Financial Innovation, Money Markets, and the Dollar

Panel Remarks

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1. Introduction

My remarks address two questions raised by the current wave of financial innovation. The first is domestic and largely about the United States: if stablecoins, tokenized securities, or a TBD financial product succeed as forms of money, what does the Federal Reserve need to do? The second is international: how does this innovation bear on the dollar's position as the world's reserve currency, and how much is at stake in the answer?

On both questions I will argue from precedent rather than prediction. I do not know whether stablecoins and tokenized financial securities will prove as consequential as their advocates claim. I hear the view that there is more smoke than fire here. I also read credible accounts of use cases — instant settlement across multiple platforms, programmable payment — that would be economically valuable. Rather than adjudicate that, I want to take seriously the most recent episode in which a genuinely new form of money appeared at scale in the United States, ask what it required of the central bank, and then ask what the same logic would imply this time.

That episode is repo. It is instructive because it was not designed as money, grew largely outside the traditional banking perimeter, became systemically central, broke in a crisis, and ultimately obliged the Federal Reserve to build new operating tools. The pattern is, I will suggest, the one to expect again if there is another successful innovation in money.

2. Domestic Considerations

2.1 The last great money innovation

At this symposium in 2007, Gary Gorton described an ecosystem that had developed outside the banking system and that almost no one had thought of as a monetary phenomenon until it stopped working (Gorton, 2008). Between 2000 and 2007, shadow banking, securitization, repurchase agreements, and asset-backed commercial paper grew together into an integrated structure. Repo

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and asset-backed commercial paper functioned as the "money" — the deposit-like liability — of a shadow bank. Those liabilities funded mortgage-backed securities, which in turn were backed by home mortgages.

In work with Stefan Nagel and Dmitry Orlov, I estimated that roughly $2 trillion of this kind of money was outstanding on the eve of the crisis (Krishnamurthy, Nagel and Orlov, 2014). As Gorton (2008) lays out, the crisis itself was, in an important sense, a run on that money: a run on repo and on asset-backed commercial paper. The instruments had been treated as safe, liquid, and information-insensitive, and when that presumption failed the funding withdrew at the speed characteristic of monetary claims rather than of investment portfolios.

2.2 The growth of repo after the crisis

The striking fact is that repo did not shrink permanently after the crisis. Figure 1 shows repo holdings of money market funds since 2010. The rise is steady, and two identifiable forces shaped it. Money market fund reform in 2016 pushed assets toward government and Treasury funds whose natural investment is repo and short-dated Treasury collateral. The growth of institutional cash pools during the pandemic added a further boost to demand for a safe, liquid money asset.

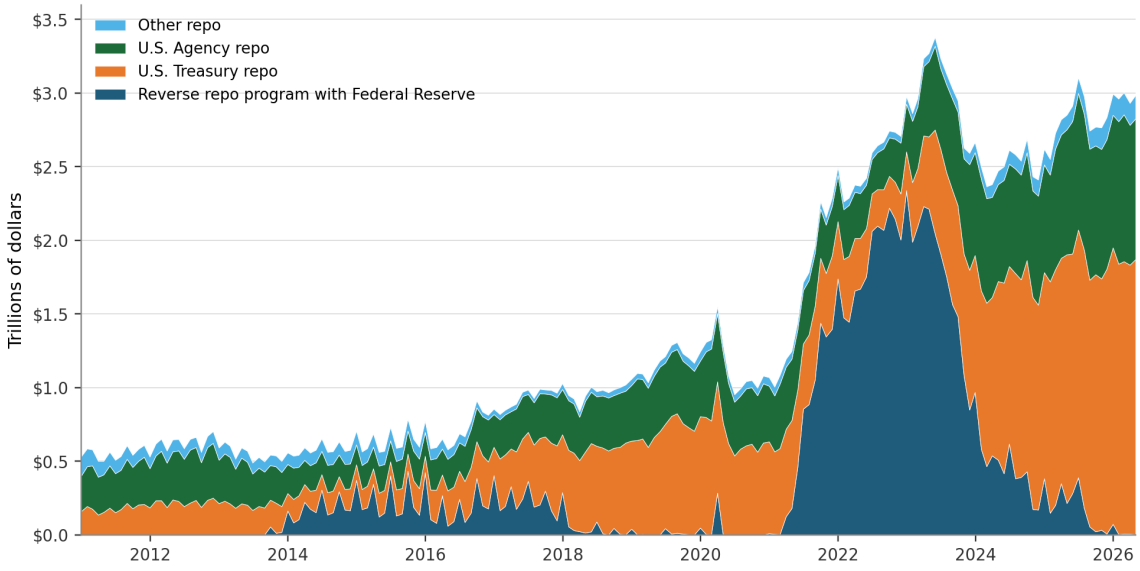


Figure 1: Money market fund repo holdings, 2010–2026

Source: Securities and Exchange Commission Form N-MFP.

Money market funds now hold roughly $3 trillion of repo. That is only one segment. Estimates of the total repo market across all segments — dealer-to-dealer, dealer-to-client, cleared and uncleared — put it at approximately $12 trillion today (Hempel, Kahn and Shepard, 2025). Repo has grown to be one of the largest money markets in the world.

2.3 Why repo is money — and why money brings leverage

For institutional cash pools repo is a liquid and safe parking asset: secured by Treasury and Agency collateral, available at scale, and redeemable at short horizon. For these holders it is a better money

than the alternatives, including uninsured bank deposits. Repo is also a payment and settlement instrument. A great deal of interbank liquidity trading now runs through repo rather than through unsecured markets. The contrast with the federal funds market is notable: repo transacts in the trillions, while federal funds volumes are well under $100 billion.

There is a corollary that deserves as much attention as the money-like properties themselves. Because repo is a good money, it is also an attractive liability for an intermediary to issue. Leverage migrates toward whatever instrument constitutes successful money, and it does so in a manner that creates more of that money. The cash-futures basis trade is the clearest current illustration. As work by Barth and Kahn (2025) and Kashyap et. al. (2025) has documented, the trade involves asset managers substituting futures for cash Treasury holdings while hedge funds take the other side — long cash Treasuries, short the corresponding futures — with the position financed in the repo market. Why repo? Because that is where the money is, after money market fund reform and the growth of institutional cash pools.

Leverage is the other side of the coin of a successful money. Any innovation that produces a genuinely superior monetary instrument will also produce demand to issue that instrument against leveraged positions, and the financial stability question follows immediately.

2.4 Policy rate passthrough is imperfect

The repo market has had hiccups. In September 2019, overnight rates spiked well above the target range and the Federal Reserve had no standing facility with which to respond, and so improvised repo operations. In March 2020, COVID-19 led to an unwind of the cash-futures basis trade triggering turmoil in the Treasury and repo market.

One view a central bank might hold is that if it controls the aggregate quantity of reserves and the rate paid on reserves then other money markets will sort themselves out. That view is not correct. Figure 2, taken from a paper Darrell Duffie and I presented at this symposium in 2016, plots the dispersion of a range of short-term money market rates around their common mean (Duffie and Krishnamurthy, 2016). The lines do not move in lockstep. Eurodollars, jumbo deposits, Treasury and MBS general collateral repo, tri-party repo, Treasury bills, and commercial paper each trace their own path, with dispersion widening dramatically in the crisis and remaining materially non-zero afterward.

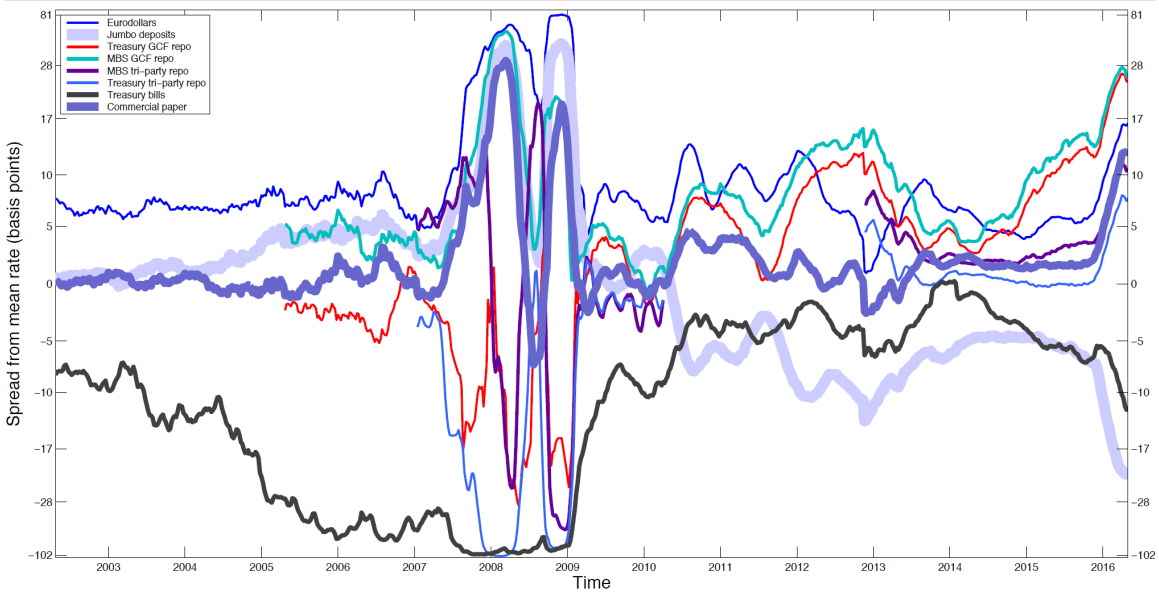


Figure 2: Dispersion of money market rates around the mean rate (basis points)

Source: Duffie and Krishnamurthy (2016), Federal Reserve Bank of Kansas City Economic Policy Symposium.

Markets are segmented. Illiquidity is a priced factor. Different instruments are held by different investors facing different balance sheet constraints, and so the rate the Federal Reserve sets on reserves does not propagate uniformly across the money market universe. Operating frameworks should be designed on the assumption that passthrough is imperfect.

2.5 The Fed's response: a corridor in the repo market

The Federal Reserve's response over the past decade amounts to establishing a native presence in the repo market. The overnight reverse repurchase facility, introduced as an operational exercise in 2013 and made a standing element of the framework thereafter, gives a broad set of cash investors — including money market funds — a floor rate at the central bank. The standing repo facility, established in 2021, provides the corresponding ceiling by lending against Treasury and Agency collateral on demand. Together they constitute a corridor, and it is a corridor in the repo market rather than in the federal funds market.

Two features of that corridor are worth emphasizing. The instruments are repo rather than federal funds, and the counterparties extend beyond the traditional banking perimeter. Both were necessary consequences of where the money had gone.

The lesson I draw from the repo episode is this: *if an innovation is truly successful — if it delivers valuable liquidity and safety properties, as repo does — then the central bank will need a native presence in the money market that results.* That is what the repo corridor is. The purposes it serves are concrete: ensuring the smooth functioning of the payment system and of securities market settlement and maintaining the "no-questions-asked" (Holmstrom, 2015) quality on which a monetary instrument depends.

2.6 Another money market?

Now turn to the present. Stablecoin payment platforms operate continuously, settle close to instantly, and support programmable transfer through smart contracts. Tokenized financial securities promise something similar for the collateral side. I do not know whether these will reach the scale repo reached.

A new form of money need not be dramatically better than the incumbent to displace it. It needs only to be somewhat better along the dimensions holders care before there is migration to the superior instrument. This is Gresham's Law in reverse: better money drives out worse.

So, suppose the innovation succeeds — trillions in scale, as repo did — and suppose, as seems clear, that a significant part of it happens outside the traditional banking perimeter. Then the lesson from the repo episode applies directly. The Federal Reserve will need a native presence in the resulting market. Concretely, that means a digital token as a liability of the central bank, and facilities that convert reserves and repo into that token and back. Table 1 sketches what such a balance sheet might look like.

Assets	Liabilities
Treasuries	Reserves
Standing repo facility	Reverse repo
Token lending facility?	*Digital token?*

Table 1: A Federal Reserve balance sheet with a native presence in a token money market

I recognize the tension here. Congress has passed a four-year prohibition on a Federal Reserve retail central bank digital currency. I take the political constraint as given, and I am not making a recommendation about retail central bank money. The point is narrower: if a tokenized money market becomes central to payments and settlement, the operating framework will need some instrument that sits natively inside it, and the range of designs consistent with the current prohibition is worth working out in advance rather than under pressure.

The other side of the argument is the one I made about repo. Any new form of money will drive leverage. It is not hard to imagine a future version of the cash-futures basis trade in which a stablecoin and a tokenized Treasury play the starring roles, financed and rehypothecated through infrastructure that did not exist when the current regulatory perimeter was drawn. That will raise financial stability concerns of a familiar type in a new setting, and it implies that the Federal Reserve will need to be in the business of asset and liability regulation for the active financial institutions — not only of providing facilities to them.

3. International Considerations

3.1 The reserve currency as a liquidity tournament

Let me turn to the international sphere. I think of reserve currency determination as fundamentally the outcome of a liquidity tournament: which sovereign can provide the largest and most liquid safe asset market. That is the central claim of research I have done with Antonio Coppola and Chenzi Xu (Coppola, Krishnamurthy and Xu, 2026).

We argue that the historical record — from the Dutch florin to pound sterling to the dollar — is explained better by asking which currency supported the largest and most liquid safe asset market than by asking which economy was largest or which country traded most. The distinction matters. In the seventeenth century, Spain exceeded Amsterdam in economic size, in trade, and in military power. Yet it was the liquidity provided through the Bank of Amsterdam that established Amsterdam as the financial center and the florin as the international money (Quinn and Roberds, 2019). The same lens helps explain a puzzle at the other end of the sequence: why the transition from sterling to the dollar happened as late as it did, well after the United States had surpassed the United Kingdom on conventional measures of economic scale (Eichengreen, 2005).

By this metric the United States has led and continues to lead. Treasury securities, repo, and the banking system together supply something on the order of $20 to $30 trillion of safe and liquid assets to the world. Recent developments have if anything widened the lead. Repo technology is largely a U.S. institution, and the European sovereign debt crises damaged the principal supply of euro-denominated safe assets.

3.2 Will new technologies increase or decrease dollar demand?

The tournament lens is useful for thinking about money innovation. Two effects push in the same direction. Dollar stablecoins provide cheaper and broader access to dollar balances, which raises demand for dollar assets; there is evidence that this is already compressing Treasury yields (Ahmed and Aldasoro, 2025). Tokenization of U.S. financial securities effectively expands the pool of dollar liquidity by making a wider set of assets usable as collateral and as settlement media, and in our framework that expansion reinforces dollar demand through complementarities between the size of a safe asset market and its liquidity. These points are also made in this symposium by Liao, Prasad, and Zhang (2026).

Taken by themselves, then, these digital monies have the potential to extend the U.S. lead. A harder question is what happens if more currencies adopt the same technologies. If both the U.S. dollar and the Euro adopt the same technologies, then the Coppola, Krishnamurthy and Xu model predicts that the dominant currency – the dollar – will benefit further. This is due to the complementarity logic underlying the liquidity model. Since there are more buyers, sellers, and assets in the dominant currency, financial innovation raises the benefits to all of these actors, and their interaction raises liquidity in the dominant currency more than in the non-dominant currency. A further question is what may happen if all currencies in the world adopt the same technologies. Here the answer is ambiguous because all things being equal, economic agents will prefer to use their home currencies to avoid the currency risk that comes with using dollar. As there is a better

technology in each currency around the world, agents increase use of their home currency rather than the dollar. The general equilibrium outcome depends on a set of elasticities and complementarity parameters that I am not confident calibrating.

What my work does say clearly is that there is a great deal at stake for whichever currency is dominant. That is the computation I turn to next, which is drawn from Jiang et. al. (2026).

3.3 What is at stake

We can think of the United States, as issuer of the world's global money, as an exporter of a liquidity good to the rest of the world. The rest of the world accumulates holdings of dollar safe and liquid assets to meet their money needs. The world demand drives down the yield on these assets, so that the United States effectively earns a profit on the provision of these assets to the rest of the world – hence, the "liquidity exports." Figure 3 depicts this. Alongside the conventional flows of goods exports and imports runs a third flow: the liquidity services the United States provides to foreign holders of dollar safe assets.

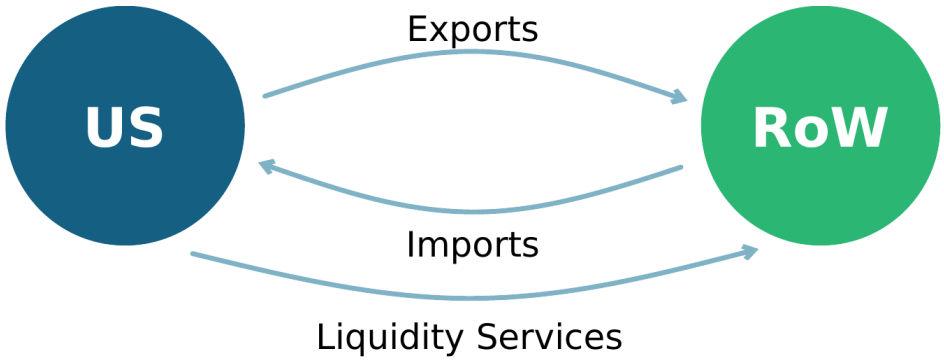


Figure 3: The United States as an exporter of liquidity services
Source: Jiang, Krishnamurthy, Lustig and Richmond (2026).

The value of those liquidity exports is the product of two terms: the quantity of foreign-held dollar safe assets, and the convenience yield on those assets. The quantity is reasonably well measured. The convenience yield is the harder input, and it measures how much return foreign investors forgo in exchange for using dollar safe assets as their world money.

Treasuries were historically the relevant safe asset. In work with Annette Vissing-Jorgensen, using U.S. data from 1920 to 2012, we put the convenience yield on Treasuries relative to U.S. corporate bonds at least 75 basis points (Krishnamurthy and Vissing-Jorgensen, 2012). Two observations update that number for present purposes.

The first is that repo is now the marginal dollar safe asset rather than Treasuries. Figure 4 shows two convenience yield measures: the spread of CDS-hedged ten-year investment grade corporate bonds over the ten-year Treasury, in green, and over the ten-year repo (SOFR) swap, in orange. The CDS-hedge converts the corporate bond to an illiquid asset, but free of default risk. The illiquidity means that it will carry a smaller convenience yield that either Treasurys or repo, so that the spread can reflect the greater convenience yield of the more liquid assets (see Mota, 2023). The repo-based

measure currently sits around 70 basis points, while the Treasury-based measure has fallen considerably over the past two years. If one wants to know what the safest and most liquid dollar claim yields today, the answer is better read off repo than off Treasuries.

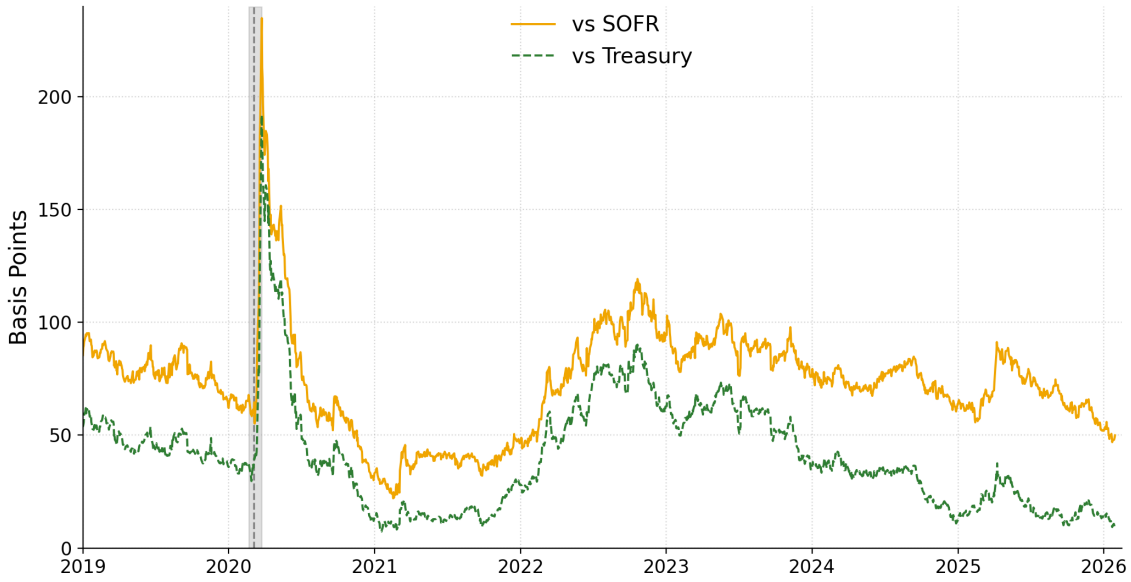


Figure 4: Convenience yield measures on safe dollar assets (basis points)

Note: Orange line is CDS-hedged ten-year corporate bonds minus the ten-year repo (SOFR) swap; green line is the corresponding spread to ten-year Treasuries. See Mota (2023)

The second observation concerns the right comparison for an international calculation. What matters is not the convenience yield of Treasuries relative to dollar corporate bonds, but of dollar safe assets relative to foreign currency assets. In Jiang, Krishnamurthy, and Lustig (2021) we estimate that relative convenience yield at roughly 200 basis points — substantially larger than the domestic measure, which is what one would expect if part of the dollar's advantage is precisely that it has no close substitute abroad.

Combining the 200 basis point estimate with estimates of foreign holdings of dollar safe assets (about 45% of United States GDP) yields a flow of seigniorage to the United States of approximately 1 percent of GDP per year. Capitalizing that flow gives a present value of roughly 100 percent of GDP, or about $33 trillion. It is worth being explicit about who receives it. This transfer accrues to a variety of agents, including taxpayers through lower government borrowing costs, to banks through cheaper funding, and to housing through the mortgage finance system.

One can quibble with the calibration, but the order of magnitude is what I wish to emphasize. A quantity of this size means that developments in these new money markets are of first order importance to the United States.

4. Conclusion

Let me summarize the argument I have laid out.

Suppose digital financial innovation delivers better payment and settlement technology and suppose the newly created instruments replace existing money with new money. Even a marginal improvement suffices: better money drives out worse, leading to migration. Two consequences then hold. Leverage will follow the new money, raising financial stability concerns, and the Federal Reserve will need a native presence in the market that results — which means both new liquidity facilities that are native to the new form of money and a regulatory reach over the assets and liabilities involved in supporting the new money.

Suppose further that the technological improvements are significant rather than marginal. Then outcomes in the international money tournament may change. Design choices and regulation will be among the factors that select the winner.

In both branches there is a great deal at stake and getting the regulatory framework and the Federal Reserve's toolkit right matters.

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