Econ 353: Money, Banking and Financial Markets
Problem Set 6 Solution

1. The monetary liabilities of the Federal Reserve include
   A) government securities and discount loans.
   B) currency in circulation and reserves.
   C) government securities and reserves.
   D) currency in circulation and discount loans.

2. The monetary base (high-powered money) minus currency in circulation equals
   A) reserves.
   B) the borrowed base.
   C) the nonborrowed base.
   D) discount loans.

3. The effect of an open market purchase on reserves differs depending on how the
   seller of the bonds keeps the proceeds. If the proceeds are kept in currency, the
   open market purchase ________ reserves; if the proceeds are kept as deposits, the
   open market purchase ________ reserves.
   A) has no effect on; has no effect on
   B) has no effect on; increases
   C) increases; has no effect on
   D) decreases; increases

4. When the Federal Reserve extends a discount loan to a bank, the monetary base
   ________ and reserves ________.
   A) remains unchanged; decrease
   B) remains unchanged; increase
   C) increases; increase
   D) increases; remain unchanged

5. In the simple deposit expansion model, if the Fed purchases $100 worth of bonds
   from a bank that previously had no excess reserves, deposits in the banking
   system can potentially increase by
   A) $10.
   B) $100.
   C) $100 times the reciprocal of the required reserve ratio.
   D) $100 times the required reserve ratio.

6. Decisions by depositors to increase their holdings of ________, or of banks to
   hold ________ will result in a smaller expansion of deposits than the simple
   model predicts.
   A) deposits; required reserves
   B) deposits; excess reserves
   C) currency; required reserves
   D) currency; excess reserves
7. An increase in the monetary base that goes into currency is ________, while an increase that goes into deposits is ________.
   A) multiplied; multiplied
   B) not multiplied; multiplied
   C) multiplied; not multiplied
   D) not multiplied; not multiplied

8. Everything else held constant, an increase in the required reserve ratio on checkable deposits causes the M1 money multiplier to _____ and the money supply to _____.
   A) decrease; increase
   B) increase; increase
   C) decrease; decrease
   D) increase; decrease

9. The money supply is _____ related to expected deposit outflows, and is _____ related to the market interest rate.
   A) negatively; negatively
   B) negatively; positively
   C) positively; negatively
   D) positively; positively

10. If the required reserve ratio is 15 percent, currency in circulation is $400 billion, checkable deposits are $1000 billion, and excess reserves total $1 billion, then the M1 money multiplier is
    A) 2.54.
    B) 2.67.
    C) 2.35.
    D) 0.551.

11. Assume that no banks hold excess reserves, and the public holds no currency. If a bank sells a $100 security to the Fed, explain what happens to this bank and two additional steps in the deposit expansion process (what happens to bank B and C, refer to lecture notes), assuming a 10% reserve requirement. How much do deposits and loans increase for the banking system when the process is completed?

   **Answer:** Bank A first changes a security for reserves, and then lends the reserves, creating loans. It receives $100 in reserves from the sale of securities. Since all of these reserve will be excess reserves (there was no change in checkable deposits), the bank will loan out all $100. The $100 will then be deposited into Bank B. This bank now has a change in reserves of $100, of which $90 is excess reserves. Bank B will loan out this $90, which will be deposited into Bank C. Bank C now has an increase in reserves of $90, $81 of which is excess reserves. Bank C will loan out this $81
dollars and the process will continue until there are no more excess reserves in the banking system. For the banking system, both loans and deposits increase by $1000.

12. Explain why the simple deposit multiplier overstates the true deposit multiplier.

**Answer:** The simple model ignores the role banks and their customers play in the creation process. The bank's customers can decide to hold currency and the bank can decide to hold excess reserves. Both of these will restrict the banking system's ability to create deposits. Thus, the true multiplier is less than the prediction of the simple deposit multiplier.

13. What factors determine a bank's holdings of excess reserves? How does a change in each factor affect excess reserves, the money multiplier, and the money supply?

**Answer:** An increase in market interest rates reduces excess reserves because banks profit from increased lending. An increase in expected deposit outflows increases excess reserves. An increase in interest rates reduces excess reserves, increasing the multiplier and the money supply. An increase in expected outflows increases excess reserves, reducing the multiplier and the money supply.