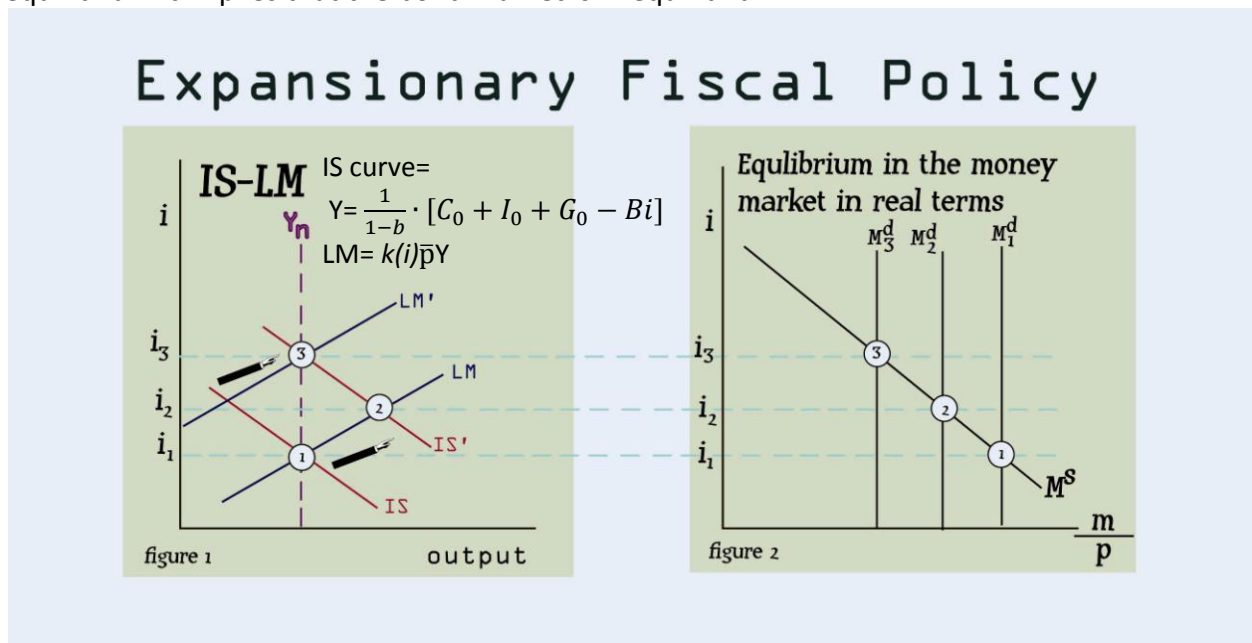


1.

Explain and Discuss the IS-LM model in a closed economy. Show the effects of an expansion of monetary and fiscal policy. (Short-run)

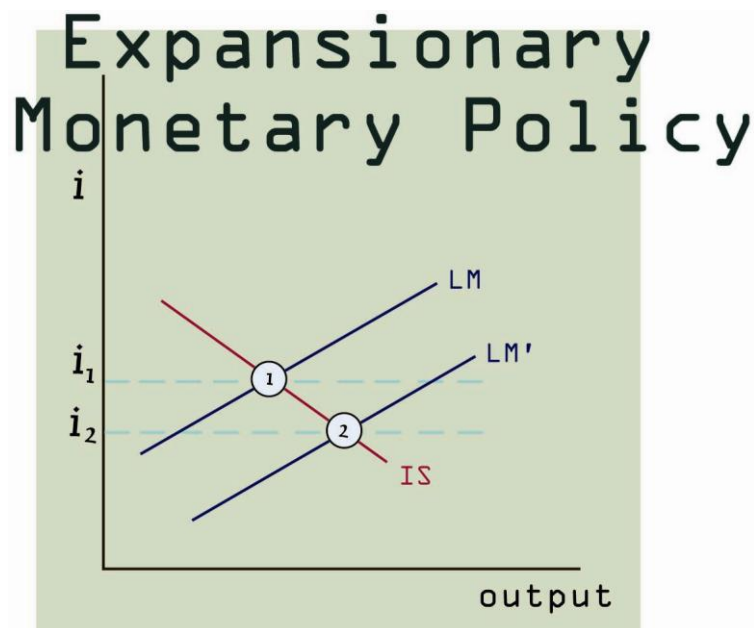
In the short run the IS-LM models calls for wages, prices, and expectations to be given and fixed. This means that the economy is sticky and there is rigidity in the economy. The IS curve traces out the points at which the total quantity of goods produced equals to total quantity of goods demanded – it describes the points at which the goods market is in equilibrium,  $Y=E$ . Demand,  $E$ , is equal to  $C+I+G$ , consumption plus investment plus government spending. Likewise, the IS-curve describes the interest rates and aggregate level of output that will be for the goods market to be in equilibrium. The LM curve is derived from the equilibrium condition in the money market which requires the quantity of money supplied to equal the quantity of money demanded. According to Keynes, who propagated this analysis, the demand for money is called liquidity preference. According to Keynes, the demand for money is based on three motives: the transaction, precautionary, and speculative motives. Essentially, the liquidity preference theory states that the demand for money in real terms is  $(\frac{M^d}{P})$  depends on aggregate output and interest rates. Ultimately, the less interest-sensitive money demand is, the more effective monetary policy is relative to fiscal policy. Additionally, if the money market is in equilibrium it implies that the bond market is in equilibrium.



The result of the expansionary fiscal policy is a rise in aggregate output, and a rise in the interest rate. An increase in government spending rises income directly, while a decrease in taxes makes more income available to spend and raises demand by increasing consumer expenditure. Expansionary fiscal policy is either an increase in government spending or a decrease in taxes; this expansion will shift the IS curve outwards moving the equilibrium of the economy from point 1 to point 2. At point 2 the interest rate is higher, output has increased and prices have increased. Increased prices decreases the real value of money and will shift the

money demand curve inwards. Aggregate output and the interest rate are positively related to government spending and negatively related to taxes. In the end, the impact of the increase of government spending is limited by the increase in the interest rate. Says's law states that supply creates its own demand and over-production is impossible

To increase the time span that the IS-LM model encompasses I included a level of natural rate of output ( $Y_n$ ), which is the output at which price level has no tendency to rise or fall. When aggregate output is above the natural rate, the workers will demand higher wages because of the increasing prices causing decrease domestic purchasing power in real terms. The tightness in the market will be represented by the bargaining power of the labor, the renegotiated wage movement is called a wage push and will move the economy from point 2 to point 3. Increasing the interest rate discourages investment and can lead to "crowding out" the private investors from affording funds. Likewise, a expansionary fiscal policy which does not lead to a rise in output is called "complete crowding out". Also worth noting: if the expansionary fiscal policy results in a government deficit then people will expect higher taxes in the future and will decrease consumption.



Expansionary monetary policy will shift the LM curve right moving the economy from point 1 to point 2. At point 2 the interest rate is lower and output is higher. Aggregate output is positively related to the money supply. A credit crunch would be observed no movement in the LM curve from expansionary monetary policy. Open market operations are the most important monetary tool because they are the primary determinants of changes in the interest rates and the monetary base; the interest rate and the monetary base are the main sources of fluctuations in the money supply. The Fed conducts most of its open market operations in US Treasury securities because they are the most liquid and have the largest trading volume. When people see a central bank pursuing expansionary monetary policy workers and firms will raise their expectations about inflation, driving wages and prices up. The rise in wages and prices will lead to higher inflation, but on average will not result in higher output.

Define the BoP and how it relates to foreign exchange rates.

The balance of payments (BoP) is equal to the sum of the current account balance, the capital account balance, and the non-reserve component of the financial account balance. A country is said to be in balance of payments equilibrium when the sum of its current, capital, and non-reserve financial accounts equals zero. The balance of payments is divided into three finer categories: goods, services, and income. Equilibrium in BoP implies that the current and capital account balance is financed entirely by private international business and no transfer of wealth occurs. A country's current account surplus can also be called net foreign investment. A capital inflow is listed as a positive entry in the balance of payments chart and is equivalent to money flowing into an economy. A financial or capital outflow is the purchase of an asset from foreigners. A foreign currency deposit's future value depends on two factors: the interest rate it offers and the expected change in the currency's exchange rate against other currencies. The dollar rate of return on euro deposits is approximately the euro interest rate plus the rate of depreciation of the dollar against the euro. Additionally, the central bank can engage in transactions buying and selling reserves which affects the rate at which the assets are available to others. The Fed interventions would be done to stabilize macroeconomic variables within a country and is called an official foreign exchange intervention if targeted at stabilizing the exchange rate rather than just a government budget deficit. This is a way for the central bank to affect the money supply of a country as well as the exchange rate. Also, in a floating rate regime there will be equilibrium at any point in time where the net exports and capital account balance will equal zero. If a country lends money to another country to finance the debt future income will be used to pay back the lender.

The balance of payments accounting helps keep track of both changes in a country's indebtedness to foreigners and the nature of the importing and exporting of the countries. Also show the connection between foreign transactions and national money supply. A negative BoP is a deficit in the country and may signal a crisis and necessarily means that a country is running down its international reserve assets or incurring debts to foreign monetary authorities through the process described above as well as an out transfer of wealth as the reserves are not replenished. A positive BoP is congruent with a surplus within the country and the currency will start to appreciate as the prices rise. In addition to the desire for capital inflows to be attractive, the demand for exports is related to relative prices and is affected by the BoP.

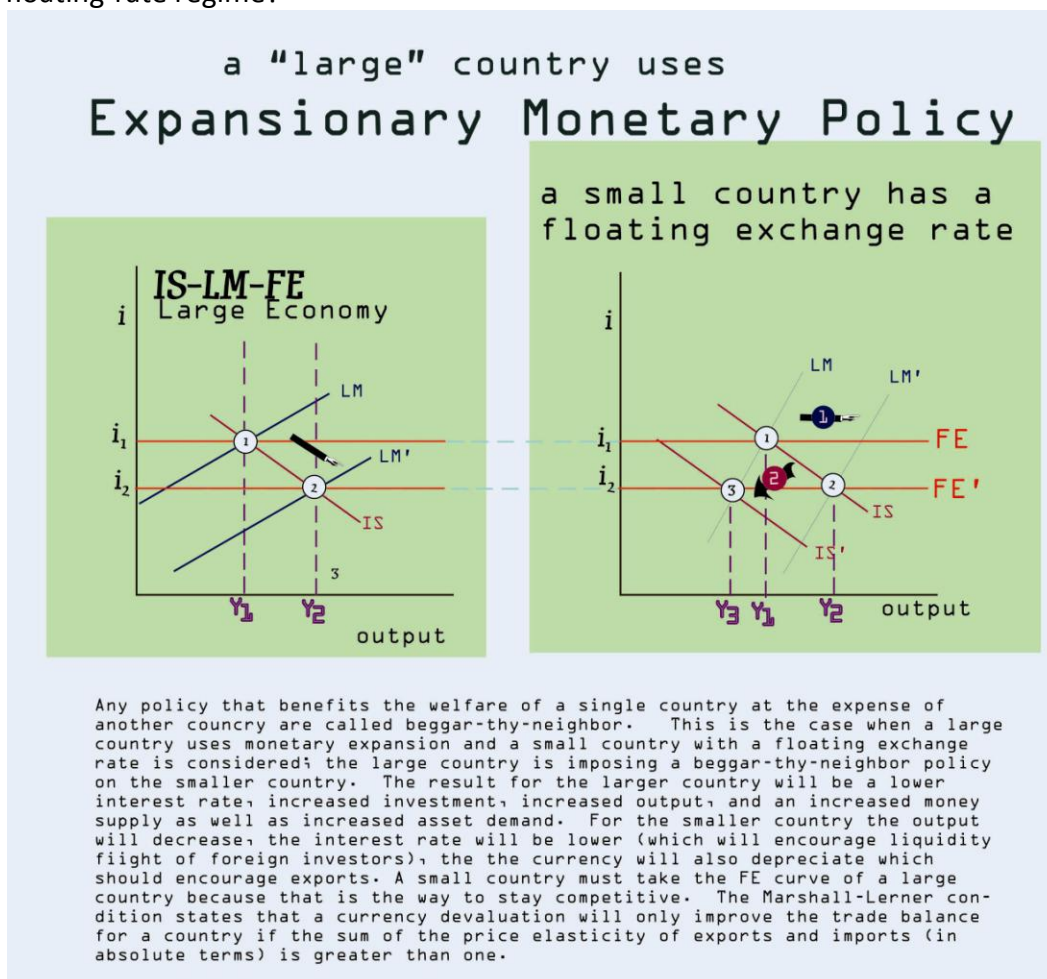
Explain and derive the FE curve.

The steepness of the FE curve indicated the degree of capital mobility; particularly  $k(i)$  = the intersensitivity of demand, which is the slope of the FE curve. The slope of the FE curve is assumed to be flatter than LM curve. The FE curve is described graphically by the following equation:  $FE = NX + CF$ . The curve is drawn with a given exchange rate and foreign interest rate. Each income level will indicate the points at which the capital and current account balances are in equilibrium,

2. Discuss the effects on its output, interest rate, and its currency value of a small country's use of contractionary monetary policy under a floating-rate regime.

If a small country uses contractionary policy they will shift their AA curve downward and the currency to appreciate. This may be seen as effective if the country wants to import goods, attract foreign investment as a result of the increased interest rate, or increase the viable amount of foreign currency reserves available to stockpile for future needs. The output in the country will decrease as a result of an inward shift of the LM curve. Any factor that shifts the LM curve also shifts the DD curve in the same direction. This may also be good if the country wishes to drastically increase its imports. This re-valuation may also be important for the country because the previous amount of inflation or could have been depressing the value of the reserves already held in relation to domestic GDP. When interest rates rise exports become less attractive and will decrease

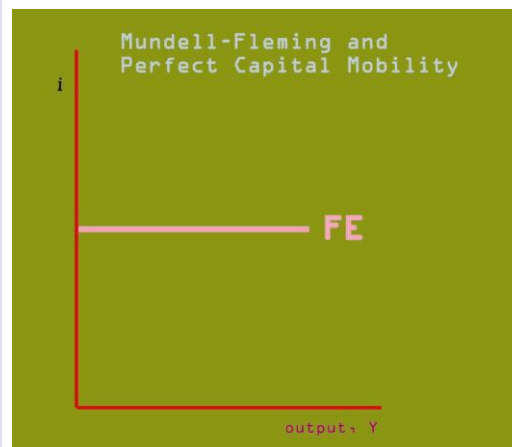
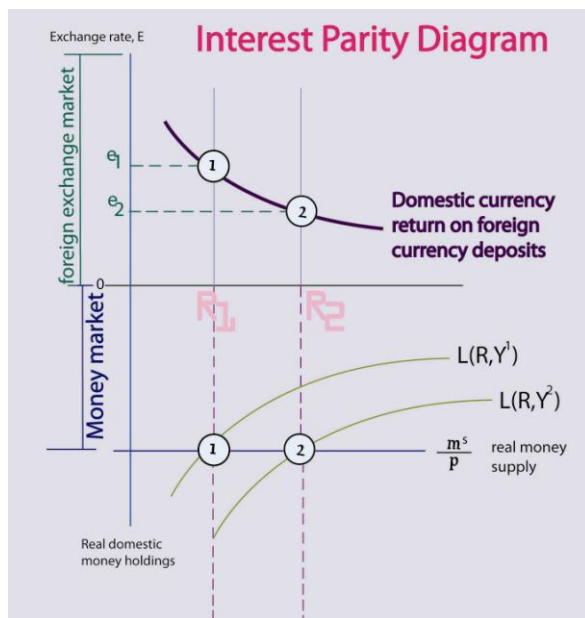
5. Discuss the effects of a "large" country's use of expansionary monetary policy on its neighboring "small country's output, interest rate, and its currency value under a floating-rate regime?



6.

Explain and discuss the difference between “perfect capital mobility” and “interest-parity” condition involving expectations about the future exchange rate between two currencies, including the diagrammatic depiction of each.

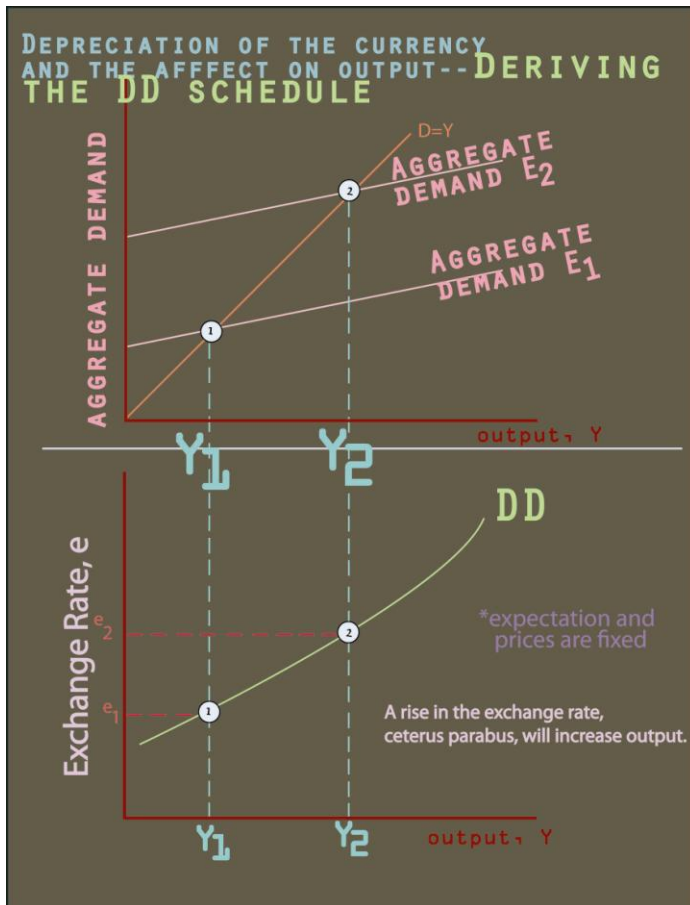
The interest parity condition states that the expected returns on deposits of any two currencies are equal when measured in the same currency. The foreign exchange market is in equilibrium when deposits of all currencies offer the same expected rate of return as described by the interest parity condition. This means there will not be an excess supply or demand of some type of deposit and no excess demand for another. If the interest parity condition is not satisfied, individuals will want to transfer their funds to the place with the highest expected rate of return. The interest parity condition is represented by the following:  $i = i^* + \frac{\bar{e} - e}{e}$ .



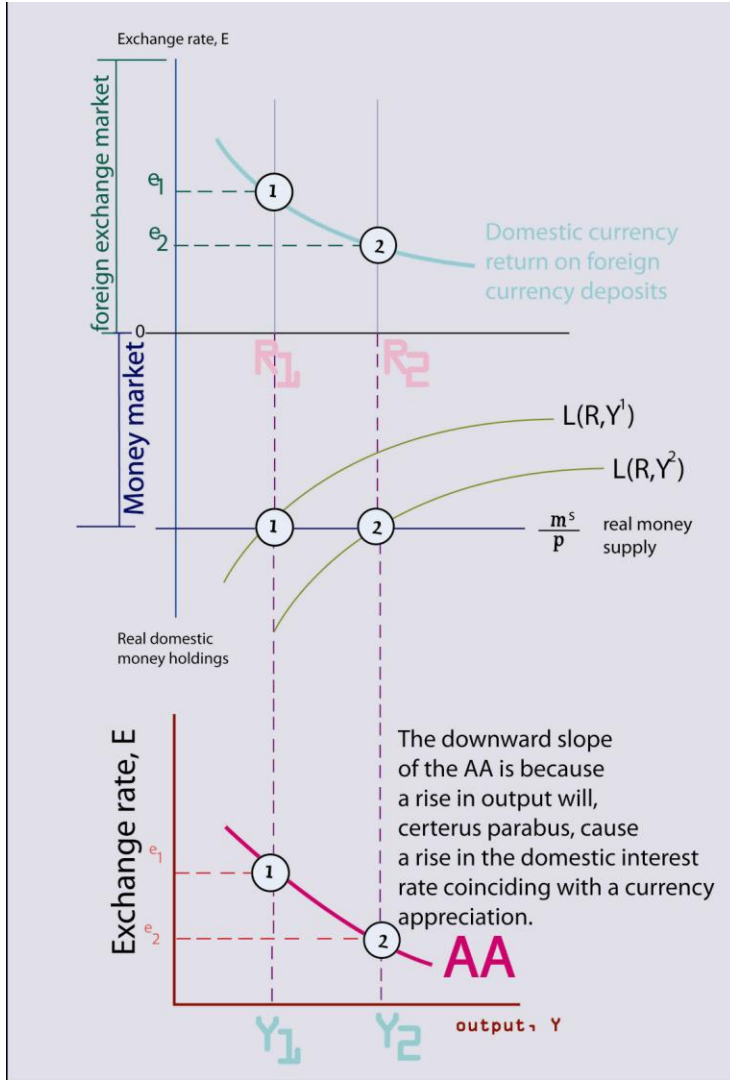
Perfect capital mobility means that there are no barriers to exchanging and making transactions in a foreign nation. Many times nations will impose controls and restrictions on financial transactions essentially making inefficiencies in the financial market, usually to protect capital outflows and foreign investors from exploiting the profitability of the most profitable domestic markets. The interest rate condition for perfect capital mobility is the following:  $i = i^*$ , indicating that the financial markets are in equilibrium with the same interest rates worldwide. Expansionary fiscal policy will shift the IS-curve to the right and increase the level of output demanded and the interest rate. But with perfect capital mobility, higher domestic interest rates will attract funds from abroad, which will put upward pressure on the value of the domestic currency. To avoid an appreciation of the currency, the central bank will have to increase money supply to bring interest rates back in line with world levels. This implies that

the LM-curve will have to shift to the right to match the shift of the IS-curve. In the end, no crowding out of either investment or net exports will take place and the level of output will increase by the full multiplier effect. Some countries suffer because their currency can not be freely traded on international exchange markets, the degree to which the currency can be traded is called convertibility.

Explain the textbooks AA and DD schedules.



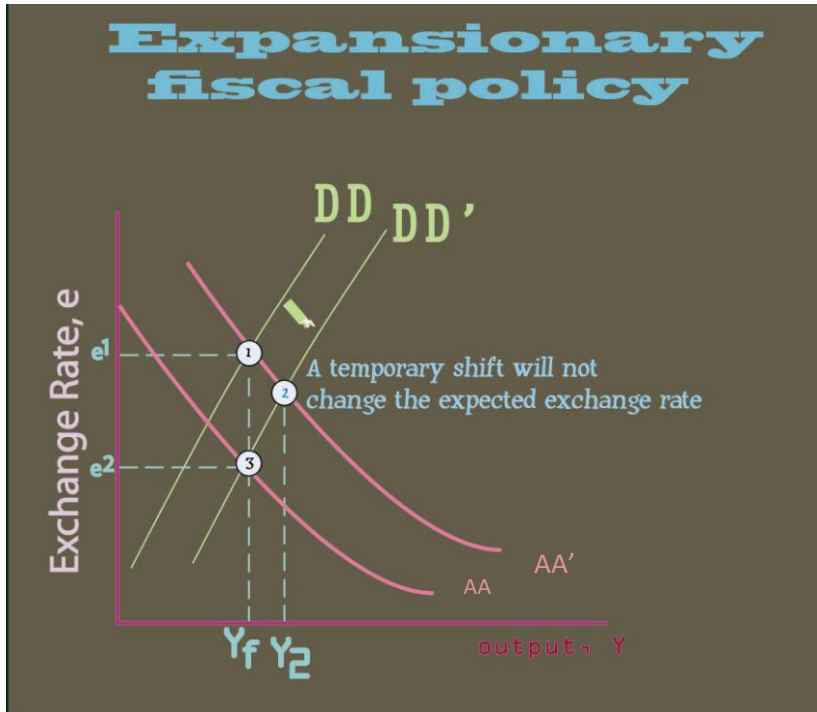
The DD schedule is a relationship between output and the exchange rate and shows the combination of output and the exchange rate for which short run aggregate demand equals aggregate supply, or the short run equilibrium points in the goods market. The following is a list of factors that affect the position of the DD schedule: the level of government demand, taxes, investment, domestic and foreign price levels, variations in domestic consumption behavior, and the foreign demand for output.



The AA curve is the LM and the FE curve combined. The schedule describes the exchange rate and output combinations consistent with equilibrium in the domestic and foreign money markets. For any output level there will be a unique exchange rate that will satisfy the interest parity condition. An increase in output will shift the economy from point one to point 2.

7.

Discuss the effects, using AA-DD framework of a country's use of expansionary fiscal policy when that policy is temporary versus permanent.



A temporary fiscal expansion will cause a currency appreciation and a rise in output. This is evident by the outward shift in the  $DD$  schedule and the economy moving from point 1 to point 2. The movement of the  $AA$  curve and the economy from point 2 to point 3 is because of a complete crowding out affect because of the interest rate increase after the government increased its debt with the fiscal expansion. The complete amount of crowding out would be based on the avenue taken to finance the debt. If there were to be an increase in taxes at the same time as an increase in government spending there would be a Ricardian equivalence situation. Expectations largely impact the long run. The exchange rate behavior is an example of overshooting, where the exchange rate's initial response to some change is greater than the long-run response.

9.

The theory of purchasing power parity theory was originated by David Ricardo and Gustav Cassel, and states that the exchange rates between two countries' currency equals the ratio of the two countries' price level. This is demonstrated for the US and the Euro below. Let  $\mathcal{E}$ = euro, P= price,

$$E_{\frac{\$}{\mathcal{E}}} = \frac{P_{US}}{P_{\mathcal{E}}}$$

The exchange rate of dollar/euro is equal to the dollar price of a reference commodity basket divided by the euro price of the same basket. An increase in price levels domestically results in the domestic purchasing power to fall. An increase in the domestic purchasing power of a currency will result in a proportional appreciation of that currency. PPP holds when, at the current exchange rates, every country's domestic purchasing power is always the same as its foreign purchasing power. The concept of PPP was and is important for countries that want to liberalize their economy and engage in foreign trade. An example where the concept of PPP was engaged is when the Russian economy emerged from Communist control and the new policy wanted to liberalize trade, set incentive and market related prices, and create a

To examine the effects of expectations and forecasting and PPP, consider the following equation:

$$R_{\$} - \left[ R_{\mathcal{E}} + \frac{\frac{E_{\$}^e - E_{\$}}{\mathcal{E}}}{\frac{E_{\$}}{\mathcal{E}}} \right] = R_{\$} - R_{\mathcal{E}} \frac{(E_{\$}^e - E_{\$})}{\frac{E_{\$}}{\mathcal{E}}}$$

If the difference above is negative euro deposits yield a higher rate of expected return, and when the difference is positive dollar deposits are expected to yield a higher return. The expected rate of return on a euro deposit measured in terms of dollars, according to the above equation, will be equal to the sum of the euro interest rate plus the expected rate of dollar depreciation against the euro. If the real rate of return and the expected rate of return are different future expectations will be augmented to reflect the difference in the predicted and observed rate. If the expected rates of return are equal then there will be no attempts to shift currencies and deposit locations. Stability in the economies will prevent prices from changing and thus hold the PPP calculations accurate.