

Dual-Rail Monetary Architecture, Deterrence, and the Digital Reserve Currency Fork

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Abstract

The digitization of money has transformed the technological substrate of finance, but it has not altered the fundamental role of monetary systems as instruments of geopolitical order. This paper analyzes the strategic fork confronting the United States: whether global digital settlement converges on a non-sovereign protocol such as Bitcoin or remains anchored in sovereign monetary infrastructure via a U.S. central bank digital currency (USCBDC). Drawing on international political economy, monetary history, and mechanism design, the paper argues that Bitcoin and a U.S. CBDC serve orthogonal functions. Bitcoin is optimally suited as a domestic autonomy rail, while a U.S. CBDC is necessary to preserve cross-border enforcement, sanctions credibility, and war deterrence. A historical literature review of Germany’s 1930s exchange controls provides a stress test for dual-rail systems. The paper formalizes the design problem using mechanism design and game theory, deriving equilibrium conditions under which a dual-rail architecture can preserve both civil legitimacy and geopolitical stability.

1 Introduction

The digitization of money is no longer speculative. What remains unresolved—and increasingly determinative of global stability—is the geopolitical architecture that will govern digital settlement at scale. As the U.S. dollar’s effectiveness as an instrument of economic statecraft has eroded since the collapse of Bretton Woods, the United States now confronts a strategic fork: whether the next global settlement layer remains anchored in sovereign monetary infrastructure or migrates toward a non-sovereign protocol such as Bitcoin. This is not a debate about payments efficiency or technological novelty. It is a question about world order, deterrence, and the capacity of monetary systems to prevent wars rather than accelerate them.

Historically, reserve currency status has never been reducible to store-of-value properties alone. Monetary regimes function as instruments of diplomacy because they embed enforcement, credibility, and coordination within financial infrastructure. Bretton Woods embedded monetary stability within U.S.-led institutions (Helleiner, 2014). The Nixon Shock replaced metallic convertibility with institutional credibility and Treasury market depth (Eichengreen, 2011). Over time, dollar clearing dominance enabled sanctions to function as a substitute for kinetic force (Farrell and Newman, 2019).

The Russia–Ukraine war revealed the limits of this model. Cryptographic payment rails enable partial sanctions evasion, degrading deterrence and increasing incentives for hot conflict. U.S. policy institutions now recognize that payment infrastructure is national-security infrastructure (U.S. Department of the Treasury, 2022; Board of Governors of the Federal Reserve System, 2022). The question is not whether money digitizes, but which architecture governs settlement.

2 The Reserve Currency Fork

If Bitcoin becomes the de facto global reserve settlement layer, the result is a structurally multipolar order. Bitcoin’s neutrality, fixed supply, and censorship resistance eliminate discretionary enforcement. Traceability without enforceability does not constitute state power. A Bitcoin-centric settlement world degrades sanctions credibility and accelerates escalation to kinetic conflict.

By contrast, a U.S. CBDC preserves U.S. and allied hegemony by upgrading the dollar’s role as the backbone of global finance. A sovereign digital settlement rail enables programmable compliance, faster cross-border settlement, and targeted enforcement. This distinction is not moral but functional: Bitcoin is for the people; a U.S. CBDC is for the state.

3 Historical Stress Test: Germany’s 1930s Dual-Track System

Interwar Germany confronted a severe transfer problem and responded with a dual-track settlement regime. Exchange controls segmented domestic Reichsmark use from external settlement via blocked marks and *Ausländer Sonderkonten* (Aski accounts). These instruments were legally non-convertible and usable only for restricted trade purposes (U.S. Department of State, 1936; International Military Tribunal, 1946).

Economic historians identify consistent trade-offs. Segmentation conserved foreign exchange and restored short-run control but produced discounting, shadow exchange rates, bilateral inefficiency, evasion, and reputational decay (Accominotti et al., 2023; Faudot, 2020). The lesson is structural: opaque, discretionary segmentation is unstable.

This history maps directly to modern dual-rail proposals. If conversion between Bitcoin and a USCBDC is too permissive, enforcement collapses. If too restrictive, evasion and discounting emerge. The solution is not segmentation per se, but rule-bound gateway governance.

4 Mechanism Design for Dual-Rail Monetary Systems

Let the domestic rail be R_d (Bitcoin) and the sovereign settlement rail be R_s (USCBDC). Agents choose rails and evasion strategies; the sovereign sets conversion rules and enforcement intensity. A stable equilibrium requires incentive compatibility for legitimate users, deterrence for adversaries, and credible commitment by the sovereign.

4.1 Formal Constraints

- Incentive compatibility: legitimate cross-border agents prefer R_s .
- Evasion deterrence: expected penalties dominate evasion gains.
- Credibility: conversion rules are rule-bound, not discretionary.
- Legitimacy: domestic surveillance is minimized on R_d .

5 Game-Theoretic Formalization

Consider a two-player game between the **Sovereign** (S) and **Agents** (A).

5.1 Strategies

- Sovereign: {Hard Segmentation (H), Rule-Bound Gateways (R), Open Convertibility (O)}
- Agents: {Comply (C), Evade (E)}

5.2 Payoff Matrix

	C	E
H	(2,1)	(0,0)
R	(3,2)	(1,0)
O	(1,3)	(0,2)

Payoffs are ordered pairs (S, A). Rule-bound gateways (R) dominate: they preserve sovereign payoff while limiting agent incentives to evade. Hard segmentation induces evasion equilibria; open convertibility collapses enforcement.

6 Comparative Tables

6.1 Historical Monetary Regimes

Era	Anchor	Enforcement	Failure Mode
Gold Standard	Gold	Convertibility	War finance
Bretton Woods	USD–Gold	Institutions	Balance-of-payments
Petrodollar	Fiat USD	Markets	Overuse of sanctions
Crypto Fragmentation	Protocols	None	Multipolar instability
USCBDC (Proposed)	Digital USD	Programmable settlement	Political legitimacy

6.2 Modern Dual-Rail Designs

Design	Benefit	Failure Mode
Hard Segmentation	Maximum control	Discounting, evasion
Rule-Bound Gateways	Stable deterrence	Residual arbitrage
Open Convertibility	Efficiency	Enforcement collapse

7 Policy Implications

The optimal architecture is not maximal control but credible, limited control. Bitcoin should function as a domestic autonomy rail. A U.S. CBDC should serve as the exclusive cross-border settlement layer. Conversion must occur through transparent, rule-bound gateways. This preserves civil legitimacy while maintaining deterrence.

8 Conclusion

The choice between Bitcoin and a U.S. CBDC is not a choice between freedom and control. It is a choice between order and fragmentation. Monetary architecture shapes incentives long before wars begin. Preserving peace in a digital age requires sovereign settlement without domestic repression—a dual-rail system, properly designed.

A Executive Schematic for Policymakers

Objective: Preserve global stability while respecting civil liberty.

Domestic Rail (BTC):

- Neutral, censorship-resistant
- Civil autonomy
- No role in sanctions

External Rail (USCBDC):

- Sovereign liability
- Programmable compliance
- Sanctions and deterrence

Key Design Rule: Control conversion, not usage. Enforce at gateways, not wallets.

Historical Lesson: Avoid discretionary segmentation; use transparent rules.

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