Economics 104B, Section 1 **Prof. Steve Fazzari**
Solutions to Problem Set #4 **Spring, 2013**

1. According to demand-side theory, firms produce what they can (or what they expect) to sell. If aggregate demand declines, firms will sell less. As a result, they produce less and employ less labor.

The three main channels we discussed through which higher interest rates could lower demand are as follows:

(1) Consumption. Higher interest rates increase the reward for saving and therefore discourage spending on consumption goods. In addition, a higher cost of borrowing makes it more expensive for households to finance consumption with new loans.
(2) Investment. The cost of capital will be higher if interest rates go up, reducing firms' incentive to invest. Remember that the interest rate is not just the cost of loans to business that they might use to finance investment spending. The interest rate is also the *opportunity cost* firms' owners incur if the business uses its internal cash flow to finance investment.
(3) International trade (or net exports). If a country's interest rates are higher, foreigners will be more attracted to the country's interest-bearing assets. This will raise the demand for the currency and cause the currency to appreciate on foreign exchange markets. A stronger currency makes a country's exports more expensive and it makes imports cheaper in the country. Lower exports and higher imports both reduce aggregate demand.

2a. Under purchasing power parity, the CD player should cost the same amount in each country. But the price in Japan expressed in dollars is 24,000 yen divided by 120 yen per dollar, which equals $200. This figure is lower than the U.S. price in dollars. Alternatively, you could show that the U.S. price of $240 is equivalent to $240 times 120 yen per dollar, or 28,800 yen, which is more expensive than the Japanese price of 24,000 yen. Either of these approaches shows that purchasing power parity fails in this situation.

b. People will want to buy more of the cheap Japanese CD players. To do this, they need yen, which increases the demand for yen at any yen/dollar exchange rate. The value of the yen rises (or appreciates), relative to the dollar. This means that the number of yen you get for a dollar will decline. If one dollar buys 100 yen, the price of the Japanese CD player will be equivalent to $240, the same as the U.S. price. With this exchange rate, purchasing power parity will be restored.

(I suppose I should update my homework questions and replace CD players with a newer form of portable music player!)

3. Growth in U.S. income will increase consumption (as predicted by the consumption theory we studied), but this higher consumption consists of both domestic and foreign goods. When Americans consume more foreign goods, imports to the U.S. rise. But U.S. exports will be weak if incomes are growing slowly (or even declining) in the countries that buy U.S. goods. This

situation will therefore raise the U.S. international trade deficit (that is, the difference between imports and exports will increase). If Americans buy more from foreign countries, they will need to buy the currencies necessary to purchase these goods. The increased demand for foreign currency causes the dollar to depreciate (or, equivalently, the foreign currency appreciates). If foreigners buy fewer U.S. goods, they will reduce their demand for dollars, which also causes the dollar to depreciate. These predictions are consistent with the decline of the dollar that occurred in early 1995.

(Extra note: This question emphasizes the impact on economic strength on import demand, and therefore leads to the result that a relatively strong economy can experience a currency depreciation. As discussed in class, however, there are other factors that can go in different directions. For example, in the late 1990s, the U.S. dollar appreciated even though the U.S. continued to grow more quickly than its trading partners around the world. The most likely explanation for this appreciation was the strength of U.S. equity (stock) markets that attracted lots of foreign funds, raising the international demand for dollars. The general message here is that understanding exchange rate movements is somewhat of an art: similar situations can lead to different outcomes.)

4a) Higher European interest rates will *reduce* the value of the dollar. International investors that used to put their money into U.S. interest-bearing assets will now be more attracted to European interest-bearing assets. To buy assets in Europe, people will have to sell their dollars and buy euros. This lower demand for the dollar will cause it to depreciate, or, equivalently, the higher demand for the euro will make it appreciate relative to the dollar.

b) Depreciation of the dollar *raises* U.S. aggregate demand because it increases exports and decreases imports. Exports rise because the lower dollar makes U.S. goods cheaper to foreigners. Imports fall because foreign goods become more expensive for Americans.

5. A strong dollar makes U.S. citizens, in one sense, wealthier in the world economy. Our dollars allow us to buy more foreign goods and services, or more foreign assets. This effect is obvious if one travels abroad. It is less obvious, but possibly more significant, for the purchase of imports at home. If the dollar is stronger and foreigners keep the price of goods they sell to us constant in foreign currency, we will be able to buy more from them for a given expenditure of dollars. In addition, a strong dollar signals that foreigners have confidence in the U.S. economy. For example, if foreigners want to invest in the U.S. stock market or real estate, because they perceive the markets here to be strong, they will need dollars, and this increased demand for the dollar will keep its exchange value high.

A strong currency, however, can significantly damage an economy. A strong dollar reduces U.S. aggregate demand by making U.S. exports less competitive on world markets and making imports cheaper. (In this sense, the benefits mentioned above have a counterpart in the costs of a strong currency. The ability of Americans to buy foreign goods more cheaply reduces their purchases of domestic goods.) Domestic industries that produce goods for export or have to compete with imports from other countries will face more difficult times when the domestic currency is strong. According to demand-side (Keynesian) macroeconomics, lower aggregate demand will reduce output and employment.

Lower exports and higher imports also contribute to a rising trade deficit in the U.S. This causes the U.S. foreign debt to rise, which imposes a future burden on the economy to service that debt with interest and principal payments. This debt service will reduce the consumption and investment possibilities (the "domestic absorption of goods and services") of the country in the future.

You might also say that a strong currency might arise when a country is growing more slowly than its trading partners. In this case, the country's imports fall more than its exports, due to weak domestic income growth. Due to low imports, domestic citizens will demand less foreign currency and the domestic currency may appreciate. In this case, a strong currency is a symptom of underlying weakness in the economy. Symmetrically, a weak currency could be a side effect of relatively strong growth, compared with trading partners, that drives up the domestic demand for imports faster than the foreign demand for exports.

Clearly, the question of whether a strong currency is a good or bad thing for a country is very complicated. Hopefully, your homework answer captured some of these points, but I would not expect anyone to cover them all or to describe them in the detail given here. (But you should carefully study and fully understand all the points made in this solution.)