Finance 462
Solutions to Problem Set #7

1)

a) An increase in GDP should increase money demand.
b) In principal, credit cards only represent short-term loans – neither affecting the supply or demand of money. However, if consumers consistently maintain a balance on their cards, a drop in money demand could result.
c) A drop in interest rates should increase the demand for money.

2)

a) M1 money contains currency in circulation (a liability of the Federal Reserve) and transactions accounts – essentially, checking accounts (a liability of commercial banks). The M2 money supply is a broader definition that includes everything in M1 plus savings accounts and short term CDs.
b) Velocity is defined as the ratio of nominal GDP to the money supply (PY/M). The velocity of M1 is 12/1.5 = 8 while the velocity of M2 is 12/6 = 2. Velocity represents the number of times each dollar changes hands (a measure of transactions). That is, when velocity increases, the number of transaction is increasing.
c) An increase (decrease) in velocity is a symptom of a decline (increase) in money demand. M1 velocity is rising while M2 velocity is falling as households switch out of checking accounts and into savings accounts.

3) The Federal Reserve can influence the supply of through three instruments:

a) An open market sale of Treasuries reduces either cash in circulation or bank reserves (both are M0 components). This will, in turn lower the broader aggregates by reducing the available funds for banks to create loans.
b) A discount window loan increases bank reserves – the influences the money supply in the same ways as (a).
c) An increase in the reserve requirement leaves the monetary base unchanged, but restricts the ability of banks to create loans (by forcing them to keep a larger percentage of their deposits on reserve). This will lower the broader aggregates.

4) Recall that the formula for the money multiplier is:

$$mm = \frac{C/D + 1}{C/D + rr/D + er/D}$$

a) The multiplier will be 4. The purchase of securities represents a $100 million increase in the monetary base, so M1 increase by $400 million.
b) If C/D falls to .05, the multiplier rises to 7. Therefore, the change in M1 would be $700 million.

5) The discount window represents loans by the Federal Reserve to a commercial bank. The interest rate charged is determined purely by Fed policy (currently it is 100 basis points above the Federal Funds rate. The Federal Funds market represents loans made between commercial banks. The interest rate charged is a market determined rate. However, the Fed can severely influence the Fed Funds rate.