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Digital money and the law: the unfinished logic of e-money and the future of stablecoins

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Abstract

Over the past two decades, regulators have sought to make digital money safe by layering prudential safeguards onto electronic money and, more recently, stablecoins. Yet this regulatory evolution has left unresolved a foundational legal question: who owns the money involved in a digital money issuance—specifically, the funds paid in by users and the assets backing the issued digital value? This article argues that the failure to clarify ownership has embedded a structural contradiction in digital- money law. Instruments designed to function as custodial, cash-like value are legally constructed as issuer liabilities, turning what is meant to be riskless money into credit by design. Tracing this logic from the EU's e-money directives through their global diffusion, the article shows how a hybrid custody–credit framework became regulatory orthodoxy across jurisdictions and was subsequently inherited by stablecoin regulation, including the EU's Markets in Crypto-Assets Regulation (MiCA). By conflating custody and credit, current regimes generate avoidable fragility and obscure the monetary hierarchy. The article concludes that stablecoins force policymakers to confront a choice long postponed by e-money law: either treat digital money as custody, with user ownership and structural bankruptcy remoteness, or as credit, with issuers recognised and regulated as monetary institutions.

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1. Introduction[1]

Over the past two decades, regulators across the world have worked relentlessly to make digital money safe. Successive waves of regulation have tightened requirements on capital, liquidity, safeguarding, segregation, and redemption, with the objective to ensure that electronic money and, more recently, stablecoins behave as reliably as cash. Yet, despite this growing sophistication, a deceptively simple question has remained unresolved at the core of digital-money law: who actually owns the money involved in a digital money issuance—specifically, the funds paid in by users and the assets backing the issued digital value?

This question is not peripheral. On the contrary, it goes to the heart of what makes money safe, fungible, and trustworthy. Ownership determines whether users are creditors or beneficiaries, whether assets are bankruptcy-remote or exposed to issuer failure, and whether redemption is a legal certainty or merely a contractual promise. And yet, from the earliest e-money directives to the latest stablecoin regulations, lawmakers have consistently sidestepped this issue. Instead of clarifying ownership, they have attempted to compensate for ambiguity through prudential engineering—adding layers of safeguards to instruments whose legal nature remains conceptually unresolved.

The result is a structural contradiction that has become embedded in modern monetary architecture. Digital money is designed to behave like custody—fully backed, redeemable at par, and insulated from issuer risk—yet it is legally treated as credit. Users are promised 201ctheir money back,201d but the law often defines their position as a claim on the issuer rather than a property right in the underlying assets. This mismatch between economic function and legal form has long characterised e-money. Stablecoins, far from correcting it, have largely inherited the same unresolved logic.

This article argues that the unresolved ownership logic of e-money is not an historical curiosity but a structural flaw that stablecoin regulation can no longer afford to ignore. It shows how current frameworks conflate custody and credit, why this conflation creates unnecessary fragility, and how it obscures the monetary hierarchy rather than clarifying it. Most importantly, it argues that stablecoins offer a unique opportunity to complete what e-money law left unfinished: to align legal form with economic function by choosing decisively between a custodial model and a liability-based one.

2. Words Matter: The Unfinished Logic of E-Money

Modern e-money law rests on a deceptively simple definitional choice. Both of the European Union's e-money directives define e-money as “monetary value represented by a claim on the issuer,” while simultaneously requiring that the funds received in exchange for e-money be safeguarded and redeemable at par (EU 2000, 2009). This formulation, which has since been widely replicated across

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jurisdictions, embeds a fundamental legal contradiction: an instrument designed to function as custody is legally constructed as credit (Bossone, 2021).

The distinction is not semantic. A claim on the issuer is, by definition, a right *in personam*: the holder is a creditor whose entitlement depends on the issuer's continued solvency. Custody, by contrast, establishes a right *in rem*: a proprietary interest in specific assets that remains valid regardless of the custodian's financial condition. The two legal relationships are mutually exclusive. One cannot simultaneously be the owner of funds and a creditor for their return.

Figure 1. Legal Interpretation of an E-Money Purchase

User pays $100	
CREDIT TRANSFER *(Current legal model)*	**CUSTODIAL TRANSFER** *(Ownership-consistent model)*
• Funds become issuer assets • User becomes creditor of issuer • Legal right in personam • Redemption = debt repayment	• Funds remain user property • Issuer acts as custodian / trustee • Legal right in rem • Redemption = return of user's funds

E-money regulation attempts to reconcile this contradiction through safeguarding. Issuers are required to segregate customer funds, invest them in low-risk assets, or place them in protected accounts. Yet safeguarding is a regulatory technique, not a property right. It constrains how issuers may use funds; it does not determine who owns them. If e-money is legally a claim on the issuer, then the funds paid in must become the issuer's property, appearing on its balance sheet as assets backing a liability. In that case, safeguarding merely reduces credit risk; it does not eliminate it.

This becomes evident in insolvency. Where ownership is not explicitly retained by users, safeguarded funds remain part of the issuer's estate, subject to insolvency proceedings and potential delays or losses. Redemption at par is therefore not a legal certainty but a promise—one supported by regulation rather than by proprietary entitlement. No degree of liquidity or asset quality can convert such a promise into custody.

The paradox is historically intelligible. E-money did not emerge from monetary theory but from payment innovation. In the 1990s, stored-value cards and early online payment platforms sought to replicate the convenience of cash in digital form. Regulators, wary of unlicensed deposit-taking, faced a dilemma: how to allow innovation while preserving the banking franchise. The solution was pragmatic. By defining e-money as a claim, legislators avoided recognizing it as money proper; by imposing safeguarding, they sought to deliver cash-like safety without altering balance-sheet logic.

The result was a hybrid construction: e-money as a representation of value in economic intent, but as issuer debt in legal form. Yet, if customers are creditors, they cannot also be owners of the safeguarded funds. Conversely, if funds are truly held for customers, then no creditor–debtor relationship exists.

E-money law attempted to sit astride this divide, relying on supervision to compensate for conceptual ambiguity. Over time, this hybrid logic hardened into doctrine. Rather than revisiting the underlying ownership question, successive regulatory reforms layered additional safeguards onto the same legal foundation. The effect was to normalise a legal fiction: an instrument that behaves like custody while being treated as credit. This fiction has shaped not only the regulation of e-money itself, but also the legal imagination with which subsequent forms of digital money—most notably stablecoins—have been approached.

3. A Global Pattern of Hybrid Logic

The legal contradiction embedded in European e-money law did not remain a regional anomaly. Instead, it became the blueprint for much of the world. Across jurisdictions with different legal traditions, levels of financial development, and regulatory philosophies, lawmakers converged on the same hybrid construction: e-money defined as a claim on the issuer, combined with requirements that the funds received be safeguarded, segregated, or held 'for the benefit of users.'

India's Master Direction on Prepaid Payment Instruments defines e-money as value "issued against receipt of money and representing a claim on the issuer," while simultaneously mandating that the corresponding funds be maintained in escrow or equivalent safeguarded arrangements (Reserve Bank of India, 2021). The Philippines' BSP Circular No. 649 and Nigeria's Guidelines on Mobile Money Services adopt nearly identical formulations, again coupling issuer liability with user-protective safeguarding requirements (BSP, 2009; Central Bank of Nigeria, 2021). In each case, the legal relationship is framed as creditor–debtor, even as regulation seeks to ensure that funds are functionally insulated from issuer risk.

The same logic prevails in advanced economies and common-law jurisdictions. The UK's Electronic Money Regulations define e-money as "monetary value represented by a claim on the issuer," while obliging issuers to safeguard relevant funds through segregation or insurance (UK, 2011). In the United States, although no single federal e-money regime exists, state money-transmission laws require firms such as PayPal to hold equivalent assets in custodial or trust accounts for users. Yet these assets typically remain on the issuer's balance sheet as backing for customer liabilities, rather than being legally recognized as customer property.[2]

This convergence is analytically significant. It shows that the hybrid logic of e-money is not the product of civil-law formalism or common-law pragmatism, but of regulatory strategy. Across legal systems, authorities have sought to protect users without redefining the nature of money or encroaching upon the banking franchise. By defining e-money as a claim, regulators preserve the

[2] The United States does not have a dedicated federal statute defining 'electronic money.' Instead, issuers of stored value and digital wallets operate under a combination of the Electronic Fund Transfer Act (EFTA, 15 U.S.C. § 1693 et seq.) and state money-transmission laws (e.g., New York Banking Law §§ 640–652; California Financial Code §§ 2000–2172). These regimes require that customer funds be segregated in custodial or trust accounts, typically at insured banks, to ensure recoverability in the event of insolvency. However, such funds remain issuer liabilities on the balance sheet rather than customer-owned property.

conceptual boundary between licensed deposit-taking and payment services. By imposing safeguarding, they approximate the safety of custody without conceding ownership.

Not all jurisdictions, however, have followed this path. Japan's Payment Services Act requires customer funds underlying prepaid payment instruments to be placed with a trust bank or otherwise guaranteed, without defining e-money as a claim on the issuer (Japan, 2009; 2010). Hong Kong's Payment Systems and Stored Value Facilities Ordinance similarly mandates that float funds be held in trust for users, making ownership continuity explicit (Hong Kong, 2015). In these regimes, users retain beneficial ownership of the funds, and issuers act as custodians rather than debtors.

These cases demonstrate that the hybrid model is not inevitable. Where lawmakers chose to specify ownership clearly, the need for elaborate prudential scaffolding diminished. Custody replaced credit as the organising legal principle, and insolvency risk was addressed structurally rather than regulatorily. That such models remain the exception rather than the rule reflects not technical constraints, but a broader reluctance to confront the monetary implications of digital value storage.

4. Stablecoins Inherit the Same Contradiction

The legal logic that shaped e-money regulation has re-emerged, largely unchanged, in the regulation of stablecoins. Under the European Union's Markets in Crypto-Assets Regulation (MiCA), asset-referenced tokens and e-money tokens are defined as crypto-assets referencing a fiat currency and backed by reserve assets, with a legal obligation of redemption at par (EU, 2023). Issuers must hold high-quality, liquid reserves, segregate them from proprietary assets, and manage them prudently. Yet MiCA carefully avoids any recognition of user ownership over these assets. Reserves are consistently described as issuer reserves, not as customer funds, and token holders are granted claims against the issuer rather than proprietary rights over the backing assets.

This design choice replicates the hybrid logic of e-money law. Stablecoins are intended to behave like custodial money—fully backed, immediately redeemable, and insulated from issuer risk—yet they remain, in law, debt instruments. Token holders rely on the issuer's continued solvency and operational capacity to access 'their' money. The legal relationship is creditor–debtor, even as regulation attempts to suppress the consequences of that relationship through liquidity, segregation, and governance requirements.

The financial-stability implications are significant. As long as reserves remain issuer-owned, stablecoins retain an irreducible element of credit risk. Even where backing assets are safe and liquid, redemption depends on the issuer's legal and operational integrity. In stress conditions, this structure is inherently runnable. Token holders, aware that they are unsecured creditors, have incentives to redeem early at the first sign of trouble. Reserve quality can mitigate losses, but it cannot eliminate the strategic logic of runs embedded in debt-based money substitutes.

MiCA's emphasis on prudential safeguards thus addresses symptoms rather than causes. By tightening asset eligibility, imposing liquidity buffers, and strengthening governance, regulators attempt to make

stablecoins behave like custody without legally recognising them as such. This mirrors the evolution of e-money regulation, where increasingly elaborate safeguarding rules were layered onto an unchanged ownership structure. The result is regulatory complexity compensating for conceptual misspecification.

From a monetary-theoretical perspective, this approach obscures rather than clarifies the position of stablecoins within the monetary hierarchy. Instruments that promise par convertibility into sovereign money, yet remain legally private liabilities, occupy an ambiguous space between deposits, money-market fund shares, and payment claims. Without a clear ownership regime, stablecoins cannot achieve true cash-equivalence, regardless of how conservatively reserves are managed.

The persistence of this ambiguity reflects a deeper reluctance to confront the monetary nature of stablecoins. Recognising user ownership over reserves would imply acknowledging stablecoins as custodial representations of public money, with implications for balance-sheet treatment, supervision, and the boundary between money and credit. Treating them as liabilities, by contrast, preserves existing institutional demarcations—but at the cost of embedding avoidable fragility into instruments designed to be stable.

Stablecoins therefore inherit not only the regulatory techniques of e-money, but also its unresolved logic. The question they force back onto the policy agenda is the same one e-money law left unanswered: whether digital money should be stabilised through ever more detailed prudential rules, or through a legal structure that aligns ownership with economic function from the outset.

5. Two Regulatory Futures: Custody or Liability

The analysis so far leads to a clear conclusion: stablecoins cannot be stabilized through incremental refinement of the existing framework. As long as they combine custodial economic intent with a liability-based legal form, no amount of prudential tightening can eliminate fragility. The law must therefore choose. Stablecoins can be designed either as custodial representations of value or as issuer liabilities supported institutionally. What is unstable—and increasingly untenable—is the attempt to remain in between.

The first option is a pure custodial model. Under this approach, stablecoins are fully backed by assets that remain the legal property of token holders and are held in statutory trust or equivalent custody arrangements. The issuer acts solely as custodian and transfer agent, facilitating payments and redemptions but assuming no credit risk. Reserves are legally segregated from the issuer's estate and bypass it entirely in insolvency. Par redemption is not a promise enforced by regulation, but a direct consequence of ownership.

From this perspective, stablecoins offer a rare chance to complete what e-money law left unfinished. If a digital instrument is designed to be fully backed and instantly redeemable, the backing assets should not belong to the issuer at all. Recognising token holders' ownership of reserves would

eliminate the very credit risk that regulators now attempt to mitigate ex post through capital, liquidity, and governance rules. Stability would follow from legal structure, not from supervisory intensity.

It should be acknowledged that the custodial model imposes higher operational and legal costs on issuers — costs that partly explain the historical reluctance to adopt it. But these costs are the price of legal coherence, not an argument against it. The hybrid model's apparent convenience is precisely how the structural contradiction became normalised in the first place.

The second option is a liability-based, narrow-bank model. Here, stablecoins are explicitly recognised as issuer liabilities—functionally similar to deposits—and regulated accordingly. Issuers would be subject to capital and liquidity requirements, continuous supervision, and, crucially, access to central bank liquidity facilities to uphold par convertibility under stress. In this model, stability is ensured institutionally rather than structurally: parity is preserved not because reserves are bankruptcy-remote, but because the issuing institution is embedded within the monetary safety net.

This model is internally coherent but institutionally demanding. It requires legislators to accept stablecoin issuers as monetary intermediaries rather than as payment service providers, with all the attendant implications for access to central bank balance sheets, lender-of-last-resort facilities, and competitive neutrality vis-à-vis banks. These implications explain why many jurisdictions have been reluctant to pursue this path explicitly.

What is not coherent is the prevailing hybrid approach. Treating stablecoins as liabilities while denying them institutional support, and simultaneously attempting to suppress credit risk through asset restrictions and safeguarding, produces an inherently fragile structure. Regulatory complexity rises as legal clarity declines. Capital, liquidity, and governance rules are forced to compensate for an ownership misspecification they cannot correct.

Table I makes this choice explicit. It contrasts the prevailing stablecoin design—exemplified by MiCA—with a fully custodial alternative, highlighting how ownership, legal relationships, insolvency treatment, and stability outcomes differ across the two models. The comparison underscores that the difference is not one of reserve quality or regulatory stringency, but of legal structure.

Table I. The Custodial Redesign of Stablecoins

Feature	Current stablecoin (MiCA model)	Custodial stablecoin (proposed)
Ownership of reserves	Issuer owns reserves	Token holders retain beneficial ownership
Legal relationship	Creditor–debtor	Custodian–beneficiary
Issuer insolvency	Reserves part of insolvency estate	Reserves bypass estate
Reserve assets	High-quality, liquid, but issuer-owned	100% segregated, legally ring-fenced

Feature	Current stablecoin (MiCA model)	Custodial stablecoin (proposed)
Redemption risk	Delay or loss in insolvency	Immediate redemption from custodial pool
Financial-stability impact	Residual run and contagion risk	Near-elimination of issuer credit risk
Policy analogy	Money-market fund or e-money claim	Narrow bank or digital warehouse of value

The choice between custody and liability is therefore not a matter of regulatory taste, but of logical consistency. Each model has costs and institutional implications, but each is stable on its own terms. The hybrid, by contrast, inherits the weaknesses of both without the strengths of either. It embeds credit risk without acknowledging it and seeks cash-like certainty without providing a legal basis for it.

Stablecoins thus confront policymakers with a decision that e-money regulation postponed. Either digital money is a form of custody, in which case ownership must remain with users; or it is a form of credit, in which case issuers must be treated as monetary institutions. Resolving this choice is the precondition for a stable, intelligible, and resilient architecture of digital money.

6. Custodial Money and the Architecture of Digital Finance

A custodial model for stablecoins fits naturally within the evolving architecture of modern monetary systems. Rather than competing with existing forms of money, it clarifies their respective roles by aligning legal structure with economic function. In doing so, it reinforces the monetary hierarchy instead of blurring it.

The distinction between custodial stablecoins and traditional e-money also becomes clearer in this framework. Both share the same ownership logic, but differ in function and infrastructure. E-money remains embedded within the retail payment system, operating through accounts and traditional clearing arrangements. Custodial stablecoins, by contrast, circulate as tokens across decentralised or hybrid ledgers, enabling new forms of exchange while preserving monetary safety. They are not a new kind of money, but a new way of representing existing money.

By aligning ownership, function, and institutional role, a custodial model thus contributes to a more transparent and resilient digital monetary system. It replaces overlapping and ambiguous claims with a layered structure in which each form of money reflects its underlying logic: sovereignty for central banks, credit for banks, and custody for stablecoins. In doing so, it strengthens monetary governance rather than fragmenting it.

7. Resolving, Not Restoring

The legal contradiction at the heart of e-money was never resolved; it was merely managed. By treating custodial value as credit, regulators embedded avoidable fragility into instruments designed to be risk-free, and then sought to offset that fragility through ever more detailed prudential rules. Stablecoins have inherited this unfinished logic. Despite their technological novelty, they are governed by the same hybrid framework that confuses ownership with obligation and substitutes supervision for legal clarity.

This article has argued that the instability of digital money does not stem primarily from reserve quality, governance, or compliance failures, but from a misspecification of legal structure. Instruments that promise par convertibility while remaining issuer liabilities cannot be made equivalent to cash by regulation alone. As long as users are creditors rather than owners, credit risk—and the incentive to run—remains embedded by design.

It is worth noting that the custodial model does not eliminate all forms of stress. Operational disruptions — custody failures, ledger freezes, or settlement delays — can temporarily impair access to funds even where ownership is legally secure. But this is a categorically distinct problem from credit-driven run dynamics. The custodial model removes counterparty risk by design; operational resilience is a separate regulatory concern, addressed through business continuity requirements rather than through ownership structure.

Stablecoins force policymakers to confront a choice that e-money law postponed. Either digital money is a form of credit, in which case issuers must be recognised and regulated as monetary institutions with access to the full safety net; or it is a form of custody, in which case ownership must remain with users and issuer credit risk must be eliminated structurally. What is no longer tenable is the hybrid approach that combines the liabilities of credit with the expectations of custody.

Designing stablecoins as custodial representations of value would complete the logic that e-money left unfinished. It would render digital money bankruptcy-remote, clarify ownership in crisis, and reduce systemic risk without expanding the monetary safety net or burdening supervisors with compensatory complexity. More broadly, it would restore transparency to the monetary hierarchy by aligning legal form with economic function.

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