Recall Macro from Econ 102

- Aggregate Supply and Demand Determine
  \[ Y = GDP = Output = Income \]
  - This in turn implies level of Employment
  \[ P = \text{Price level} \]

Recall Macro from Econ 102

- Macroeconomic Policies
  - Monetary Expansion = Increase in Money Supply (M)
    - Open market operations: purchase bonds
    - Reserve requirement: reduce it
    - Discount rate: reduce it
    - Usually indicated by Fed target for Federal Funds Rate
  - Fiscal Expansion
    - Increase government purchases (G)
    - Reduce taxes (or increase transfers) (T)
  - All of these have the effect of
    - Increasing aggregate demand
    - Shifting AD curve to the right

They differ in effects on interest rate (i):
- \( \Delta M > 0 \) lowers i
- \( \Delta G > 0, \Delta T < 0 \) raise i

Recall Macro from Econ 102

- Effects \textit{ON} the Exchange Market
  - Expansion
  - Interest Rate
- Effects \textit{OF} the Exchange Market
  - Depreciation effects via Trade
  - Depreciation effects via Net Wealth
- Effects \textit{THOUGH} the Exchange Market
Recall Macro from Econ 102

- Macroeconomic Policies
  - Contractionary policies ($\Delta M<0$, $\Delta G<0$, or $\Delta T>0$) are just the opposite
  - All have only temporary effects on output and employment, but lasting effects on price level
  - Policies can be useful (if done right) for dealing with temporary problems such as a recession

Outline: International Macroeconomics

- Recall Macro from Econ 102
  - Aggregate Supply and Demand
  - Policies
- Effects ON the Exchange Market
  - Expansion
  - Interest Rate
- Effects OF the Exchange Market
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Effects ON the Exchange Market

- Non-Monetary Expansion
  - $Y$ rises $\Rightarrow$ imports rise $\Rightarrow D_e$ shifts right
  - $P$ rises $\Rightarrow$ capital inflow $\Rightarrow S_e$ shifts right
  - We'll always assume that the interest rate effect is larger, because capital today is very mobile
  - Three cases to consider:
    - Floating exchange rate
    - Pegged exchange rate at overvalued rate
    - Pegged exchange rate at undervalued rate

US Non-Monetary Expansion:

- Floating Exchange Rate
  - $\Delta G>0$, $\Delta T<0$ $\Rightarrow$ Causes dollar to appreciate

- Pegged Exchange Rate - Overvalued
  - $\Delta G>0$, $\Delta T<0$ $\Rightarrow$ Less intervention (sells)

- Pegged Exchange Rate - Undervalued
  - $\Delta G>0$, $\Delta T<0$ $\Rightarrow$ More intervention (buys)
Effects ON the Exchange Market

• Summary: Non-Monetary Expansion
  – Results: Effects of non-monetary expansion
    • Floating exchange rate appreciates
    • Pegging the exchange rate becomes easier
      – If reserves were falling (overvalued case) they now fall less rapidly
      – If reserves were rising (undervalued case) they now rise more rapidly

Floating Exchange Rate Appreciates
Pegging the Exchange Rate Easier

• US Monetary Contraction: Floating Exchange Rate
  \[ E = \frac{\$}{\€} \]
  \[ \Delta M < 0 \implies \text{Causes dollar to appreciate} \]

\[ \Delta Y < 0, \Delta P > 0 \implies D_e \text{ shifts left} \]
\[ \Delta i > 0 \implies S_e \text{ shifts right} \]

Effects ON the Exchange Market

• Monetary Contraction (i.e., rise in interest rate)
  \[ Y \text{ falls} \implies \text{imports fall} \implies D_e \text{ shifts left} \]
  \[ P \text{ falls} \implies \text{capital inflow} \implies S_e \text{ shifts right} \]

  – Assume again that the interest rate effect is larger
  – Same three cases
    • Will only show floating case; others are similar

Effects OF the Exchange Market

• Under a pegged exchange rate, the exchange market has little effect on the economy unless the pegged rate itself is changed
  – Exception: without sterilization, domestic money supply is sensitive to trade and capital flows

• Under a floating exchange rate, movement of the exchange rate can matter a lot

Outline: International Macroeconomics

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\[ E = \frac{\$}{\€} \]
\[ \Delta M < 0 \]
\[ \implies \text{Causes dollar to appreciate} \]
**Effects OF the Exchange Market**

- Thus, in both cases, we want to know effects of changing the exchange rate
- We’ll look only at an exchange depreciation
  - (Usually called a “devaluation” when a pegged exchange rate is depreciated)

**Trade Effect of Depreciation**

- $\Delta E > 0$
  - Stimulates exports (they are cheaper to foreigners)
  - Retards imports (they are more expensive for domestic buyers)
  - Thus depreciation increases aggregate demand (AD)
  - Stimulates economy

**Wealth Effect of Depreciation**

- If assets and liabilities are in the same currency, then little effect
- If assets and liabilities are in different currencies, one home and the other foreign, then BIG EFFECT

**Example:** Effect of 20% depreciation of Mexican peso ($p$): $E = 10p/\$ \rightarrow 12p/\$

- Case 1: Assets and liabilities both in pesos
- Case 2: Assets in pesos but liabilities in $
Effects of the Exchange Market

Case 1:

<table>
<thead>
<tr>
<th></th>
<th>Before E = 10 p/$</th>
<th>After E = 12 p/$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assets</td>
<td>1000 p</td>
<td>(100 $)</td>
</tr>
<tr>
<td>Liabilities</td>
<td>−900 p</td>
<td>(−90 $)</td>
</tr>
<tr>
<td>Net Wealth</td>
<td>100 p</td>
<td>(+10 $)</td>
</tr>
<tr>
<td>in pesos</td>
<td>(≈ 80 $)</td>
<td></td>
</tr>
<tr>
<td>in $</td>
<td>(≈ −72 $)</td>
<td></td>
</tr>
<tr>
<td><strong>20% loss of net worth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(in $)</td>
<td></td>
<td></td>
</tr>
</tbody>
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Case 2:

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20% loss of net worth  
(Bankrupt!)

Effects of the Exchange Market

• Wealth Effect of Depreciation
  – This is exactly what happened to lots of developing countries when they had an Exchange Crisis and their currencies suddenly depreciated
  – The wealth effect overwhelms any beneficial effect that the country might otherwise feel from a boost in exports

Effects of the Exchange Market

• Wealth Effect of Depreciation
  – It is also what happened in 2008 to
    • Iceland
    • Latvia
    • Perhaps others in Eastern Europe
  – They had liabilities denominated in euros, and then their own currencies fell.
  – (It is not what is happened in 2010 to Greece. Their debt and assets were both in euros, and they had no currency of their own. They just borrowed more than they could repay.)

Effects of the Exchange Market

• Another recent example: Brazil

Iceland Exchange Rate 2005-12

Worse than it looks
Brazil's dollar-denominated debt: billions

Source: Bank for International Settlements; The Economist
Effects OF the Exchange Market

• Example of a different sort: Appreciation of the Chinese Yuan (aka renminbi)
  – For many years, the yuan was pegged to the US dollar
  – On July 21, 2005, China
    • Changed to pegging to a basket of currencies
    • The yuan appreciated by 2%
    • After that it rose by about another 20%
    • The increase stopped at the start of the financial crisis, in July 2008
  – It rose slowly since then, for a while and then fell more recently (as we saw in the graph last time)

Effects OF the Exchange Market

• Effects of the Yuan Appreciation
  • (See reading by Stiglitz)
    – Change was gradual, rising only about 6% per year
    – Wealth effect
      • For US, negligible, since our debt is in dollars
      • For China, there was some decline in yuan value of their dollar assets

Effects OF the Exchange Market

• Effects of any Yuan Appreciation
  – Trade effect
    • Effects on prices
      – US goods become cheaper to China
      – Chinese goods become dearer to US
        (But note, from Stiglitz: Chinese exports to the US have 70-80% import content; thus yuan matters little)
      • Helps US sales, hurts Chinese sales

Effects OF the Exchange Market

• Effects of the Yuan Appreciation
  – Other effects
    • Helps China fight inflation and excessive monetary expansion and credit growth
    • Permits increased consumption in China

Effects OF the Exchange Market

• Are these the actual reasons for the yuan appreciations of 2005-12?
  – No
  – US had been
    • Pressing China for years to stop holding down the value of the yuan
    • Threatening increased protection against Chinese exports
  – Idea was that appreciation would reduce the Chinese bilateral trade surplus with the US, & thus reduce the US deficit
  – China refused to be bullied, but perhaps it was

Effects OF the Exchange Market

• Will a further Yuan Appreciation Change the US Trade Balance?
  – Probably not
    • To do so, it would have to change US saving and investment
    • It’s not clear why an appreciation would do that
  – One possibility (see Stiglitz, writing in 2005)
    • Chinese spending increases
      ➢ They stop financing the US current account deficit
      ➢ US interest rates rise
      ➢ US housing bubble bursts
      ➢ US spending would fall
        (First 2 didn’t happen; second 2 did.)
Effects OF the Exchange Market

• Most recently, the Chinese yuan depreciated, instead of appreciating, as it had been doing for years.

This was done deliberately by the Chinese central bank.

Purpose was, initially, to discourage those who had been bringing funds into China.

But for most of this period it was trying to slow down the depreciation that the market was causing.

Another Example: The Depreciation of the US Dollar

– Quite aside from what happened to the yuan, the US dollar depreciated over several years (until its more recent rise)
  • Mann and Plück, writing in 2005, say that it fell by 25%  
  • It fell more until 2011-12
  • But has risen recently

What were the effects of the fall?

Effects of the Dollar Depreciation

– Did this help the US trade balance? No!

– For more reasons see Mann and Plück
  • Lots of US imports come from countries whose currencies didn’t appreciate (China, Thailand), or even depreciated (Mexico)
  • “Pass-through” is low in the US market: 10% fall in $ only causes 2.5 - 4.0% rise in import prices

– Note that the dollar depreciated less vis à vis China than vis à vis Canada.

Effects OF the Exchange Market

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Effects OF the Exchange Market

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Effects THROUGH the Exchange Market

- The issue here:
  - Do macroeconomic effects get transmitted to other countries, and if so how?
  - i.e., does an expansion, for example, in one country cause an expansion or a contraction in other countries?

Effects THROUGH the Exchange Market

- The answer: Although many exceptions are possible, it is usually true that changes in one country cause changes in the same direction in others:
  - Expansion here $\rightarrow$ expansion there
  - Inflation here $\rightarrow$ inflation there
  - High interest rates here $\rightarrow$ high interest rates there

Effects THROUGH the Exchange Market

- Example: How a recession in US can cause recession Canada
  - Fall in aggregate demand in US (due to non-monetary contraction such as a fall in investment) leads to
    - Fall in US income, leads to
    - Fall in Canadian exports to US, leads to
    - Fall in Canadian income
  - To see these links in more detail...

Effects THROUGH the Exchange Market

- We’ve saw some of this dramatically in the global financial crisis of 2008:
  - Crisis started in US
  - Effects were transmitted to the world
  - Exception: US dollar did not depreciate immediately; it appreciated at first. (Due to flight to safety.)
Effects THROUGH the Exchange Market

- The lesson from this is that countries’ macro policies and and macro performance matter for other countries
- See Economist, “More Spend, Less Thrift”
  - Countries that run large surpluses
    - In both government budgets and current account
    - Impose costs on other countries.
  - “Seemingly prudent budgeting in economies like Germany’s produce dangerous strains globally.”

Next Time

- Fixed versus Floating Exchange Rates
  - Who uses them
  - What experts recommend
  - Pros and cons of
    - Floating rates
    - Pegged rates
  - Alternatives
  - The Problem of Undervalued Currencies