Econ 102
Savings, Investment, and the Financial System
Due in Sections, Feb 2, 2007

1. Be sure to read your copy of the Wall Street Journal every weekday, looking especially for items related to the material in this course. Find an article in this week's Wall Street Journal or other news source that is relevant to the topic of this homework assignment. Turn it in, or a copy of it, with your assignment, and write a brief summary of it (half a page to a page). Your summary should outline the main points of the article **and** explain why it is relevant to the homework topic, in this case "Savings, Investment, and the Financial System."

2. Savings-Investment Identity
   a) Derive the identity between national savings (i.e. sum of private savings and government savings) and investment for a closed economy. Show your steps.
   b) For comparison, derive the corresponding identity i.e. (I+NX=NS) for the open economy. Again, show your steps.
   c) Based on the identity for the closed economy and what you've learned previously about long-run economic growth, under what circumstances will an increase in government purchases lead to lower growth in output per worker? Do you think it is reasonable to believe that such a trade-off exists?

3. Suppose you are given the following information about a closed economy:

$Y = \$40,000$	Real GDP = Income
$T = \$6,000$	Net tax collections
$S_{pr} = \$1,000 + 0.15(Y\text{-}T) + 1,000r$	Private saving function; r = real interest rate
$I = \$5,600 - 2,000r$	Total investment function
$G = \$6,800$	Government purchases

   Look carefully at the equations for private saving and total investment. Note that investment is a decreasing function of the real interest rate. That is, as the rate of interest increases, the level of desired investment (i.e. the demand for loanable funds) decreases. Also, private saving is an increasing function of both the real rate of interest and disposable income (Y–T).

   The parameter 0.15 in the saving equation, which is multiplied by disposable income, is called the marginal propensity to save (MPS) and tells us how much extra saving is generated by an increase in disposable income.

   a) Give some intuition on why private saving might be increasing in the real interest rate.
   b) Does this government run a deficit or a surplus?

c) What is the amount of national saving? That is, write an equation for national saving (S), showing how it depends on the interest rate.

d) Without any calculations, what are the implications of changes in the amount of government deficit/surplus for the equilibrium interest rate in the economy?

Note that in this model, a reduction in investment in the economy does not change long run GDP. Here the level of GDP was given exogenously; that is, the model cannot explain changes in GDP. However, our simple model here makes predictions about changes in the composition of GDP.

e) Suppose that the government increases its purchases without increasing its tax collection. What prediction does this model make about changes in the shares of consumption, investment, and government purchases in GDP?

f) Calculate the equilibrium real interest rate in this economy. Also, if you are told that the rate of inflation in this economy is 2.5%, what is the nominal rate of interest?

g) What are the total levels of saving and investment at this rate of interest? How much of the total saving is comprised of government saving and how much is private saving?

4. Using a market for loanable funds diagram, analyze the effects of the following events on investment and on the real interest rate.

a. An increase in government purchases.

b. A tax credit for personal savings (kept revenue neutral by increasing another tax)

c. A decrease in the income tax rate (careful here).

5. By how much does a high saving rate enhance a family's future living standard? Find out by working out the following example:

The Spends and the Thrifts are similar families, except that the Spends save 7% of their total income each year and the Thrifts save 17%. The two families began saving in 1980 and plan to continue to save until their respective breadwinners retire in the year 2015. Both families earn $35,000 a year in real terms in the labor market, and both put their savings in a mutual fund that has yielded a real return of 6% per year, a return they expect to continue into the future. Compare the amounts that the two families consume in each year from 1980 to 2015, and compare the families' wealth at retirement. Note that in any given year both families' total income consists of wages (i.e. income earned in the labor market) and interest (i.e. income earned in the financial market).

You may find it convenient to do this exercise in a spreadsheet, such as MS Excel.

6. Using the Wall Street Journal from Tuesday January 30, answer the following
    questions. If your subscription has not started yet, you should buy a copy of the paper
    for that day, or be sure that you will be able to find it in a library.

    a. Find the stock market quotations for Pfizer Inc. (the pharmaceutical company that
        recently shut down a lab in Ann Arbor). What is the date of the most recent
        quotation reported? On that date what were the following: (Hint: The WSJ has a
        box of "Explanatory Notes" that explains the entries in the stock market tables.
        You will need these.)

        i.   The closing price of a share of Pfizer stock (the last price of a trade during the
              day)
        ii.   The percentage change, up or down, in the closing price of a share from the
              preceding reported day
        iii. The number of shares traded
        iv.   The company's earnings per share

    b. In the data for "Treasury Bonds, Notes, and Bills," find the listing for the U.S.
        government bond that will mature in twenty-five years, in January 2032. Answer
        the following:

        i.   What is the percentage difference between the price that sellers of these bonds
              asked for them and the price that buyers of these bonds bid?
        ii.   From the "change" that is reported for the bond, what do you conclude about
              what happened to the yield on the bond since the previous trading day.
              That is, did the actual interest rate one could earn by buying this bond rise
              or fall?
        iii. The "Rate" reported is the interest rate that is printed on the bond, telling what
              it would earn if it sold at face value – a price of 100. For this bond,
              •   how does the yield differ from the "rate",
              •   how does the "asked" price differ from 100, and
              •   how do these two differences relate to each other?
              (You don't need to calculate anything here. Just indicate "larger" or
              "smaller," and why.)