1. (10 points) Recently, there has been much talk of a “housing bubble” in the United States. A housing bubble simply means that average home prices are significantly above fundamental value. Suppose there is a bubble now, and over the next year single-family home prices decline an average of 25%. Will this have a significant impact on real GDP? Explain your reasoning.

We can break the response to a bubble bursting into two effects:

1. Direct Effect
   Existing home sales do not show up as part of real or nominal GDP so there will not be a direct effect from the decline in value of existing homes. The effect due to new home sales (residential investment) depends on your interpretation of why the bubble burst. First of all, the decline in prices will not affect real GDP since Real GDP by definition controls for the change in prices. So it only matters whether you think the decline in prices will be associated with an increase or decrease in the quantity of new homes built and sold. One possibility is that demand goes up because the nominal cost of a home is lower so the effect on real GDP is positive. More likely the reason the bubble burst (prices declined) is because demand is low hence the quantity of new home sales is also low—a negative effect on real GDP.

2. Indirect effects
   i. Wealth effect – Since for many households homes represent a large part of their wealth, a dramatic decline in home prices may make households feel poorer and therefore restrain consumption expenditures – a so-called negative wealth effect.
   ii. Discretionary Income – One of the things driving the strong current consumption levels is the increase in home values that has let homeowners tap equity in their homes via home-equity loans or cash-out refinancings. If home prices decline significantly this activity will decrease significantly.
   iii. Personal Bankruptcy and the Seizing of the Real-Estate Market – Such a significant decline in prices will also cause many households to owe on their mortgage more than the market value of their home (or be “upside-down”). This will cause bankruptcy and liquidation in some cases thus further depressing home prices. For those that avoid bankruptcy there will be a tendency to avoid selling at depressed levels thus leading to a seizing-up of the real estate market.

2. (10 points) Assume that in the economy of Poochyland the actual level of unemployment is above the agreed upon level of NAIRU. Relate this to the economy’s GDP-gap (difference between potential and actual GDP). Briefly describe three (3) policy actions the federal government and the monetary authorities might undertake to improve the situation in the short-run?

If unemployment is higher than NAIRU (the “natural” or “equilibrium” rate of unemployment) this suggests that the economy is not operating at the desired level of output (i.e., actual GDP is below potential GDP). In this case the GDP-gap is negative and economic policy makers will want to stimulate the economy. The three most common methods used in practice are:

1. Tax Cuts – increases disposable income available to households and/or encourages business investment both of which will increase GDP
2. Government Spending – new spending by the government directly leads to higher GDP
3. Increasing the money supply (or equivalently lowering short-term interest rates) – can increase consumption by households, investment by businesses, and improve the current account (through a weaker local currency)
3. **(10 points)** Consider the interest parity condition we examined in Part 3 of our classnotes. Explain in detail the market response if the spot exchange rate is 0.90 USD/EUR, the expected exchange rate in one year is 1.00 USD/EUR, and the 1-year interest rate on both USD and EUR deposits is 2.0%.

The interest parity condition says that local currency rates of return should equal expected foreign currency rates of return, \( R_{LC} = R_{FC} + (E^e - E^0)/E^0 \). With the current conditions, the left-hand-side is 2% and the right-hand-side is about 13% so interest parity does not hold. Investors will see the higher expected returns in Euros and sell USD to invest in Euro denominated deposits. This will drive up the spot exchange rate until it is no longer a profitable strategy (i.e., interest parity holds). This will occur when the spot exchange rate is 1.00 USD/EUR since interest rates are the same in each country.

4. **(10 points) Bye-Bye Tariffs**

There is a concern that the massive rebuilding required in the wake of Hurricane Katrina will cause excess demand for building materials (and household durables) and cause inflation in the U.S. Suppose that the U.S. decided to temporarily eliminate all tariffs and quotas on imported goods. Using the DD-AA model, show on the graph below the economic response (as compared to the base case of everything else the same but no reduction in tariffs). Explain in words the intuition for these changes.

The decrease in tariffs is a cut in taxes that will increase demand for imported goods. This will, all else the same, shift demand away from domestically produced goods toward imported goods and therefore result in overall lower demand for domestically produced goods and services. Thus, the DD curve will shift to the left leading to a higher exchange rate (weaker USD) and lower domestic output.

Intuition: The decrease in demand for domestically produced goods increases the current account deficit. This has a negative effect on the overall economy and thus lowers demand for money. Lower money demand results in lower USD interest rates and therefore a depreciation of the USD as global investors seek relatively higher returns in other markets.
5. (20 points) Competitive Devaluations

Despite some recent strong economic growth in Japan, assume their economy takes a dive in the second half of the year. The Bank of Japan decides to depreciate the Yen (JPY) by temporarily increasing the Japanese money supply. Below on the left graph, show the effect on the USD/JPY exchange rate of this temporary increase assuming there is no Fed policy response. Now assume the U.S. not only counteracts Japan’s depreciation but retaliates. Copy your results from the left graph and show on the right graph how the Fed could depreciate the USD to a level weaker than its original level of E\textsuperscript{1}. Also, give an intuitive description of what is occurring in each of the graphs. (Note: you may assume both changes are temporary.)

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**Increase in JPY Money Supply**

**Federal Reserve’s Response**

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**Intuition**

The Bank of Japan’s brings about the currency depreciation by increasing the JPY money supply which will either lower JPY interest rates or more likely in the case of Japan (since rates are already zero) lead to an expectation of a weaker JPY in the future. Either way this lead to a shift in (left or down) of the expected return on JPY deposits and therefore a strengthening of the USD. Thus, the final exchange rate will be as shown in E\textsuperscript{2}.

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**Intuition**

The Fed will increase the money supply to M* and thus reduce U.S. interest rates to R*. In equilibrium, a sufficiently large increase in the money supply can more than overcome the Bank of Japan’s actions and result in an even weaker USD than originally observed (E*>E\textsuperscript{1}). Intuitively, investors are responding to the actions of the central banks by requiring a spot exchange rate that equates the expected returns in the two currencies.
6. (20 points) Bam!

Explain the likely effect of Hurricane Katrina on U.S. Monetary policy. Be as specific as possible in describing the various factors that affect monetary policy decisions.

In broad terms the goal of monetary policy is to help maintain GDP as close to the level of potential GDP as possible so that the economy does not experience imbalances that will lead to undesirable levels of inflation or unemployment. Katrina is a particularly tricky event for the Fed because it will probably have conflicting effects on important economic variables (such as GDP, employment and inflation) and these effects will likely differ over various horizons.

More specifically, because Katrina disrupted operations for so many regional businesses, the disaster will have a negative effect on output and employment in the short-run (Q3 and Q4 of this year). This suggests a looser monetary stance for the Fed could be appropriate. However, a major national (even global) consequence of Katrina is higher energy prices which could lead to significantly higher inflation. The greater risk of inflation suggests a tighter monetary policy could be appropriate.

In the longer-term (2006), the rebuilding will probably lead to an increase in GDP compared to previous projections. This comes at a time when the Fed is raising interest rates anyway because of little slack in the U.S. economy. Consequently, Fed policy will likely need to be tighter than it would have been otherwise unless the business disruptions continue for longer than expected (thus holding down output).

In making current monetary policy decisions the Fed risks trying to help the economy in the short-run by limiting (foregoing) rate increases only to have growth next year lead to an overheating economy and accelerating inflation. Because monetary affects the economy with a significant lag, keeping rates low now could be exactly the opposite of what the Fed should do. Nonetheless, the Fed is a political body and some have speculated that the Fed would not want to be perceived as “kicking the economy while it was down” and so might forego some rate increases in the near-term. Obviously, they decided to bite the bullet at the September meeting.
7. (20 points) Macroeconomics and Non-financial Business

Suppose that you are the CEO of privately held Carolina Furniture Manufacturing (CFM). CFM currently manufactures its lines of high-end home furniture exclusively in the U.S. Sales for CFM in 2005 are expected to be $1.2 billion but this is down 11% from 2004 because of increased competition from lower priced foreign imports. Consequently, you are considering shifting your production to China as a way of improving competitiveness. What are the most important economic and financial factors that you should consider as part of this decision? Also, explain how you might manage any new economic or financial risks associated with moving production to China.

First CFM needs to decide whether to build a wholly-owned factory, partner with a Chinese firm, or outsource the production to existing manufacturers. I will assume the first.

Some major economic factors to consider:

- Lower labor costs. There are potentially large savings from the lower cost of labor in China. However, there may be quality or productivity issues from a typically lower skill level of less experienced workers.
- Transportation costs. Moving manufacturing to China will result in higher (and more variable) transportation costs due to greater distances. Another cost is the necessarily greater lead time that introduces additional timing risk for meeting (or exceeding) U.S. demand.
- Material costs. Since materials may come from different suppliers there may be price risks, especially with the possibility of China’s economy overheating.
- Government regulation. CFM faces potential costs from tariffs, quotas or other trade barriers from both the U.S. and Chinese governments. In addition there may be political risk of expropriation of assets in China.
- Inflation. A rapid rise in Chinese inflation could erode the cost advantage.

Some major financial factors:

- Exchange rates! Currently the yuan is still effectively pegged to the dollar so it appears as if risk is low. However, many analysts believe that a major cost advantage for China is an artificially weak yuan. If the exchange rate changes substantially this could wipe out much of the cost advantage for CFM moving production to China!
- Interest rates. It may be hard to get financing for building a facility in China. U.S. capital providers may worry about the high risk level. Chinese capital providers are possibly constrained (e.g., weak banks) and interest rates are relatively high.

Managing Risks:

- Managing the FX risk is hard because long-dated derivative contracts are not readily available for the yuan (though this will change). Similar problems exist for interest rate hedging in China. Derivatives might be able to assist in hedging some raw materials price risk.
- Long-term contracts could be a good way to manage transportation cost or labor price risks.
- Borrowing in yuan to build the factory using a wholly owned subsidiary could be a good way to limit the risk of expropriation. That way CFM can walk away from both sides of the deal without losing too much.
- Overall, it will be hard to manage the new risks.