Final Exam - Key

MBA 774
Macroeconomics
Prof. Greg Brown

2007

Average = 77
Standard Deviation = 7
Minimum = 44
Maximum = 97

- Please check that your points are totaled correctly.

- The questions with qualitative responses are graded on a curve with a mean of 15 for 20 pt questions. Very, very few responses received full credit for any given question.

- To expedite the grading, few comments are put on the exams. Please compare your answers to the ones I provide. If this is an insufficient explanation, I am happy to discuss your exam with you in person or on the phone.

- Grading mistakes can and do occur. If you feel your exam is graded incorrectly, I will gladly regrade it. Simply return your exam to me. Please provide a written explanation if there are particular problems for which you think you deserve additional points.
Multiple Choice (2 points each)

1. If the Federal Reserve Bank of New York buys a $10 million US Treasury Bill and reserve requirements are 10%, then the change in the total money supply will be approximately:
   A. an increase of $10 million.
   B. a decrease of $10 million.
   C. **an increase of $100 million.**
   D. a decrease of $100 million.

2. Using our simple model of the money market suppose two things happen:
   i. The monetary authorities increase the money supply
   ii. Real national income (Y) decreases
The equilibrium interest rate (R) will
   A. always increase.
   B. **always decrease.**
   C. increase as long as the change in the money supply is greater than the change Y.
   D. decrease as long as the change in the money supply is greater than the change Y.
   E. it is not possible to determine with the available information.

3. US real GDP growth in the 4\textsuperscript{th} quarter of this year is expected to:
   A. rebound from the low 3\textsuperscript{rd} quarter level.
   B. stay at depressed levels like the rate observed in the 3\textsuperscript{rd} quarter.
   C. be weak except for personal consumption expenditures.
   D. **be much weaker than in the 3\textsuperscript{rd} quarter.**

4. Which is true of current monetary policy in major (ten largest) economies excluding the US?
   A. Central banks across the world are uniformly tightening monetary policy which should result in higher interest rates.
   B. Central banks across the world are uniformly loosening monetary policy which should result in lower interest rates.
   C. Central banks are maintaining current monetary policy.
   D. **Some central banks are loosening monetary policy while others are maintaining current policy or tightening monetary policy.**

5. Suppose there is an increase in the labor force due to a surge of low skilled (e.g., young) workers taking jobs. This will tend to
   A. increase the long-run growth rate of the economy.
   B. decrease the long-run growth rate of the economy.
   C. **increase or decrease the long-run growth rate of an economy.**
   D. have no effect on the long-run growth rate of an economy.
6. Recent declines in the U.S dollar have to date
A. led to little additional inflation in the US.
B. resulted in many foreign companies having to absorb changes in exchange rates to stay competitive in the US market.
C. had little or no effect on the US dollar price of Chinese goods.
D. All of the above

7. China’s economy would probably be most adversely affected by
A. a significant decline in domestic (Chinese) demand.
B. a depreciation of the yuan against other currencies.
C. continued weakness in the US economy due to weak residential construction.
D. a rapid expansion of US consumption as the result of lower US interest rates.
E. All of the above

8. Consider our model of financial (asset) markets that combined the money market model with the interest parity model. Which of the following is (are) true if there is a one-time permanent increase in the money supply?
A. In the long-term, interest rates will be lower than before the change in the money supply.
B. Inflationary expectations will lead to an increase in the expected exchange rate in the short term.
C. The exchange rate will increase in the short run but return to its original level in the long-run.
D. All the above.

9. According to the “Taylor Rule” for setting interest rates the Federal Reserve
A. should currently have a high target for Fed Funds because there is still risk of the housing bubble persisting.
B. should not have cut rate targets to such low levels in 2003-4.
C. should have started increasing rate targets sooner to head off the housing bubble.
D. All of the above
E. B and C

10. An unexpected large increase in labor productivity over the next year would probably result in which of the following?
A. An increase in the unemployment rate.
B. Lower core inflation.
C. Higher corporate profits.
D. All of the above.

Answers:

Question: 1 2 3 4 5 6 7 8 9 10
11. (20 Points) Whoa there China...
It is widely believed that that China manages (i.e., pegs) its exchange rate so as to keep its currency artificially weak relative to the USD and that this results in an unfair advantage for the Chinese economy. Essentially, this suggests that Chinese economic output is higher than it would be in the absence of a pegged currency.

i. On the graph below, show how this would be depicted in our DD-AA model from the perspective of the Chinese economy. Explain the intuition for your diagram to the right.

By an artificially weak yuan, we mean that it takes more yuan to buy a US dollar than we would expect if the market forces in our DD-AA model were to set the exchange rate. Therefore, $E_{peg}$ is greater than $E_1$. At exchange rate $E_{peg}$, demand for Chinese produced goods and services (the level of DD) is greater than at $E_1$. Consequently, Chinese output will be high ($Y_{peg}$) to meet the higher demand.

ii. On the graph below, show what would happen if China suddenly removed its currency peg. Explain the intuition for your diagram to the right.

A sudden removal of the peg by China would result in an apparent arbitrage opportunity in the foreign exchange market because $E_{peg}$ and output level $Y_{peg}$ does not fall on the AA-curve (and thus violates the interest parity condition). As traders act on the new opportunity to trade freely in yaun, the exchange rate will fall rapidly and severely to $E_{post-peg}$. At this exchange rate domestic demand (DD) is lower than output $Y_{post-peg}$. As output falls in reaction to the lower demand, the exchange rate will increase because lower output means lower money demand and thus lower interest rates in yuan. These lower rates cause a reversal for the yuan which eventually depreciates to $E_1$.

iii. On the graph below, show what would happen if China used fiscal policy to make the market determined exchange rate equal to the currency peg. Explain the intuition for your diagram to the right.

The Chinese government would need to either (or both) raise taxes or cut government spending to shift the DD curve left. If the fiscal policy measures were of the appropriate magnitude then the intersection of DD$_2$ and AA$_1$ would be at the exchange rate $E_{peg}$. The increase in the equilibrium exchange rate is due to a decline in yuan interest rates stemming from lower money demand. The lower money demand is the result of the decline in economic output to $Y_2$. 
12. (20 points) Show me the money
Crazy stuff has been happening in the money markets this year, especially in the US and Europe.
i. On the graph below show what happens to the USD/EUR exchange rate if major commercial banks in Europe decide to temporarily hoard Euros. Explain your intuition to the right.

Hoarding of Euros by European Banks would lead to higher expected return on Euro deposits and thus the USD would depreciate against the Euro to $E^2$. The higher expected return on Euros is the result of higher Euro interest rates. Rates would increase for potentially two reasons:
1. The hoarding of Euros is equivalent to higher demand for Euros
2. If banks start holding excess reserves then this would decrease the money multiplier and thus the money supply.

ii. Copy your result onto the graph below and show how a change in US monetary policy could undo this change in the exchange rate. Explain your intuition to the right.

For US monetary policy to undo the depreciation of the dollar, US interest rates must increase by the same amount as Euro interest rates. Thus, the Federal Reserve would need to contract the real money supply to $M^2/P$ so that the new equilibrium exchange rate returned to the original level $E^1$. 
13. (20 points) So, is it going to happen?
Recently, Martin Feldstein (a very famous macroeconomist) suggested that the US economy could lessen the chance of a recession by utilizing fiscal policy “including a uniform tax rebate per taxpayer or a percentage reduction in each taxpayer's liability.”

i. Explain the mechanisms by which this could avoid a recession including potential benefits this would have over a monetary stimulus.

Following the logic of the DD-AA model this tax cut would increase disposable income. Higher disposable income would result in higher demand for domestically produced goods and services. As that higher demand translated into higher output, the overall economy would benefit and potentially avoid (or soften) a recession. More specifically, many US households have been feeling the bite of higher energy costs as well as higher interest rates (e.g., mortgage rate resets), and extra income in the form of lower taxes could prevent these households from pulling back on other purchases.

As we discussed in class, a temporary fiscal stimulus should (all else the same) result in a stronger dollar whereas a temporary monetary stimulus will typically result in a weaker dollar. Because the dollar has depreciated so much recently, a further depreciation could be undesirable. For example, continued weakening of the dollar could result in higher import prices (inflationary pressures) or capital flight from the US.

ii. What are the most important potential drawbacks of this idea?

There are many potential drawbacks:
1. There are many cases of a temporary fiscal stimulus turning into a permanent fiscal stimulus which might be bad because i) of its long-term effects on the US budget/deficit or ii) people tend to respond differently (less beneficial to short-run growth) to permanent policy changes.
2. The timing could be bad. First, it is not clear that the economy is headed for a recession yet. Second, once it is clear the economy is in a recession, it might be too late to act before the recession is over.
3. There might be an adverse reaction in the long-term bond market that would drive up long-term interest rates and thus offset potential benefits from the lower taxes.

I accepted other answers that were well reasoned but expected at least one of the above.
14. (20 points) Beemer costs what!?
BMW (along with other European automakers) has announced plans to expand production in the U.S.
i. Explain why BMW is doing this now and why it could be a good idea.

The recent weakness of the US Dollar has put significant pressure on BMW’s profit margins from its US business. Producing more in the US is therefore potentially cheaper than producing in Europe when viewed from a Euro currency perspective. In addition, by producing more in the US, BMW is better able to match its costs to its revenues. This will reduce BMW’s exposure to USD/EUR exchange rate fluctuations (among others).

Other potential benefits include:
1. Producing closer to sales may have operational advantages in terms of rapidly adjusting to fluctuations in demand.
2. Greater production capacity in the US may allow for more flexibility to respond to changes in relative costs in a way that maximizes profits.
3. Some US consumers might prefer a car that was produced in the US.

ii. Explain why this could be a bad idea for BMW.

1. It might entail upfront costs that are too high (higher than expected)
2. If the US dollar were to significantly appreciate against the Euro, then BMW potentially would have undertaken an expensive investment with little or no payoff. (i.e., it would be cheaper to produce in Europe again)
3. BMW might lose economies of scale in its production process.
4. There might be other ways to manage the exposure that are cheaper and/or more flexible.

iii. What else might BMW do to improve its position in the US market while at the same time managing downside risks.

BMW could find other ways to take advantage of the weaker (weakening) US dollar. These would typically involve costs or liabilities in US dollars such as:
1. purchasing more parts in USD
2. partnering with a US automaker to provide services (assembly, parts, etc.)
3. obtaining financing (e.g., debt) in USD
4. using exchange rate derivatives

As long as these alternatives have flexibility (or asymmetry) in their effective EUR payoff then they could potentially improve BMWs position and also manage downside risks.