

# Recycling Money

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This article traces money flows within the U.S. We deal with two types of money, *base money* and *bank money*, and focus on how they move between the *private sector* (companies, households, state and local governments, and banks) and the *public sector* (Fed, and the Treasury).

The private sector comprises firms and households, which are the producing and consuming sectors of the economy, and banks that comprise the depositories, which provide payment services as well as financial inter-mediation between the public sector and private sector.

## Base Money

The *monetary base* is the definitive money of the nation. It exists in two forms (1) notes and coins issued by the Fed, and (2) deposits of banks at the Fed. Both are referred to here as *base money*, and are interchangeable on demand. The Fed has sole authority for issuing base money. It does so by purchasing Treasury securities for its own portfolio, and crediting the seller's bank with a deposit at the Fed. This is known as *monetizing the debt*. Conversely when the Fed sells securities, that amount of base money vanishes.

Although base money is not a claim on any Fed assets, it is carried as a liability on the Fed's balance sheet, backed by the financial assets it has purchased. Normally, the Fed only acquires Treasury securities because of their liquidity and credit-worthiness. However, to deal with the 2008 financial crisis, the Fed expanded the list of eligible securities significantly.

In the past, the Fed issued only non-interest-earning liabilities. As of October 2008, it has authority to pay interest on the excess reserves it holds on deposit for banks. That interest rate is currently set at 0.25%, but will no doubt be increased as the economy recovers and the Interbank Market lending rate is returned to more normal levels.

## Bank Money and Bank Reserves

Banks issue credit when they accept deposits and when they create new deposits to fund loans. A bank checking deposit represents a promise to deliver base money on demand. Since bank deposits can be easily transferred by check or electronic means, they serve as a medium of exchange, and therefore as money.

A bank's reserves comprise its vault cash plus its deposit at the Fed, known as *Fed funds*. Any payment involving the transfer of deposits between banks requires an equal transfer of Fed funds between the respective banks. When one

writes a personal check to make a purchase, the bank's account at the Fed is debited to cover the check. That means a bank must have **reserves** of base money in order to do business. In the special case when the check is deposited in the same bank on which it is drawn, only a transfer of deposits within the bank is involved.

Bank reserves comprise a small fraction of the monetary base, but they play a key role. The Fed adds or drains reserves as required to balance the supply and demand at its target Fed funds rate. Aggregate reserves increase when the Fed buys Treasury securities from the public and decrease when it sells Treasury securities. The private sector also affects aggregate reserves when it deposits or withdraws cash from banks, causing the Fed to re-balance reserves to compensate for changes in aggregate vault cash.

When the Fed needs to adjust banking system reserves, it deals with a group of financial institutions known as **primary dealers** comprising banks and securities dealers. It does not concern itself with individual banks needing reserves. Banks short of reserves have to borrow them in the money market or in the Fed funds market from those long on reserves. They can also borrow from the Fed, but only at a penalty rate above the Fed funds target rate.

## The Transaction Money Supply

The Fed has defined a measure of the transaction money supply and named it **M1**. It consists of (1) cash in circulation, (2) travelers checks, and (3) demand deposits at commercial banks, but not the deposits of other banks, the US government, and foreign central banks. Note that the money supply comprises only **liabilities** of the Fed and the banking system. Reserves are bank **assets**, and not a part of the money supply.

Although cash is the ultimate form of money, by dollar volume it plays a minor role in the economy. Cash and traveler's checks are used mainly as portable money in retail purchases. The largest volume of transactions by far involves the transfer of bank deposits, i.e. bank money.

M1 reflects the demand for liquidity (immediate spending power) by the private sector. The demand increases with inflation and varies with economic conditions. For example, during recessions both firms and households spend less, so they usually move some of their demand deposits into interest-earning savings vehicles like T-bills and CDs.

Of the many factors that influence M1, the most significant is the demand for Federal Reserve notes which has been steadily growing. Most of that demand comes from overseas, but the increasing immigrant population in the US is also an important factor. As more notes are withdrawn from banks, the Fed must buy more Treasury securities to prevent a drain on banking system reserves. This

effect is seen most clearly in the steady growth of Treasury securities in the Fed's portfolio.

### Treasury Operations

The Treasury deposits its receipts from taxes and the sale of its securities in commercial bank accounts, known as *Treasury Tax and Loan (TT&L)* accounts. Like ordinary bank accounts, TT&L accounts are bank money but are not a part of M1 because the government owns them.

The Treasury writes checks against its account at the Fed. That injects base money into the banking system, which increases aggregate banking system reserves. However it simultaneously transfers funds from its TT&L accounts to replenish its Fed account, which reduces banking system reserves. By targeting a constant balance in its Fed account, it minimizes disturbances in the aggregate reserves of the banking system, and thereby facilitates the Fed's control of the Fed fund rate. *For all practical purposes, the Treasury pays its bills out of its commercial bank accounts.*

The Treasury has no use for funds in its TT&L accounts in excess of its near-term payment obligations. On average it matches inflows against outflows by selling or redeeming its securities as required. In effect, the private sector pays for those securities with funds received from government deficit spending itself. Thus, except for short-term transients, neither budget deficits nor budget surpluses affect the money supply.