

On the Illusory Nature of Bank Reserve Liquidity

Almost all thinking about bank reserves suffers from a fallacy of composition—what is true of one bank's reserves is *not* true of the banking system's reserves in aggregate.

Bank reserves are demand deposits held at the central bank. Individual banks can and do transfer deposits among themselves constantly during business hours through electronic large value transfer systems (LVTS). Among the universe of LVTS, the largest are FEDWIRE and CHIPS in the US, CHAPS in the UK, BOJNET in Japan and TARGET2 in the Eurozone. From an individual bank's perspective, reserves are "ultimate" liquidity—available instantly in real time to satisfy payments obligations to other banks.

Prior to the Great Recession, advanced country banks held quite small reserves. JPMorgan Chase, the largest US bank, held \$ 2.2 billion in reserves on average during 2006, approximately 0.16 percent of its total assets (\$ 1.352 trillion). At end-June 2008, aggregate reserve holdings of all US banks amounted to \$ 13.4 billion compared with total assets of \$ 11.8 trillion (0.11 percent). Despite the rather low level of reserves, the average daily value of transfers executed through FEDWIRE in June 2008 was \$ 2.9 trillion. That is, the average *daily* "turnover" of reserves in June 2008 was 216 and we might say that from an individual bank's perspective, reserves are *hyperliquid*—immediately available to satisfy any interbank payment obligation and immediately accepted as payment from any other participant.

It is extremely important to understand that the very characteristic that enables LVTS to function so remarkably efficiently and that enables reserves to be *hyperliquid*—is the very same characteristic that gives rise to the fallacy of composition—LVTS are **closed systems**. Only preauthorized entities legally enabled to hold an account at the central bank may participate. Consequently there is no need to verify the solvency of participants making transactions. The central bank simply debits and credits participants' accounts in real time, ensuring ex ante that each payer has sufficient balances to effect the transfer. In order to smooth the functioning of these systems, LVTS have sophisticated algorithms to net payments flows among parties, some also have queueing systems for payments orders without sufficient funds, while others permit the central bank to provide collateralized credit during the business day—"daylight overdrafts". But the essence of the system is simple—the central bank keeps a balanced account ledger for all participants in real time. If a participant finds itself "short" toward the end of the business day it knows—as it is a closed system, that the rest of the market must be "long" by an equivalent amount. It thus is relatively trivial to arrange a collateralized reserve loan either directly or through a broker.

Since LVTS are closed systems, it is not possible for reserves to be acquired from outside the LVTS nor is it possible to transfer reserves outside the LVTS. Thus the common conception that banks lend reserves "out" to nonbanks is simply nonsense. It is impossible. The only exception to this logical consequence of closed systems from the standpoint of the banking system is that it can obtain (provided sufficient collateral is available) reserves from the central bank. It is also possible to provide reserves to the central bank in order to repay loans from the central bank. In other words, from the standpoint of the banking system subsystem (also closed), transfers from/to the central bank are possible.

Although banks may use their reserves hundreds of times per day to make payments within the closed LVTS, the banking system can neither acquire nor dispose of reserves outside the system. Transactions with the central bank are possible—but at the latter’s discretion.

Central bank large scale asset purchases have had the unintended consequence of increasing bank reserves well beyond what is necessary for the smooth functioning of LVTS. Banking systems as a whole **cannot** dispose of these excess reserves and, as a consequence, have financed these unnecessary assets on their balance sheets by issuing liabilities (or reducing other assets such as loans to nonbanks).

The expansion of bank balance sheets directly caused by large scale asset purchases is not a trivial issue. JPMorgan Chase held \$ 447.4 billion in reserves at Federal Reserve Banks at the end of June 2015 (compared with \$ 2 billion in 2006). Thus it is no surprise that in their most recent annual report they adopted the goal of reducing client transactions accounts by \$ 100 billion during 2015. The real goal is not to turn customers away but to shift \$ 100 billion of JPM’s reserves at the Fed to other banks. Yet the system as a whole is at the mercy of the Fed. Unless and until central banks shrink their balance sheets, their respective banking systems will hold the equivalent of many trillions of dollars of excess and unwanted reserves for many years more. Thus the idea that these bank reserves are liquid—because they are demand deposits at the central bank and may be used at any time—is a grand illusion.

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