

Public Affairs 854
**Macroeconomic Policy and
International Financial Regulation**
Lecture 11
3/1/2021

Prof. Menzie Chinn
La Follette School of Public Affairs
Spring 2021

Outline

- Detail on money market
- When does fiscal policy not “work”
- When does monetary policy not “work”

Detail on Money Market

Modifying the Keynesian Cross

$$(13.2) \quad Y = AD$$

Equilibrium condition

$$(13.1) \quad AD \equiv C + I + G + \underbrace{X - IM}_{\substack{\text{trade balance} \\ \text{or} \\ \text{net exports}}}$$

Def'n aggregate demand

$$(13.3) \quad C = \underbrace{\bar{C}}_{\substack{\text{autonomous} \\ \text{consumption}}} + c(Y - \bar{T})$$

Consumption function

$$(14.1) \quad I = \bar{I} - bi$$

Investment function

$$G = \bar{G}, X = \bar{X}$$

Gov't, export spending

$$(13.4) \quad IM = \underbrace{\bar{IM}}_{\substack{\text{autonomous} \\ \text{imports}}} + mY$$

Import function

The Financial Side

- Consider “assets”, claims to future returns.
- Stocks (equities), bonds, real estate, physical capital (machines, buildings), money
- To simplify, consider only “money” and “bonds”.
 - Bonds: anything that yields a return
 - Money: anything 0 return, useful for transactions

The Financial Side

- Consider only “outside assets”, assets that are asset to someone in the private sector, but not a liability to anyone in the private sector
 - Excludes a share of Apple, bond issued by United
 - Includes currency, bond issued by US government
- Consider currency “money”. Then the only assets are Money and (Govt) Bonds

System of Equations

(14.3) $\frac{M^d}{P} = \frac{M^s}{P}$ Equilibrium condition

(14.4) $\frac{M^s}{P} = \frac{\bar{M}}{\bar{P}}$ Money supply
(exogenous, set by
central bank)

(14.5) $\frac{M^d}{P} = kY - hi$ Money Demand

Money Demand

- Money is useful for transactions, but has zero return
- k is sensitivity of real money demand to income (transactions assumed to rise with income), $\partial(M^d/P)/\partial Y$
- $-h$ is the sensitivity of real money demand to interest rate (opportunity cost of holding 0 interest bearing money rises with interest rate), $\partial(M^d/P)/\partial i$

Solving for LM

- Substitute money supply, money demand into equilibrium condition

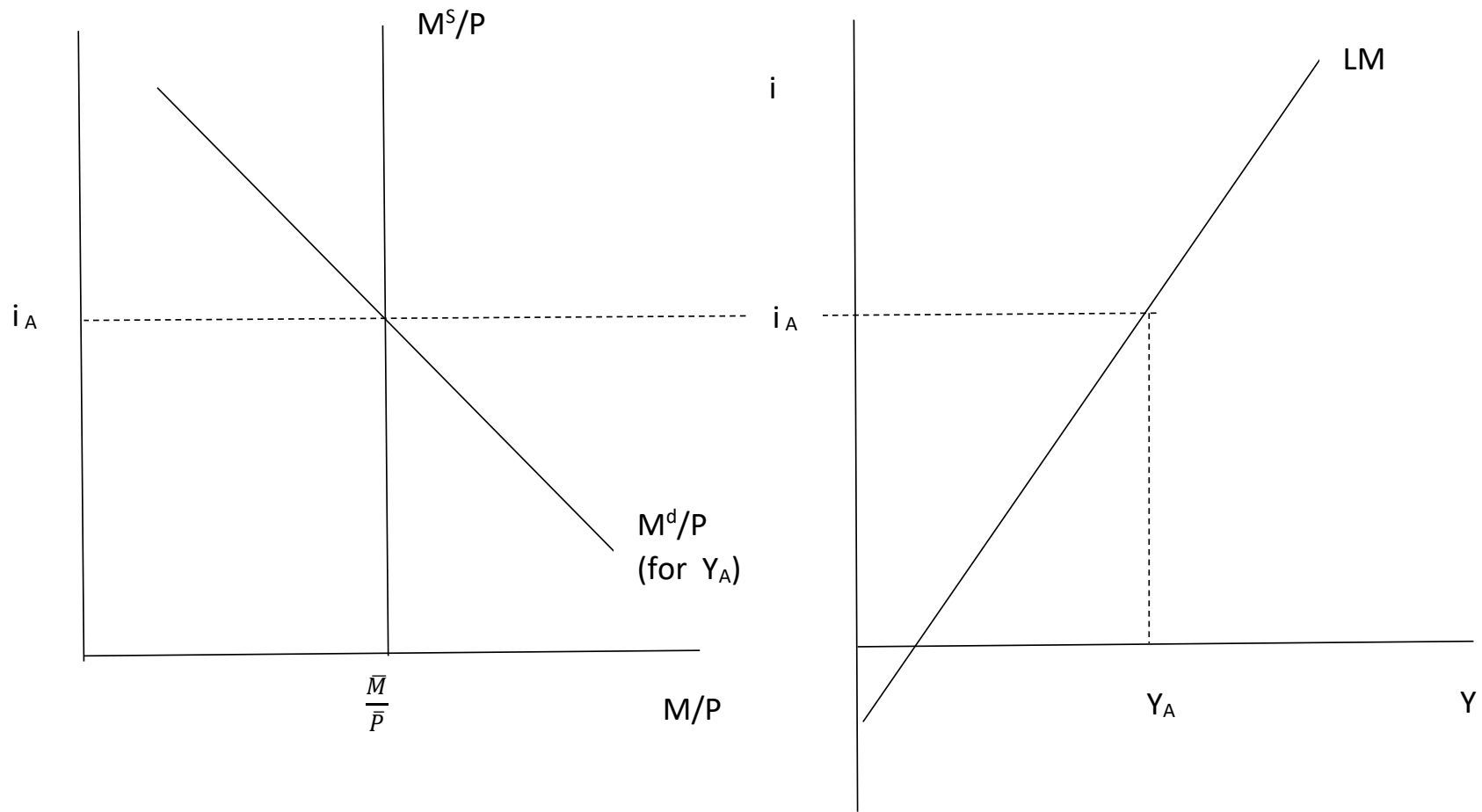
$$\frac{\bar{M}}{P} = \frac{M^s}{P} = \frac{M^d}{P} = kY - hi$$

- Solve for the interest rate

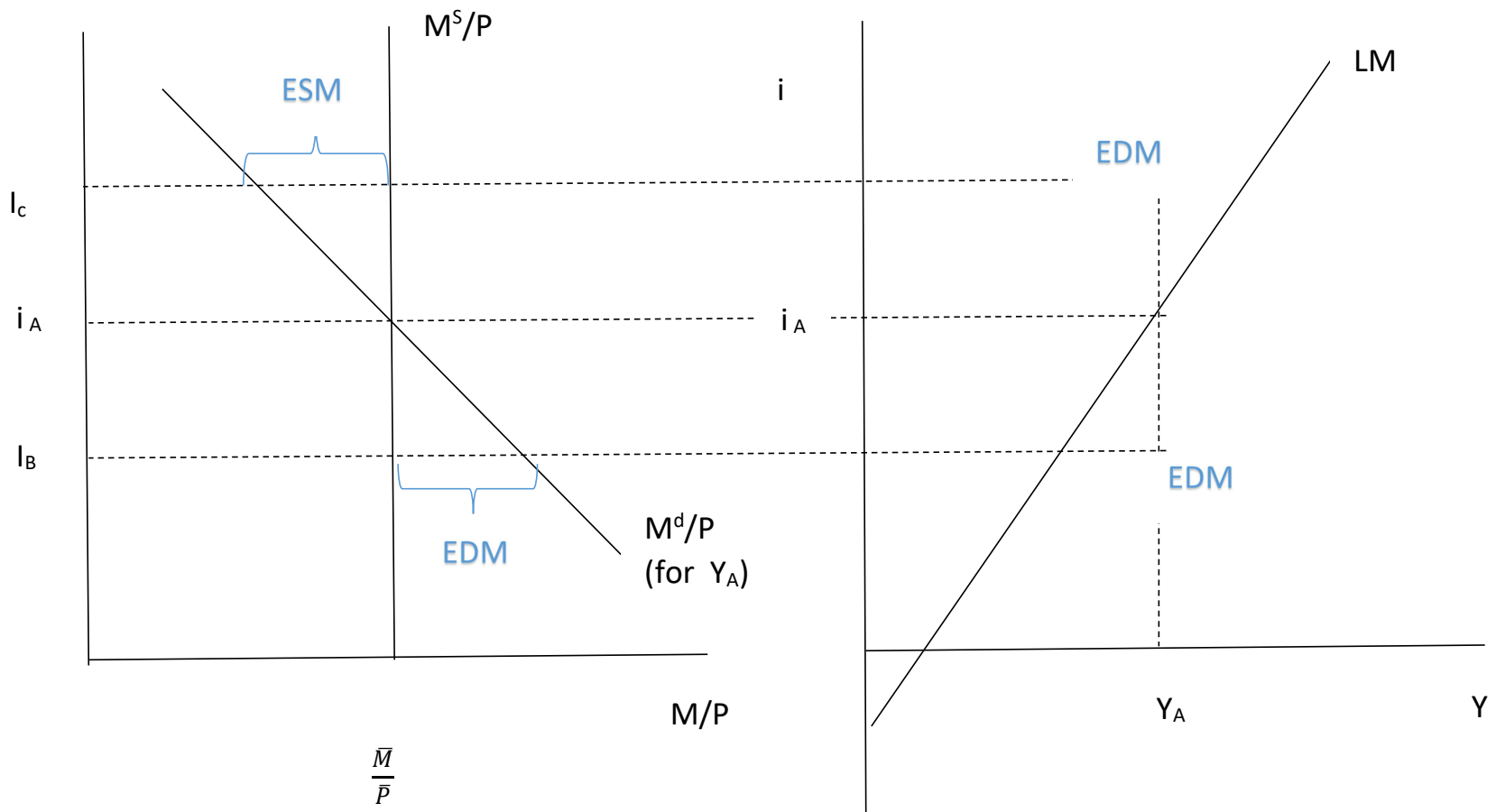
$$(14.6) \quad i = -\left(\frac{1}{h}\right)\left(\frac{\bar{M}}{\bar{P}}\right) + \left(\frac{k}{h}\right)Y$$

- Note that this is no “0” subscript, so this is an equation of a line

Money Market



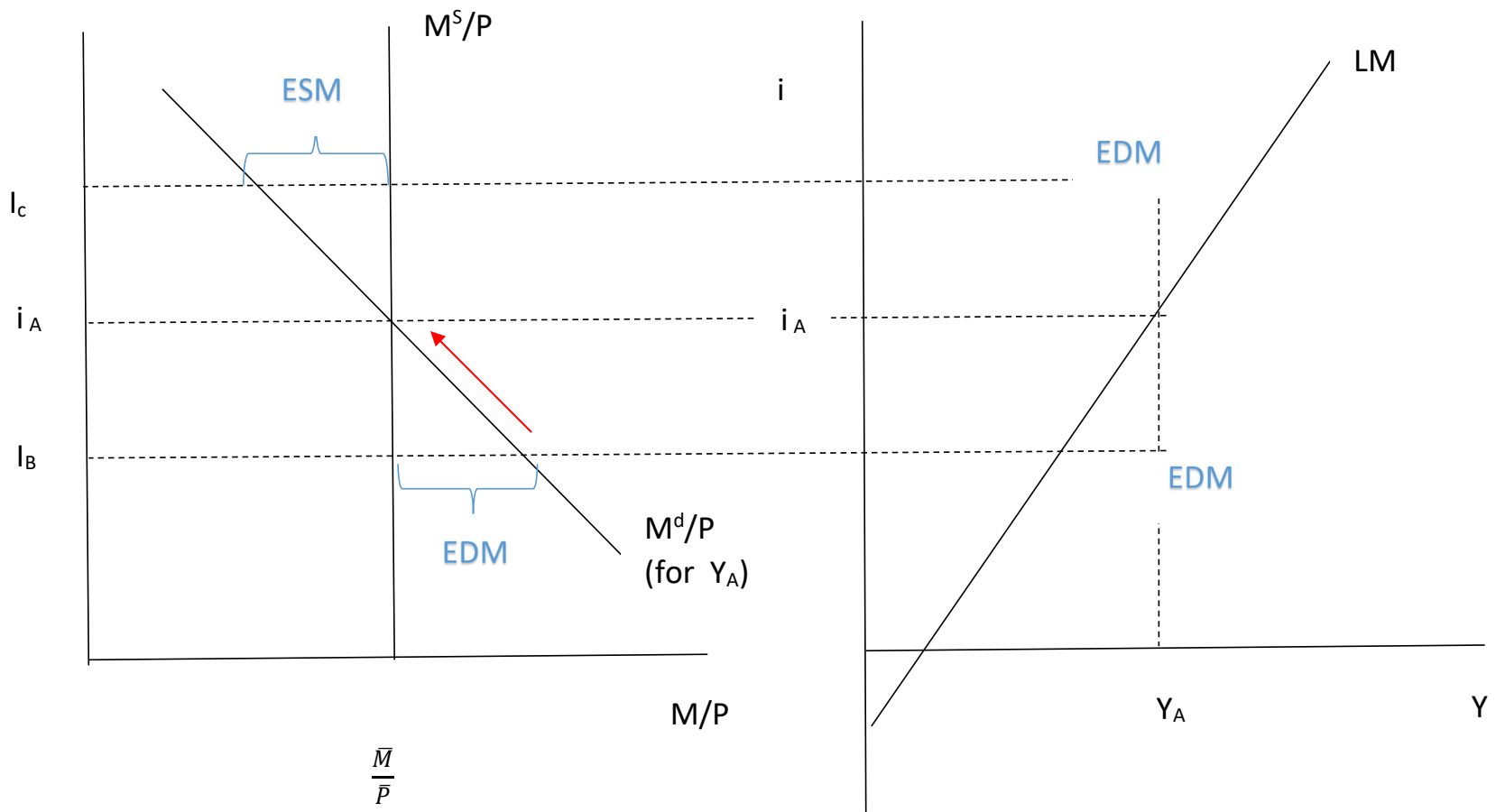
Money Market



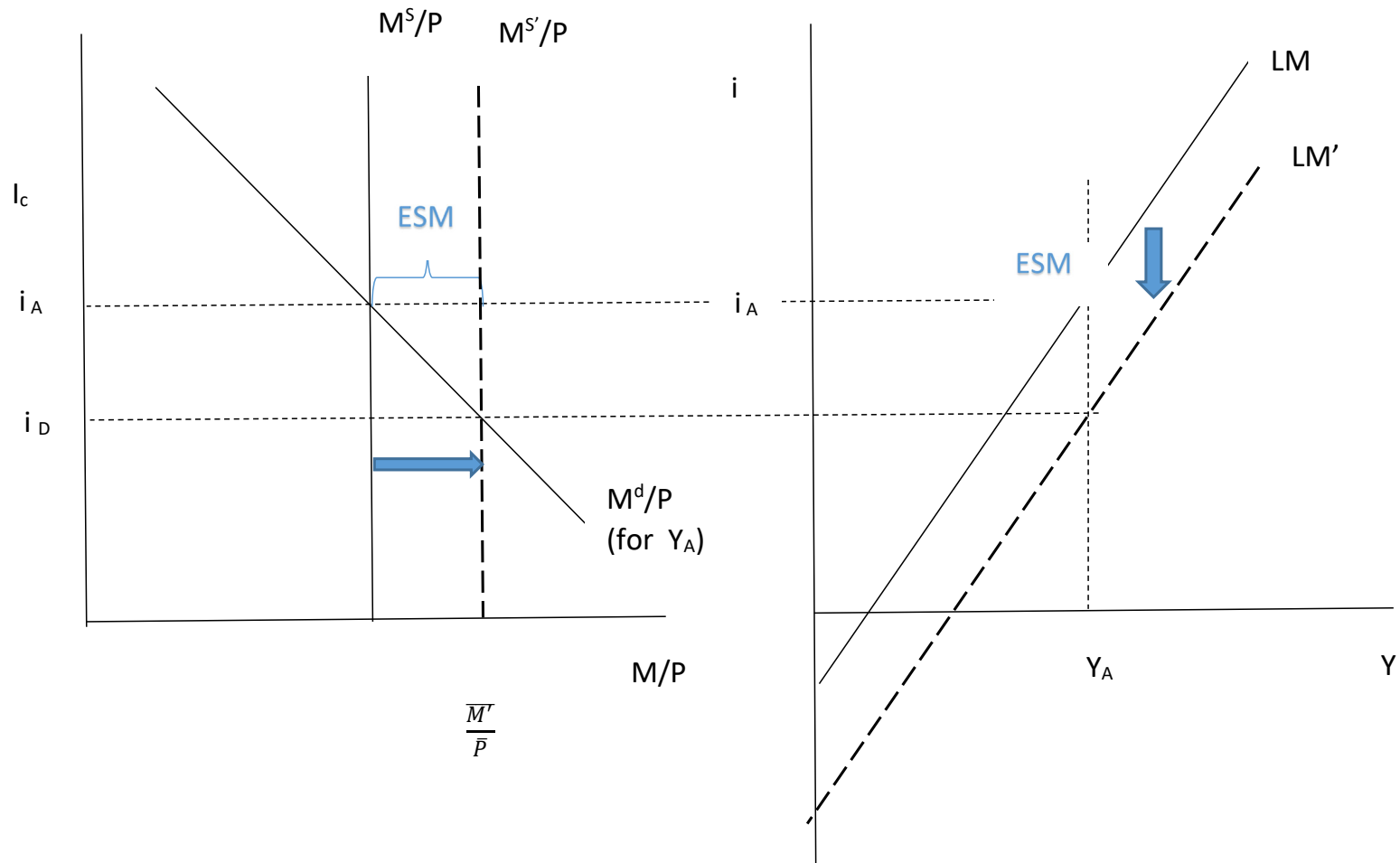
Adjustment in Money Market

- If there is excess demand for money (EDM), by Walras' there is excess supply of bonds (ESB)
- (Walras Law: Sum of excess demands is zero)
- If there is ESB, price of bonds *falls*
- That is the same as as interest rate *rising*
- E.g., \$100 bond, pays \$10 each year => 10%
- If price of bond falls to \$90, then $\$10/\$90 = 11.1\%$

Money Market



Money Supply Increase



When Does Fiscal Policy Not Work?

Algebraic Formulation

$$(14.7) \quad Y_0 = \underbrace{\left(\frac{1}{1-c+m+\frac{bk}{h}} \right)}_{\equiv \hat{\alpha}} [\bar{A} + \bar{X} - \bar{IM} + (n+v)\bar{q} + \left(\frac{b}{h}\right) \left(\frac{\bar{M}}{\bar{P}}\right)]$$

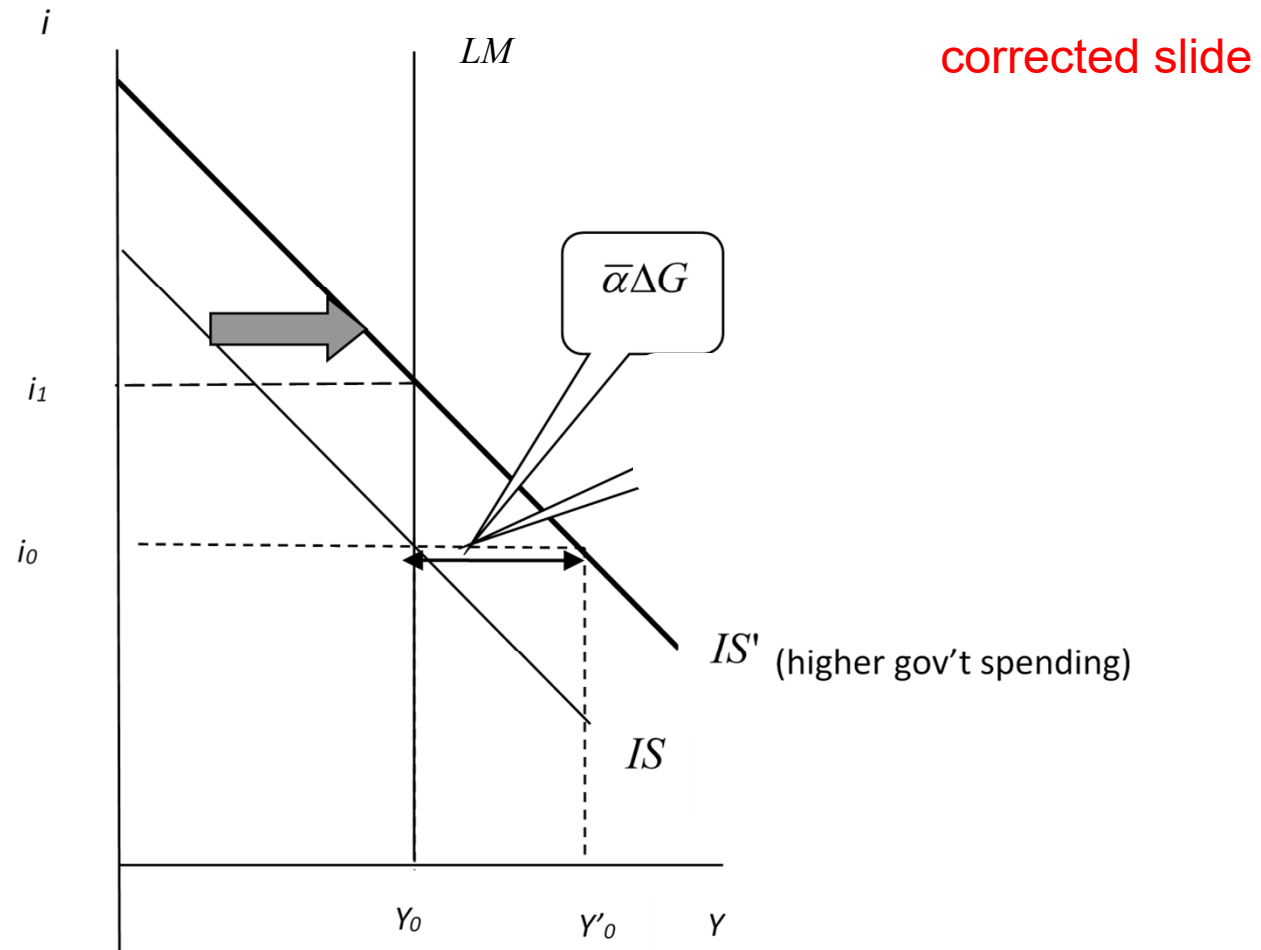
$$(14.8) \quad \Delta Y = \hat{\alpha} [\Delta A + \Delta X - \Delta IM + (n+v)\Delta q + \left(\frac{b}{h}\right) \Delta \left(\frac{M}{P}\right)]$$

$$\frac{\Delta Y}{\Delta G} = \hat{\alpha} \geq 0 \qquad \frac{\Delta Y}{\Delta t} = ? < 0$$

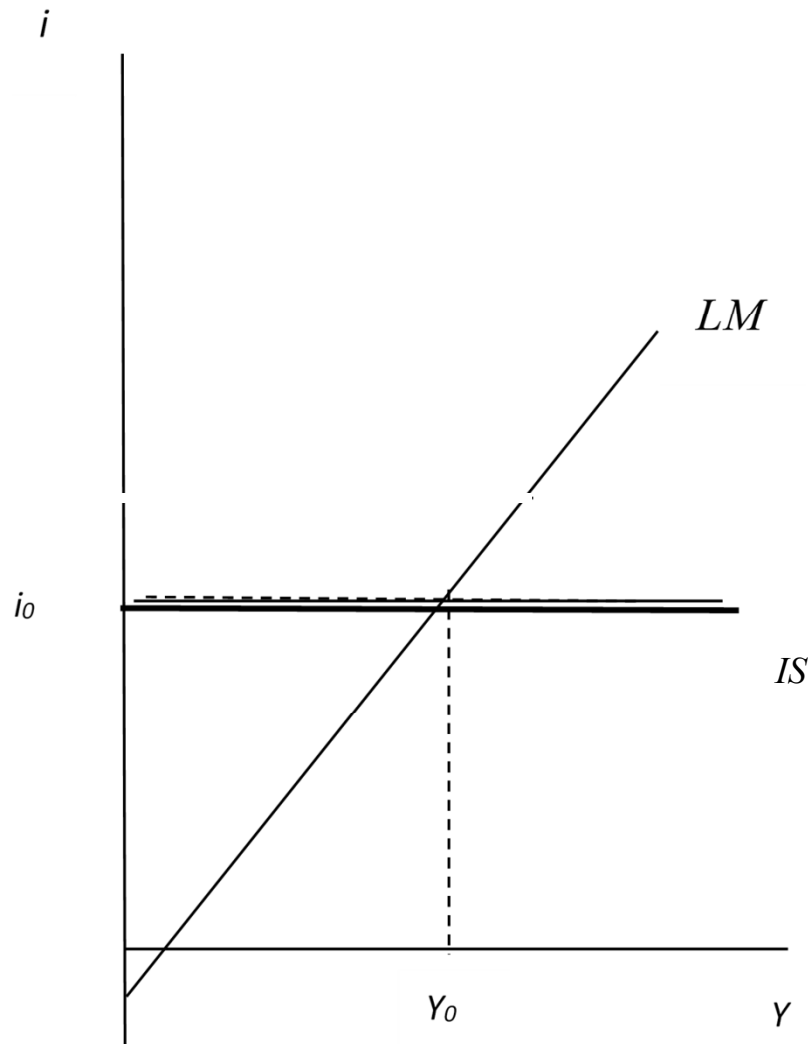
Set c small, m large

Set b large, k large or h small

Vertical LM ($h = 0$)

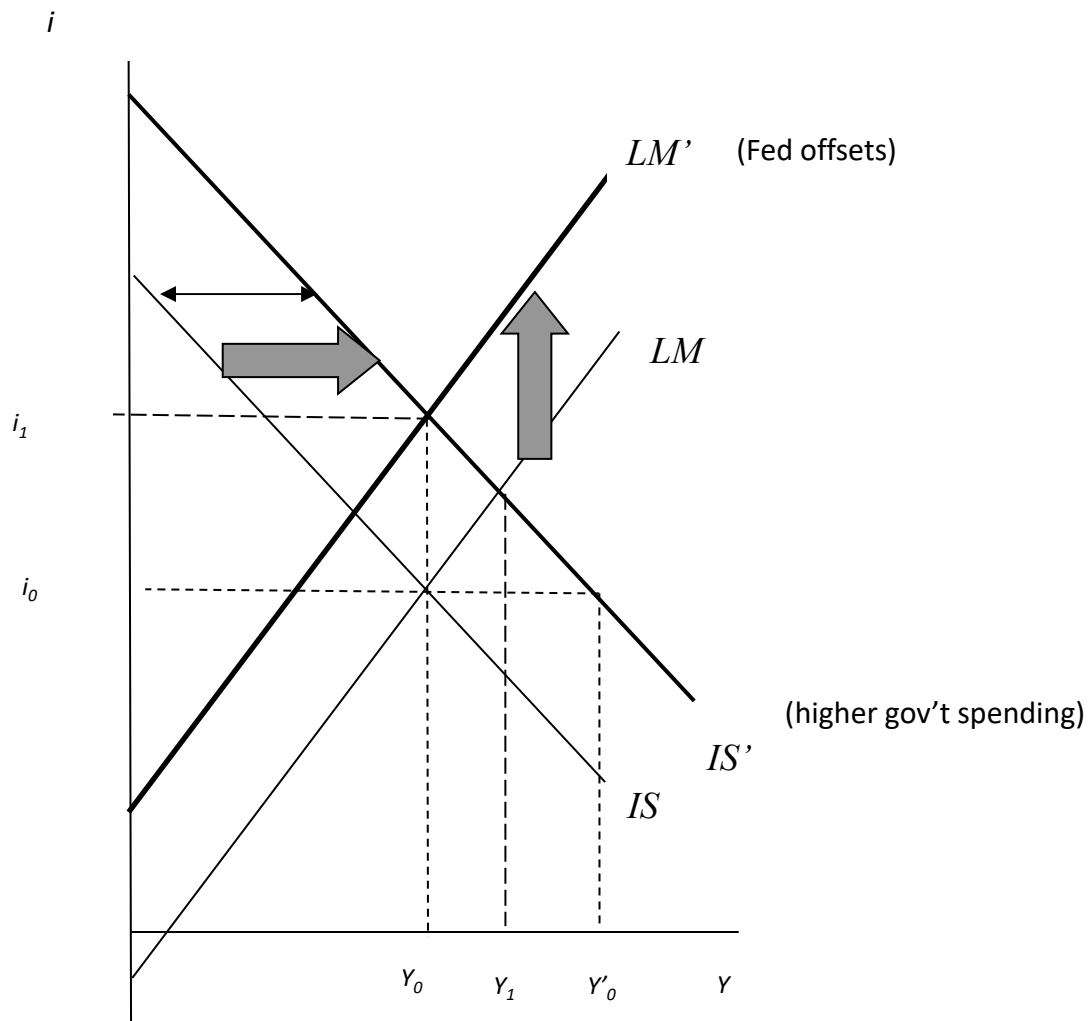


IS Flat ($b = \infty$)



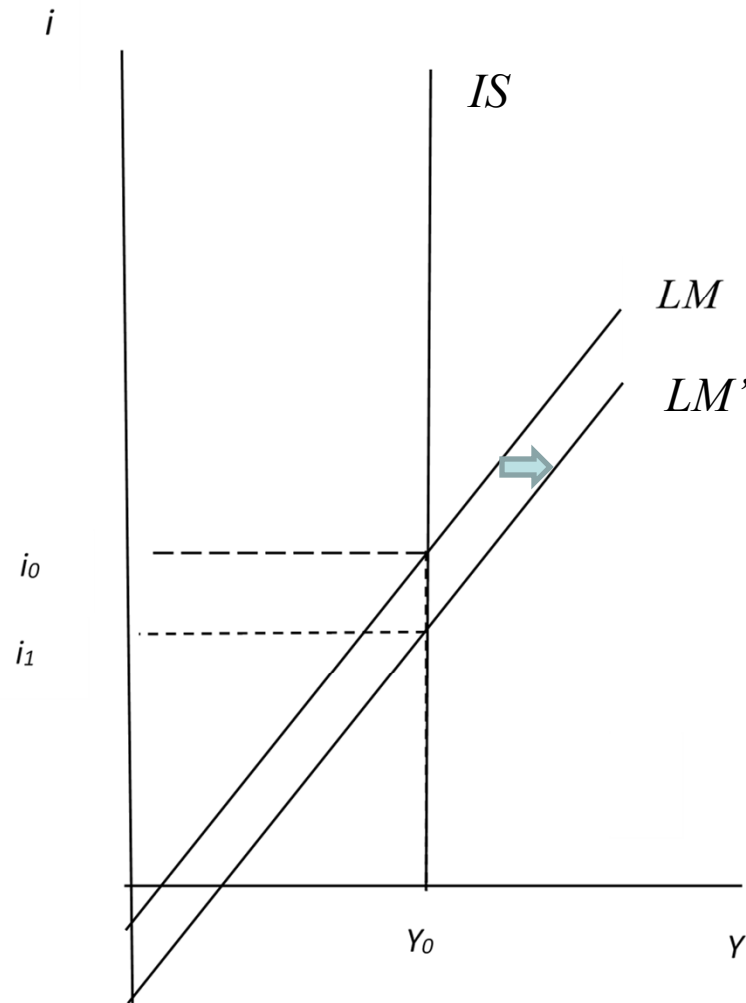
corrected slide

Reactive Monetary Policy

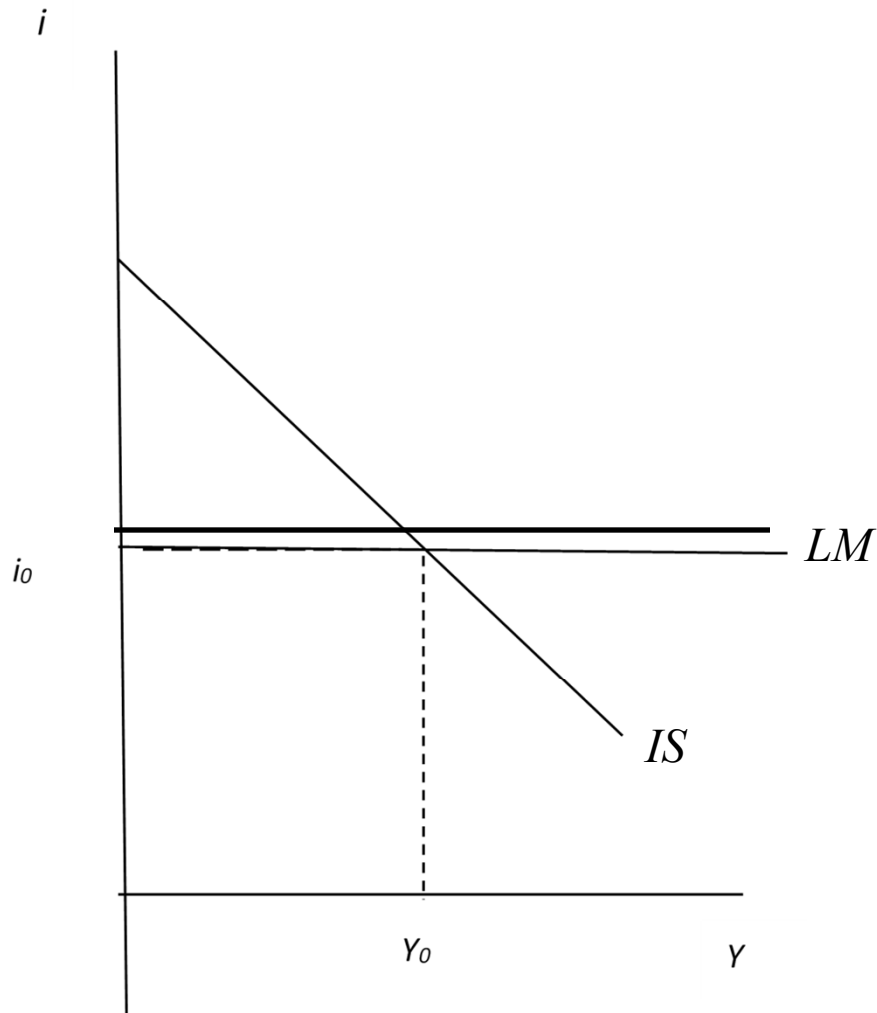


When Does Monetary Policy Not Work?

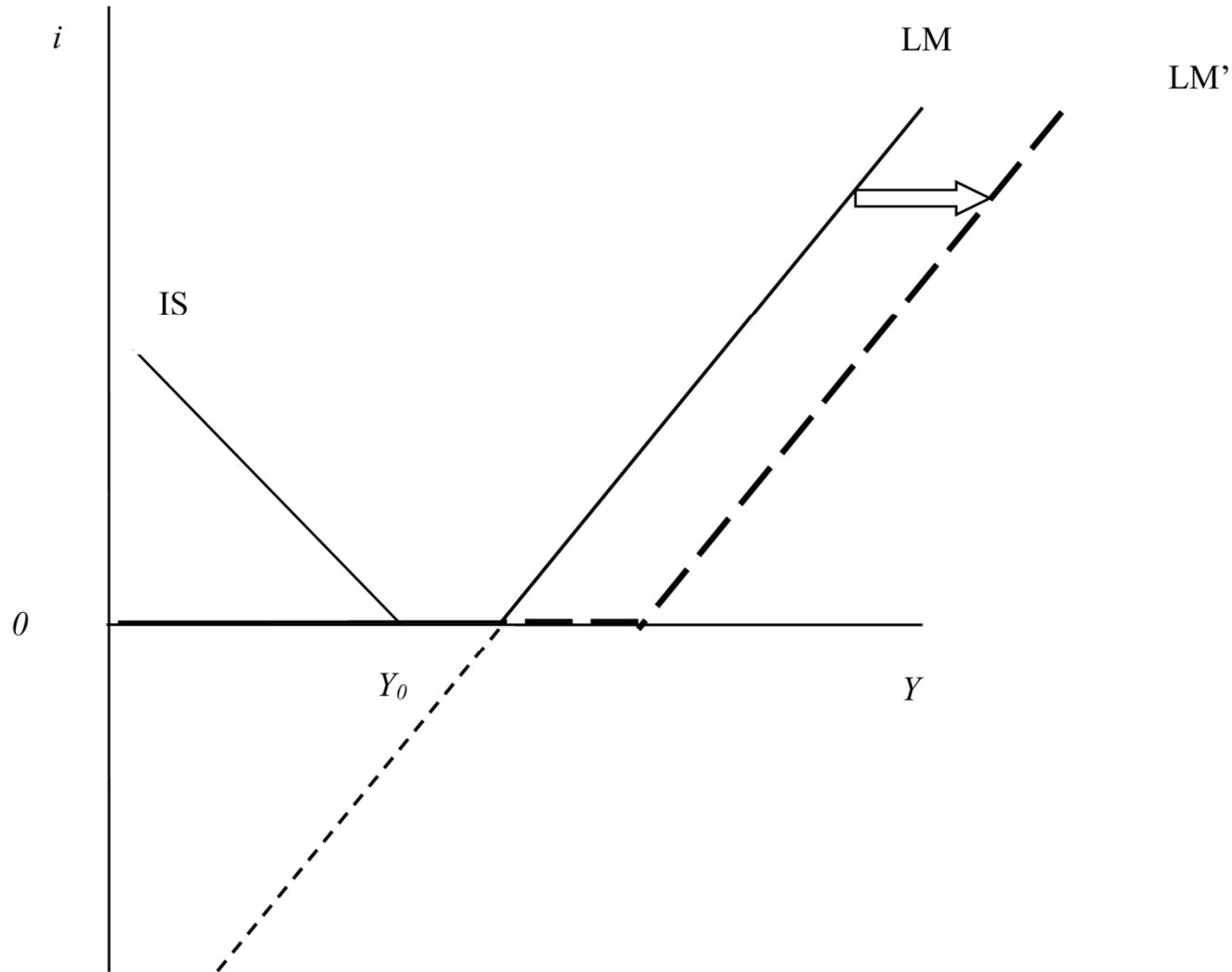
IS Vertical ($b = 0$)



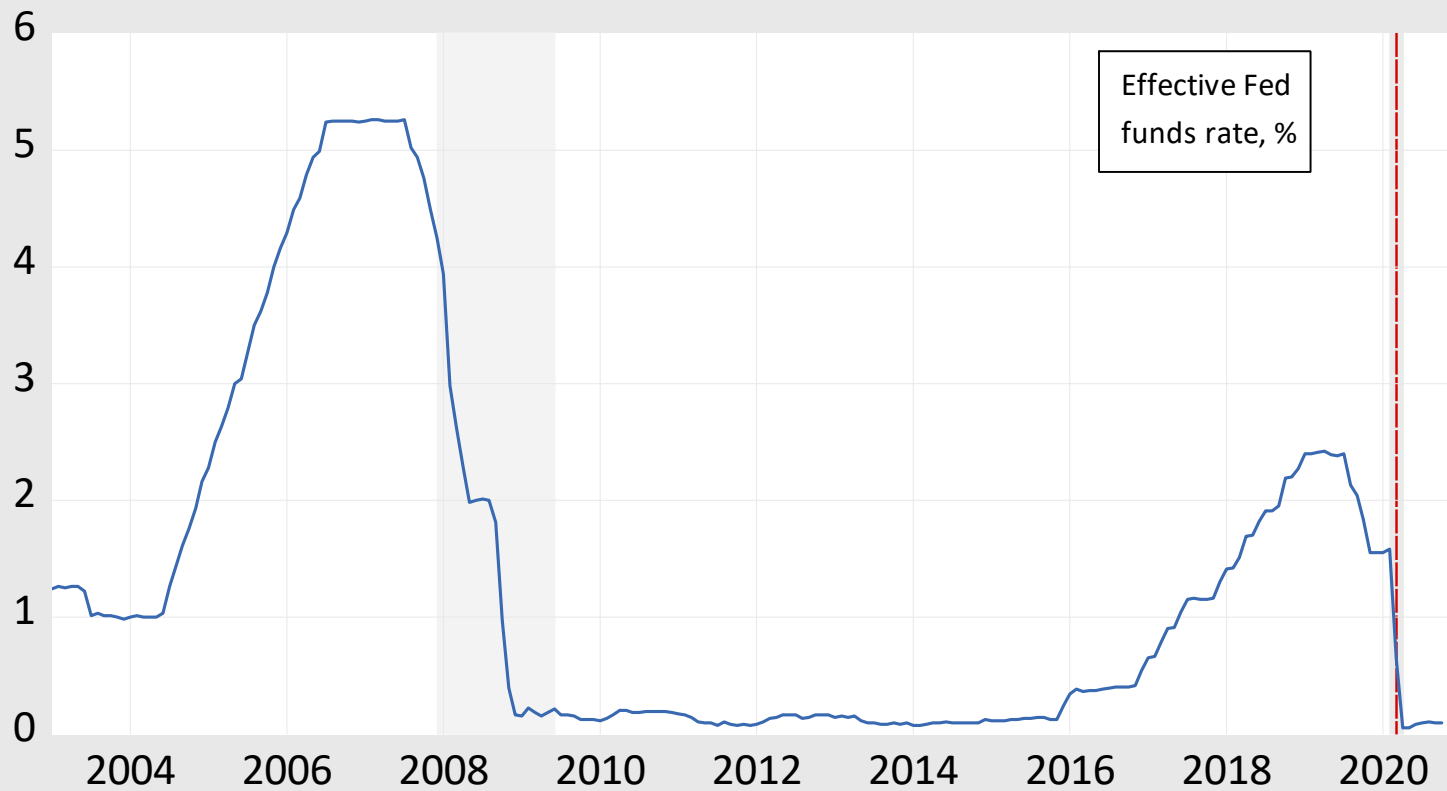
LM Horizontal ($h = \infty$)



LM Horizontal b/c of Zero Lower Bound



Limitations to Monetary Policy



Next Lecture

- Recap
- Recessions in IS-LM
- Interpreting the Covid-19 Recession with IS-LM