Final Exam -KEY

MBA 774
Macroeconomics
Prof. Greg Brown

Average = 79.4
Minimum = 64
Maximum = 94

The exams were good on average.
- Please check that your points are totaled correctly.
- The questions with qualitative responses are graded on a curve with a mean of about 7 for 10 point questions and about 15 for 20 point 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.

Obviously, 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 for the problem(s) which you think you deserves additional points.
1. **(10 points) Rut-row**  
Explain the economic conditions that will determine if the U.S. economy will “overheat” in the next 12 months. (Define “overheat” as precisely as possible and explain the current condition.)

   Overheating is defined as an economy that is above it’s potential output level or equivalently an economy with unemployment below NAIRU.

   Assuming that the economy is currently at (or slightly below) its potential output level, “overheating” will occur if actual economic growth exceeds the growth rate in potential GDP (equivalently if the GDP-gap becomes sufficiently positive).

   Similarly, if we assume that the economy if at (or slightly above) NAIRU, “overheating will occur if job creation exceed the growth rate in the labor force. This would lead to a “shortage” in labor, with supply unable to meet demand, and cause undesirable inflationary pressures.

2. **(10 points) Lights Out, Everybody Home**  
Assume that a massive failure of the power grid causes a prolonged power outage all along the West coast of the U.S. What do you think would be the two biggest immediate (third quarter) effects on the overall U.S. economy? Explain.

   Output from the industrial and retail sectors in the area affected would fall since they rely on electricity to operate. More broadly, businesses that rely on input from the effected area might experience disruptions and travel (including tourism) could be affected.

   Energy prices might fall since there would be an immediate (but temporary) drop in demand. This could be a benefit to the rest of the country.

   Consumer sentiment might be shaken if the outage was big or long enough since it could undermine people’s faith in the reliability of infrastructure (government).

   These are not the only acceptable answers. Credit was given based on the subjective evaluation of plausibility and magnitude of the proposed effect.
3. (10 points) Foreign Exchange Rates
Explain why purchasing power parity (PPP) exchange rates can be different from market exchange rates.

In practice, prices for similar goods and services can differ across countries because arbitrage is costly or impossible. Specific reasons include:

i. Barriers to trade, including transportation costs, tariffs, non-tradable goods, etc
ii. Monopolistic/oligopolistic pricing policies
iii. Measurement differences
iv. “Sticky” prices – it takes awhile for inflationary pressures to work through an economy

4. (10 points) But I really like my French wine.
Using our DD-AA analysis, show what effect a boycott of a foreign country would have on domestic (U.S.) output and the exchange rate. Explain the intuition for your result.

The boycott is equivalent to lower demand for imported goods and thus higher demand for domestically produced goods. This will shift the DD curve to the right (or down) to DD2. The graph shows that higher domestic demand will lead to higher output levels (Y2). As output increases, the demand for money increases. This leads to higher local currency interest rates which in turn causes the local currency to appreciate to E2.
5. (20 points) The Fed and the Current Account
Suppose the U.S. current account continues to worsen and the Federal Reserve decides to increase the money supply temporarily in an attempt to affect the deficit. On the left-hand-side graph show what this would do to equilibrium in the money and foreign exchange markets. Explain the likely effect on the current account. Now suppose that the European Central Bank (ECB) decides it does not like this move by the Fed and makes a counter move to neutralize the Fed’s move. What is their likely response? Copy your results from the first graph to the right-hand-side graph and then add the ECB response that would exactly undo the Fed’s actions. Explain the intuition for your result.

<table>
<thead>
<tr>
<th>Increase in Money Supply by Fed</th>
<th>ECB’s Response</th>
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<tbody>
<tr>
<td><strong>USD/EUR</strong></td>
<td><strong>USD/EUR</strong></td>
</tr>
<tr>
<td>E1 $ \rightarrow $ E2</td>
<td>E1 $ \rightarrow $ E2</td>
</tr>
<tr>
<td>M1/P1 $ \rightarrow $ M2/P1</td>
<td>M1/P1 $ \rightarrow $ M2/P1</td>
</tr>
<tr>
<td>Real USD Money Holdings</td>
<td>Real USD Money Holdings</td>
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**Intuition**
The Fed’s increase in the money supply shifts down the money supply curve to $M_2/P_1$. This results in lower interest rates ($R_2$) and a depreciation of the USD to $E_2$. The weaker dollar should have a positive affect on the current account as exports are cheaper for foreigners and imports are more expensive for Americans.

**Intuition**
The most effective way for the ECB to respond will be to also increase the (EUR) money supply. Alternatively, they might directly intervene in the FX market. Either way the expected return on EUR declines which shifts the top curve left (or down). If the ECB is careful it can cause the exchange rate to return to its original level $E_3=E_1$ which will neutralize any affect of the Fed’s actions on the current account.
6. **(20 points) Looking forward**
Over the next 10 years, which economy do you think will grow most rapidly: The U.S., Western Europe, or China. Be very specific in describing the most important fundamental economic factors that will determine real economic (GDP) growth.

Long-run economic growth at the national level is fundamentally a function of:

- Changes in hours worked or more specifically labor force growth which depends on demographics (such as population growth and age), structural unemployment levels, etc.

- Changes in output per hour or productivity growth which depends on stage of development, investment in capital and new technologies, changes in education levels, the savings rate, etc.

As long as the argument is framed in this way I do not particularly care which country/region you pick—though Europe is a stretch.
By and large macroeconomic conditions describe business conditions. Corporations add value to products or provide services that either directly or ultimately end up being counted as part of the output of the real macro economy. It is convenient to break the response into types of effects we might consider.

Real Demand: In developed countries macroeconomic activity is synonymous with business activity since most economic transactions have a business as a counter-party. Thus measures of output such as GDP, industrial production, personal consumption expenditures, inventory investment, final goods inflation, and the trade balance directly describe the aggregate activities of non-financial businesses. For example, business should be concerned with overall real demand for goods and services since the majority of corporations revenues’ ultimately depend on either domestic or foreign demand for final goods and services.

Real Supply: For the same reason as above, factors relating to the supply of goods and services directly describe the aspects of non-financial corporations’ production processes. For example, productivity, wages, unemployment and producer level prices all determine the real costs of production. Specifically, companies carefully monitor wage rates in the economy since this is a large percentage of total costs for most firms.

Financial Markets: Macroeconomic factors directly impact required returns on financial assets. For example, we have studied how macroeconomic factors determine interest rates and therefore the cost of capital for investment. Likewise, uncertainty in the real economy can translate into higher risk premiums in bond and equity markets thus increasing the cost of capital for non-financial corporations. In addition, we have seen how exchange rates depend directly on economic factors. To the extent that non-financial companies have costs, revenues, or even competition in foreign currency, exchange rates will directly affect the bottom line.

Corporate Risk: It is well known that variation in the above factors that lead to variation in corporate cash flow can be costly to a company. For example, risk related to either real economic factors or financial factors can increase a companies expected distress costs or tax liabilities.