**Question I:** (5 points, each part) Suppose an American bond trader observes that $R_s < R_e + (E_{s,e} - E_{s,e})/E_{s,e}$, and suppose that the Fed and the ECB are holding their money supplies fixed.

**Part A:** What would the bond trader do, and why? How would her actions (along with other bond traders’ actions) affect $R_s$ and $R_e$, and why? (Assume that $Y$ is not affected).

**Part B:** Do the traders’ actions bring the expected returns on the two bonds back into equality? Justify your answer.

**ANSWER –**

**Part A:** $R_s < R_e + (E_{s,e} - E_{s,e})/E_{s,e}$ ⇒ expected return on dollar bonds is lower than on euro bonds, so traders sell dollars and buy euro, making the euro appreciate (or the dollar depreciate). $E_{s,e}$ ↓; $R_s$ is unaffected since the supply and demand for money are unaffected.

**Part B:** Yes. $R_s < R_e + (E_{s,e} - E_{s,e})/E_{s,e} = R_e + (E_{s,e}/E_{s,e}) - 1$. So, $E_{s,e}$ ↓ lowers the RHS until we have equality and the arbitrage profits are eliminated.

**Question II:** Looking ahead to when the banks are again lending and the economy is recovering, inflation may once again be on the rise.

**Part A:** (5 points) As banks begin lending again, $M_1$ will rise. Explain why?

**ANSWER –**

$M_1 =$ money mult × (currency + bank reserves), but if banks aren’t lending the multiplier process is not called into action; as banks start lending it is, and $M_1$ rises

**Part B:** (10 points) Suppose the Federal Reserve decides to increase interest rates. Use the AA-DD diagram for the US economy to analyze the effects of this interest rate rise. Label all axes and curves, and be sure to explain why you shift any curve. In particular, explain what exactly the Fed has to do to raise interest rates. Label the impact effect (if there is one), and show the path of adjustment to the new short run equilibrium.

**ANSWER –**

![AA-DD Diagram](image)

The Fed would have to sell bonds (decreasing the money supply) to raise $R$; this would shift the AA curve down.

The impact effect and the path of adjustment are shown.
Part C: (10 points) Going behind the AA and DD curves, explain the “story” of what is happening in goods and financial markets. Where is the effect first felt? What causes the impact effect, if there is one. What are the forces of supply and demand that cause any movements in interest rates, exchange rates, output and the current account.

**ANSWER** –

- initial effect is in financial markets (5 points)
  - \( M^e \uparrow \) → excess demand for \( M \) → \( R^e \uparrow \) → ED for \( B \) → \( E \downarrow \) as traders move from Euro to dollars
  - \( E \downarrow \) appreciates immediately to shift AA2 up (the impact effect).
- spills over to goods market (5 points)
  - \( E \downarrow \) → \( EP^e / P^e \), the relative price of foreign goods falls → \( Y \downarrow \) (slowly)
  - effect on CA is ambiguous, \( Y \) effect increases CA while \( E \) effect decreases it.

Part D: (10 points) Suppose the Obama administration is forced to increase taxes to finance the recovery program and the Afghan war. Use the AA-DD diagram for the US economy to analyze the *simultaneous effects* of the tax increase (do not worry about the increase in G) and the Fed’s actions. Label all axes and curves, and be sure to explain why you shift any curve. Label the impact effect (if there is one), and show the path of adjustment to the new short run equilibrium. What is all this likely to do to job creation?

**ANSWER** –

As before, the Fed would sell bonds → \( M^e \), shifting AA as already explained.

DD shifts left as \( T \uparrow \) decreases disposable income and consumer spending.

Impact effect takes \( E \) to \( E' \), then it rises along AA2 as \( Y \) falls.

Since output falls, job creation is likely to be curtailed.
**Question III:** Here you will analyze the effectiveness of fiscal policy under different assumptions about monetary policy. Note: this question is independent of those above.

**Part A:** (5 points) Suppose G is increased by, say, 10 billion. Is the effect on output greater under fixed exchange rates or under flexible rates. Justify your answer with diagrams.

**ANSWER** –
In either case, the DD curve shifts right by the same amount (DD1 to DD2), but:

![Graph showing DD1 and DD2]

So, the effect on Y is greater under fixed rates.

**Part B:** (5 points) Give an intuitive explanation (involving the market forces of supply and demand) for your result in Part A.

**ANSWER** –
With flexible rates, the exchange rate appreciates, making \( E^p/P \). This lowers the relative price of the foreign good, increasing the demand for it relative to the home good. So, the net increase in demand for the home good is less under flexible rates.

**Part C:** (5 points) Currently, the FED is keeping the interest rate pegged (or held constant). What would such a policy do to the slope of the AA schedule, and why? (Hint: think of the way in which the AA curve was derived.) What are the implications for the Obama Administration’s fiscal stimulus program?

**ANSWER** –
The AA schedule was derived by asking what value E equilibrated the financial markets as different values of Y came from the goods market. Changing Y will shift money demand, but if the FED is holding R constant (by changing M), then there will be no change in E. The AA schedule is flat, as above. A given \( \Delta G \) has a larger effect on Y.
**Question III:** Recall Able and Bernanke's version of Barro & Gordon's Credibility Model:
**ANSWER:** Here are the new point assignments add box matrix.

<table>
<thead>
<tr>
<th>W Setters</th>
<th>CB</th>
</tr>
</thead>
<tbody>
<tr>
<td>N*</td>
<td>1 0</td>
</tr>
<tr>
<td>N_h</td>
<td>0 2</td>
</tr>
<tr>
<td>N_l</td>
<td>0 -2</td>
</tr>
<tr>
<td>P_h</td>
<td>0 0</td>
</tr>
<tr>
<td>P_l</td>
<td>0 3</td>
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</table>

![Box Matrix]

**WAGE SETTERS**

<table>
<thead>
<tr>
<th></th>
<th>W_i</th>
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<tr>
<td>P_m, N*</td>
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<tr>
<td>P_m, N_h</td>
<td>2, 0</td>
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**M_i**

<table>
<thead>
<tr>
<th></th>
<th>P_m, N_i</th>
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<tbody>
<tr>
<td>P_m, N*</td>
<td>1, 0</td>
</tr>
<tr>
<td>P_m, N_h</td>
<td>3, 1</td>
</tr>
</tbody>
</table>

**Part A:** (5 points) Define “Nash Solution.”

**ANSWER** –

In a Nash solution, each player is doing the best he/she can do given what the other player is doing.

**Part B:** (5 points) Suppose we change the point assignment so as to make the CB care more about inflation: let P_l = 3 instead of 1. Calculate the new payoffs in the box matrix and circle the Nash solution(s)?

**ANSWER** –

See above.

**Part C:** (5 points) If the CB promises the WS low inflation before the WS has to set their wages in the labor contract, will the WS believe the promise? Why or why not?

**ANSWER** –

Yes, the promise is now credible. The CB has no temptation to play M_i if the WS have already played W_i. Alternatively, the SE box is now a Nash solution.

**Question V:** International Debt and the Financial Crisis –
The TED spread and to Libor-OIS spread are two different measures of risk in the banking sector. Explain what the TED spread is, and what Libor and OIS are. Explain what kind of risk each spread measures, and how the risks are different. Use no more than two blue book pages.

**ANSWER** –

TED spread = Libor - (T-bill rate)
They should define Libor and OIS
Government is the safest, or least risky, borrower; so TED shows risk premium on bank debt (or private debt) relative to the safest borrower.
Lending Libor risks principle and interest on a loan, OIS only risks interest spreads; so, spread measures counter party risk on the principle.
**Question VI:** (2 points each) Quickies —

1. Sterilized interventions (Choose the best (one) answer.)
   A. have no effect on the exchange rate if bonds are ‘perfect substitutes’.
   B. have no effect on the supply of domestic bonds.
   C. have no effect on the domestic money supply.
   **D. A and C are both correct.**

2. If we modified our model so that investment depended on interest rates,
   **A. monetary policy would have a bigger effect on output.**
   B. monetary policy would have a smaller effect on output.
   C. fiscal policy would have no effect on exchange rates.
   D. fiscal policy would have no effect on output.