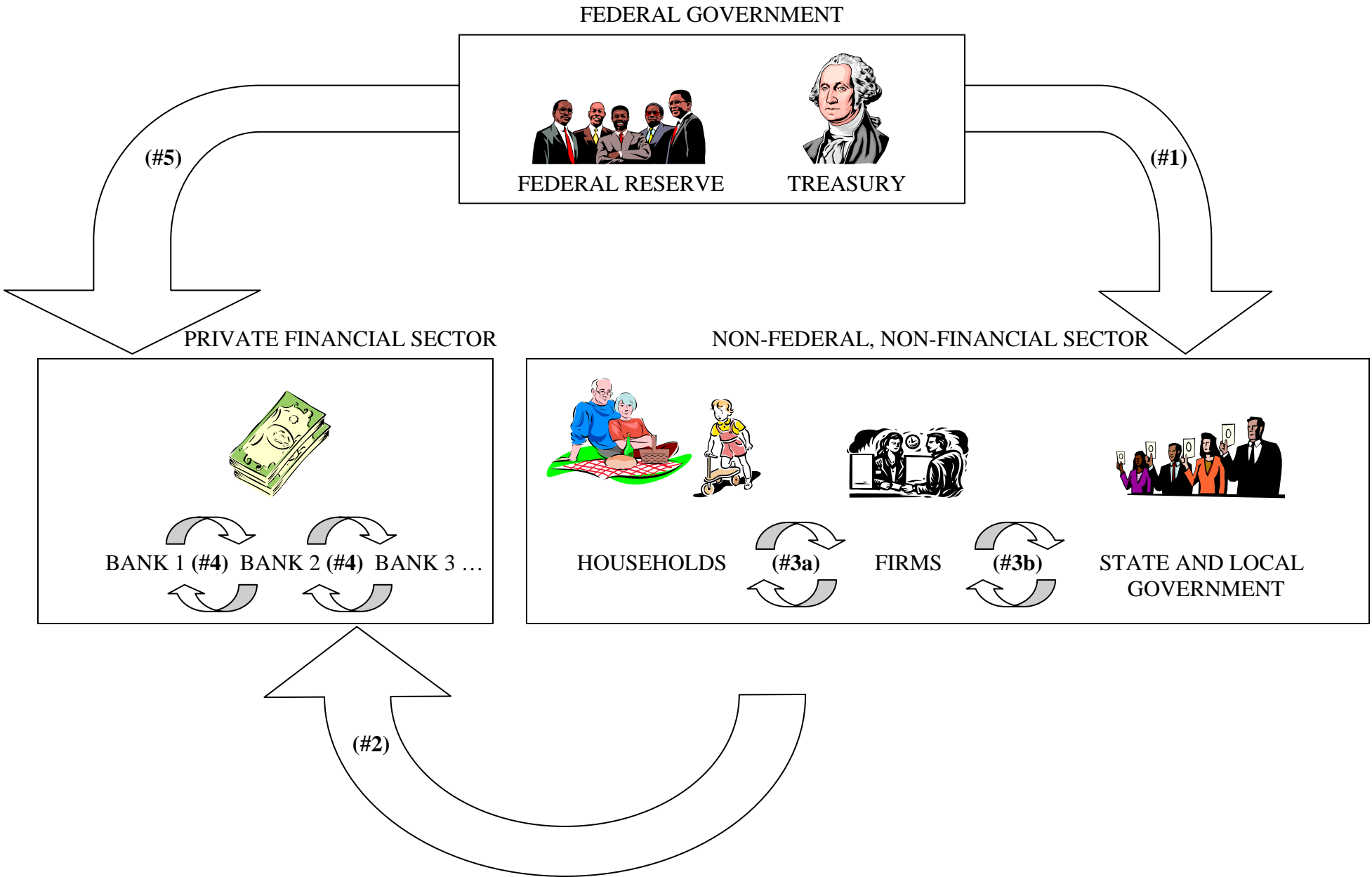


**THE PROVISION OF HIGH POWERED MONEY AND INTEREST RATE MAINTENANCE OPERATIONS**



**#1:** The federal government spends by *writing checks* on its account at the Fed. The government does not need to ‘have money’ at its account in order to spend—this is because it has sovereign power to issue its own currency. The Fed is the Government’s bank—it always clears Government checks, which in sovereign currency systems (as in the US) never bounce.

Government spending is an injection of high-powered money in the economy that results in a corresponding increase in income for the non-federal non-financial sector. For example:

- 1) Households get paid by the government for their social security benefits, for unemployment insurance, or when they get government wages if employed in the public sector.
- 2) Firms get paid by the federal government if, for example, they have been commissioned by to build roads, bridges, B-52s, etc.
- 3) State and local governments receive Treasury checks when the government transfers funds to them for certain programs like welfare, childcare, education...

**#2:** Every one of these non-federal non-financial sector entities (households, firms, or states and localities) has an account at some private financial institution (commercial banks, credit unions, etc.) where they deposit their Treasury checks.

When the checks are deposited, the respective banks “cash them in” or clear them with the Fed. Since the Treasury is writing checks on its account at the Fed, the Fed clears the check by debiting the accounts of the respective banks. When checks clear, the reserves in the banking system *as a whole*, increase (*ceteris paribus*). **Reserves** are the amount of cash banks keep on hand to manage normal inflows and outflows. Banks are required to keep a certain portion of these reserves as **required reserves**—let’s say about 10%. The remaining 90% is for normal banking activity.

**#3:** Banks then use this 90% to lend to agents in the private sector, to clear checks, to provide for withdrawal at ATMs, etc. In short, these reserves are provided to the private sector for its economic activities. Examples: Households purchase items from firms, while firms pay wages to households (#3a); State governments commission firms for variety of services, while firms pay state and local taxes (#3b).

**#4:** If, however, part of the 90% of reserves from above is in excess of what is necessary for banks’ normal operations (that is, to service the activities of the private non-financial sector), these reserves will sit idle in the banks without earning an interest rate. Since banks are profit-making institutions they will try to earn interest on these excess reserves by lending them to other banks in the overnight market. But in the system *as a whole*, not all banks will be able to pass on their unwanted reserves to someone else. At least one bank will end up with excess reserves. In this process of trying to pass on excess funds to some other bank, but being unable to do so, banks will bid down the overnight interest rate—they will offer to lend at lower and lower interest rates, in hope that some other banks will be willing to borrow. But since other banks want to rid themselves of their excess reserves, they will not borrow and the interest rate will fall to its logical limit of zero. The interest rate which banks charge each other is called the **federal funds** or **overnight rate**.

#5: The federal funds (or overnight) rate is one of the two interest rates, which the Federal Reserve sets (the other is the discount rate at which banks can borrow directly from the Fed). When excess reserves and bank overnight lending cause the overnight rate to fall, the Federal Reserve is forced to intervene in order to maintain its interest rate target. This is done in the **Open Market**, where the Fed offers bonds for sale to banks with excess reserves. This accomplishes two things (two sides of the same coin): 1) Banks now have an interest-earning alternative as they exchange their excess reserves for bonds (bonds pay interest, excess reserves do not); and, 2) The Federal Reserve maintains the overnight rate at the desired level by offering bonds for sale.

IN SUM:

1. Expenditures by the federal government represent an injection of funds into the economy.
2. If these funds are in excess of what is necessary for the operation private sector economic activities, the injection results in excess reserves sitting on the banks' books, earning no interest.
3. Banks bid the overnight interest rate down by trying to lend these excess reserves to other banks. But since the banking sector as a whole is flooded with excess reserves, the only way to earn interest is if the Fed provides such an opportunity.
4. The Fed, of course, always does, because it targets a specific overnight interest rate. If it did not it would miss its target.
5. The Fed offers to banks bonds for sale at the open market.
6. Bond sales, therefore, do not finance government spending. They only provide an interest bearing alternative to banks. Bond sales are executed to maintain the Fed's interest rate target, not to fund government expenditures.

*Exercise:* When households and firms pay their taxes, they send a check to the treasury. What happens to the level of high powered money (reserves) in the system? **Trace what happens in the diagram above.**

*Hint:* (Try to answer the question *before* reading the answer below). Tax payments reduce reserves and all arrows are reversed. Explain what happens to the interest rate, if the system ends up with a shortage of reserves.

Households/firms pay taxes by writing checks on their bank accounts and sending them to the Treasury. When these checks clear, bank reserves decline and, as the reserves in the system fall below what is necessary for normal bank activity, banks will try to borrow funds from each other in the overnight market. But since reserves are scarce in the system *as a whole* the interest rate will be bid up (the sky is the limit). To prevent the interest rate from skyrocketing the Fed must intervene again and provide the needed reserves. The Fed does this by 1) buying back bonds from the banks or 2) by directly lending the funds to banks. This is one example in which the Fed exercises its important function as the *Lender of Last Resort*.