased by 450 basis points between mid-2022 and mid-2023, interest rates on overnight deposits rose only marginally, with substantially stronger pass-through for time deposits and for smaller, less liquid banks (Grodzicki et al. 2023).

A study by the Dutch Authority for Consumers and Markets (ACM 2024) concluded that the Dutch savings market exhibits features of tacit coordination among the three largest banks and that competition is limited, helping to explain persistently low interest rates despite higher policy rates. More broadly, large banks thus tend to adjust interest rates more slowly in response to changes in policy rates, benefiting from deposit stickiness and limited household switching. From a monetary policy perspective, this implies that transmission is uneven and that some groups of savers experience long periods of negative real returns on their liquid balances even when policy rates have risen.

Quantitative easing (QE) is the second monetary instrument. In the aftermath of the systemic financial crisis of 2008 and again during the COVID-19 shock, central banks in advanced economies bought large quantities of government and high-grade private debts to prevent deflation and stabilise markets. QE has been broadly credited with mitigating the risk of depression. At the same time, its distributional and political economy implications are questioned. The UK House of Lords Economic Affairs Committee (2021) concluded that QE “is likely to have exacerbated wealth inequalities”, in part because it raised asset prices and benefited households holding financial assets more than those relying on labour income or bank deposits. Academic studies and central bank surveys find mixed and context-dependent effects and emphasise the difficulty of disentangling QE from other drivers of inequality (Bonifacio et al. 2021; Leong 2021; Lenza & Slacalek 2024). At the same time, few deny that large-scale balance sheet policies have significant distributional and political implications that go beyond a narrow price stability mandate (Budina et al. 2021; Bank of England 2021; BIS 2025).

In short, the current architecture gives central banks monetary policy instruments that operate through banks and financial markets but offers no direct channel to the majority of economic agents. The reliance on intermediated transmission creates scope for rent extraction. From a design perspective, the problem is not the use of interest rate or balance-sheet tools as such; rather, it is that the architecture constrains central banks to act indirectly, via a relatively small set of economic agents with their own commercial objectives.

2.3 Vulnerabilities specific to Europe

Europe's monetary and financial architecture has three additional vulnerabilities. First, cross-border competition in banking and payments remains limited, and capital markets remain underdeveloped and fragmented (2.3.1). This leads to unnecessarily high prices and constrains Europe's ability to mobilise its own savings at scale for innovation, the green transition, and security-related investment. Second, the euro area is not a fully-fledged monetary union (2.3.2): fiscal capacity, deposit protection, and crisis-management credibility remain partly national, which keeps “euro safety” state-contingent and periodically reintroduces fragmentation precisely when unity is most needed. Third, Europe remains structurally dependent on the US dollar and US-based infrastructures (2.3.3). This is increasingly a geopolitical risk.

2.3.1 Limited cross-border competition and fragmented capital markets

For more than three decades, the EU has sought to create a genuinely integrated financial market. Important steps include the Single Market programme in the 1990s, the introduction of the euro in 1999, the establishment of the Single Supervisory Mechanism in 2014, and successive Action Plans for the Capital Markets Union (CMU) in 2015 and 2020. Yet, despite this progress, cross-border

competition remains limited in many financial and payment services activities, especially in retail markets. The ECB's regular reports on financial integration, as well as recent speeches by ECB officials, emphasise that cross-border lending, consolidation and service provision are still well below what one would expect in a truly integrated market, and that fragmentation continues to weigh on efficiency and financing capacity (ECB 2024; De Guindos 2025; Buch 2025). This lack of cross-border competition and integration contributes to persistent price and quality differences in retail financial services, payment services, savings products and SME finance, to the detriment of European consumers and firms.

It also means that, in practice, banking remains organised largely along national lines, with national authorities retaining important responsibilities for crisis management and backstops (discussed in more detail in section 2.3.2). An additional peculiarity in the EU is that, while the EU has developed a strong competition and state aid policy framework, financial stability considerations have often led to more cautious enforcement in the banking sector than in other network industries. As a result, banking remains one of the most, if not the most, protected and publicly supported sectors in Europe, with several quasi-oligopolies in EU countries.

Moreover, compared with the United States, Europe's capital markets are less deep, more fragmented and less accessible to households. Numerous reports underline that the EU still lacks a single, deep market for equity and debt, despite successive CMU initiatives (e.g., Letta 2024; Draghi 2024). In 2024, less than 30 per cent of corporate financing in the euro area comes from the capital markets, compared with 70 per cent in the US (Financial Times 2024a). Europe's bank-centric funding is reinforced by tax regulations. Corporate tax systems in most EU countries often offer a bias in favour of debt over equity, by allowing the deduction of interest but not of the normal return on equity, which encourages leverage and borrowing relative to equity issuance (De Mooij et al. 2013; Langedijk et al. 2014). Combined with underdeveloped retail investment channels, this means that firms, especially SMEs and young, fast-growing companies, have limited access to capital markets and depend heavily on bank loans, and that a significant share of European savings is invested in low-yield bank deposits rather than in diversified capital market instruments. European households hold 34 per cent of their assets in deposits and cash, compared to 14 per cent in the US (Christie, McCaffrey & Pinkus 2024).

As a result, several successful European firms choose to list or raise capital in the United States, while European savers allocate part of their portfolios to US markets. At the same time, Europe has experienced relatively low productivity and GDP growth compared with the United States over the past two decades, leading many observers to speak of a "competitiveness crisis" and to call for a much stronger role for private capital in financing Europe's green, digital and security-related investment needs (Draghi 2024). Letta (2024) and Draghi (2024) converge on the view that completing the Capital Markets Union and moving towards a genuine Savings and Investment Union is essential to mobilise Europe's abundant private savings, strengthen its competitiveness and support strategic autonomy. The European Commission (2022, 2023, 2024) estimates that achieving the EU's green and digital objectives will require additional investment on the order of several hundred billion euros per year up to 2030 – roughly €0.5–1.2 trillion annually for the green transition alone, plus around €125 billion per year for the digital transformation. Given high public

debt levels in several member states, this will not be possible without a substantial increase in private, market-based finance.

The lack of cross-border competition and the underdevelopment and fragmentation of European capital markets is a constraint on Europe's ability to pursue its strategic objectives. In this sense, the architecture proposed in the remainder of this discussion paper can be read as one possible endpoint of the Capital Markets Union and Banking Union agendas: a system in which savings and investment are intermediated through deeper, more integrated capital markets, underpinned by a safe and widely accessible public monetary core.

2.3.2 State-contingent euro safety: national backstops and no common safe asset

A second vulnerability of the Europe's monetary and financial architecture is that, despite sharing a single currency and central bank, the euro area is not a fully-fledged monetary union. Physical euro banknotes and coins are uniform, and the ECB conducts a single monetary policy. However, the stability and perceived safety of public-private bank money still depend not only on the soundness of individual banks but also on the fiscal capacity and willingness of national governments to support their banks in crises. As a result, bank deposits in different eurozone states are not perceived as fully equivalent, especially in stress episodes, and financial conditions can diverge markedly across countries. As long as the effective safety of euro-denominated claims is perceived as state-contingent, the euro will struggle to rival the US dollar.

During the euro crisis, this state-contingent weakness became tangible. In several countries, the combination of sovereign debt problems, doubts about the irreversibility of the euro, and uncertainty about the scope of collective support mechanisms translated into deposit outflows and a fragmentation of funding markets. The result was a core-periphery pattern: when stress intensified, deposits and wholesale funding tended to migrate towards banks in the core, while peripheral banks faced rising funding costs, reinforcing macroeconomic divergence. At the same time, the euro area's "safe asset" function remained concentrated in a limited set of national sovereigns—most importantly German Bunds—rather than being anchored in a deep, genuinely pan-European benchmark comparable to US Treasuries. This structural reliance on a national safe asset both reflects and amplifies the incompleteness of the monetary union: it makes financial integration pro-cyclical and leaves the euro's international role constrained by the absence of a single, scalable, and politically unquestioned fiscal anchor.

Important steps have been taken to address these issues, notably through the creation of the Single Supervisory Mechanism and the Single Resolution Board. Nevertheless, the Banking Union remains incomplete. A common European Deposit Insurance Scheme (EDIS) has not been agreed upon, and elements of crisis management and fiscal backstops remain national. Recent analyses warn that, without completing the Banking Union, the euro area banking sector risks remaining permanently fragmented, with implications for both financial stability and the transmission of monetary policy (ECB 2024; Véron 2024; Gotti et al. 2024; De Guindos 2025; Buch 2025; AFME 2025). Proposals to grant special treatment or backstops to a small number of large cross-border banks (e.g., Angeloni 2024) might reduce some risks but would further tilt the level playing field in favour of large incumbents. In this context, one approach is to continue deepening the existing framework by building more and deeper common safety nets – for example, through EDIS and more centralised

crisis management – alongside the completion of CMU. Another approach will be explored in the next chapters.

2.3.3 Monetary power and strategic dependences: Europe in the dollar system

A third vulnerability is Europe's structural dependence on the US dollar and US-based infrastructures and market backstops in payments and finance. This dependence is significant:

- About 50% of exports are denominated in US dollars, 80-90% of long-term energy contracts are denominated in US dollars (Bilotta 2024).
- 1 trillion physical US dollars is held outside the US, about half of the banknotes in circulation (Judson 2024).
- International payments are settled in US-based or US-influenced institutions: Clearing House Interbank Payments System (CHIPS), SWIFT and Fedwire.
- 65% of card payments in the eurozone are processed by US-based companies, and consumers in 13 of the 20 eurozone countries have no domestic digital payment solutions for retail transactions (Lane 2025a, 2025b).
- Mobile payment platforms are largely dominated by Apple Pay, Google Pay and PayPal (Lane 2025a, 2025b).
- Stablecoins are overwhelmingly denominated in US\$ (99%).
- European banks are dependent on short-term US\$ funding, 17% of their total funding (ECB 2024).
- In global stress episodes, the availability and terms of dollar liquidity depend on the Federal Reserve's willingness to act as international lender of last resort through swap lines and related facilities.
- Europe's savings and capital allocation increasingly pass through a concentrated US-based global asset-management industry with strong oligopolistic features (Schoenmaker 2026).

More generally, the US and China have followed increasingly explicit and offensive monetary strategies in recent decades. For almost a century, the United States has pursued a strategy centred on the globalisation of the dollar. This strategy rests on a mutually reinforcing architecture: a worldwide network of American banks and other financial institutions, the large-scale issuance of dollar-denominated safe assets, and the development of deep and liquid financial markets that attract global savings. Offshore dollar creation—most prominently through the Eurodollar system—has been actively supported by Federal Reserve swap lines and backstops, enabling the dollar to function as the dominant currency for trade, finance and reserves. At the same time, the integration of the dollar into cross-border value chains, including energy markets via the petrodollar system, has entrenched its role as the primary invoicing and settlement currency. The rise of US-dollar-denominated stablecoins can be interpreted as a new phase in this strategy: a privatisation of seigniorage that extends dollar dominance into the digital age while reinforcing global demand for US Treasury securities.

In the aftermath of the global financial crisis of 2008, China has also gradually shifted towards a more deliberate strategy aimed at reducing its dependence on the dollar and increasing the international role of the renminbi. Rather than relying on a single grand design, this strategy consists of a coordinated set of initiatives embedded in broader geopolitical and economic

objectives. These include the development of alternative payment infrastructures such as the Cross-border Interbank Payment System (CIPS), the rapid rollout and scaling of the digital yuan (e-CNY), and active participation in multilateral experiments such as mBridge. Domestically, China has strengthened state control over monetary infrastructure, for example, by requiring major payment platforms to hold full reserves, thereby limiting private money creation. At the same time, it is gradually enhancing the functionality of the e-CNY, including features that resemble interest-bearing or programmable money. In 2026, President Xi explicitly called for the renminbi to attain global reserve currency status, signalling a more overt ambition to reshape the international monetary system (Financial Times 2026). While structural constraints—such as capital controls and institutional trust—remain, China's strategy reflects a long-term effort to build a parallel monetary architecture that could, over time, support greater monetary autonomy and geopolitical influence.

By contrast, Europe has long followed a predominantly market-driven approach to the international role of the euro. As the first President of the European Central Bank stated in 1999:

... the Eurosystem will accept the international role of the euro as it develops as a result of market forces. To the extent that the Eurosystem is successful in meeting its mandate and maintaining price stability, it will also automatically foster the use of the euro as an international currency. (Duisenberg 1999)

This philosophy has shaped European policy for decades. The EU has largely refrained from actively promoting euro-denominated trade, from building global payment infrastructures, or from systematically providing international lender-of-last-resort facilities comparable to those of the Federal Reserve. However, the limitations of this approach are increasingly being recognised. The growing weaponisation of the dollar system, the rise of US-dollar stablecoins, and China's state-led monetary initiatives have moved questions of money, payments and finance to the centre of European strategic autonomy debates. Initiatives such as the digital euro, MiCAR, and renewed efforts towards a Capital Markets Union can be interpreted as initial, albeit still partial, steps in this direction.

The European response remains, however, relatively cautious, fragmented and predominantly defensive. Compared to the United States and China, the EU lacks a clearly articulated and coordinated monetary strategy that integrates payments, capital markets, safe assets and geopolitics into a coherent framework. The key question, therefore, is not whether Europe is moving, but whether it is moving sufficiently fast and decisively in a context where other major powers are pursuing increasingly explicit and offensive monetary strategies. A central question of this paper is whether Europe should continue to rely on incremental adaptation and continuous banking repair or move towards a more explicit and structural redesign of its monetary and financial architecture.

3. A monetary and financial architecture for the digital age

The previous section argued that the existing bank-based architecture has delivered important benefits, but also exhibits structural weaknesses and, in the European context, specific vulnerabilities related to limited cross-border competition and a fragmented capital market, an

incomplete monetary union and structural dependencies in the dollar system. At the same time, central banks and expert groups often emphasise the current two-tier system as the natural “modern” form of money and finance in advanced economies (Carstens 2023a, 2023b; Carstens & Nilekani 2024; G30 Working Group on the Future of Money 2025). However, whether the current tiered architecture is in fact well suited for the digital age is ultimately an empirical and design question: it depends on whether a credible alternative architecture exists that can better align efficiency, stability, competition, and fairness, and on whether there is a feasible transition path towards such an architecture.

Historically, structural reform proposals have resurfaced whenever crisis and technological developments exposed the limits of the prevailing architecture. The literature on central bank digital currencies is already, implicitly or explicitly, a literature on alternative architectures. Much of it assesses incremental CBDC designs within the current tiered system and studies their implications for bank intermediation, financial stability and monetary policy using standard macro-financial models (e.g. Brunnermeier & Niepelt 2019; Ahnert et al. 2024; Paul, Ulate & Wu 2025). The proposal in the remainder of this working paper is complementary to this literature. Rather than evaluating marginal adjustments around the current system and likely adding more complexity, it asks what a coherent monetary and financial architecture for the digital age could look like if one starts from basic principles – simplicity, safety, network externalities and market competition – and takes seriously the new possibilities created by digital public money and digital markets for tokenised securities.

This section is partly positive and partly normative. On the positive side, it distils, from history and recent experience, a small set of functional roles that any advanced monetary and financial system must fulfil: providing a safe and efficient means of payment, supplying elasticity, and channelling savings into productive investment. On the normative side, it outlines one possible architecture in which these functions are allocated differently across public and private actors, and in which digital public money and market-based finance play a larger role than today. The objective is not to claim that this alternative is uniquely optimal, but to show that it is internally coherent, broadly consistent with market principles, and – at least in conceptual terms – feasible. In other words, the architecture outlined here should be seen as one internally coherent and attractive alternative among possible architectures.

Important elements are digitalisation and tokenisation, which are likely to fundamentally reshape the composition and determinants of money demand in the coming years. In classical monetary theory, money demand is understood as proportional to the frictions involved in moving resources between (financial) asset markets and payment systems: when conversion is costly or slow, agents hold non-interest-bearing or low-interest-bearing money to pre-fund their transactions (Mandeng 2026). Tokenisation promises to compress exactly these frictions by enabling near-instantaneous and significantly lower-cost conversion between money and a wide range of financial assets. As the cash-in-advance constraint loosens, the rationale for holding idle money balances erodes, with potentially profound implications both for the overall level of money demand and for the relative demand for different forms of money and assets (Ibid.). Demand for public money will likely retain a structural floor, as states require taxes and other obligations to be settled in the public unit of account. However, demand for bank deposits may come under increasing pressure, as they

currently offer below-market returns and face growing competition from tokenised substitutes such as money market funds, repo-like instruments, stablecoins and securities. Stablecoins, in turn, may only attract sustained demand if they can offer competitive returns or clear functional advantages in cross-border payments. By contrast, demand for interest-bearing assets such as bonds and equities could increase significantly, as households and firms can easily mobilise these assets for transactional purposes. In the longer run, this could imply a structurally lower demand for traditional money and a more competitive, market-based liquidity landscape.

The remainder of this section is structured as follows: Section 3.1 discusses the logic of structural reform. Section 3.2 sets out the case for a digital public monetary core. Section 3.3 describes the corresponding market-based structure for payments and intermediation and outlines how a clear separation between public money on the one hand and private money and private securities on the other hand can be organised. Section 3.4 sketches how monetary policy could operate in such a system. Section 4 subsequently proposes a phased transition path for Europe consisting of four phases, each of which is valuable on its own terms and prepares the ground for the next phase. Although the proposed architecture could be relevant for other currency areas, it is particularly salient for the euro area, where it would also address, at least in part, the vulnerabilities discussed in Section 2.3.

3.1 The logic of structural reform

Structural reform aims to bring the structure of a sector as close as possible to the principles of competitive market economies. Over the last century, many countries have implemented structural reforms in industries such as telecommunications, energy, transport and postal services. These reforms typically had three components: (i) unbundling, (ii) maximising competition, and (iii) designing a clear transition path (Fernández Ordóñez 2024).

Unbundling involves separating state activities from market activities and distinguishing between monopoly and/or network functions and competitive activities. In the telecommunications sector, for example, network operations are often separated from retail service provision, and in air travel, airports are distinct from airlines. The idea is to centralise activities with strong network externalities and natural monopoly features, while opening other layers to competition under clear and as simple as possible regulations.

In a well-functioning market economy, most decisions about production, investment and innovation are taken in a decentralised manner by private entrepreneurs and enterprises. Decentralised decision-making allows them to use local information, to experiment with new ideas and business models, and to bear the rewards and risks of their choices (Hayek 1945; Schumpeter 1934, 1942). The state, by contrast, has a comparative advantage in providing infrastructures and public goods. Centralised decisions are typically warranted when there are large positive network externalities – as with a common unit of account – and when there is a need to prevent monopolies and oligopolies that would otherwise restrict competition (Musgrave 1957, 1959).⁸

⁸ Historically, calls for “structural reform” and “more markets” have come from governments and political movements with very different ideological backgrounds. Governments led by conservatives (e.g., Thatcher in the UK), social democrats (e.g., González in Spain) and communists (e.g., China’s gradual liberalisation of

3.2 A digital public monetary architecture

In the restructuring proposed here, money – understood as the ultimate settlement asset in the public unit of account – is assigned primarily to the state, acting as the representative of citizens. There are three reasons for this. First, there are significant positive network externalities associated with money and the unit of account. A common unit of account allows all economic agents to ‘speak the same monetary language’, and a widely accepted means of payment reduces transaction costs and supports trade and specialisation. Fragmentation of the unit of account or of the ultimate settlement asset can increase transaction costs and undermine efficient market exchange.

Second, a widely accepted public currency facilitates effective taxation and, thereby, the funding of public and merit goods. Requiring taxes to be paid in the public currency creates a strong coordination device and anchors the value of that currency. Allowing tax payments in specific private liabilities, such as private coins or (tokenised) shares of a given company, would give those instruments an advantage over other forms of private liquidity and distort the level playing field among private issuers.

Third, only the state can issue *unconditional* money denominated in the public unit of account. Public money, in the form of cash and, in the future, digital public money, can function as the basic asset in the system without relying on on-demand one-to-one convertibility into higher-tier claims. In principle, public money does not require explicit and implicit protections and privileges that are needed to support private forms of money.

Over the past fifteen years, several academics and former central bankers have stressed the merits of having a single, uniform means of payment for households and firms (e.g., Ricks 2016; Fernández Ordóñez 2018a, 2018b, 2024; Haldane 2021; Drees & Sharma 2023; van Egmond & de Vries 2024). In the digital age, the large-scale implementation of digital public money is technically feasible and attractive. It could support a stable core monetary architecture, a more competitive offering in payments and financial services, a simpler regulatory framework, and more direct monetary policy instruments.

This would, in some respects, mirror earlier historical restructurings. In many countries, private banks issued their own physical banknotes well into the nineteenth century. Persistent problems with the singleness of money and the crises triggered by fluctuating confidence in privately issued notes eventually prompted governments to standardise banknotes and centralise note issuance in central banks. Once note issuance was effectively nationalised, commercial banks shifted to other instruments and infrastructures to create transferable liabilities, especially deposit accounts transferable via cheques, giro systems, and later electronic payments.

product markets) have all implemented structural reforms in specific sectors. In the US, Democrats have introduced various structural reforms, while Republicans have often supported deregulation. These politicians recognised the importance of well-functioning markets, not only for improving services and prices, but also for promoting fairness. In competitive markets, mediocre and rent-seeking firms are more likely to be outperformed, while innovative firms, consumers and workers are more likely to prosper. This is what Schumpeter (1942) called creative destruction.

Today, banks issue digital deposits and shadow banks a variety of near-monies, and stability still relies on legal commitments to par convertibility supported by public backstops. In a digital public money architecture, singleness would instead be organised by providing a uniform, risk-free means of payment directly to all economic agents, while elasticity would derive from private money offering *conditional* liquidity and securities offering market liquidity in securities rather than from the elasticity of public-private money. This design is visualised in Figure 2.

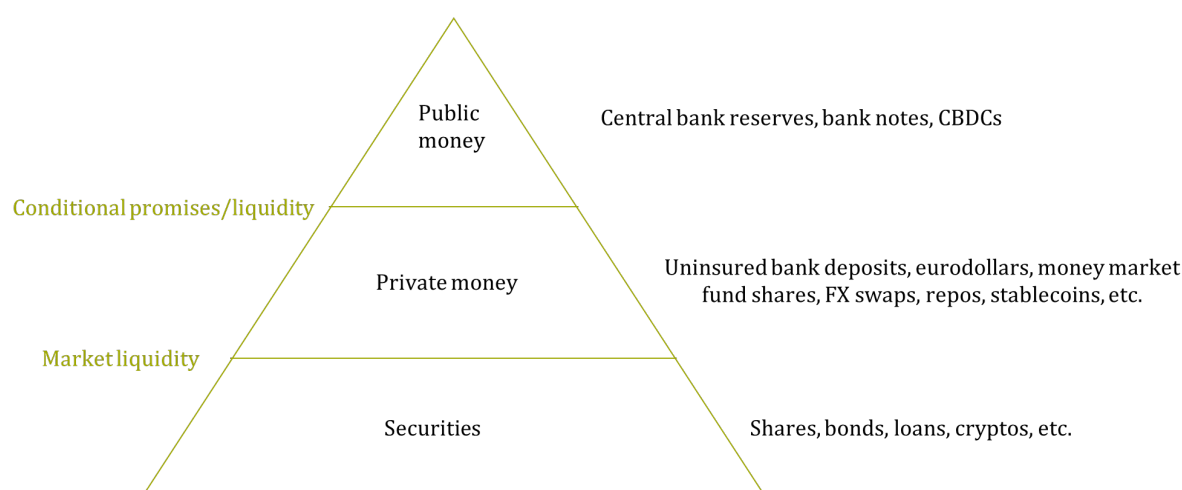


Figure 2: The hierarchy of a system based on public money and private market-based financial intermediation

The key differences from Figure 1 (page 6) are that public-private money and unconditional promises are no longer permitted due to their incompatibility with radical uncertainty. Private money is still permitted, but only under certain conditions. This shift reconfigures the boundary between public and private domains and changes the locus of elasticity. If markets for conditional private money and tradable securities can provide sufficient flexibility in funding and investment, the need to rely on large volumes of runnable, par-redeemable private money and associated public guarantees is reduced. In that case, the “elasticity of law” discussed in Section 2—i.e., extraordinary legal and regulatory adaptations to prevent systemic collapse—would likely need to be deployed far less frequently. More fundamentally, such a design is better suited to a context of radical uncertainty (Knight 1921; Keynes 1936; Minsky 1986; King 2016), as it avoids unconditional promises that are difficult to sustain in inherently uncertain economic environments.

In summary, the proposed architecture assigns the monetary core to the public sector, given network externalities, taxation, and stability considerations. The guiding idea is that, if this core is safe and uniform, payment, saving, and investment services can be organised more fully through competitive markets. Private money is allowed but only under specific conditions.

3.3 Level playing field for payment services and financial intermediation

A core design principle is a separation between safe everyday money and risk-bearing private bank money and finance. The means of payment used for routine transactions should be public money, so that households and firms can make and receive payments without taking credit risk on private intermediaries. By contrast, saving and investment should be channeled through explicitly risk-

bearing instruments—conditional bank money, long-term debt, equity and other market-based claims—where losses are transparently carried by investors rather than implicitly socialised through monetary guarantees.

Following the logic of structural reform, payment services, financial intermediation, risk management and the issuing and trading of securities are assigned to the private sector. These activities involve decentralised information and innovation, and network externalities are either limited or can be managed through open standards and interoperability. The role of the state in these domains is to define and enforce general rules, ensure a level playing field and address externalities, rather than to provide permanent protection and privileges to specific intermediaries.

The long-term objective is a diverse and dynamic market structure with a broad range of payment service providers and financial intermediaries, including investment funds, credit unions, mutual funds, exchanges (including SME exchanges), direct lending platforms, crowdfunding platforms, other fintechs, and banks that operate without extensive public guarantees and privileges. These institutions could have different structures (commercial, cooperative, steward-owned, etc.) and would offer a wide range of services such as payments, trading, underwriting, venture capital and securitisation. Risky investments would be funded predominantly by equity and longer-term debt in the form of tradable securities, rather than by short-term par-redeemable liabilities.

In this architecture, “saving” is conceptually distinct from “investing”. Economic agents can hold liquidity safely in physical or digital public money, or they can invest directly or indirectly (through intermediaries) in private money offering conditional liquidity and securities offering market liquidity and potentially higher returns. Financial intermediation is then funded by claims that can be repriced in markets, rather than by claims that promise unconditional par convertibility on demand.

In the European debate, some scholars emphasise further banking integration – for example, through cross-border mergers and deeper Banking Union – as a complement to Capital Markets Union (e.g. Angeloni 2024). While deeper integration of the existing banking sector can bring benefits, a strategy that relies primarily on expanding the role of large, deposit-funded banks also increases Europe's dependence on institutions whose business model requires extensive implicit and explicit public support. In an environment where digital tokenised market-based funding can be mobilised more easily and at scale, a stronger emphasis on pan-European intermediaries funded by securities on a genuine European savings and investment market is a more robust way to expand finance while decreasing systemic risk and realising a clear and ‘fair’ distinction between the public and private domains.

Additional regulations play an important role in supporting such a shift. The state should thus not only organise the public money system but also set clear boundaries on the issuance of on-demand, par-redeemable claims that function as money. When intermediaries offer *unconditional* on-demand exchangeability at par, regulations should require that such claims be fully backed by public liquidity (central bank money and, possibly, very short-term government securities), i.e., narrow or full reserve banks or stablecoins. There are at least three reasons for such a requirement. First, as discussed in Section 2.2, unconditional on-demand exchangeability is a fundamental source of systemic run risk. Second, maintaining singleness requires public backstops and privileges, which entangle state and market and are at odds with the objective of structural reform. Third, the

digital age offers, as explained, alternative ways of providing liquidity through marketable securities. At the same time, intermediaries could be allowed to offer *conditional* on-demand exchangeability by incorporating redemption restrictions and renegotiation options into contracts for times of stress. Many investment funds already use such mechanisms (gates, notice periods, swing pricing) to manage liquidity risk. Extending these practices more broadly would make it explicit that deposits are investments. In such a system, private “money” would thus no longer trade unconditionally at par, and the distinction between safe public money and risky private investments would be clearer.

Tokenisation and technological infrastructures can support this architecture. A unified ledger or interoperable set of ledgers on which digital public money, tokenised private money, securities and other digital instruments are recorded could improve the efficiency and safety of settlement. Some central bankers have suggested placing tokenised public-private bank money on such unified ledgers alongside public money (Carstens & Nilekani 2024; Villeroy de Galhau 2024). While this could have short-term benefits, it would also transfer the fragility of public-private bank money into the new infrastructure. The proposal in this paper takes the opposite direction: it proposes an infrastructure to support safe public money and market-based instruments, while limiting the scope for issuing new forms of runnable private money.

A financial system in which intermediation relies predominantly on private bank money offering conditional liquidity and securities that offer market liquidity has at least three potential advantages (van der Linden 2022: 200–201). First, the risk of systemic crises triggered by runs on short-term debt is lower. Empirical work suggests that more market-based financial systems are less prone to systemic financial crises and more resilient in the face of shocks than highly bank-based systems (Bats & Houben 2017, 2020). Second, if most intermediaries are funded by conditional private money and tradable securities, the need for institution-specific safety nets and complex prudential regulation diminishes; regulation can focus more on conduct and transparency (Chiu & Hofmann 2025). Third, a system based on conditional private money and securities can improve capital allocation by allowing a broader range of intermediaries and instruments to compete for investments on a level playing field.

In summary, the proposed architecture assigns payment services, financial intermediation, risk management and the issuance and trading of securities to markets, with the state providing a safe monetary core and clear rules. The objective is to foster rigorous competition on deep and broad markets, while reducing the need for extensive, institution-specific public support. Private money is allowed, but only if the issuers operate full reserve or offer conditional liquidity.

3.4 Direct monetary policy: an optional design extension

This subsection sketches a direct monetary policy instrument as an optional extension. The motivation for considering an additional channel is that in a system where digital public money is widely available, the central bank could—at least in principle—adjust financial conditions more directly than under today's architecture, where transmission operates largely through banks. At the same time, any changes to the current monetary policy framework raise concerns. For that reason, the discussion here is deliberately cautious. It does not propose an immediate shift in the monetary policy regime but outlines how direct tools could be embedded in a rules-based institutional setup consistent with central bank independence and a narrow price-stability mandate.

A first option would be to apply remuneration to digital public money holdings as an additional instrument. In its simplest form, the central bank sets an interest rate on public money balances, potentially using tiering: ordinary transaction balances up to a threshold could be remunerated at a relatively high rate, while larger balances could be remunerated at a lower rate. Conceptually, this resembles existing rate-based policy, but it would operate through a broader and more direct base than banks' reserve holdings. Tiering is critical from a financial stability and intermediation perspective: it allows for influencing money demand and liquidity conditions while limiting incentives for large-scale shifts out of investments. It also helps address distributional concerns by rewarding household payment balances, while still allowing policy to affect the marginal return on large liquid holdings.

A second option would be to use digital public money to implement direct liquidity injections to households, sometimes referred to in the literature as "helicopter money" (Friedman 1969; Buiter 2014; Dyson & Hodgson 2016; Coppola 2019; Bartsch et al. 2019; Galí 2020). In a digital public money system, such transfers would be operationally feasible and a realistic alternative to Quantitative Easing. Direct transfers raise more institutional and political economic questions than a remuneration tool, not least because transfers resemble fiscal policy. If such a mechanism were contemplated, it would therefore require strong safeguards: explicit ex ante conditions consistent with the mandate, clear limits on size and frequency, and credible symmetry through instruments that can withdraw liquidity when needed. For example, a time-varying liquidity fee or a levy on large balances above a predetermined threshold. The level of any threshold and the exact design would be political choices, and the bar for legitimacy and robustness would have to be correspondingly high.

A third option is to go even further by incentivising citizens to invest newly created public money rather than consume it. This could, in principle, link monetary expansion more closely to risk-bearing capital formation and broaden participation in financial wealth accumulation. Yet it also raises additional governance questions, especially around allocation, targeting, and the boundary with industrial policy, which reinforces the case for treating such variants as possible future extensions rather than core components of a near-term monetary policy framework.

From a mainstream perspective, these direct channels raise a range of unresolved issues, particularly concerning their interaction with fiscal policy and the broader institutional framework of monetary governance. The present discussion does not advocate their immediate adoption but rather seeks to highlight that the introduction of a widely accessible digital public money layer would render such instruments technically feasible, thereby opening a new domain for theoretical and empirical inquiry.

4. A stepwise transition in Europe

A third component of structural reform, in addition to unbundling and maximising competition, is a credible and predictable transition strategy. Structural reforms in other sectors have shown that the way change is sequenced and communicated matters at least as much as the target architecture. The objective is not to abolish banks, but rather to modify their business model or, in the terms of Haldane (2021) and Niepelt (2025), to alter the "typology of banking" and to position them firmly within the market order, while ensuring the preservation of their valuable functions.

There are historical precedents of structural reform processes. In trade liberalisation, for example, tariffs were reduced gradually according to pre-announced schedules, allowing firms and workers to adjust. In network industries, unbundling and liberalisation were typically implemented in stages. A similar logic applies to the monetary and financial architecture: a credible, gradual transition path can reduce uncertainty, allow incumbents to adapt, and help avoid destabilising discontinuities.

This section proposes a four-phase restructuring plan for Europe: an introduction phase (4.1), a liberalisation phase (4.2), a re-regulation phase (4.3) and, optionally, a new monetary policy phase (4.4). Alternative transition paths, including more abrupt 'big bang' adjustments triggered by the next systemic financial crisis, are possible, but are not the focus here.

4.1 The introduction phase

In the first phase, a digital euro would be introduced as a secure, digital form of public money. As in current policy discussions, the initial design includes restrictions on individual holdings, on the number and type of accounts, and on eligible users. From a transition perspective, such limits are understandable: they address concerns about abrupt disintermediation of banks and give policymakers time to monitor effects on financial stability and financial intermediation. From a geopolitical perspective, the introduction phase can be seen as 'defensive modernisation': bringing the euro area to the level of readiness. Where the US follows a private monetary innovation strategy and China has a state-led approach, the EU should encourage public as well as private innovation.

Even with limits, a digital euro would represent a significant change. It would, for the first time, allow all residents of the euro area to hold digital money issued by the Eurosystem. This gives economic agents an additional option for holding liquidity, alongside bank cash, deposits, and other short-term debt instruments. From a market economy perspective, the ability to exit, i.e., to choose between different providers and forms of money, is an important disciplining mechanism (Hirschman 1970; Smith 1776).

At the heart of this phase is the creation of a digital euro ledger: a public infrastructure that records holdings of digital euros and settles transactions in public money. Analogies can be drawn with land registries and other public ledgers that protect property rights and support markets. Historically, several early public banks on the European continent provided merchants with a safe form of money and a trusted payment system. In that sense, this is nothing new. As said, much of the standard literature on central banking, however, starts with the Bank of England and then focuses on the most powerful countries (UK, US) and central banks (BoE, Fed) of the last two centuries. This Anglo-Saxon narrative underplays the earlier tradition of public payment banks such as the Amsterdam Wisselbank (1609), the Hamburger Bank (1619), and Venice's Banco del Giro (1619). Those institutions pioneered book-entry money and public settlement infrastructures for commerce and trade (Edvinsson, Jacobson & Waldenström 2018).

Properly designed, a digital euro ledger could make the monetary core "safe by design", i.e., free of credit and liquidity risk, while providing a stable platform for payments, financial intermediation and innovation. Whether the ledger is implemented in a "direct" model (accounts at the central bank), an intermediated model (accounts at supervised intermediaries), or a hybrid model is a design choice. The intermediated model currently favoured by the ECB has advantages in terms of

leveraging existing infrastructures, limiting operational burdens on the central bank and privacy. A more direct model would be technically and institutionally more demanding but could arguably better anchor the notion of public money as a universal settlement asset. Ensuring that this core supports open, interoperable P2P payments would allow digital euros to move directly between users, thereby realising the full public good potential of a European payment infrastructure.

A key aspect of public trust in the digital euro concerns privacy. While the ECB and European politicians can and should provide strong privacy guarantees, credibility ultimately requires that privacy is not only a matter of legal commitment but is also embedded in technical and institutional design. In particular, the architecture should aim for a regime in which transaction data at the Eurosystem level is not individually attributable ("privacy by design"), with strict data minimisation and a clear functional separation between settlement and identification. Where identity and controls are necessary, access to identifiable information should be limited to narrowly defined cases, subject to proportionality, independent authorisation and auditable logging. The advantage of relying as much as possible on technical safeguards such as cryptographic methods that allow validation without broad disclosure is that they remain robust under changing political circumstances.

Citizens who do not wish to hold their transactional balances in digital euros must have alternative options. In the proposed architecture, these alternatives would include conditional private money issued by private banks, and liabilities of narrow banks and regulated euro-denominated stablecoins, which could offer different privacy or data-handling models while remaining interoperable with the public monetary core. Rules and technical standards should prevent cross-provider data aggregation and behavioural profiling across commercial intermediaries, so that competition can occur on service quality and privacy features rather than on the extraction and consolidation of transaction data.

During this first phase, adoption is likely to be limited. Some citizens may substitute part of their bank deposits or cash for digital euros, while many others may see little reason to change their habits as long as deposits remain protected. From the outset, however, the architecture must treat holders of digital euros and service providers differently. The state should guarantee digital euros directly, as opposed to guaranteeing the intermediaries offering payment services. Access to the digital euro ledger should be open under proportionate licensing and supervisory requirements to both banks and non-bank payment institutions. Providers that do not incur credit or liquidity risk on their own balance sheet could be subject to lighter prudential requirements, as is already the case for certain payment institutions like e-money issuers today.

In parallel, prudential regulation of banks could continue along the trajectory of higher capital and liquidity requirements. Higher capital ratios increase the share of funding provided by securities offering market liquidity, while higher liquidity requirements increase the share of liabilities backed by public money and high-quality liquid assets. Both developments make banks more resilient and, importantly, in the context of this paper, prepare them for a world without unconditional short-term liabilities. The economic objective is to gradually transform part of the current systemic risk embedded in bank balance sheets into market risk.

As more economic agents gain experience with digital euros, the distinction between “safe by design” public money and “safe by guarantees” public-private bank money may become clearer. Non-bank payment and financial service providers will also gain direct access to digital euros, albeit initially within constraints that continue to favour banks. Over time, these asymmetries are likely to trigger calls from non-bank intermediaries and from other economic agents for an equal level playing field.

4.2 The liberalisation phase

The second phase focuses on liberalising and levelling the playing field in payment services, financial intermediation, and the issuing and trading of securities. The central idea is to ensure that access to the core public infrastructure is open and that state support does not structurally favour one type of intermediary over others.

On the payments side, all institutions that meet basic regulatory and technical standards, including banks, payment institutions and fintech providers, would be able to connect to the digital euro ledger through standardised interfaces. If a private payment service provider fails, users' digital euros remain safely recorded on the public ledger and can be accessed through another provider. This combination of safe public money and competitive private service provision reflects the unbundling logic discussed in Section 3.1.

During this phase, quantitative limits on digital euro holdings would be gradually relaxed, with careful monitoring of financial stability and credit supply. At the same time, existing privileges and protections for bank deposits could be gradually recalibrated and, over a longer horizon, stepwise withdrawn, with clear advance communication. For example, the coverage and scope of deposit insurance schemes could be adjusted over time, special resolution regimes and ad hoc support mechanisms could be narrowed, and exemptions from disclosure requirements and prospectus obligations could be revisited.

As explicit and implicit protections are reduced in a predictable manner, banks would face stronger market incentives to fund themselves with conditional private money, longer-term debt and equity. Over time, this should shift risks from taxpayers to markets, i.e., investors. Simultaneously, the expansion of digital public money and of tradable securities, including the tokenized securities of banks, would reduce the relative importance of private bank money in households' and firms' balance sheets. Society's dependence on the liquidity and solvency of specific banks would diminish, even as banks continue to play an important role in intermediation, underwriting, payments and other services.

A milestone in this phase would be the introduction, at a pre-announced date, of a requirement that any unconditional on-demand, par-redeemable money claim must be fully backed by public liquidity, i.e., central bank money and possibly short-term government securities. This is a design choice. Beyond that date, financial intermediaries would be financed predominantly by marketable securities and by contractual arrangements that make liquidity conditions explicit. This is in line with proposals by Cochrane (2014) and Ricks (2016), who argue that “near-money” instruments with unconditional par convertibility should either be taxed or effectively outlawed. From this moment on, in the words of Triodos Bank (2025: 22), “Holding money in a bank would . . . become an active choice again”.

An important open question is the organisation of Know Your Customer (KYC) and Customer Due Diligence (CDD). The current institutional arrangement leads to repetitive work as each institution needs to conduct its own KYC process, and this leads to a bias towards scale and thus further concentration (Triodos Bank 2025). An option is to centralise KYC screening under public governance to support a more competitive and diverse payment service provider and financial intermediation sector without unnecessary duplication. European public authorities could perform KYC checks, with payment service providers and financial intermediaries accessing verified information when needed. Ideally, this would be organized under European authority to help integration and a level playing field between European countries. Overall costs would be far lower, since each check would only need to be carried out once. Centralisation would also likely increase effectiveness, reducing false positives and preventing illicit actors from repeatedly attempting to enter the system through different institutions. These publicly governed authorities would be placed to strike an appropriate balance between protecting society from money laundering and financial crime and ensuring inclusive access to the payments system. Access to the payment system is a fundamental component of social inclusion. There is a strong case for public involvement in guaranteeing equitable access, while requiring that such public authorities are embedded in a system of checks and balances involving private payment service providers, financial intermediaries and civil society organisations.

In short, the liberalisation phase is unquestionably ambitious and would require careful sequencing, but in principle, a gradual shift from a public-private deposit-centred to a more public money and market-based system is possible.

4.3 The re-regulation phase

By the start of the third phase, the digital euro system would be fully implemented and widely used, providing all residents and firms in the euro area with access to a stable means of payment and store of value in public money. The core monetary functions – money language, final settlement, storing liquidity – would thus be insulated from the fragilities associated with private balance sheets. This would represent a major step in the evolution of the architecture of the monetary and financial system.

In such an environment, the rationale for parts of the existing prudential framework would change dramatically. If most financial intermediation is funded by tradable securities and conditional claims rather than by unconditional public-private money, the need for highly complex micro-prudential regulation focused on bank solvency and liquidity is reduced (Chiu & Hofmann 2025). This does not mean that regulation becomes unnecessary, far from it, but the focus can shift.

The re-regulation phase is therefore not a deregulation phase, but a reorientation. Regulatory and supervisory efforts would concentrate on market integrity and conduct, consumer and investor protection, competition policy, data protection and operational resilience, and anti-money-laundering, counter-terrorist financing and tax compliance. If the objective is to build a genuine European savings and investment union, regulation and supervision in these areas would need a strong European dimension, with harmonised rules and effective EU-level enforcement. At the same time, macroprudential policy would need to adapt to a more market-based system. Systemic risk would not disappear, but it would manifest more through asset price cycles and interconnectedness

among non-bank intermediaries. However, because leverage is obtained by issuing conditional money, leverage is, by definition, more market-priced.

As prudential regulation focused on deposits and bank solvency is gradually scaled back, barriers to entry for payment services and financial intermediation should fall. Banks, freed from the constraints associated with heavy regulations, could adopt more diverse business models. For example, by specialising in underwriting, advisory services, asset management or market-based credit provision. The expectation is that this would lead to greater dynamism, diversity and competition in Europe's financial sector, although the precise pattern of innovation is inherently uncertain.

4.4 The new monetary policy phase: an optional extension

The fourth phase is, as noted in 3.4, optional and more speculative. It concerns the possible evolution of monetary policy in a regime where digital public money is widely used and where the ECB has a more direct connection with a large share of economic agents. Any move in this direction would have significant institutional implications. It would likely require revisiting elements of the Treaties, as well as clarifying the mandate, governance and accountability arrangements of the ECB.

A first extension would be to retain the current monetary policy framework—short-term interest rates as the primary instrument, complemented, when necessary, by balance-sheet policies—and to treat the digital euro as an additional transmission channel. The ECB would continue to set a policy rate for the money market and could also apply remuneration to digital euro holdings.

Remuneration would be a technical extension of the rate policy that could influence the cost of holding liquid balances and thereby affect aggregate demand and inflation. An addition would be to use tiered remuneration. A basic tier up to a threshold could be remunerated at a rate, while larger holdings could be remunerated at a lower rate. This tool could be understood as a refinement of the interest-rate corridor applied to a broader set of central bank liabilities, and would require clear operational rules, transparent thresholds and periodic review.

A second, more far-reaching option would be to allow, under narrowly defined macroeconomic contingencies, transfers of newly created digital public money to citizens. In a digital euro system, such transfers would be technically feasible. This instrument raises materially greater governance issues than remuneration because it resembles fiscal policy and risks blurring accountability.

A further option would be to require or incentivise citizens' dividends to be allocated to investments rather than consumption. In principle, such a design could (i) link monetary expansion more closely to the financing of productive capacity, (ii) broaden participation in capital markets, and (iii) gradually support a shift towards higher equity financing and lower leverage. Yet this variant amplifies the mandate and governance challenges, because it raises questions about asset allocation, potential sectoral steering, and the boundary between monetary policy and industrial policy. As explained, for that reason, it should be seen as a conceptual illustration of what becomes technically possible in a digital public money regime. Another option—echoing historical proposals for a Federal Monetary Authority—would be to define explicitly, in law, the conditions under which these instruments may be deployed, the maximum magnitude and duration of such interventions, and the institutional checks involved. Exceptional discretionary measures could be conditioned on stringent criteria, limited time windows, and multi-institutional involvement (for example,

enhanced parliamentary oversight at the EU level, combined with independent technical assessment and transparency requirements). In addition, mechanisms such as citizen panels could be considered as consultative devices to improve legitimacy.

These ideas go well beyond what mainstream monetary policy frameworks currently envisage. Their inclusion here is therefore not a recommendation for immediate adoption, but an exploration of how the availability of a general-purpose digital euro could, in the long run, widen the set of feasible policy instruments. Whether such an extension is desirable, and if so in what form, is ultimately a political and societal choice and would require a level of institutional consensus that goes far beyond current debates.

4.5 The result of restructuring in Europe

The full restructuring path sketched in this section is ambitious, and its implementation would be gradual and contingent on political choices and empirical feedback. If successful, however, it could restructure Europe's monetary and financial architecture in ways that benefit a wide range of actors and possibly improve its geopolitical position significantly. It would realize an independent monetary sphere, a safe public core and full competition in payments and financial intermediation.

The most immediate beneficiaries would be households and firms in the real economy, especially SMEs. A safe, easily accessible digital public money instrument would give them a secure store of value and medium of exchange, independent of the health of banks. More open and competitive markets for payments, savings and investment products could reduce prices, improve returns, increase choice and improve quality. Non-bank payment providers and financial institutions would operate on a level playing field, without the current structural disadvantages vis-à-vis banks.

In the long run, banks themselves could also gain. Operating in a system with a stable monetary core and fewer institution-specific safety nets, they would be less subject to complex prudential regulation and to the political and reputational costs associated with crises and bailouts. They could focus on genuinely entrepreneurial activities as screening, monitoring, underwriting, advisory services, investing, funded by investors who knowingly take risks, rather than by depositors who expect par safety.

A monetary and financial architecture based on safe public money and market-funded intermediation reduces the reliance on runnable short-term debt and, with it, the probability and cost of systemic crises. Leverage would continue to exist, but it would be borne more transparently through market-priced securities rather than being embedded in heavily protected and guaranteed deposit structures. This could, over time, give Europe a distinctive comparative advantage as a provider of safe assets and a host for deep, resilient capital markets.

At the level of individual savers and investors, the architecture would make choices and responsibilities more explicit. Economic agents would know whether their wealth is held as public money, in low-risk private money and bonds, or in higher-risk investments. If they choose not to invest in certain sectors or activities – for example, because these conflict with their values – the cost of capital for those sectors would rise. In that sense, risk, return, freedom and responsibility would be more closely aligned than in the current system, where many depositors do not think of themselves as investors, even though their deposits finance large portfolios of loans and securities.

Research commissioned by Triodos Bank (2026) illustrates this disconnect: 86% of Dutch savers report having no insight into where their savings are invested, while 68% consider it (very) important to know which projects and companies their savings end up financing. Finally, a successful transition could support broader European objectives. Deeper and more integrated capital markets and more cross-border competition would both contribute to Europe's capacity to finance the green and digital transitions, defence and security.

5. Discussion

The argument of this paper has been deliberately ambitious. It has been suggested that the combination of a digital euro and the broader digitalisation and tokenisation of finance could, over time, support a restructuring of Europe's monetary and financial architecture, leading to a safer public monetary core, more market-based and competitive financial intermediation, simpler regulatory frameworks, and more direct monetary policy instruments. At the same time, there are several serious intellectual, practical and geopolitical challenges to this proposal. This section briefly discusses four issues: the belief in the singleness of money and public-private money (5.1), the risk of disintermediation and welfare losses (5.2), the ability to resolve systemic financial crises (5.3), and the international dimension and geopolitics (5.4).

5.1 Singleness and public-private money

A first challenge concerns the singleness of money and the hierarchical architecture. Many central bankers and monetary economists see the existing two-tier system as a natural and desirable arrangement. They emphasise that singleness, understood as the ability to convert different forms of money at par and on demand, promotes trust and confidence and underpins settlement finality in central bank money (Carstens 2023a, 2023b; Carstens & Nilekani 2024; G30 Working Group on the Future of Money 2025). In this view, a "symbiotic" public-private partnership between central banks and private banks is the best way to combine safety, elasticity and innovation.⁹ However, as explained, the current system is not a two-tier system but a four-tier system, and especially the second tier, consisting of public-private bank money, is problematic because it entangles public and private affairs.

The proposal in this paper does not deny the historical benefits of the bank-based architecture; it retains singleness at the level of public money and preserves a hierarchy in which public money is the ultimate settlement asset. A difference is that it seeks to disentangle, over time, the tight coupling between public money and private money. In other words, it aims to preserve the beneficial aspects of having a single form of money while reducing the reliance on unconditional short-term claims that are runnable and require extensive public backstops and a complex regulatory framework.

The trade-off is clear. Moving towards a system in which public money is widely used and in which more intermediation is funded by market-priced securities and conditional forms of private money

⁹ This reasoning could be traced back to Bank for International Settlements Committee on Payment and Settlement Systems (2003) and Padoa-Schioppa (2004), see also Veblen Institute for Economic Reform (2023).

would likely reduce the probability and costs of run-driven crises, simplify several aspects of regulation and make the boundaries between public and private affairs and responsibilities clearer.

5.2 Disintermediation and welfare

A second challenge concerns the risk of disintermediation. A standard objection to both the widespread implementation of CBDC and structural reform is that moving bank deposits will shrink bank balance sheets, constrain lending – especially to SMEs – and reduce welfare. This argument features heavily in both policy and central bank debates and some parts of the academic literature, and it is understandably central to the concerns of incumbent private banks (see, for an overview, Bindseil, Cipollone & Schaaf 2024).

From a broader macro-financial and geopolitical perspective, however, the key issue is not only how much credit banks provide, but what kind of activities bank-based money creation finances. As research shows, banks systematically favour lending against tangible, easily pledgeable assets, and underprovide credit to SMEs and sectors whose productive capacity is embodied in intangible assets such as knowledge, data, software and intellectual property (see section 2.1.3). Defending the existing intermediation model in the name of “supporting credit” is also defending a status quo in which a small group of banks acts as gatekeepers, directing new money creation towards housing and asset markets rather than towards productive investment. Moving to a public money infrastructure and market-based finance would therefore not simply “undermine lending” but is a redesign of how productive investment is financed.

The proposal in this paper implies that, over time, financial intermediation would no longer rely on runnable public-private money and more on longer-term debt, equity and conditional forms of short-term debt. It also implies that non-bank entities funded by tradable securities would carry out a larger share of intermediation. This will almost certainly change the composition and cost of credit. Three trade-offs stand out. First, the cost of credit for some borrowers is likely to rise, at least relative to a regime in which leverage is high and important risks are implicitly underwritten by the state. If systemic risk is partly priced into credit spreads rather than by taxpayers, some activities that were marginally profitable under the old regime may no longer be financeable at the same terms. From a welfare perspective, this is not necessarily a loss. It can be seen as a correction of previously underpriced risks. But it does mean that the transition would need to pay close attention to SME finance and other socially important sectors. Second, the structure of credit provision would shift. In a more market-based architecture, funding for firms would come from bond and equity markets and from intermediaries such as funds, platforms and securitisation vehicles. For smaller firms and households, relationship-based intermediation by banks of another typology and other financial intermediaries would remain important, but their business models would no longer rely on guaranteed deposits and more on explicit risk-bearing instruments. Whether this leads to better or worse credit allocation is ultimately an empirical question. The evidence in Section 2.1.3 suggests that the current configuration, with a significant orientation towards mortgage and intra-financial lending, is far from optimal. Third, the transition path matters greatly. A sudden, uncontrolled shift of deposits into digital public money could indeed be destabilising and contractionary. The four-phase approach sketched in Section 4 is designed precisely to avoid such a disruption: limits on digital euro holdings in the introduction phase, gradual increase of the limits and a gradual abolishment of public safety nets linked to the growth

of market-based financial intermediation in the liberalisation phase, and re-regulation that aims to realise full competition on open markets.

The broader point is that the disintermediation argument, while important, should not be treated as a knock-down objection. It highlights genuine trade-offs between different ways of organising financial intermediation and sharing risk. If the current architecture delivers credit partly by underpricing systemic risk and relying on repeated and ongoing implicit and explicit public support, a future model that delivers slightly less but better-priced and more productive-allocated credit may, from a welfare perspective, be preferable – especially once the costs of crises and moral hazards are considered.

5.3 The ability to resolve systemic crises

One reason why the problem of systemic financial crises has not been addressed at the architectural level is that many central bankers and economists regard crises as an inherent feature of capitalist market economies. In this view, recurrent crises and the associated need for government support are the unavoidable counterpart of the elasticity in the quantity of liquidity that is needed for economic expansion (Minsky 1986; Kiyotaki & Moore 1997; Gertler & Kiyotaki 2010; Gertler, Kiyotaki & Prestipino 2020; G30 Working Group on the Future of Money 2025). The G30 (2025) frames this weakness of the current system as largely “natural” properties of a two-tier architecture, with crises contained through lender-of-last-resort and resolution regimes rather than eliminated. From that perspective, the policy priority is to strengthen prudential regulation, crisis management and macro-prudential tools, not to redesign the monetary core of the system.

This reasoning is open to question, arguably especially in the digital age. The singleness of money connects different tiers in the hierarchy and effectively provides a form of insurance: public-private bank money enjoys par convertibility and is always entitled to exchange on demand for money at the same or a higher level in the hierarchy, thereby protecting its nominal value. Some authors emphasise the benefits of this arrangement in terms of elasticity and risk-sharing, whereas others highlight runnable short-term (near) bank money as a central source of financial instability (Gorton 2012a, 2012b; Ricks 2016; Gorton et al. 2018).¹⁰ The key point for the argument presented in this paper is that technological progress appears to make it feasible to provide, on a large scale, two alternative forms of liquidity: widely accessible digital public money and deep markets in tradable tokenized securities.

¹⁰ For over two hundred years, a debate has raged between two schools of economic thinking regarding the value of this development. Proponents of the banking school argue that this flexibility is beneficial, underpinning economic growth by adapting the supply of liquidity to meet the demands of commerce and industry. They contend that the ability of private banks to issue private bank money facilitates investment, innovation, and economic expansion. Conversely, scholars of the currency school view this flexibility with scepticism, linking it to cycles of booms and busts, inflation, and the creation of an intrinsically unstable monetary architecture. They argue that banks exacerbate economic volatility by overextending credit, leading to speculative bubbles followed by sharp contractions. To solve this instability, they propose a fixed standard. This debate highlights a tension in economic theory and policy: the trade-off between elasticity and stability. While the banking school champions the dynamism of an elastic money supply, the currency school cautions against the systemic risks this flexibility introduces (Schwartz 2008; Goodhart & Jensen 2015).

To see why this matters, it is useful to distinguish “normal” from “systemic” financial crises.¹¹ When an institution funded predominantly with runnable liabilities based on singleness fails, the fear of loss can trigger runs and panics that threaten the stability of the entire monetary and financial system (Ricks 2016; Bernanke 2018; van der Linden 2022). By contrast, when a bubble financed by equity, long-term market debt bursts and conditional forms of short-term debt, the result is typically a non-systemic or “normal” financial crisis. Non-systemic crises can be severe for specific firms, markets or sectors – as in the dot-com bubble or in various commodity price cycles – but they do not usually threaten the stability of the monetary core. Market economies rely on such normal crises and reallocations to manage uncertainty and to discipline inefficient use of capital.

The welfare and policy implications of these two types of crises differ. A sell-off in equity markets or other assets that offer market liquidity (shares, gold, bitcoin) primarily leads to price adjustments and capital losses for investors. In the worst case, if no new investors step in, an underperforming firm or an outdated sector may disappear. Bankruptcies and the end (death) of markets are part of a dynamic market economy, with radical uncertainty. By contrast, a run on private bank money or other short-term par-redeemable instruments can create a self-fulfilling dynamic in which no private actor has an incentive or ability to step in. If many depositors or money market fund investors simultaneously demand unconditional conversion into higher-tier money, the fear of being last in line can generate a panic that threatens the singleness of money and the functioning of the entire monetary and financial architecture. In such situations, central banks and governments are compelled to intervene as lenders of last resort, market-makers of last resort or providers of more guarantees by using the elasticity of law.

In short, a widespread digital euro and market-based financial intermediation will significantly decrease the risk of a systemic financial crisis, while normal financial crises can still occur – which is a good thing. From a geopolitical perspective, a more self-contained, market-funded architecture would also reduce Europe's reliance on foreign central bank swap lines and ad-hoc crisis facilities, which currently give the Fed significant influence in global euro-dollar funding conditions.

5.4 International dimension and geopolitics

A fourth challenge concerns the international dimension. In an ideal world, the restructuring of money and banking, as well as the design of new international settlement infrastructures, would be

¹¹ Schwartz (1987) distinguishes ‘pseudo’ and ‘real’ financial crises. A third type of crisis is a sovereign debt crisis, also referred to as a long-term debt crisis. A sovereign debt crisis differs from a crisis of individual businesses, markets, and sectors because countries cannot be subjected to creative destruction. In a sovereign debt crisis, a country is unable to fulfil its debt obligations and/ or to refinance its debts. A feature of a sovereign debt crisis is that there are many signs in advance, that is, politicians have had opportunities to decide and to act before the crisis. Although sovereign debt crises threaten individual countries (or groups of countries as in the case of the euro area), they do not lead to a collapse of the whole current monetary and financial system. Therefore, they can be considered crises with dire outcomes that have to be solved by politicians in consultation with creditors and cannot be solved by basing the system more or even completely on inherent liquidity and market liquidity. In addition, history shows that the ‘right’ political institutions can solve a sovereign debt crisis (Reinhart & Rogoff 2013). However, in the case of the eurocrisis, banks had significant amounts of sovereign bonds on their balance sheets, and as a consequence, there was a threat that the sovereign debt crisis could lead to another systemic ‘real’ financial crisis.

coordinated at the global level. However, given the current geopolitical context, this scenario appears unlikely.

Six other scenarios for the future international monetary order can be distinguished. A second scenario centres on private (crypto-)currencies becoming dominant. Yet this would imply that states relinquish monetary sovereignty and geopolitical leverage, an outcome that large powers are unlikely to accept. A third scenario envisages China becoming the issuer of the dominant international currency, supported by infrastructures such as the e-CNY and cross-border platforms like mBridge. However, this would require a significant shift in institutional credibility, particularly regarding capital account openness and the rule of law. On the other hand, it could be argued that we are at a critical turning point: China is rethinking its strategy (Financial Times 2026, Chhangani 2026)) and there are many shocks, most notably Trump II. A fourth scenario would see the euro area itself emerge as the issuer of the leading international currency. While this may be desirable from a European perspective, it depends on overcoming persistent internal fragmentation and significantly increasing the amount of safe assets. Reform of money and banking could play a pivotal role in this scenario. A fifth scenario involves the continuation of the United States as the issuer of the dominant global currency, extending dollar dominance into the digital realm via stablecoins and platform-based finance. Despite increasing geopolitical uncertainty, this scenario remains plausible given the depth of US capital markets and strong network effects. A sixth scenario is the emergence of a multipolar system with two or three competing key currencies, each dominant in different regions. While consistent with broader geopolitical trends, such a system would raise complex questions regarding interoperability, exchange rate dynamics, and the persistence of network effects in safe asset provision. Finally, a seventh, more adverse scenario would involve a disorderly fragmentation or partial collapse of the international monetary order, characterised by financial instability and reduced cross-border liquidity.

Across these scenarios, a common implication emerges. Europe's current dependence on external monetary infrastructures and on the dollar-centred system constitutes a structural vulnerability in virtually all plausible futures. In a continued dollar-dominated system, it implies ongoing exposure to US policy choices and infrastructures; in a multipolar world, it risks relegating the euro to a secondary role. This suggests that the case for developing a robust and autonomous European monetary and financial architecture is attractive across scenarios. A digital euro architecture designed as an independent system combined with market-based financial intermediation could strengthen the euro's attractiveness. At the same time, it would enhance Europe's capacity to operate effectively in an increasingly contested monetary landscape.

This does not imply that trade-offs are absent. A more distinctive European architecture may generate frictions in cross-border payments finance, including regulatory arbitrage, capital flow volatility, and tensions around sanctions and compliance regimes. However, the status quo is not risk-free either. Continued reliance on foreign infrastructures and the US dollar system entails its own vulnerabilities. From a European perspective, investing in a strong euro and in sovereign and open monetary and financial infrastructures should therefore be understood not merely as a technical reform, but as a strategic geopolitical necessity.

6. Conclusion

This discussion paper has argued that the euro area's monetary and financial architecture can be redesigned for the digital age. Its main claim has been that a restructuring centred on a general-purpose digital euro, tokenised conditional private money, and tokenised securities could provide a safer monetary core, support more transparent and competitive intermediation, a simpler regulatory framework, and more direct and effective monetary policy. For the euro area, such a restructuring would also help address Europe-specific vulnerabilities by fostering cross-border competition, supporting the emergence of a genuine European savings and investment union, and making the euro area a true monetary union. By setting out a four-phase transition path, the paper aimed to make such a restructuring agenda concrete and assessable. However, as with other proposals for structural reform, it is difficult to prove *ex ante* that a clearer separation between public and private functions and responsibilities will perform better over time than a system built on ever-denser entanglement between the two.

A move away from an architecture centred on deposits and extensive bank safety nets towards a more market-based architecture implies trade-offs. It would likely change the cost and composition of credit, shift risk more to investors, and make market crises more prominent relative to systemic financial crises caused by runs on (public-private) money instruments. The shift would not eliminate financial instability; rather, it aims to reduce the probability and costs of systemic financial crises and to allocate risk and responsibility more transparently.

Since at least Ricardo (1823), economists across different traditions have argued that structural reform of money and banking, in the words of Friedman (in Phillips 1995: 173), “deserves serious consideration as a feasible way to combine monetary security and stability with free and open competition in the capital markets”. For much of the twentieth century, the political and technological feasibility of such restructuring was limited. Two developments currently change this assessment. First, digital technologies increase the fragility of traditional bank money and make it technically feasible to implement, at scale, digital public money and digital tokenised securities in a way that supports a gradual transition from a bank-based to a more public money and market-funded based architecture. Tokenisation is likely to decrease switching costs by enabling near-frictionless conversion between money and financial assets. This may structurally reduce demand for money and increase demand for interest-bearing assets and other market-based instruments. Second, a more contested and fragmenting international order may create a policy window: major geopolitical powers have strong incentives to build independent, robust, and efficient monetary and financial systems as part of their broader quest for geopolitical power and strategic autonomy. Recent developments illustrate the speed of change: the United States is further pushing private monetary innovation, China's public approach is expanding the e-CNY and testing mBridge for cross-border settlement, while countries such as Brazil and India have already rebuilt their domestic payment systems around instant, low-cost platforms. The EU should foster innovation across public and private actors, while reconfiguring the boundary between them through institutional arrangements that align incentives, responsibilities, and accountability.

The digital euro and the ongoing digitalisation of finance are thus not merely technical projects but mainly political economy projects. For Europe, they are an opportunity to think more fundamentally about how money and finance should be organised in the digital age, and about how

the euro area can position itself in a changing global monetary order. An alternative to the gradual path outlined in this paper is a “big bang” reform triggered by a future systemic financial crisis. Given the high economic, fiscal, social and political costs of such crises, the prudent course is to use the current moment to implement the first phase of a digital euro, and to develop further and refine the gradual restructuring of money and financial intermediation sketched in this discussion paper. Whether Europe ultimately decides to take this path is a political and societal choice, but, in the digital age, it is a choice that can no longer be dismissed as purely theoretical. Geopolitically, the ‘right’ choice would allow the euro to function as an independent pillar in an emerging multipolar monetary order rather than as a subordinate layer on (digital) dollar or future digital-renminbi infrastructures.

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