

## **BANKING: INTERMEDIATION OR MONEY CREATION**

### **P. Tucker, Thinking about whether and why money matters is more important than debates about “views” on banking intermediation**

March 5, 2020

**Sir Paul Tucker, Harvard Kennedy School**

It has been orthodoxy for as long as I can remember that bank deposits are created by bank lending. When a bank lends you money, it credits your checking account, creating a deposit; and when you use the money to buy something, the money is transferred to the vendor. If the vendor banks with a different bank, there is an associated interbank transfer. All that is just mechanics.

In recent years there has been excitement among parts of the scholarly community about this, following an article explaining it by Ryland Thomas and colleagues at the Bank of England. The buzz has puzzled me (and I suspect Thomas, with whom I worked in the mid-1990s when I was head of Monetary Assessment and Strategy at the Bank of England). Certainly, when I joined the central bank in 1980 I was taught how the supply of bank credit drives broad money creation, and no one ever suggested that this was a “view”, or new, or in any way controversial.

Indeed, the connection between bank lending and broad money framed the analysis in a speech I gave during the early phase of the Great Financial Crisis (2007), by which time I was a policy maker.<sup>[1]</sup> The point was to emphasize that innovations and exuberance in credit markets had delivered a shock to (the

supply of) broad money, but also that it was necessary to look at *both* credit conditions and the monetary aggregates to interpret the implications for the monetary system, i.e. for inflation and for stability. The second point was more important as, at the time, and perhaps still, many central bankers maintained that it sufficed to look only at credit since, after all, the two sides of a (living) bank's balance sheet have to add up! More on that in a moment.

The speech also emphasized that looking only at shocks to credit supply to understand the evolution of bank balance sheets was insufficient, because both the supply of bank loans and of broad money were affected by shifts in the costs of intermediation; broadly, the spread *between* deposit and lending rates. For example, technological changes, or changed equity requirements could affect margins and spreads, and thus how much intermediation goes over bank balance sheets and how much via the capital markets.

### Reserves, money, and credit

So there is nothing new at all about relating shocks to credit supply to the evolution of the broader monetary aggregates. Why, then, outside of the world of monetary policy making and monetary economics, did Thomas's excellent article cause such a stir? I think partly because the central banking community, taken as a whole, did not pay sufficient attention to financial system dynamics, and especially banking's inherent fragility, before the crisis. But also maybe because it has been easy to mistake a crude (reduced form) expositional device in starter-level economics textbooks – money multipliers – for a more fundamental story about the drivers of money and credit.

Imagine you think that credit supply conditions drive the broad monetary aggregates, and that you also believe that, over the medium-to-long run, the rate of growth in the monetary aggregates is highly correlated with the rate of

inflation. In those circumstances, you would be concerned that easy credit conditions, leading to an accelerating money stock, presage a pick up in the rate of inflation down the road (after the famous long and variable lags). If, given those worries, you thought you could head off rising inflation by constraining bank balance-sheet growth (i.e. money growth), you could go about doing that by taxing the expansion in banks' balance sheets. Subject to regulatory arbitrage, that is exactly what imposing reserve requirements can do (when the reserves pay no interest – or, more accurately, a rate below the policy rate). And, equivalently, it is exactly what central banks do if they supply less reserves than initially demanded, since that will drive up the short-term rate of interest, raising the opportunity cost of holding reserves, slowing the economy and reducing demand for credit, which in combination reduce demand for reserves, thereby restoring equilibrium in the money markets. In other words, by raising a reserve requirement or undersupplying reserves, the central bank increases the costs of bank intermediation, which (other things being equal) will slow the rate of growth in bank lending and money.

We can pull together the mechanics and economics of this. Take first, as was very briefly the case in the US in the early-1980s, a regime where the central bank chooses to implement monetary policy by directly controlling a path for the expansion of the supply of base money (reserves). The path for aggregate broad money (in a closed economy, broadly speaking bank balance sheets) will then be determined by the demand for credit generated by the interest rate that equilibrates the money markets given demand for reserves, banks' appetite for credit risk, and feedback from the effect of that structure of interest rates on aggregate supply and demand. The supply of reserves is where the action is, because it is the policy instrument.

Where, instead, the central bank operates policy by setting a

short-term interest rate (and communicating something about the future path for its policy rate), the central bank has to supply whatever quantity of reserves matches the system's demand for reserves given the evolution of the real economy, demand for credit, demand for liquid assets, and any shocks to the costs of banking intermediation. The size of bank balance sheets is endogenous.

The money-multiplier story survived in textbooks simply because for a long time textbook writers chose to continue using base money as the policy instrument rather than explain what central banks were actually doing, which was setting an interest rate. And starter-level textbook writers did that, I think, partly because when explaining what drives economic output and inflation, it was technically (algebraically) a lot simpler to assume a rule for the growth rate of the (base) money supply and stable money demand than it was to incorporate an interest-rate rule that feeds back from forecasts of the very variables (output and inflation) the policy maker is trying to steer.

But a cost of this, it is now clear, was to create a myth outside the world of monetary economics about how economists and policymakers think broad money is created, as well as to obscure questions about whether it is only the term structure for the risk-free interest rate that matters macro-economically.

### *The micro-economics of money creation*

As far as the micro-economics of money creation is concerned, I think people moved on from thinking about banking in money-multiplier terms much earlier than the textbook writers conveyed. That is partly because in the real world the system did not operate through each individual bank first bidding for deposits, and then on-lending the money. Indeed, people in the banking industry started talking about asset-driven banking back in the 1960s; the banker makes the loan, and then funds

her balance sheet. That was because the post-WWII revival of wholesale money markets meant that individual banks could square their books each evening by borrowing (or lending) in the interbank markets, which are markets in bank deposits.

So much for a rather stylized but I think illuminating history. It is, of course, hugely oversimplified because not all credit is supplied by banks, because bank deposits are not the only liquid instruments that can meet demand for “safe assets,” and because there are circumstances in which bank deposits are not regarded as safe. The history might, though, help to make sense of how the money-multiplier story got embedded: a hazard of reduced-form economics and a desire to keep the algebra in textbooks as simple as possible.

*Does money matter?*

But neither the recent buzz around “credit-drives-money” nor my rebuttal of its novelty and significance say anything about whether money matters: about whether, for macro-policy purposes, it suffices to look at credit conditions, which I guess has been the Fed’s view. The argument for looking at money, which both former governor Mervyn King and I took at the old Bank of England, was that monetary conditions affected risk premia, and that perturbations to risk premia had some effect on real economic variables.<sup>[2]</sup> Both legs remain contested. They have a family resemblance to questions about the materiality of supply effects in financial asset markets (which underlay our “portfolio balance” view of Quantitative Easing): i.e., whether there are supply effects on asset prices when arbitrage is imperfect or impeded for some reason. They are also, therefore, related to the post-crisis debates about the importance of “safe assets.” These issues are complex and imperfectly understood, but they are not new, having been posed by Brunner and Meltzer decades ago.<sup>[3]</sup>

Why do banks matter?

Whatever one's view on money, there is something else: why do banks matter, rather than just total credit conditions, taking in capital markets? There are two steps in the answer: banks are fragile, and that matters.

Even with today's monetary policy frameworks, and new textbooks using interest-rate rules, it would be highly misleading to think that, so far as bank balance sheets are concerned, all that matters is that bank lending creates deposits. While it is an identity that a bank loan of  $X$  will create deposits of  $X$  somewhere in the banking system, that is only the first round effect. The equilibrium will depend, among many other micro and macro things, on the demand of households and businesses to hold the extra bank deposits.

Imagine that there are only a few banks and that there is news that all those banks are weak, creating a risk that banks might not be able to redeem their deposits at par. In those circumstances, people will (seek to) withdraw deposits from the banking system as a whole, cashing them in for central bank notes and coin (or, perhaps, digital fiat currency in the future). Those are circumstances where the extra bank lending will not lead to expanding bank balance sheets (money supply), because there is a separate negative shock to the demand for banks' deposit-money. (In a system-wide run to currency, bankers' reserves held at the central bank fall, and there is a massive expansion in notes held by households and firms, as base money expands to offset the decline in broad money – the reason, by the way, why it was a mistake to think Quantitative Easing would inevitably be inflationary, since it was offsetting a negative shock to broad money and so anti-deflationary.)

We can think about what drives such negative shocks at the level of individual banks.

Bank balance sheets are inherently fragile, and so their deposit liabilities are not guaranteed, by the laws of nature

or government dictate, to be accepted as “money” at all times and in all places. Their loan books are opaque and illiquid, while their monetary liabilities are highly liquid. This leaves banks vulnerable to runs – if depositors and other holders of short-term claims think either that a bank is fundamentally weak (because of impairments to the loan book) or that other depositors are going to withdraw their money. This run risk arises because of the first-come first-served rule for redemptions from a bank that is open for business.

In consequence, weak banks will cut their credit supply, because they will not be able to fund the expansion in their balance sheets, and might even have to call in loans or sell assets to meet deposit withdrawals.

#### *Financial stability: back to reserves*

This matters to public welfare because, depending upon the ready availability of substitutes, sharp contractions in the supply of bank credit and the supply of super-liquid assets (privately issued money) affect the economy as a whole; i.e. there can be social costs associated with the crystallization of the vulnerabilities inherent in fractional reserve banking (economists’ jargon for the fact that banks’ liquid liabilities are backed only partly (fractionally) by the liquid and safe assets represented by claims on the central bank (reserves)).

Because of those social costs, government has traditionally required individual banks to fund themselves partly by equity (which absorbs losses smoothly), has provided some liquidity insurance via the central bank acting as a lender of last resort (LOLR), and has sometimes required banks to hold some liquid assets. The most liquid asset of all is a reserve balance with the central bank, so reserves can also be thought of as providing a buffer against liquidity shocks, underpinning confidence in a bank. A bank will therefore choose to hold some reserves even when not required to do so.

In fact, the best way of thinking about the essence of reserves is as a balance held by banks with the central bank in order to settle claims with other banks without having to run large unsecured credit exposures to each other.

Other things being equal, an efficient money market and a credible LOLR will tend to reduce demand for reserves, maybe by a lot where reserves do not pay interest. In those circumstances, bank lending is not constrained so long as markets and regulators think banks are safe and sound. That, broadly, was the position in the US in the run up to the 2007 liquidity crunch. In fact, they were neither sound, nor safe.

### Some implications for central banking

Summing up, the credit-drives-money channel operates only so long as banks' monetary and other short-term liabilities are regarded as unquestionably safe.

More widely, banks are special to the extent that their monetary liabilities are considered completely safe (informationally insensitive, in the jargon)<sup>[4]</sup>, that they lend to people and businesses without access to capital markets, and that there are not readily available substitutes.

The connections between base money, broad money, credit, economic activity, inflation and banking system stability are why the purpose of central banks should be seen as *preserving the stability of the monetary system*, and why that purpose comprises two closely related missions: maintaining the value of central bank money in terms of goods and services (price stability); and maintaining the value of the private banking system's monetary liabilities in terms of central bank money (financial stability).

The broad scheme for doing that can usefully be thought of as a polity's *money-credit constitution*. Among other things, this means deciding whether the central bank should be insulated

from day-to-day politics; and if so, constraining its control of whatever the polity in question thinks of as political fiscal choices.

This has serious implications for the LOLR function, including its reach, and that an independent central bank should not provide liquidity assistance to a firm that it knows (or should know) to be fundamentally broken. These issues, themes of my book *Unelected Power*, might be the subject of another blog post in due course.

1. Tucker, "Money and Credit: Banking and the Macroeconomy", Bank of England. London 13 December 2007: see especially Diagram C and accompanying text. <https://www.bankofengland.co.uk/-/media/boe/files/speech/2007/money-and-credit-banking-and-the-macroeconomy.pdf> Earlier, pre-crisis speeches had had similar themes, but without using demand- and supply-schedule diagrams. ↑
2. Mervyn King, "No money, no inflation—the role of money in the economy," Bank of England Quarterly Bulletin, Summer 2002. <https://www.bankofengland.co.uk/quarterly-bulletin/2002/q2/no-money-no-inflation-the-role-of-money-in-the-economy> ↑
3. For example: Brunner, Karl and Allan H. Meltzer, *Money and the Economy: Issues in Monetary Analysis*, Cambridge University Press, 1993. ↑
4. On informational insensitivity, see Bengt Holmstrom "Understanding the role of debt in the financial system", Working Papers No 479, Bank for International Settlements, January 2015. ↑