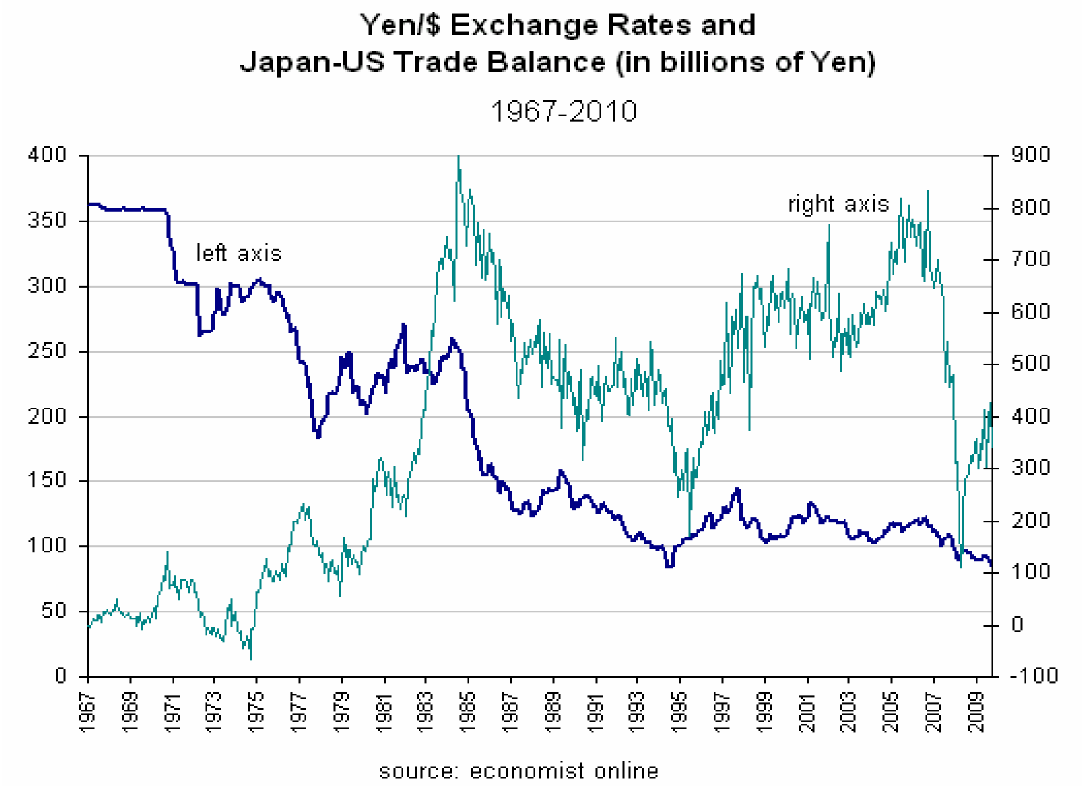
Problem 1
Exchange rate and trade balance

The following graph shows you the exchange rate between Japanese Yen and the US dollar (in blue), and the trade balance (in green) between the two countries during 1967-2010. The left axis is the Yen/Dollar exchange rate, and the right axis is Japan's trade balance with the US, in billions of Yen.



1) In 1967, the exchange rate was around 360 Yen per dollar. Now the rate was around 90. First calculate in what percentage Yen has appreciated against the US dollar. Then describe over the past four decades how the exchange rate movement was connected to the trade balance between the two countries.

2) Is above observation contradictory to what you've leaned? Why or why not?

3) Finally, explain why Japanese Yen has risen so much against the US dollar over time. (Hint - you may find this formula useful: $q = EP^*/P$)

Problem 2
Monetary policy during crisis

1) The money policy tool during normal times is interest rate, i.e., central banks, such as the Fed, control money supply through adjusting short term interest rates. Show and explain how interest rate and money supply are connected.

2) To increase output, should central bankers increase or decrease interest rate? Draw a graph to illustrate.

3) During the crisis time, such as the recent *Great Recession*, the Fed lowered its interest rate to almost zero and the economy still remained sluggish. Since the Fed can't lower interest rate below zero, interest rate as a policy tool lost its effectiveness. The Fed then resorted to the untraditional monetary policy tool – QE, or Quantitative Easing. It refers to increase of money supply by the Fed through buying domestic assets, such as government bonds or mortgage securities. Show and explain how the Fed's QE operations could affect the exchange rate of US dollar against other currencies.

4) On October 5, one Fed official came out and suggested that the Fed engage in aggressive monetary accommodations by buying more government bonds. The Fed has not bought any government bonds after the news. But the US dollar has been falling sharply across board. For example, dollar/euro rate has fallen from 1.36 to 1.39 per euro with a few days. Use the exchange rate model(s) you have learned in class to explain why this is happening.