

# Stablecoins and the Dollar’s Dilemma

Jon Smirl

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## The Paradox at the Heart of the Dollar

In 1960, the Belgian-American economist Robert Triffin identified a contradiction that would haunt the international monetary system for decades (Triffin1960). The United States, as issuer of the world’s reserve currency, faced an impossible task: it had to run persistent deficits to supply dollars to the rest of the world, but those same deficits would eventually undermine confidence in the dollar. Supply the world with too few dollars and global trade seizes up. Supply too many and the currency loses its credibility.

For sixty years, the Triffin contradiction was a slow-burning concern — the kind of thing central bankers worried about at conferences but that rarely made headlines. Then stablecoins arrived, and the slow burn became urgent.

## What Stablecoins Actually Do

A dollar stablecoin is a digital token pegged one-to-one to the US dollar. The issuer holds reserves — predominantly short-duration US Treasury securities — equal to the tokens in circulation. When you hold a stablecoin, someone is holding a Treasury bill on your behalf.

This seems innocuous. But scale it up and the implications are profound. As of early 2026, stablecoin reserves exceed \$150 billion in Treasuries. If the autonomous AI mesh described in the companion articles grows as projected, stablecoin settlement demand scales with the number of agents and transactions. The mesh needs programmable money for real-time micro-settlements between inference providers, training agents, and end users. Dollar stablecoins, with their 6.4 percentage point cost advantage over traditional payment rails, are the efficient settlement medium.

Every new mesh agent means more stablecoin demand. Every new stablecoin means more Treasury demand. The Triffin contradiction is no longer about central banks slowly accumulating reserves — it is about an exponentially growing technology ecosystem that *requires* US government debt as its operating substrate.

## The Sweet Spot That Does Not Last

When autonomous mesh agents enter capital markets, they process information at machine speed, optimize portfolios continuously, and arbitrage mispricings in milliseconds. Let  $\phi$  denote the fraction of capital managed by these agents. What happens to market quality as  $\phi$  rises?

The intuitive answer — “more informed traders means better markets” — is only half right. The Kyle Lambda Nonmonotone result shows that Kyle’s price impact parameter  $\lambda$  is non-monotone in  $\phi$  (Kyle1985):

$$\lambda(\phi) \propto \frac{\sqrt{\phi \cdot \text{Var}(v)}}{\sigma_{\text{noise}}(\phi)}$$

Two forces compete. First, as  $\phi$  increases, more capital is allocated by agents with superior information processing. This *increases* the informativeness of order flow and *decreases*  $\lambda$  — markets get deeper, spreads tighten, prices become more accurate. This is good.

Second, as markets become more efficient, noise traders — the uninformed participants who lose money on average but provide essential liquidity — rationally exit (GrossmanStiglitz1980). Their volume  $\sigma_{\text{noise}}(\phi)$  declines. With less noise trading to absorb, every informed order has a larger price impact. This *increases*  $\lambda$  — markets get thinner and more fragile.

At low  $\phi$ , the first force dominates. Markets improve. At high  $\phi$ , the second force takes over. Markets deteriorate. There is a sweet spot — a level of mesh participation where market depth is maximized — and beyond it, adding more autonomous agents makes markets worse, not better.

This is not a theoretical curiosity. It determines whether the financial system can absorb the Treasury supply that stablecoins demand.

## The Dollarization Spiral

For a citizen of a developing country with moderate inflation — say, 15% per year — the traditional calculus was straightforward: holding local currency was costly but switching to dollars was even costlier. You needed a bank account, foreign exchange access, and willingness to operate partially outside the local financial system. The inflation threshold  $\bar{\pi}$  at which people switched was high enough that many countries could sustain moderate inflation without triggering capital flight.

Stablecoins obliterate this calculus. With a smartphone and an internet connection, anyone can hold dollar-denominated assets. The switching cost drops to nearly zero. The Uribe (1997) hysteresis model of currency substitution (Uribe1997) shows what happens: the inflation threshold  $\bar{\pi}$  at which dollarization begins is a decreasing function of stablecoin ecosystem size  $S$ :

$$\bar{\pi}(S) = \bar{\pi}_0 - \gamma \ln(1 + S/S_0)$$

As stablecoin infrastructure grows, the threshold falls. Countries that could previously sustain 15% inflation without triggering dollarization now face capital flight at 8%. Then at 5%. The goalposts keep moving — and they only move in one direction.

This is because dollarization exhibits hysteresis: once people switch to dollar stablecoins, they do not switch back even if local inflation falls below the original threshold. The lower switching threshold  $\underline{\pi}$  is well below  $\bar{\pi}$ , creating a trap. A country that dollarizes during a temporary inflation spike may find itself permanently dollarized even after restoring price stability.

India’s 2022 experience illustrates the mechanism. When India imposed a 30% tax on cryptocurrency gains plus a 1% TDS (tax deducted at source), domestic trading volume fell 86%. But the activity did not disappear — 72% of it displaced offshore to platforms beyond Indian regulatory reach. The policy suppressed onshore activity while accelerating the offshore infrastructure that makes future dollarization easier.

## Three Worlds, One Transition

The coupled dynamical system — mesh growth driving stablecoin demand driving Treasury absorption driving settlement infrastructure driving more mesh growth — admits three equilibria:

**Equilibrium 1: Low mesh (current system).** The fraction  $\phi$  of autonomous capital is small. Monetary policy works through traditional channels — forward guidance, quantitative easing, financial repression. Stablecoin reserves are a rounding error in the Treasury market. This equilibrium is stable.

**Equilibrium 2: High mesh.** Autonomous agents manage most capital. Monetary policy tools have degraded — forward guidance fails because mesh agents process information instantly, quantitative easing fails because arbitrage is immediate, and financial repression fails because stablecoins offer an exit (Brunnermeier2019). But market discipline substitutes: government bond yields reflect real-time fiscal sustainability assessments by AI agents. Governments cannot manipulate markets but retain last-resort lending. This equilibrium is conditionally stable.

**Equilibrium 3: Unstable intermediate.** Monetary policy is partially degraded but market discipline has not yet matured to substitute. Neither the old tools nor the new mechanisms fully function. This equilibrium is unstable — the system passes through it but cannot remain.

The transition from Equilibrium 1 to Equilibrium 2 is governed by the settlement reproduction number  $R_{\text{settle}}$ . Define  $R_{\text{settle}}$  as the amount of subsequent mesh growth produced by each unit of current mesh growth through the financial system channel. When  $R_{\text{settle}}$  crosses 1, the feedback loop becomes self-reinforcing — a transcritical bifurcation. Each cycle of the loop amplifies the next: more mesh agents, more stablecoins, more Treasury demand, better settlement infrastructure, more mesh agents.

## The Synthetic Gold Standard

The high-mesh equilibrium has a striking property. Under the classical gold standard, government borrowing was constrained by the physical supply of gold: issue too much debt and you could not maintain convertibility. The constraint was blunt, automatic, and apolitical.

In the high-mesh equilibrium, something analogous emerges — but enforced by information rather than metal. Autonomous agents continuously assess fiscal sustainability. If a government’s debt trajectory becomes unsustainable, mesh agents sell its bonds in milliseconds. Yields spike. Borrowing costs rise. The market imposes discipline in real time, without committees, without negotiations, without political discretion (FarhiMaggiore2018).

This is the “synthetic gold standard”: fiscal discipline enforced not by a commodity peg but by the collective real-time judgment of millions of AI agents. Unlike the actual gold standard, it does not require deflation during downturns — governments retain the ability to run countercyclical deficits as long as the long-run trajectory remains credible. Financial repression — the practice of forcing domestic savers to hold government bonds at below-market rates — becomes impossible, because stablecoins provide an exit that no capital control can fully block.

## The Dollar’s Dilemma, Revisited

Triffin’s original contradiction was about *quantity*: the US must supply enough dollars to lubricate world trade, but not so many that confidence erodes. The stablecoin version adds a new dimension:

*speed*. The mesh does not accumulate Treasuries gradually over decades like central banks did. It scales settlement demand with the number of autonomous agents, which can grow exponentially.

The *monetary\_transmission\_ordering* formalizes the order in which monetary policy tools fail as  $\phi$  and  $S$  increase. Forward guidance goes first (mesh agents already know). Quantitative easing goes second (arbitrage is too fast). Financial repression goes last (stablecoins provide the exit). Each tool depends on a specific friction that mesh participation eliminates.

The *test:stablecoin-treasury-absorption* tracks the empirical link between stablecoin growth and Treasury market dynamics, while *test:kyles-lambda* examines the non-monotone market depth prediction.

The dilemma for policymakers is acute. Suppressing stablecoins (India's approach) displaces activity offshore without eliminating demand. Embracing stablecoins (the emerging US approach) accelerates the transition through the unstable intermediate. The mathematics says the transition will happen regardless — the question is whether it happens through the unstable middle zone quickly (painful but brief) or slowly (prolonged dysfunction in the intermediate equilibrium where neither old nor new mechanisms work).

The dollar's dilemma is no longer Triffin's quiet paradox. It is the central monetary question of the next decade.

## References