Practice Problems for Chapters 1, 3, 4

1. What was the main cause of the US recession that began in 2007? What were some of the response measures taken by Central banks and governments in advanced economies?

2. Is everybody worse off when interest rates rise?

3. Why are financial markets important to the health of the economy?

4. Much of the U.S. government debt is held as treasury bonds and bills by foreign investors. How do fluctuations in the dollar exchange rate affect the value of that debt held by foreigners?

5. Most of the time it is quite difficult to separate the three functions of money. Money performs its three functions at all times, but sometimes we can stress one in particular. For each of the following situations, identify which function of money is emphasized.
   a. Brooke accepts money in exchange for performing her daily tasks at her office, since she knows she can use that money to buy goods and services
   b. Tim wants to calculate the relative value of oranges and apples, and therefore checks the price per pound of each of these goods quoted in currency units.
   c. Maria is currently pregnant. She expects her expenditures to increase in the future.

6. Rank the following assets from most liquid to least liquid:
   a. Checking account deposits
   b. Houses
   c. Currency
   d. Automobile
   e. Savings deposits
   f. Common stock

7. Three zero-coupon bonds with face value of $10,000 are currently selling for the following amounts:

Bond	Years to Maturity	Price
A	1	$9804
B	2	$9427
C	3	$8978

Calculate the yield to maturity for each of the three bonds.

8. Suppose you buy four assets on February 1, 2011, hold them for one year, and then resell them on February 1, 2012 if they have not matured. The four assets are:

   i. a one year discount bond with face value of $1,000.
   ii. a two year discount bond with face value of $1,000.
   iii. a ten year coupon bond with a face value of $1,000 and a coupon rate of 10%.
   iv. A consol bond with an annual coupon of $100.

   (a) Calculate the price for each of the four assets on February 1, 2011 if the initial interest rate on that date is 10 %. [Hint about coupon bond: Think about the price of the coupon bond if the interest rate is equal to the coupon rate]

   (b) Calculate the price for each of the four assets after one year on February 1, 2012 assuming that the interest rate has changed to 7.13 %. Do the same for 8.48%, 10%, 11.75% and 13.81% (Look familiar?) [Hint: After one year, the 2 year and 10 year bonds have one year less time remaining to maturity. And, the one-year bond has no price because it matured]

   (c) Compute the rate of return from holding each of the four assets **for one year**, under each of the five interest rate scenarios. [Remember to include capital gains/losses and coupon and face value payments]

You do not have to use the following table, but it's a good way to think about how to present your results for parts (b) and (c)

Interest Rate	1-Yr Discount Bond	2-Yr Discount Bond	10-Yr Coupon Bond	Consol
7.13%				
8.48%				
10%				
11.75				
13.81%				

   (d) Which asset's rate of return is most sensitive to shocks to interest rates? Which asset is least sensitive to interest rate risk? Rank the four assets in terms of exposure to interest rate risk.

9. Assume the Mega Millions jackpot is $65 million payable in 25 equal annual installments of $2.6 million with the first payment payable at the end of the first year.
   a. Explain why the Present Discounted Value (PDV) of this jackpot is less than $65 million.
   b. Calculate the PDV if the interest rate were 6 percent (i=0.06).
   c. What is the PDV if the jackpot paid $2.6 million per year forever?