

# Teaching Macroeconomics after the Crisis: What have we learnt?

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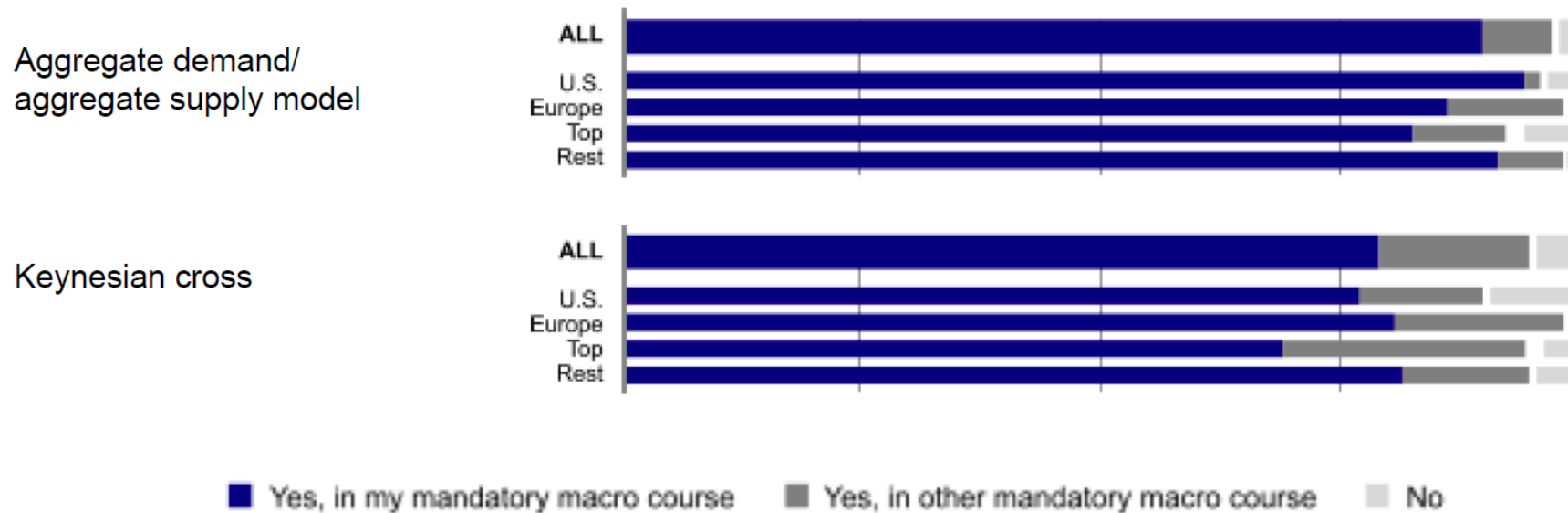
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Finding the right trail head is important



# Survey by Gärtner et al. (2011)

- Are these topics and models included in your institution's mandatory macro courses?



Axel Leijonhufvud (2011, p.1)

- “The IS-LM model which originated as an attempt to formalize the verbal economics of Keynes, led after years of debate to the seemingly inescapable conclusion that unemployment had to be due to the downward inflexibility of money wages. This old neoclassical synthesis thus casts Keynesian economics as a stable system with a “friction”, rather than a theory of an economy harboring dangerous instabilities.”

# Flaws of the standard presentation of the IS/LM-AS/AD model

## 1. Inconsistencies:

- 2 supply curves (45°-line, AS-curve)
- 2 demand curves (aggregate demand in the income/expenditure model, AD-curve)

## 2. No analytical explanation of involuntary unemployment

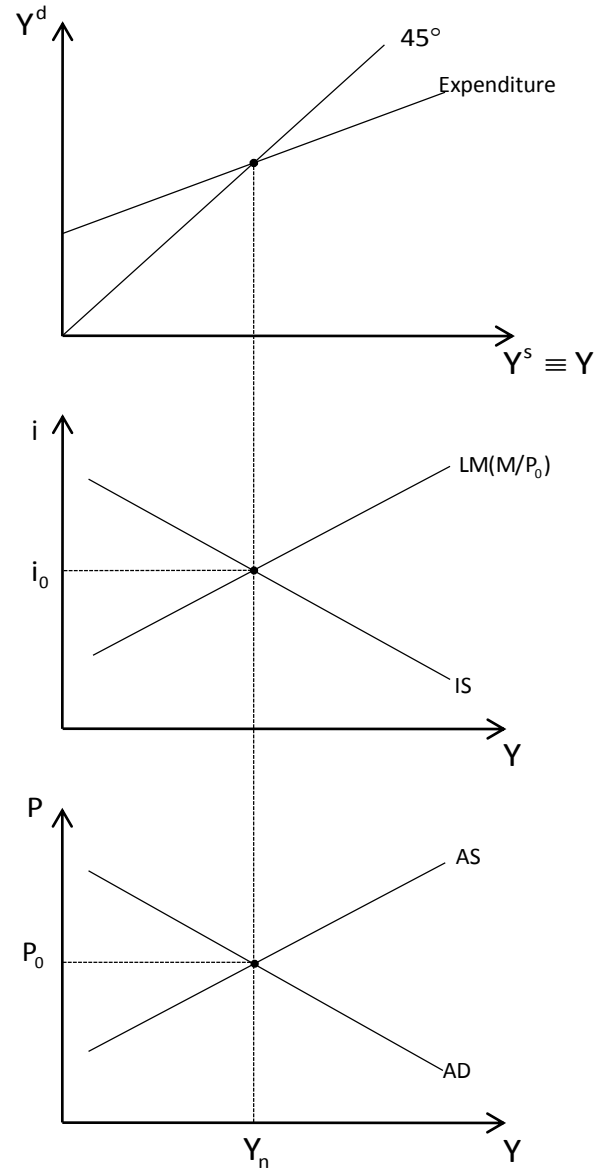
## 3. No analysis of fiscal and monetary policy on the basis of loss functions and no systematic analysis of shocks

## 4. No zero-lower bound of interest rates: deflation is stabilizing

## 5. Focus on price level (instead of inflation rate) and on money stock as monetary policy instrument (instead of interest rate)

## 6. Confusion of a monetary model (IS/LM-AS/AD) with a real model („Loanable funds)

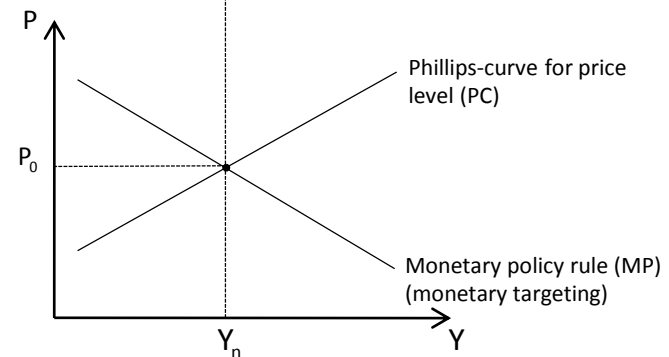
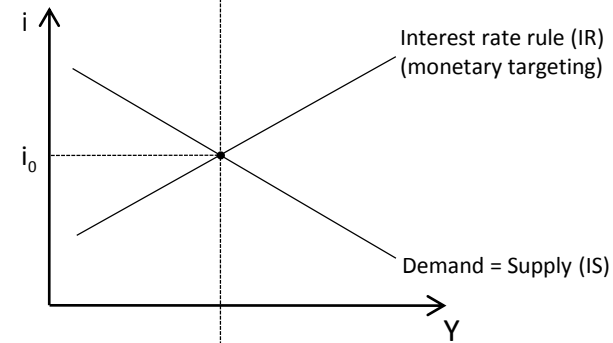
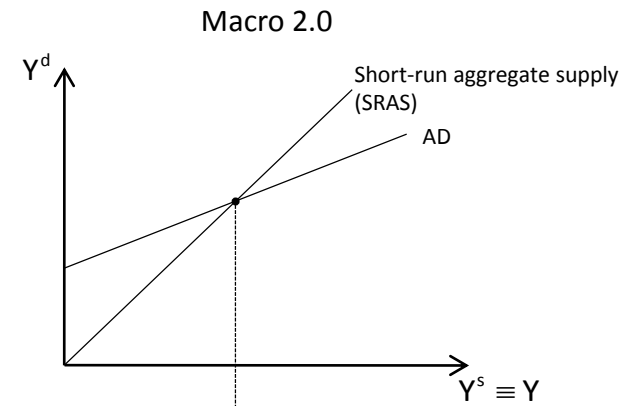
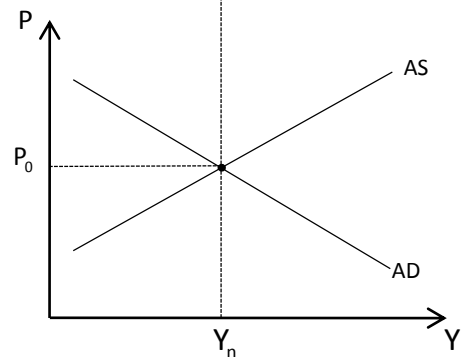
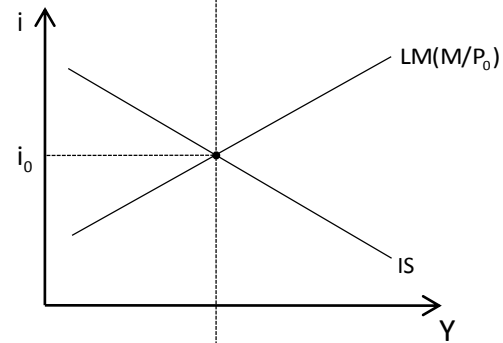
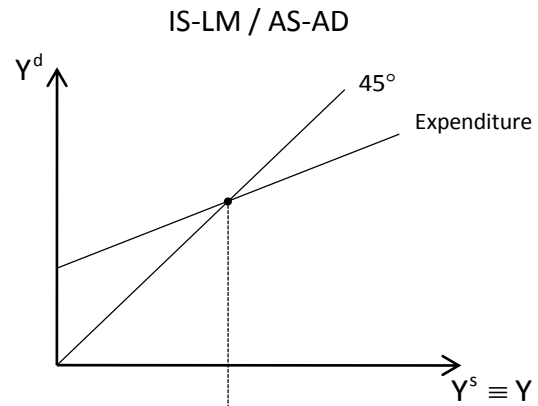
# 1. Inconsistencies of the IS/LM-AS/AD presentation



# Reinterpretation

- 45°-line (income/expenditure model): Keynesian short-term supply curve
- Expenditure-line (income/expenditure model): aggregate demand curve
- IS-Curve (IS): Equilibrium on goods market
- LM-Curve (LM): Interest rate line for policy rule of monetary targeting
- AD-Curve (AD): Monetary policy rule for monetary targeting
- AS-Curve (AS): Phillips-Curve for the price level

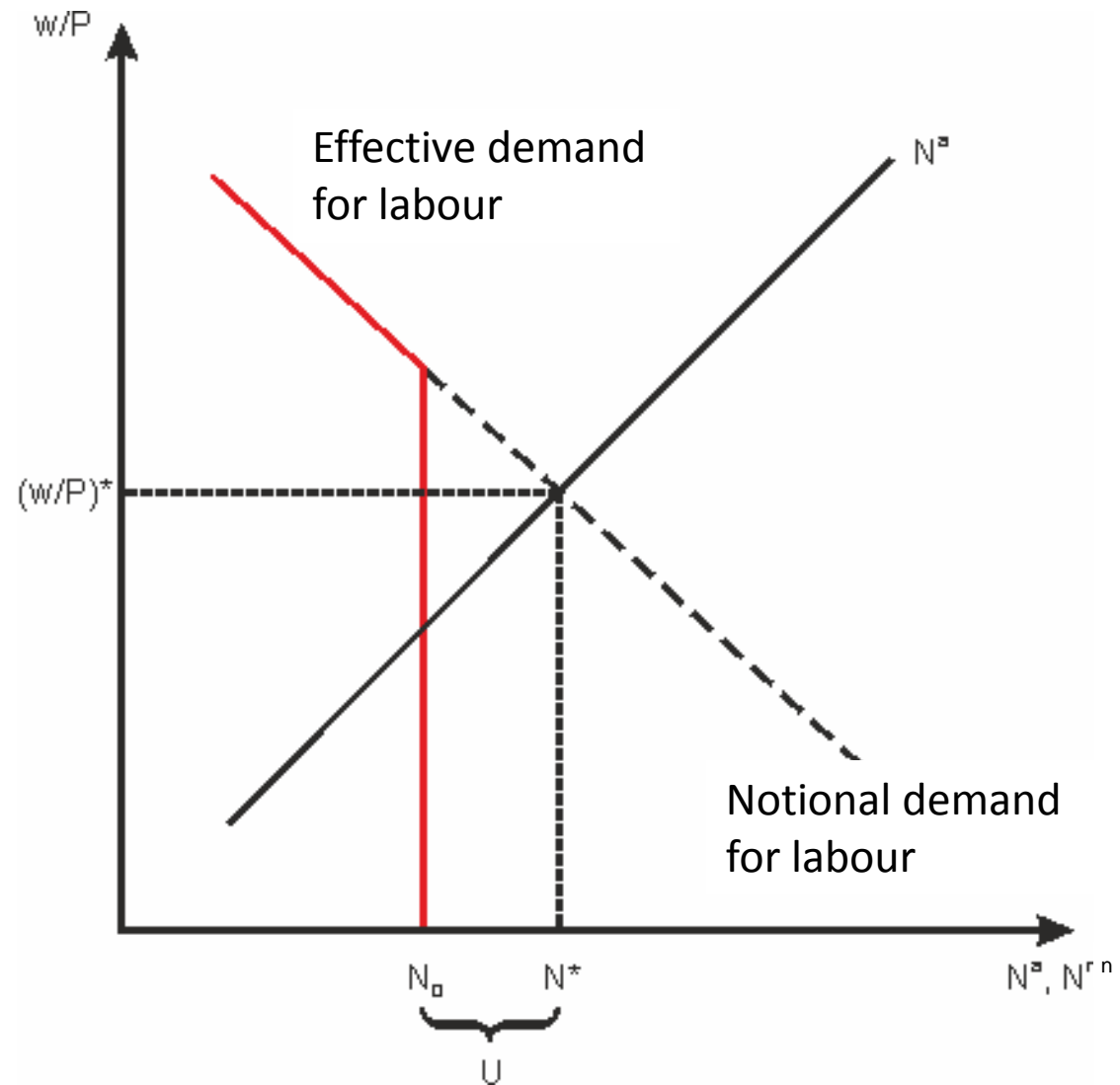
# The re-interpreted model in comparison



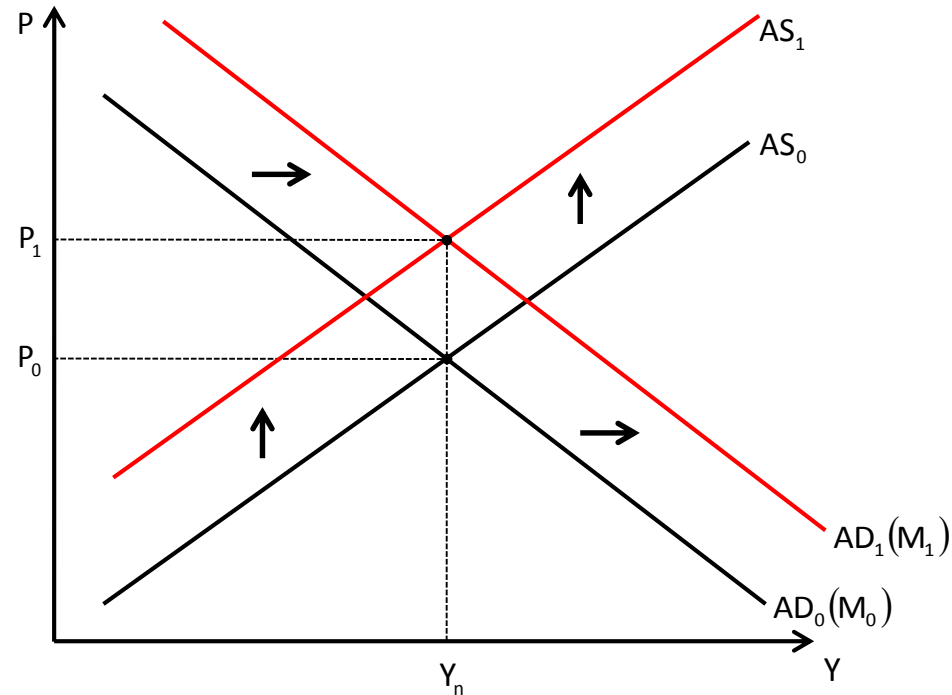




# Keynesian Unemployment



### 3. Destabilizing monetary policy in standard textbooks

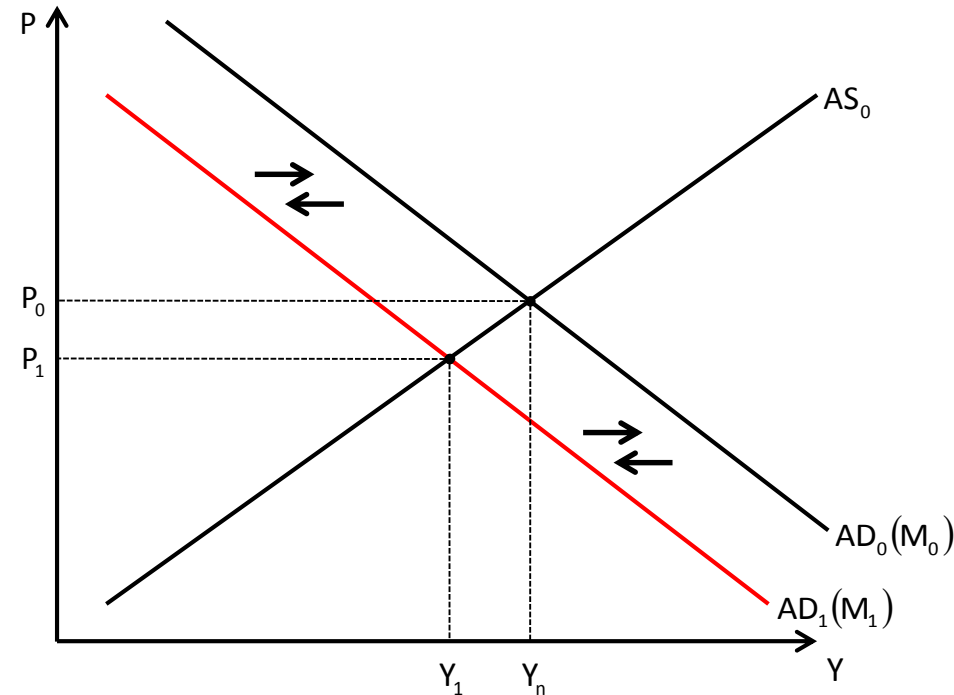


- Expansionary monetary policy shifts AD-curve to the right
- This leads to higher inflation expectations (AS-curve shifts upwards)
- Monetary expansion has no permanent output effect  $\rightarrow$  only price level changes from  $P_0$  to  $P_1$

➤ **Problem:**

Monetary policy guided by a loss-function (e.g.  $L=(P-P_0)^2+\lambda(Y-Y_0)^2$ ) would have no incentive to do such a monetary expansion!

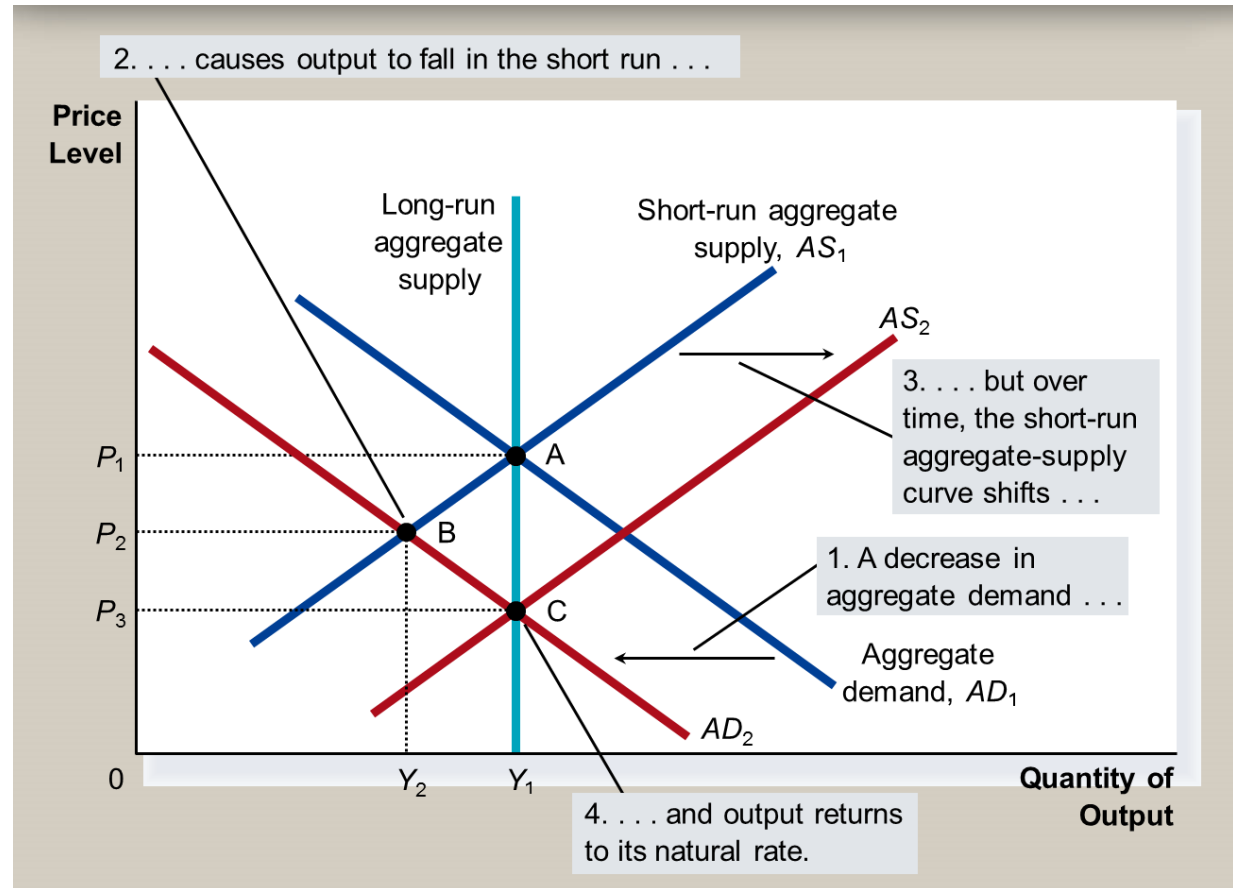
# Stabilising of monetary policy after a demand shock



- Negative demand shock shifts AD-curve to the left
  - For a central bank (characterized by a loss-function) the combination  $P_1/Y_1$  implies a loss
- **Implications for monetary policy:**
- The central bank can perfectly compensate a demand shock by increasing the money supply from  $M_0$  to  $M_1$  ( $P_0/Y_n$  is reached)
  - In the situation of a demand shock there is no trade-off for the monetary policy

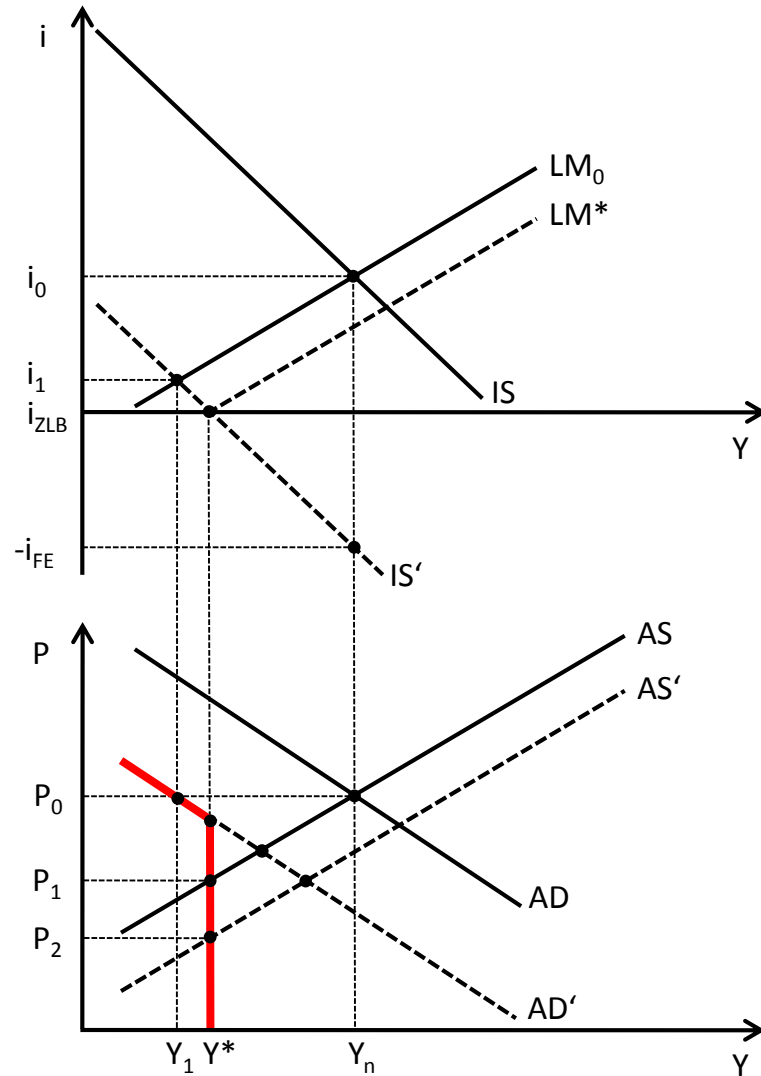
# 4. Deflation: a self-stabilizing process?

„In the new long-run equilibrium, point C, output is back to its natural rate. **The economy has corrected itself: The decline in output is reversed in the long run even without actions by policymakers.** Although the wave of pessimism has reduced aggregate demand, the price level has fallen sufficient (to  $P_3$ ) to offset the shift in the aggregate-demand curve, and people have come to expect this new lower price level as well. Thus, in the long run, the shift in aggregate demand is reflected fully in the price level and not at all in the level of output. In other words, the long-run effect of a shift in aggregate demand is a nominal change (the price level is lower), but not a real change (output is the same).”



Quelle: Mankiw, Principles of Economics, pp. 742-3

# Severe demand shock and the zero lower bound



- Strong negative demand shock shifts IS and AD-curve to the left
- Output level with full employment  $Y_n$  requires a negative nominal interest rate  $-i_{FE}$
- Maximum output level  $Y^*$  is restricted by the zero lower bound
- AD-curve is kinked
- Deflation (downward shift of AS-curve) is not able to reach the full employment level of output
- Destabilizing effects of inflation on the real interest rate cannot be analysed in this model

## 5. Focus on price level and on money stock

- Message of the IS-LM/AS-AD model: The central bank targets the price level with the instrument of the money stock
- Reality: Central bank targets the inflation rate with the instrument of the interest rate

# A simple new-Keynesian model

- 3 basic equations

- IS-Curve

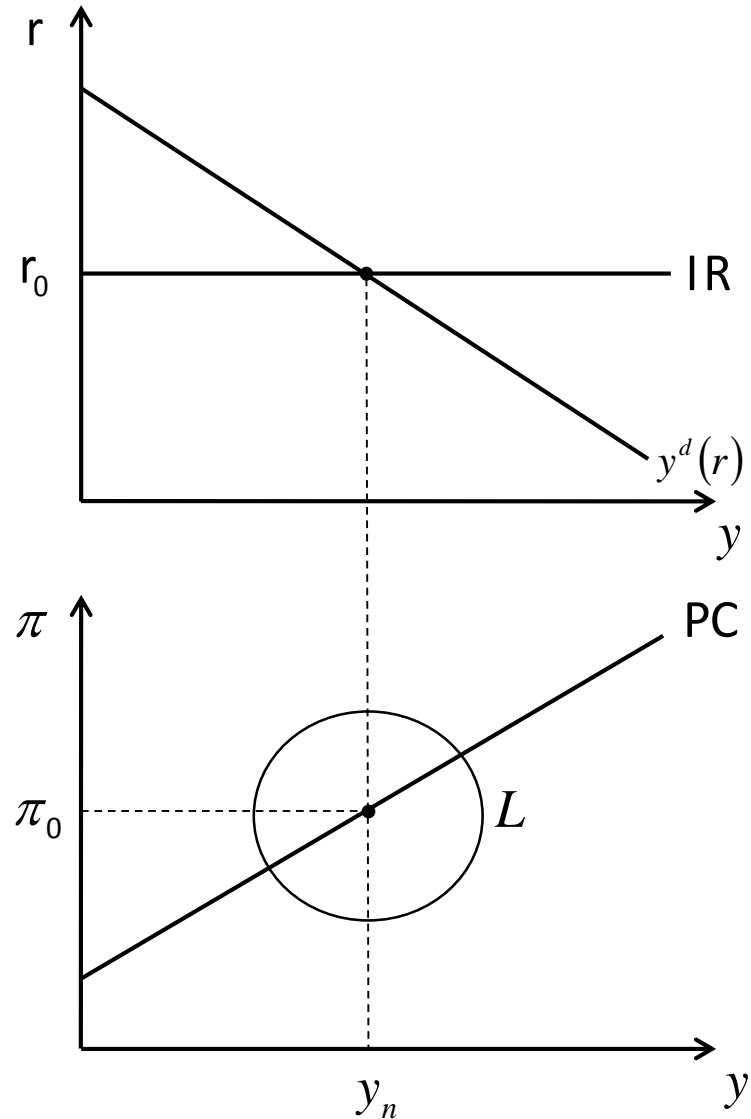
$$y = a - br + \varepsilon_1$$

- (New Keynesian) Phillips-Curve

$$\pi = \pi_0 + \alpha y + \varepsilon_2$$

- Loss-function (Central bank)

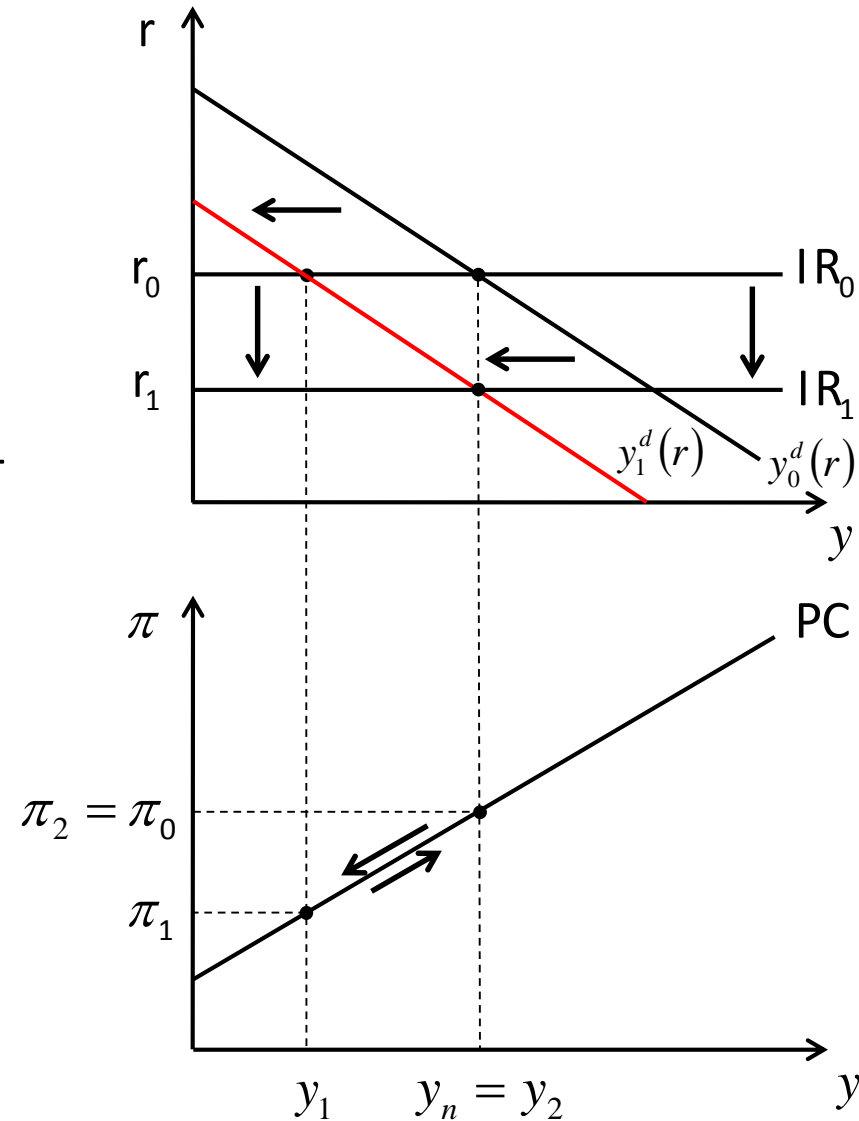
$$L = (\pi - \pi_0)^2 + \lambda y^2$$





## BMW-Model: Demand Shock

- Negative demand shock shifts IS-curve to the left
- If the central bank does not react ( $r_0$  stays constant) the shock causes a negative output-gap ( $y_1$ ) and a lower inflation rate ( $\pi_1$ )
- If the central bank reacts with lowering the interest rate then the old equilibrium can be reached again

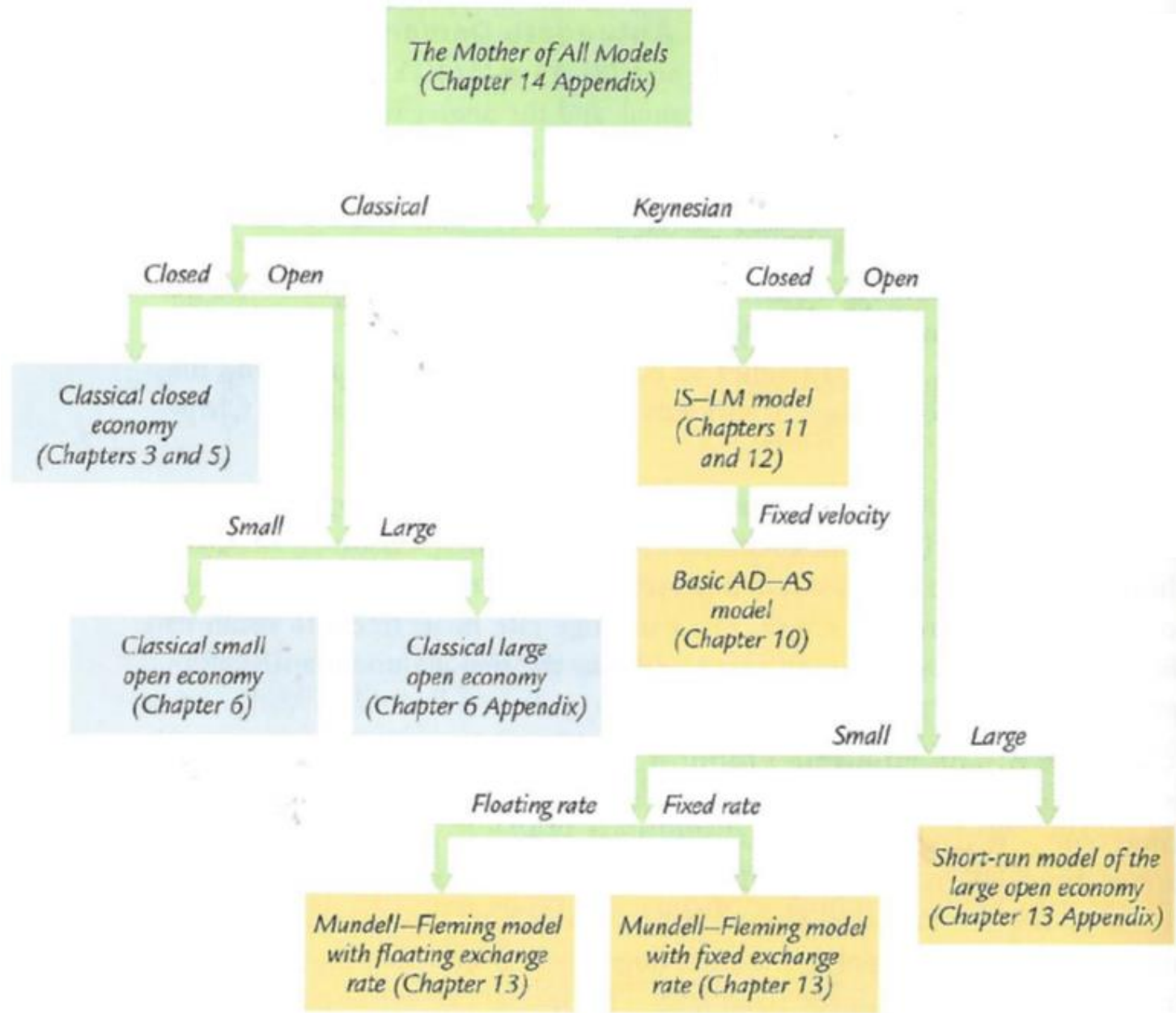


# Useful applications

- Effects of a Taylor rule
- Time inconsistency problem
- Deflation as a destabilizing monetary rule:  $r = -\pi^e$
- Open economy macroeconomics

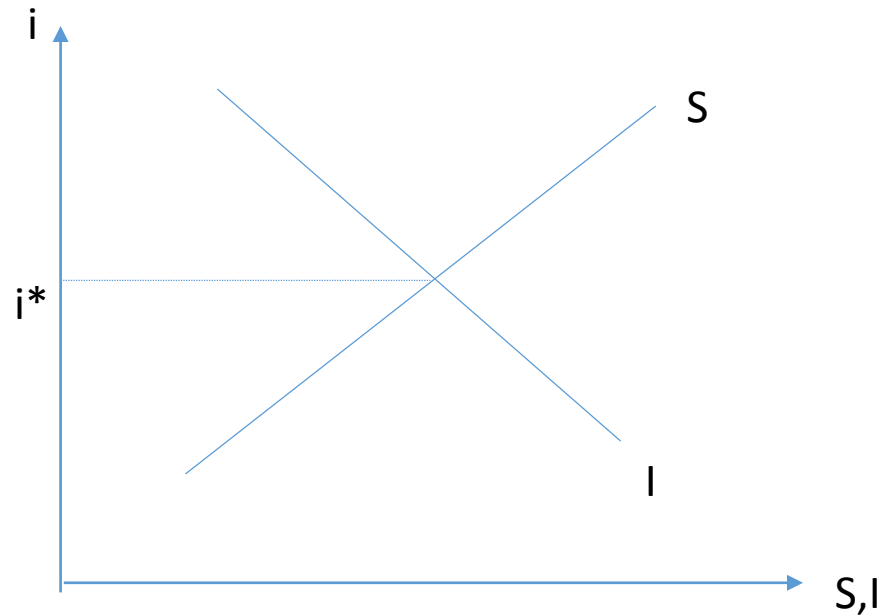
## 6. Confusion of a monetary model (IS/LM-AS/AD) with a real model

- Loanable funds theory („real model“): Finance means the provision of a consumption good for the usage of an investment good
- IS/LM-AS/AD („monetary model“): Finance means the temporary provision of money against bonds

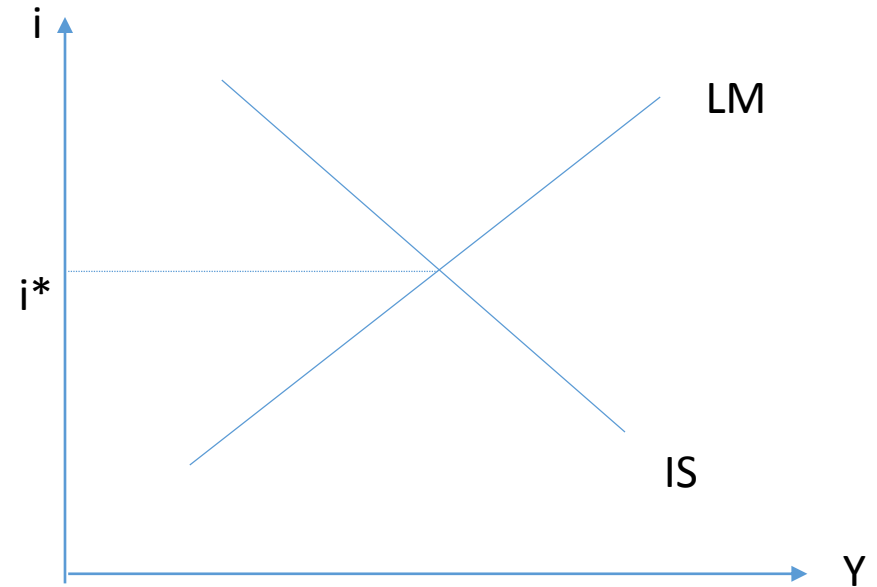


# Alternative theories of the interest rate

Loanable Funds



Keynesian Model



# Summary

- Standard presentation is inconsistent
- Standard presentation transforms the Keynesian message of a potentially unstable macroeconomy with involuntary unemployment into the classical message of a self-stabilizing macroeconomy where unemployment is only due to inflexible wages
- Standard presentation is unable to explain the current practice where central banks target the inflation rate with a short term-interest rate (policy rate)
- Standard presentation provides an flawed explanation of functioning of the financial system

# Literature

- Peter Bofinger, Eric Mayer and Timo Wollmershäuser, "The BMW Model: A New Framework for Teaching Monetary Economics", *The Journal of Economic Education*, vol. 37, no. 1, pp. 98-117, 2006.
- Peter Bofinger, "Teaching Macroeconomics after the crisis", *Würzburg Economic Papers*, Dezember 2011.
- Peter Bofinger, „Monetary policy: Goals, institutions, strategies, and instruments“, Oxford University Press 2001.