3543 Fiscal and Financial System in Japan A / KC3002 International Finance

Fall 2012

Lecture 9(Dec 11)
Open Economy Macroeconomic Model: DD-AA Model

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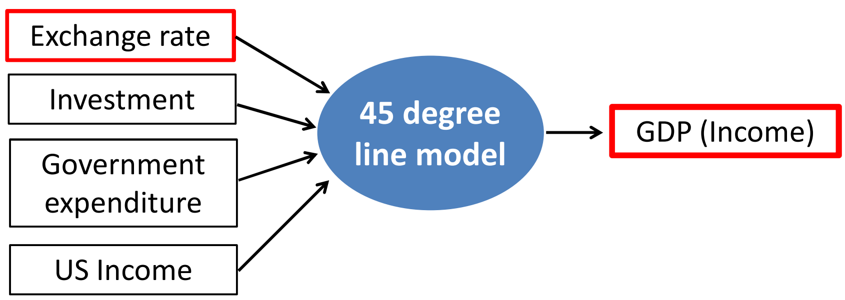
Model of the goods market

Inputs
(Exogenously given variables)

Output
(Endogenously determined variable)



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Aggregate demand for goods/services

Aggregate demand for goods/services consists of the following types of demands:

1. **Consumption demand (C)**
   Household's demand for domestic goods/services
2. **Investment demand (I)**
   Firm's demand for domestic goods/services
3. **Government demand (G)**
   Government's demand for domestic goods/services
4. **Trade Balance (TB)**
   Net foreign demand for domestic goods/services

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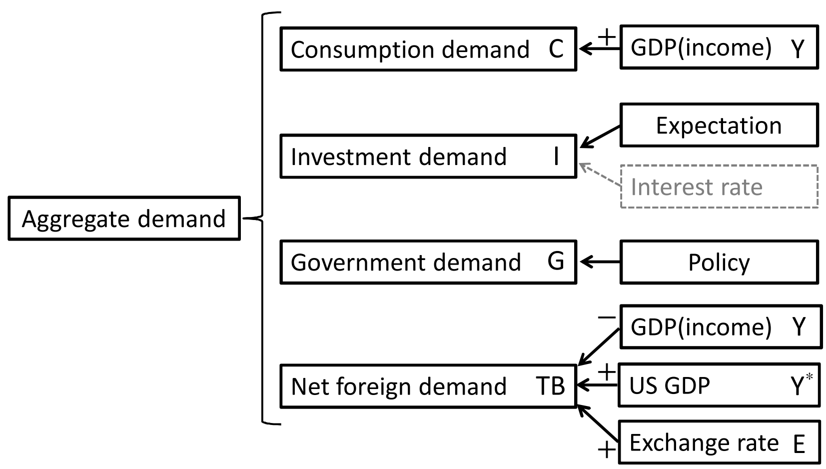
Components of aggregate demand



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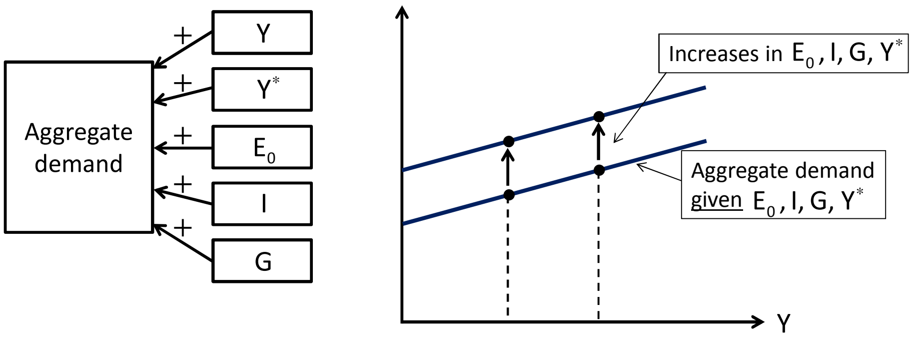
Components of aggregate demand



Changes in E_0, I, G, Y^* shifts the demand schedule upward or downward.

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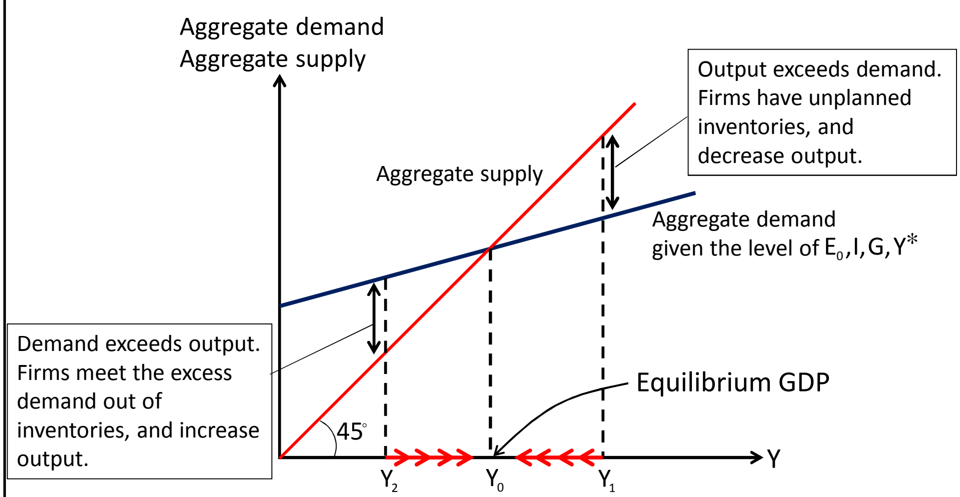
Equilibrium in the market for goods



<u>Given the level of investment, government expenditure, the US GDP and exchange rate</u>, the Japan's GDP is determined at a level where the aggregate demand are equal to the aggregate supply.

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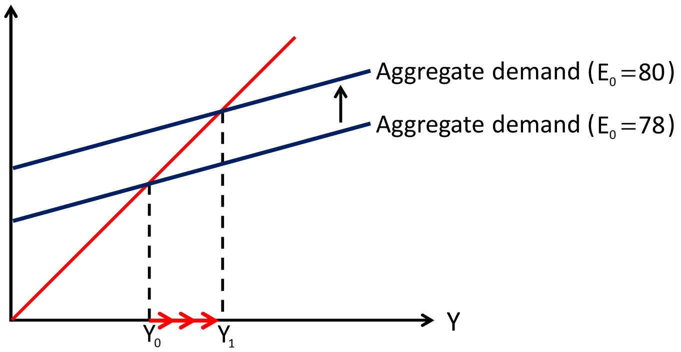
Changes in the equilibrium GDP(1)

An increase in the yen/dollar exchange rate raises the net export demand for the Japanese goods/services at every level of output.

An increase in the yen/dollar exchange rate raises the aggregate demand at every level of output.



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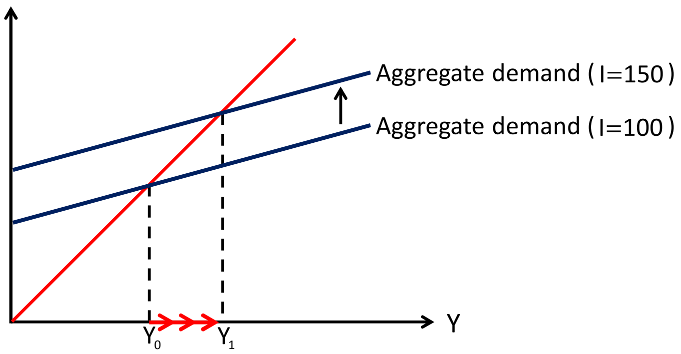
Changes in the equilibrium GDP(2)

An increase in investment demand raises the aggregate demand for the Japan's goods/services at every level of output.



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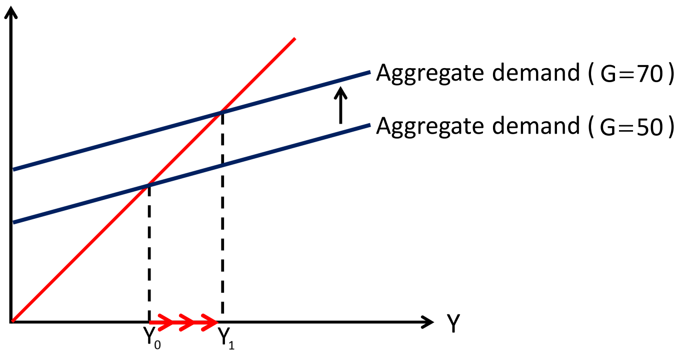
Changes in the equilibrium GDP(3)

An increase in government expenditure raises the aggregate demand for the Japan's goods/services at every level of output.



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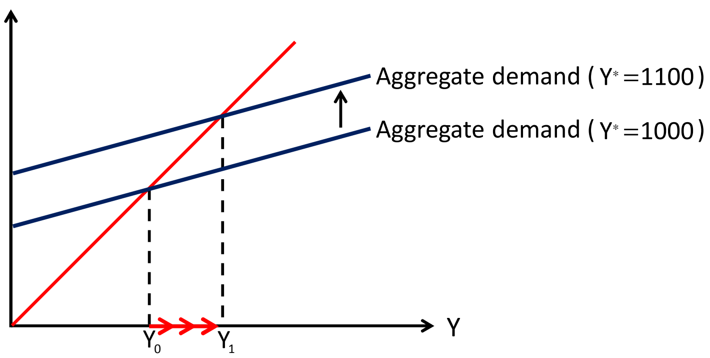
Changes in the equilibrium GDP(4)

An increase in the US GDP raises the US demand for the Japanese goods/services at every level of Japan's output.

An increase in the US GDP raises the aggregate demand for the Japanese goods/services at every level of Japan's output.



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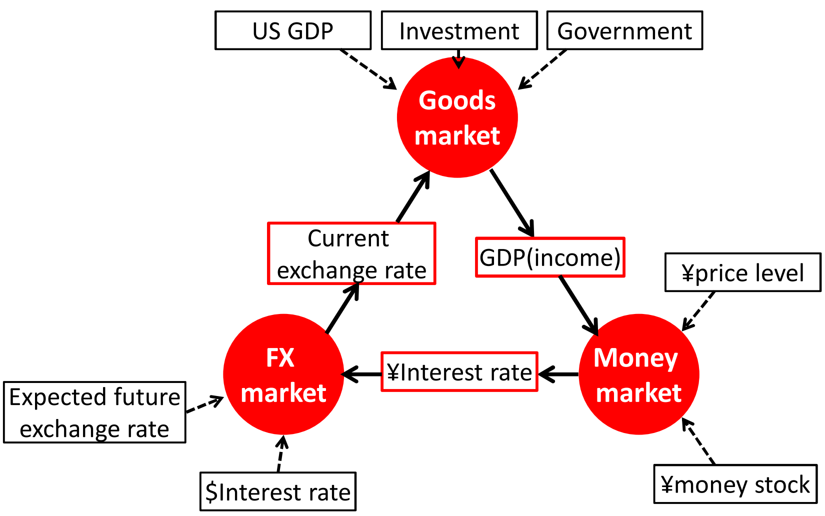
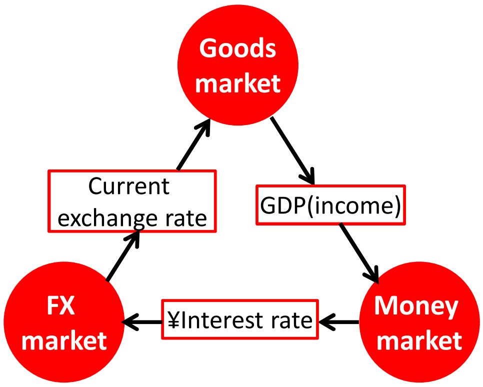
OPEN ECONOMY MACROECONOMIC MODEL: THE DD-AA MODEL

Combining the three models



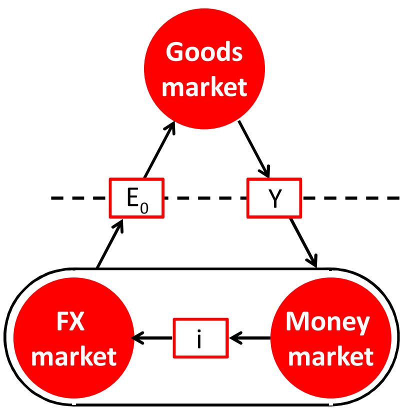
Simultaneous equilibrium in three markets



The three variables are determined so that all the markets are in equilibrium simultaneously.

What is the value of E_0, i, Y where all the markets are in equilibrium simultaneously?

DD-AA approach to the equilibrium



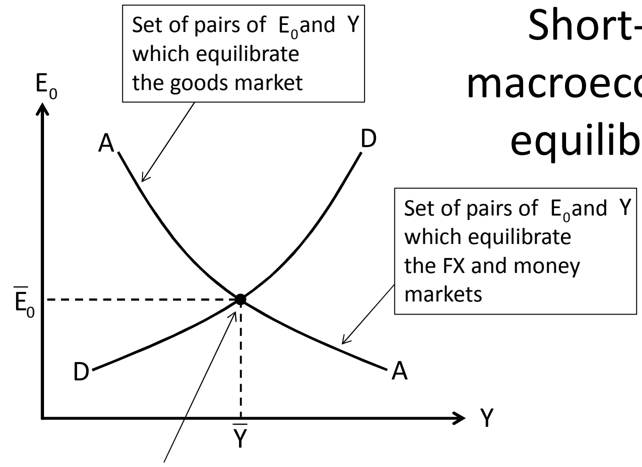
Find the pairs of E_0 and Y which equilibrate the goods market.

DD set

Find the pairs of E_0 and Y which equilibrate the FX market *and* the money market simultaneously.

AA set

Short-run macroeconomic equilibrium



The short-run macroeconomic equilibrium where the goods, FX, and money markets are in equilibrium simultaneously, with the product prices constant.

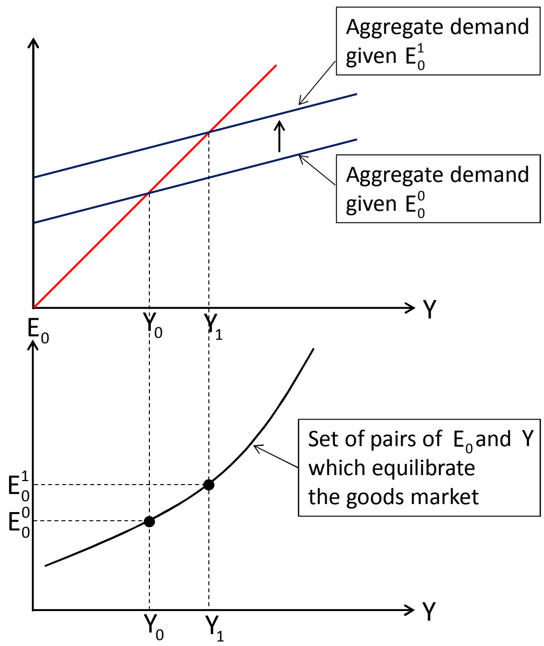
Why does the DD schedule slope upward?
Why does the AA schedule slope downward?

Deriving the DD curve

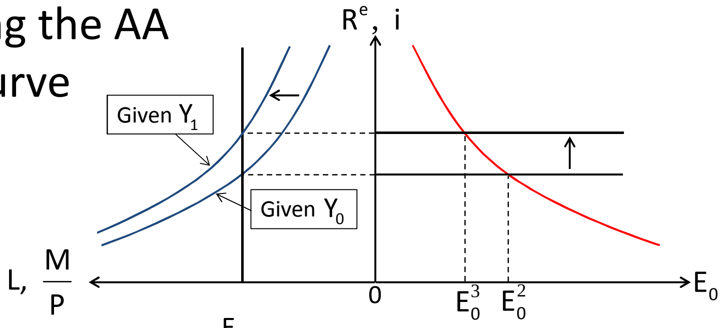
Suppose E_0^0 and Y_0 equilibrate the goods market.

An increase in E_0 raises the aggregate demand.

A larger Y meets the larger demand.



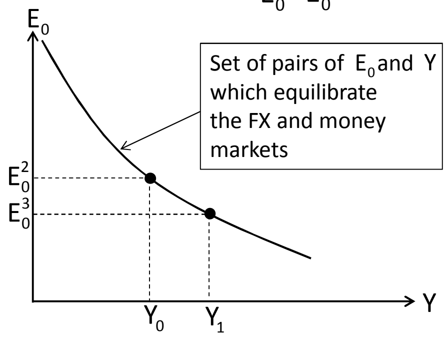
Deriving the AA curve



Suppose E_0^2 and Y_0 equilibrate the FX and money markets.

An increase in Y raises the interest rate.

A lower E_0 raises the expected return on the dollar assets and makes the interest parity hold.



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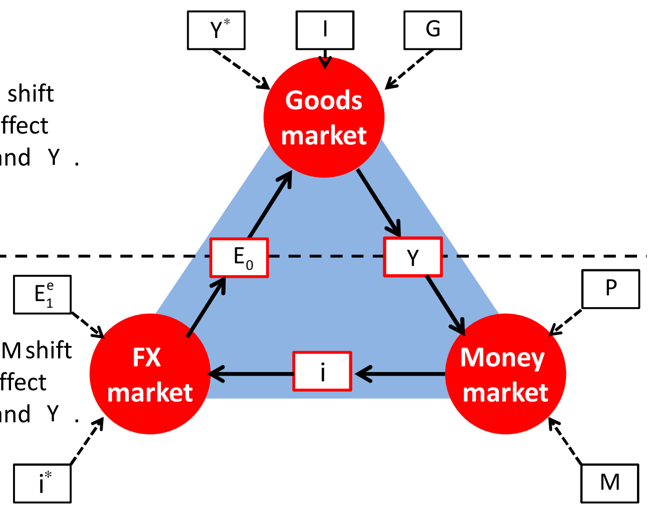
Changes in macroeconomic equilibrium

Changes in I, G, Y^* shift the DD curve and affect the equilibrium E_0 and Y.

Changes in E_1^e, i^*, P, M shift the AA curve and affect the equilibrium E_0 and Y.



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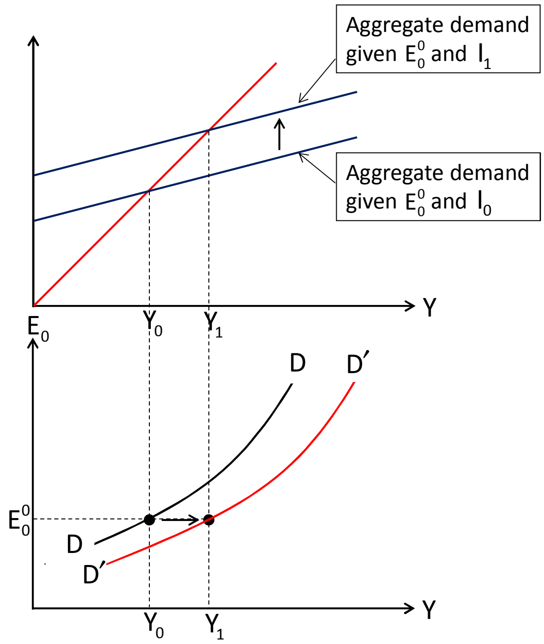
Shifting the DD curve

Suppose the investment demand increases from I_0 to I_1.

The increase in the aggregate demand raises the equilibrium GDP at the same level of the exchange rate, E_0^0.

An increase in the investment demand shifts the DD curve rightward.



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Shifting the DD curve

The same rightward shift of the DD curve happens if:

1. the government demand increases
2. the US GDP increases
3. the consumption demand increases for reasons other than changes in exchange rates or GDP(*)
4. the net foreign demand increases for reasons other than changes in exchange rates or GDP(*)

(*) Optional. Not included in Final.

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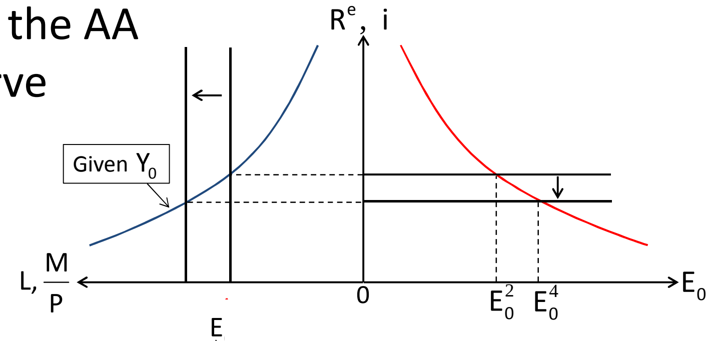
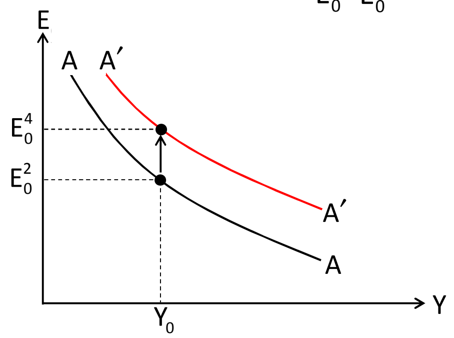
Shifting the AA curve



Suppose the nominal money stock increases from M_0 to M_1.

An increase in M raises the equilibrium exchange rate at the same level of GDP, Y_0 .

An increase in the nominal money stock shift the AA curve upward.



Shifting the AA curve

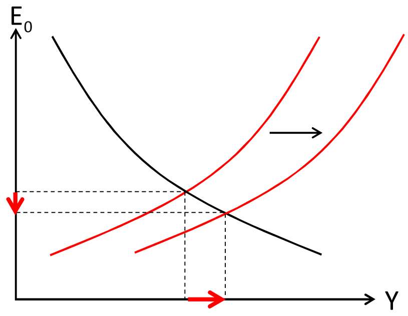
The same upward shift of the AA curve happens if:

1. the price level falls
2. the demand for money increases for reasons other than changes in interest rates or GDP(*)
3. the dollar interest rate rises
4. the future dollar appreciates

(*) Optional. Not included in Final.

Changes in the macroeconomic equilibrium(1) : shift of the DD curve

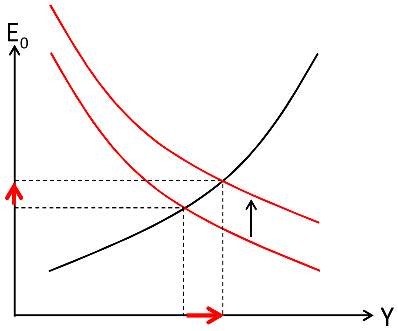
If
- I increases
- G increases
- Y^* increases
- C increases for some reason
- TB increases for some reason ,



the yen/dollar exchange rate falls (= the yen appreciates) and the GDP rises.

Changes in the macroeconomic equilibrium(2) : shift of the AA curve

If
- P decreases
- L increases for some unknown reason
- i^* increases
- E^e_1 increases,



the yen/dollar exchange rate rises (= the yen depreciates) and the GDP rises.

Monetary and fiscal policy

External shocks that affect the macroeconomic equilibrium

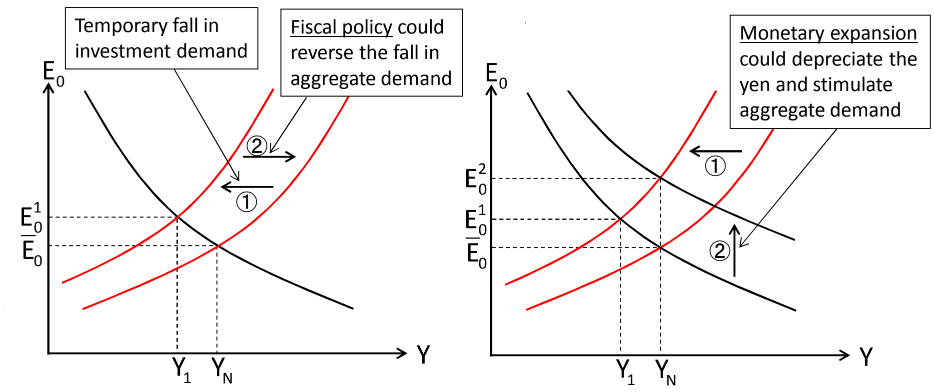
Changes in I, $\boxed{G}$, TB, Y^*, P, $\boxed{M}$, L, E_1^e, i^*

It is possible that the governments and the central bank will use G and M as policy instruments to cushion the external shocks to the economy.

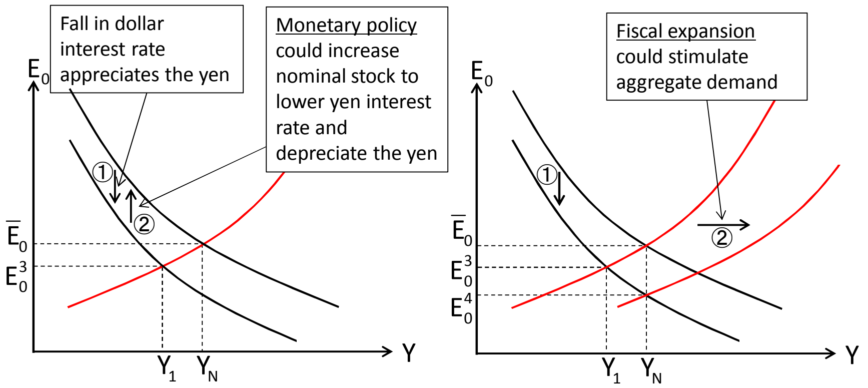
Monetary policy: policy in which the central bank influences the nominal stock of money, M.

Fiscal policy: policy in which the governments influence the amount of government purchases, G.

Countercyclical policy (1)



Countercyclical policy (2)



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1. Which curve is affected by which external shocks?

   Changes in I, G, TB, Y^*, P, M, L, E_1^e, i^*

2. How are the DD and AA curve shifted by these shocks?

3. What are the effects on the macroeconomic equilibrium, Y, E_0 and i ?

4. How could macroeconomic policies alleviate the effects of those shocks to the economy? What is the difference between fiscal and monetary policy?

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