



Aviation Economics & Finance

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OUTLINE

Macroeconomics for Aviation Strategy & Management

- Macroeconomic growth and Fluctuations
- Aggregate DD and SS Relationships
- Macroeconomic Policy
- Trade
 - Balance of trade
 - Comparative advantage
 - Balance of Payments
 - Exchange Rates (fixed and flexible)
 - Purchasing Power Parity

GROWTH AND FLUCTUATIONS

- Aggregate Income and Expenditure: adding up all the expenditures

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

C = consumption

I = investment

G = government spending

X = exports

M = imports

excluded: home production, externalities, illegal activity

By definition Aggregate Income = Y = GDP but $GDP = P \cdot Q$

KEYNESIAN VIEW OF THE WORLD

A theory of aggregate consumption spending :

Assume that I, G do not vary with Y

$$C = a + bY$$

a = the fixed “autonomous” component of consumption spending

b = the “marginal propensity to consume out of income”

$$0 < b < 1$$

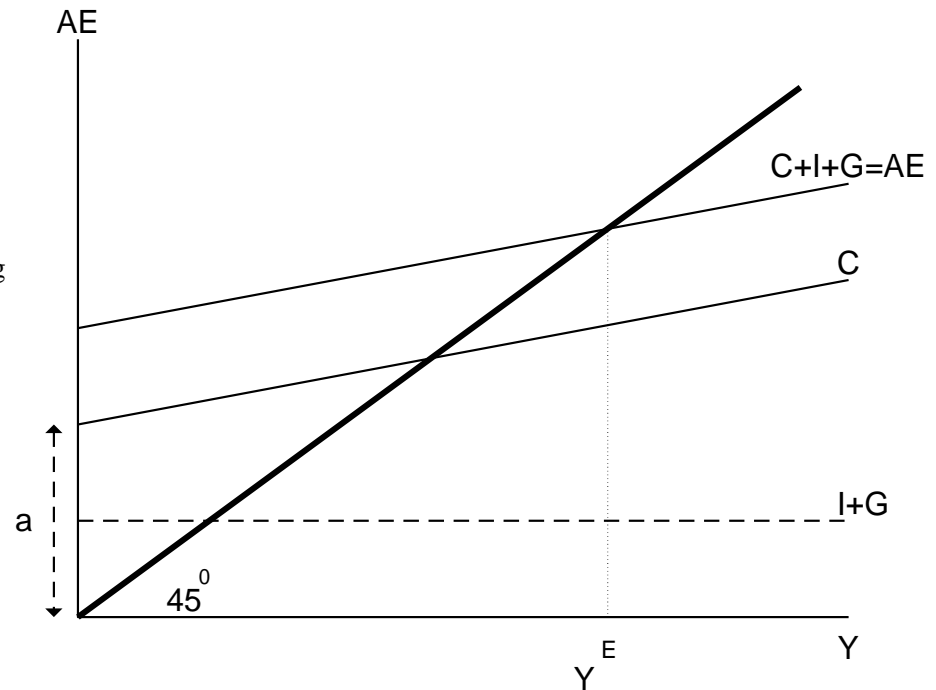
so $(1-b)$ is the marginal propensity to save

now by substitution, we have:

$$a + bY + I + G = Y$$

$$a + I + G = (1-b) \cdot Y$$

$$\text{So in equilibrium: } Y = 1/(1-b)[a+I+G]$$



AGGREGATE DEMAND AND PRICE LEVELS

$$GDP = Y = C + I + G \quad \textit{for a given price level}$$

Aggregate demand illustrates the relationship between the price level and real domestic output (the aggregate demands/expenditures of consumers, investors, government and the net effect of exports and imports)

What happens as we move along the AD curve?

Suppose P increases (moving up the AD curve)

Why does domestic output fall?

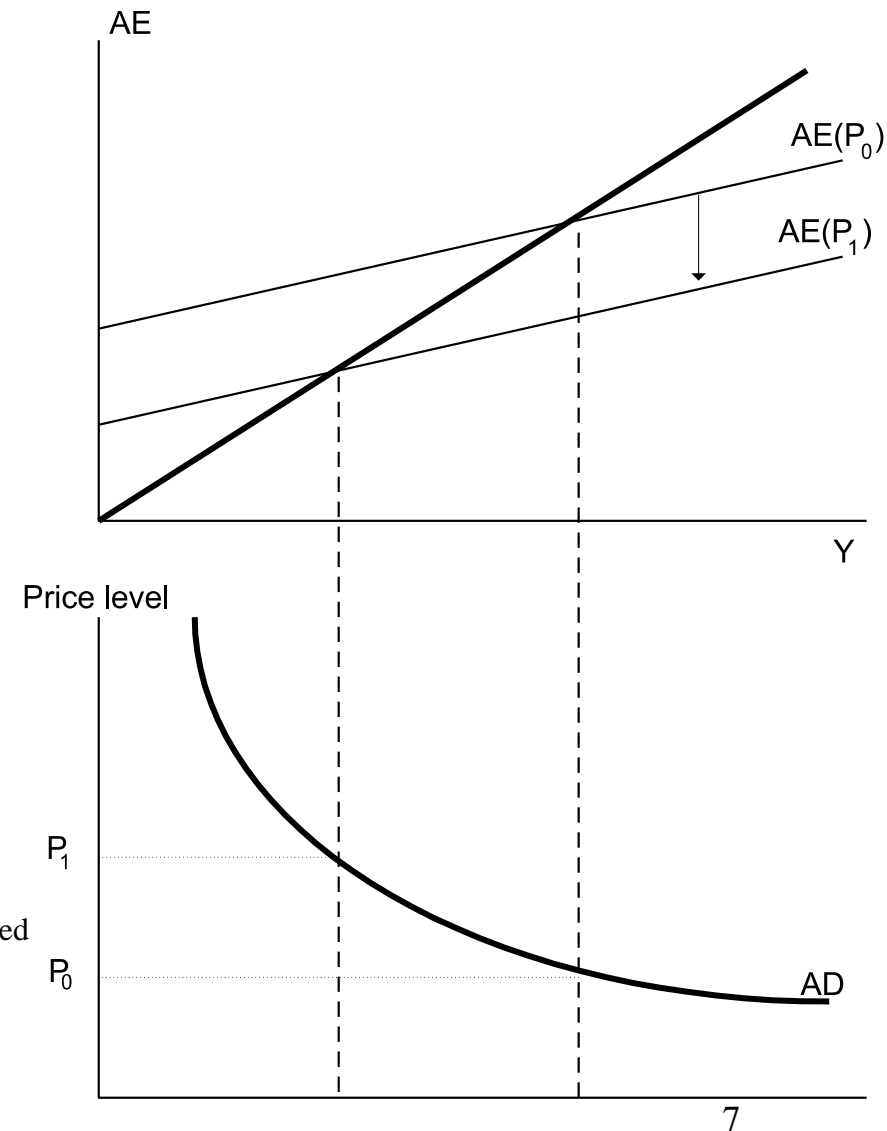
1. The interest rate effect:

The AD curve is drawn for a particular money supply.
When P increases, consumers, businesses need more money
demand for money increases
(i.e. money D curve shifts out)
interest rate increases (i.e. the cost of borrowing)
and investment spending goes down

2. The wealth effect of an increase in P :

When P increases , the real value of fixed return assets
(e.g. cash under the mattress, bonds with a fixed rate of return)
will decrease

Households feel less secure financially - rainy day savings are diminished
in value so they reduce consumption expenditures.



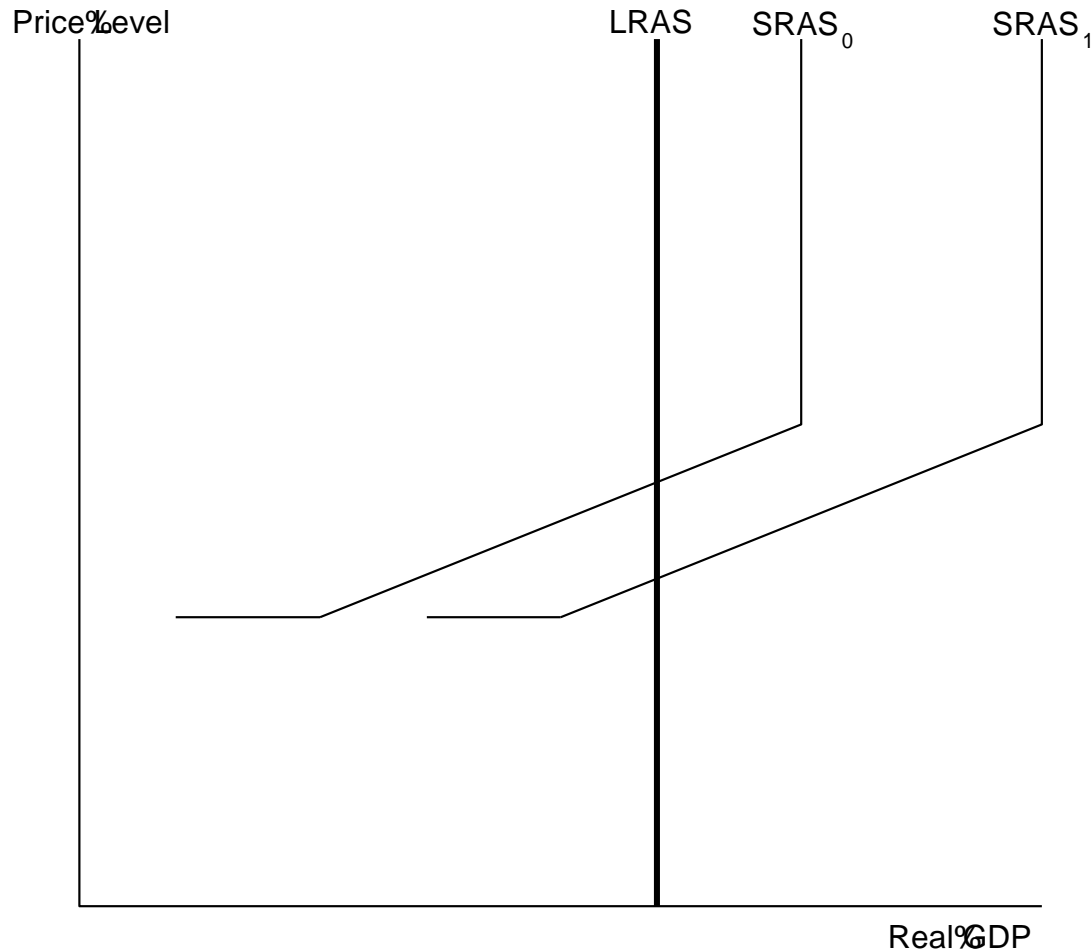
WHAT CAUSES THE AD CURVE TO SHIFT?

Remember: holding the price level constant: any increase in C, I or G will increase GDP.

- 1. *A change in buying confidence: consumer/business expectations*
- 2. *A change in wealth not due to a change in P*
 - e.g. if stock prices increase then stock holders experience capital gains, they are wealthier although the price level has not changed
- 3. *A change in taxes on businesses or consumers (ceteris paribus)*
- 4. *A change in interest rates not caused by a change in P :*
 - eg. Suppose the money supply is increased: As M_s is increased, i goes down (money is easier to get), increase in investment spending
- 5. *Changes in the level of government spending*
 - (holding taxes/ i constant) : e.g. a govt. rainy day fund
- 6. *A change in exchange rates*
- 7. *A change in foreign GDP*

AGGREGATE SUPPLY: AGGREGATE SUPPLY IN THE SHORT RUN

AS represents the relationship between the price level and the level of domestic output that will be available at each price level.



REGIONS OF THE AGGREGATE SUPPLY FUNCTION

The “Keynesian” region:

Relatively Flat indicating a low stable price level when the economy is producing well below full employment (capacity). If output is expanded, inputs are plentiful and will not increase the costs of production. Demand for goods is weak and there is little pressure for prices to rise.

The “intermediate” region:

Upward sloping indicating that as real output is expanded, the price level starts to rise.

Why? Simple answer: as we move closer to full employment resources become more scarce with the result that bottlenecks and shortages begin to occur. Also as some sectors expand while others remain static or decline, there are delays in transferring resources from one sector to another. E.g. retraining periods for skilled labor.

Resources that are less suitable for a particular use are used by necessity due to shortages - this creates higher costs

WHAT SHIFTS THE AGGREGATE SS FUNCTION AS)?

- *Shifts have to be caused by something other than a change in the price level.*
 - Changes in costs of production
 - Changes in the size of the labor force or capital stock
 - Changes in raw material access
 - Technological change
 - Market power - monopolies can more easily raise prices
 - Expectations
 - Changes in business taxes or government regulations
 - Cost of imported resources: e.g. Oil!

SHIFTS IN SRAS & LRAS

SRAS and LRAS shift 'right if:

1. L increases
2. K increases
3. Human capital increases
4. new discovery of raw materials
5. technology advances
6. incentives strengthened

Changes in equilibrium output

SRAS shifts down if:

1. wages decrease
2. material prices decrease

What happens to the equilibrium output when AD Shifts?

What happens when the short-run AS curve shifts?

Equilibrium exists where $AS = AD$

What if AS and AD are not equal?

MACROECONOMIC POLICY

- stabilization
 - shorten recessions
 - counteract inflation
- taxation: the effects of changes in
 - autonomous spending dampened by taxation

Fiscal Policy

 - government spending
 - taxation
 - borrowing
- *Built-in Stabilizers:*
- Timing of discretionary fiscal/monetary policy
 - how well do we understand the fluctuations of the "business cycle"?
 - Can the government respond at the appropriate time?
- Other policy goals
 - growth
 - "full" employment
- - redistribution
- *budget management:* deficits must be financed by: creation of money or borrowing

MONEY, MONETARY POLICY AND MONEY SUPPLY

- Money ?: Unit of account , store of value, medium of exchange
- Demand for Money: transactions and liquidity preference
- Monetary policy
 - controlling the supply of money
 - influencing the money market
 - influencing private investment
- tight money: central bank sells securities to chartered banks, reserves go down at CB's and this is multiplied through the system....fewer loans.....fewer banks deposits.....money supply falls and interest rates rise. **AD shifts left as investment, consumption declines.**
- easy money: central bank buys government securities from chartered banks....reserves go up, banks lend out more cash, which ends up as a deposit in other accounts.....multiplied through the system.
 - **money supply increases, interest rates fall, investment, consumption increase, AD shifts out to the right.**

AS & AD INTERPRETATIONS

- **A "Keynesian" interpretation**

The AS is upward sloping as we approach (and exceed?) productive capacity (the full employment level of GDP). An apparent trade-off between inflation and unemployment; Even if Y^* is undesirably low, we can increase output (employment) past Y^* at a cost of increasing the price level

- **The "Monetarist" interpretation**

In the long run, the AS curve is vertical at the full capacity level of GDP...any increase in GDP beyond this cannot be maintained and will have damaging side effects: accelerating inflation

FRIEDMAN AND MONETARISM

The quantity theory of money

$$MV = PY$$

Friedman: Y = "permanent income" or real GDP

M is the money supply

V is the velocity of circulation

P is the price level

The government can finance a deficit by

1. printing money
2. borrowing

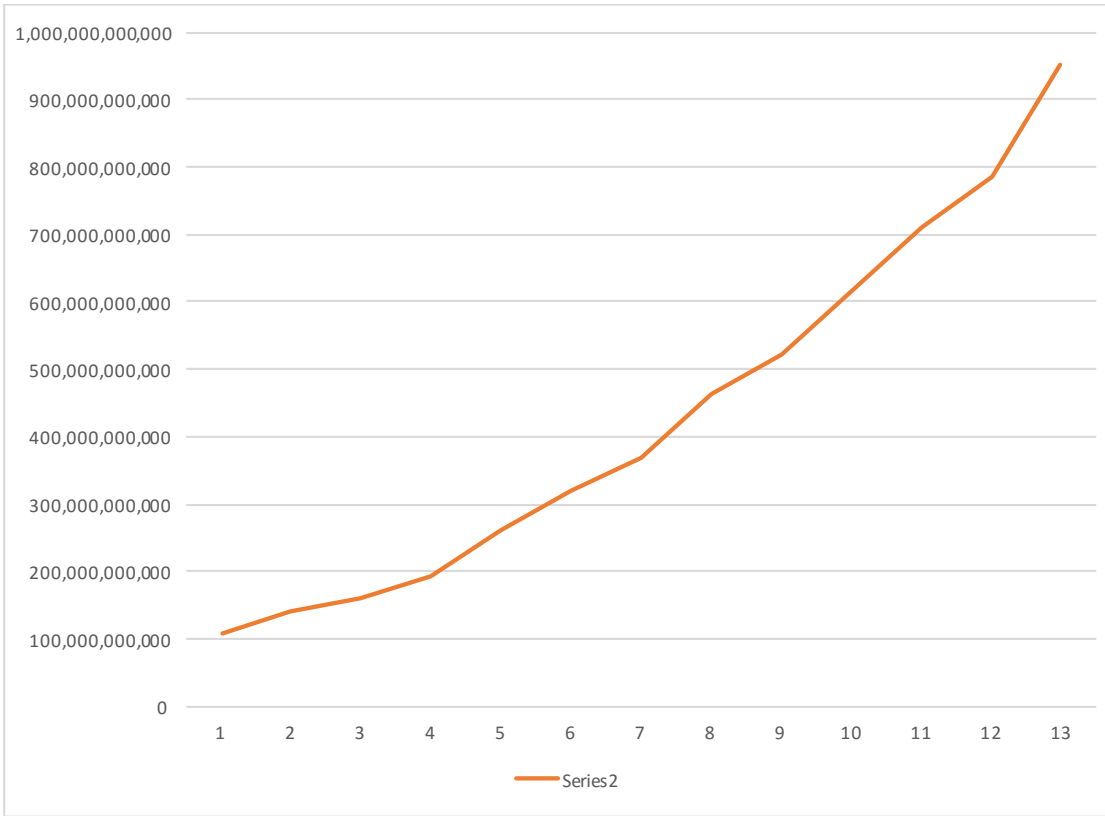
When the government borrows:

1. supply of bonds increases
2. price of bonds fall
3. interest rates rise
4. investment, consumption fall
5. there is a "crowding out effect"

MONEY SUPPLY

- Monetary policy shown to be powerful in short term
- Changes in money supply affects *i*-rates, exchange rates, investment
- Three definitions, each successive one broader
 - $M1 = \text{Currency in circulation} + \text{Demand deposits (TRY, FX)}$
 - $M2 = M1 + \text{Time deposits (TRY, FX)}$
 - $M3$ comprises $M2$ + public sector official time and sight deposits and other Central Bank deposits (excluding IMF deposits).
- Note each successive includes less liquid assets.

M2 2001-2013



Year	Growth Rate
2002	0.279
2003	0.144
2004	0.208
2005	0.358
2006	0.222
2007	0.152
2008	0.249
2009	0.127
2010	0.185
2011	0.152
2012	0.104
2013	0.212

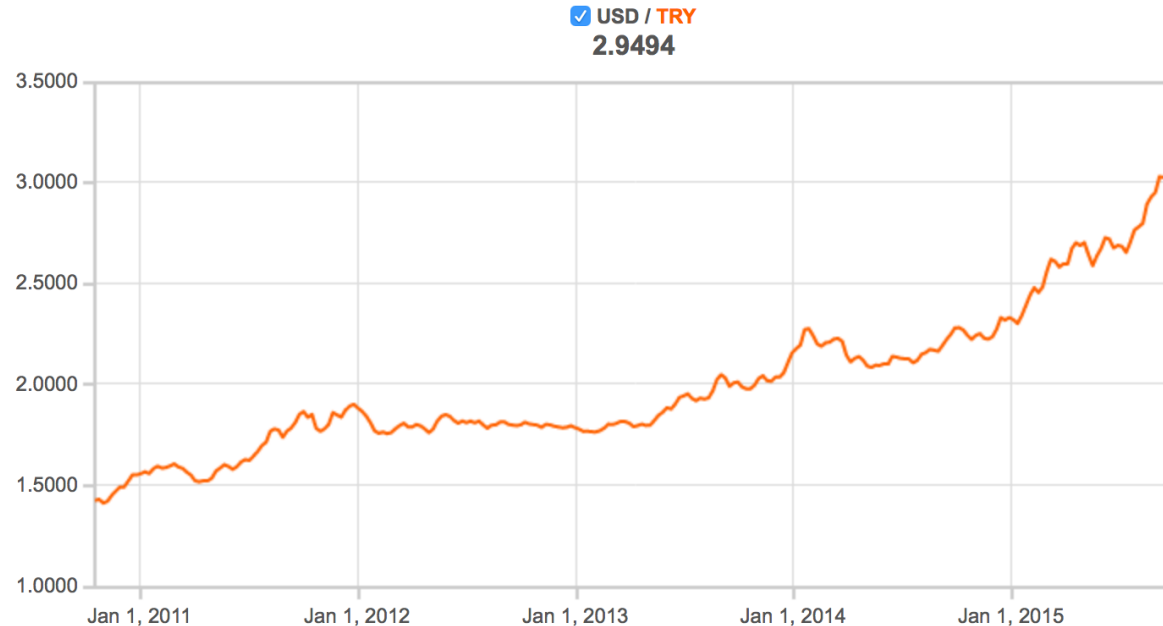
TRADE, EXCHANGE RATES AND PPP

- Small or large and open or closed
- Balance of trade: exports-imports
- Trade: based on comparative advantage & distribution of tastes (e.. Wine, cars, electronics)
- Trade restrictions:
 - Protect domestic industries from foreign competition (the “infant” industry argument)
 - diversification: risk, future markets
 - Retaliation
 - generate revenues for government
 - interest groups
- Taxes
- Quotas

TRADE, EXCHANGE RATES AND PPP

- The exchange rate is the Turkish Lira price of one unit of a foreign currency:
e.g. Oct 14, 2015 1TL = 0.44\$Can
- Whoever is supplying foreign currency to the exchange market is demanding some foreign currency
- Foreign inflation will decrease the exchange rate
- Domestic inflation will increase the exchange rate (depreciate the currency)

Average BID rate for the week of Monday, Oct 5, 2015 to Sunday, Oct 11, 2015 @ +/- 0%



PURCHASING POWER PARITY - PPP

- In theory, the exchange rate between any two countries (if determined by market forces) will always adjust to reflect differences in the price level between the two countries.
 - E.g. If Canadian steel costs \$200 per tonne and Swedish steel costs 1000 krona, on the world market, then the exchange rate must be 20¢ per krona.
- PPP theory is used to predict the long-term effects of inflation on exchange rates
 - If one country has a faster rate of inflation than another, its exchange rate must be depreciating.
- Shorter term effects are less easy to predict
 1. markets do not operate free from intervention (tariffs, quotas etc..)
 2. some goods and services are not traded across international borders (land, buildings, haircuts)
 3. if the source of the inflation is due to non traded goods, then the exchange rate is not effected.
 4. Products are rarely homogeneous

FIXED VERSUS FLEXIBLE EXCHANGE RATES

- Fixed versus flexible Exchange rates:
 1. *Freely floating exchange rates*: exchange rates determined by market forces
 2. *Fixed rate*: central bank buys and sells Lira to maintain a set exchange rate.
 3. *Managed [dirty] float*: central bank maintains plays a stabilizing role?
- Monetary and fiscal policy in a small open economy
 - Near perfect capital markets...any differential in real interest rates (e.g. US versus Can) will generate capital inflows/outflows.

FIXED VERSUS FLEXIBLE EXCHANGE RATES

- Maintaining a **fixed exchange rate** necessitates giving up an independent monetary policy
 - capital outflows (higher US interest rate) requires that the Bank purchase Canadian dollars to maintain the exchange rate...
 - a decrease in the money supply until interest rates equalize
 - capital inflows (higher domestic interest rates) requires that the Bank purchase foreign exchange (with Canadian dollars)...
 - an increase in the money supply until interest rates equalize onetary policy

FIXED VERSUS FLEXIBLE EXCHANGE RATES

- **Flexible exchange rates:** the government loses some control over aggregate demand:
 - capital outflow results in a devaluation....lower imports and higher exports giving a net effect of shifting out of the AD curve.
 - 1950'S...flexible exchange rates
 - 1960's...fixed exchange rate
 - 1970's ...a mixture of the two
 - 1980's flexible
 - currently....supposedly a flexible exchange rate but one that is subject to heavy intervention from time to time.

MONETARY POLICY

Under fixed exchange rates:

the ability to use monetary policy to effect AD is lost because the requirement of defending the exchange rate causes capital inflows/outflows which reverse desired changes in the money supply. If the Bank wants to resist/fight inflation by decreasing (or reducing the rate of increase of) the money supply, domestic interest rates rise causing a capital inflow which puts upward pressure on the Turkish Lira...in order to maintain the fixed rate of exchange the Bank must purchase foreign currency with Turkish Lira...the money supply increases!

Under flexible exchange rates:

in a small open economy monetary policy works through the sensitivity of net exports to changes in the exchange rate rather than through the sensitivity of investment spending to the interest rate. A decrease in the money supply to combat inflation causes a capital inflow which puts upward pressure on the value of the dollar.

The Turkish lira appreciates and net exports decline...aggregate demand shifts in so that output and the price level are further reduced.

FISCAL POLICY

Under fixed exchange rates:

Changes in government spending intended to shift the AD curve will be reinforced by the resulting capital flows and the required increases and/or decreases in the money supply necessitated by a pegged exchange rate. If the government increases spending, this shifts out the AD curve. As national income increases the transaction demand for money increases....money demand shifts out, putting upward pressure on the interest rate.

Capital inflows put upward pressure on the dollar which requires that the government buy up foreign exchange ...the money supply increases until the interest rate is equalized with the rest of the world.

Thus the offsetting effect of an increase in interest rates that would otherwise have accompanied this policy is negated....

Under flexible exchange rates:

Changes in government spending will be counteracted by the effects of capital flows on net exports. That is government spending replaces (is replaced by) export demand when spending increases (decreases) If government spending increases in an attempt to shift out aggregate demand, upward pressure on the interest rate (money demand shifts out) results in capital inflows so that the exchange rate appreciates.

Exports decline and imports increase so that AD shifts back.

END OF MODULE 15