How should a government manage its exchange rates. In general, we distinguish between two opposing policies: **fixed exchange rates** and **floating exchange rates**.

Under fixed exchange rates, governments decide to fix their rates to some other standard, either a dominant currency such as the dollar, or a basket of currencies or gold.

Under floating exchange rates, the market determines the outcomes of rates.

**History**: From 1945-1971, the world's finances were dominated by the Bretton Woods system. All currencies were pegged in terms of the dollar which in turn was linked to gold. Earlier in the 20th century, the pound sterling played a similar role.

Since 1971, we have had a mixed system in which the main currencies, the dollar, DM and Yen float against each other. Many minor currencies are linked to the dollar or other currencies.

In addition, many European currencies are linked in the **European monetary system**. Here, currencies are allowed to move in a band, but not outside the band.

In fact, we can talk about a range of alternatives between a purely fixed exchange rate system and a pure floating system. Even under pure floating, governments generally intervene, cajole, etc., to move currencies in the desired way. Even under a fixed exchange rate system, devaluations occur—that is, governments are forced by circumstances to lower the value of their currencies.

| fixed | managed | target zone | dirty float | float |

**What are the advantages and disadvantages of each?**

There are at least two schools of thought on exchange rate policy. The Chicago school generally argues that floating rates are the best. This is not surprising since floating rates represent a pro-market approach. Keynes was a chief architect of Bretton Woods and a strong proponent of fixed rates. Many Keynesians agree that government intervention is necessary to promote exchange rate stability.

**If fixed exchange rates promote stability and predictability, then what are the arguments for floating?**

Friedman and others argue that fixed rate regimes do not promote stability but in fact promote instability. They would cite the collapse of a tight EMS or the fall of the peso as perfect examples of the flaws in a fixed system.

**Problems with fixed system (Chicago approach):**

1. Speculation will drive exchange rates to their true equilibrium level, governments cannot alter the true equilibrium.
2. Speculators who do not stabilize will be driven out of the market.
3. Governments, in particular central banks subsidize rich speculators when they fix exchange rates artificially high.
4. The best way to promote stability is to keep the money supply growing at a steady rate.
**Keynesian response:**
1. There is a great deal of evidence that speculation can be destabilizing. Witness the gyrations of the dollar in the mid-1980’s
2. Exchange rates may not settle at their equilibrium values or it may take a long time to do so (in the long run we’re all dead.)
3. A fixed exchange rate system may impose the discipline necessary for exchange rate stability; in particular monetary policy must be coordinated.

Note that no one debates the merit of a stable exchange rate system. The question is how to attain one.

**The record:** Since 1971, exchange rate fluctuations have been wild. This would seem to indicate that the Keynesian have the edge. Friedman would point out that the instability has been caused by the inability or unwillingness of countries to follow sound policies. However, in recent years most countries have followed more responsible monetary policies, yet fluctuations continue.

**Is a fixed rate system feasible today?** Probably not. It would take more cooperation than we are likely to see. And which currency would dominate? Fixed exchange rates systems tend to work when one country is dominant.

**Exchange rates and BOP** - If the current account is negative, then what happens to exchange rates? They should fall. A drop in exchange rates should increase exports and decrease imports. This may, however, occur with a lag. This effect is sometimes referred to as the “j-curve” effect. In the case of the US after the devaluation of the dollar in the mid-eighties, it took quite a while (we still have a substantial trade deficit!) In Mexico, we saw an effect within a year.

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**Macro Policy with fixed and floating exchange rates**

**Monetarist view:** Recall that the monetarists essentially see exchange rates an outcome of monetary policy and oppose fixed exchange rates. Fiscal policy has no effect on exchange rates (though they admit it may in the short run.) Excessive growth in the money supply leads to inflation and devaluation under fixed or floating exchange rates.

**Keynesian view:** Prices don’t adjust instantaneously, so quantities adjust. Fiscal and monetary policy can be used to support an exchange rate. Note that if a country is committed to exchange rate stability, it has fewer degrees of freedom in adjusting domestic macro-policy.

**Simple Keynesian model:**

**Closed Economy:** \[ Y = C + I + G = E(Y) \]

**Open Economy:** \[ Y = C + I + G + (X - M) = E(Y) + X - M \]
Now we assume that $M$, imports, are a function of $Y$, that is, $M = M(Y)$. Why?

We get:

$$Y = E(Y) + X - M(Y)$$

The spending multiplier in a small open economy:

$$Y = C + I + G + (X - M)$$

$$C = a + bY$$

$$M = mY$$

Note that $b$ is the marginal propensity to consume and $m$ is the marginal propensity to import.

$$Y = a + bY + I + G + X - mY$$

$$\Delta Y = a + bY + I + \Delta G + X - mY$$

$$\Delta G = \Delta Y(1 - b + m)$$

so, we get the familiar multiplier: $$\frac{\Delta Y}{\Delta G} = \frac{1}{1 - b + m}$$

Finally, Lindert notes that $(1-b)$, one minus the MPC, is just the MPS, the marginal propensity to save. So:

$$\frac{\Delta Y}{\Delta G} = \frac{1}{s + m}$$

As usual, one can think of imports, like savings as a “leakage,” that is, they syphon of funds from the circular flow.

**Example.** Suppose the government cuts taxes. Some of the increase in $$$ that people get that would have been spent on US goods will now be spent on foreign goods. Instead of buying a Chevy, you buy a Toyota (like me.)

What about foreign demand for American products? An increase in imports will actually have a small (multiplier like effect in other economies. Example: If Americans buy beer made in Canada (Molson) then this increases Canadian income. Some of this is spent on American goods which stimulates the US economy, so now all of these imports are leakages.
Effect of a 1% increase in US spending on Economy

<table>
<thead>
<tr>
<th>Country</th>
<th>Effect</th>
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</thead>
<tbody>
<tr>
<td>US</td>
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</tr>
<tr>
<td>Japan</td>
<td>1.0</td>
</tr>
<tr>
<td>Germany</td>
<td>0.9</td>
</tr>
<tr>
<td>UK</td>
<td>0.5</td>
</tr>
<tr>
<td>Canada</td>
<td>0.8</td>
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**Summary: The effect of Fiscal policy on the trade balance:**

1. Increases in income will likely worsen the trade balance by increasing imports.
2. An increase in foreign aggregate demand will help our trade balance.
3. Anything on the supply side will likely help our trade balance.

**IS-LM framework:** Recall that a more sophisticated way of analyzing Macro policy is to use the IS-LM framework. The IS curve represents the locus of points where the “real” market is in equilibrium. The key here is the equilibrium between savings and investment. Both are influenced by income (Y) and interest rates (i).

For equilibrium: \( S(Y,i) = I(Y,i) \)

\[
I = I[r] \\
G + I \\
I + G \\
G + I = S + T \\
S(Y) + T
\]

In the above, the investment function in the upper left hand corner is a function of the interest rate \( r \). Intuitively, the IS curve slopes downward because as income increases, savings increase; in order to bring equilibrium (\( S = I \) or \( S + T = G + I \)), we must have lower interest rates (which lower saving and increase the demand for investment.)
Now, let us derive the LM curve:

\[ M = M[Y] \]

Combining the two, we get:

Now, suppose we add exports and imports, and assume, again, that \( M = M(Y) \). **What happens to the slope of the IS curve?** (Hint: Think about what happens to the effectiveness of fiscal policy and the multiplier when imports are added.)

The IS curve is flatter. **Example.** Suppose the government cuts taxes. Some of the increase in $$$ that people get that would have been spent on US goods will now be spent on foreign goods. Instead of buying a Calistoga, you buy Perrier.
Go over the basics of IS-LM

*Expansionary fiscal policy:*

In the above a tax cut or increase in government spending will move equilibrium income from $Y^*$ to $Y^{**}$ and shift interest rates up. Again, fiscal policy is less effective.

Again income shifts from $Y^*$ to $Y^{**}$. This time interest rates fall.

Fixed Exchange rates: With fixed exchange rates, we must add another constraint:

$$B = C(Y) + K[i]$$

In the above constraint, the current account must offset the capital account for BOP to be in equilibrium. Recall that imports are a function of income, so $C(Y)$ and foreign investment should depend on domestic interest rates.
What are the signs of the above?  C(Y) is negative with respect to Y; as income increases, imports go up, worsening the current account.  K[i] is positive with respect to i; as interest rates rise, more capital is drawn in.  So, as income rises, in order to offset the current account deficit, interest rates must rise to attract capital.  The U.S. was in this situation in the early 80’s.

The FE curve is positive sloping, and may have a slope higher or lower than the LM curve.

**Q:**  A vertical FE curve means what?  That interest rates don’t draw in capital very much so income is the main determinant of BOP.

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[CASES: Suppose that the US cuts government spending or increases taxes- a contractionary fiscal policy. Then you are no longer on the FE curve. One either needs to devalue OR expand the money supply to get back on FE. Fiscal policy and monetary policy must be coordinated to achieve a stable exchange rate.]

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In the above, the new equilibrium Y** is not consistent with a fixed exchange rate and will create a balance of payments surplus which should tend to push up the value of the country’s currency.

**Example 2: Great Britain 1992**  Britain was then a member of the EMS which was tantamount to a fixed exchange rate system. By 1992, it was clear that the pound was overvalued and either Britain must devalue drastically OR run a very contractionary fiscal and/or monetary policy.
Note: Devaluation would shift the curve to the right. (Why?)

In sum, with fixed exchange rates:

\[ \uparrow \text{M} \Rightarrow \downarrow \text{r}, \uparrow \text{Y} \]

- \( \text{Y} \uparrow \), increases imports
- \( \text{r} \downarrow \), decreases capital inflows

Both of the above tend to worsen BOP and put downward pressure on the exchange rates. Note that the monetarists and everyone agree that an increase in the money supply lowers value of the exchange rate.

**Fiscal Policy:** Ambiguous. An expansionary fiscal policy will increase \( \text{Y} \) and therefore increase imports and worsen BOP. But an expansionary policy will also increase \( \text{r} \) which will suck in capital boosting BOP. Some argue that in the short run, the interest rate effect is the more significant, in the long run the income effect will dominate. In terms of IS-LM-FE, it depends on the slope of the FE curve.

*If FE steeper than LM,* then an expansionary fiscal policy will push the country to the right of FE. This will push imports up and lower capital inflows. To offset, the country will eventually have to devalue.
If FE is less steep than LM, then an expansionary fiscal policy will leave the country above (and to the left of) FE.  This will push imports down and increase capital inflows.  To offset, the country will eventually have to devalue.

**Perfect Capital Mobility**: In this case, the FE curve is flat at the world interest rate.  A country effectively has no control over interest rates and hence over monetary policy. Fiscal policy is extremely effective.