In parts B and C of section III, we construct the closed-economy IS-LM model and the open-economy IS-LM model (the Mundell-Fleming). The IS-LM model is a theory of aggregate demand that links activities in the goods and asset markets. A general equilibrium is where both the goods and asset markets clear. The model will be used to analyze the effects of economic shocks and macroeconomic policy on real GDP ($Y$), the interest rate ($r$), real consumption ($C$), real investment ($I$), real net exports ($NX$) and the exchange rate ($e$) in the short-run.

The required reading in this part are chapters 10 and 11 of your text. While you read the material, keep in mind the following questions:

1. What is equilibrium in the goods market? How does this equilibrium show up in the Keynesian cross diagram?

2. Why does a one-dollar increase in exogenous spending increase real income ($Y$) by a multiple amount? What then are the values of the government-purchases and tax multipliers?

3. What is the definition of the IS curve? How do we derive it? What shifts it?

4. What is the theory of liquidity preference? What variable does the theory determine? Why can the theory be viewed from either the money or bond market (see third page of this handout)?

5. What is the definition of the LM curve? How do we derive it? What shifts it?

6. What is the short-run equilibrium in the IS-LM model? Which variables are exogenous? Which variables are endogenous?

7. Show how changes in the price level ($P$) can bring the economy back to long-run equilibrium ($Y = Y^*$) in the IS-LM model.

8. In the words of one columnist, why do so many people care what a room full of 12 bankers (the Federal Reserve) do with two interest rates?

9. What are the different theories that explain the Great Depression? Which theory matches the data the best?

10. In the Mundell-Fleming model, why is the IS curve downward sloping and the LM curve vertical when drawn against the exchange rate ($e$)?

11. In the Mundell-Fleming model, why is fiscal policy completely ineffective in raising real GDP ($Y$) under a floating exchange rate regime and monetary policy completely ineffective in raising real GDP ($Y$) under a fixed exchange rate regime?
12. How does a central bank peg its currency against another currency? What are the advantages of such a fixed exchange rate regime? What are the disadvantages?

13. Show how changes in the price level ($P$) can bring the economy back to long-run equilibrium ($Y=Y^*$) in the Mundell-Fleming model.
In chapter 9, Mankiw does not explicitly present the theory that underlies interest rate determination in the short-run and thus the LM curve. Therefore, in order to prevent him from being perceived as the Great Oz, I will play the role of Toto and pull away the curtain in front of the LM curve.

Liquidity preference - determination of the interest rate in the short-run

This theory of short-run interest rate determination was originally developed by John Maynard Keynes back in 1936 and its basic ideas are still used today. Keynes believed that the quantity or stock of money played a key role in determining the equilibrium interest rate.

Keynes began his theory by assuming that all assets in the economy are divided into 2 groups -- real money \((M/P)\) and bonds \((B)\). The bonds pay a return or yield of \(R\). Therefore, at any point in time, the real wealth of the economy equals \(M/P + B\).

Next, Keynes argued that households base their consumption-saving decision on a 2-stage process. First, given a level of disposable income, households choose their amounts of consumption and savings independent of the real interest rate. Second, the households make their portfolio decision by allocating their accumulated saving or real wealth between real money and bonds.

In the market for existing bonds (Keynes ignored new issues), the demand for bonds is a negative function of the price, while the supply of bonds is a positive function. Therefore, the equilibrium price of bonds \(P_b\) is that price which equates the demand for bonds with the existing supply of bonds. Since there is only one type of bond, the equilibrium bond price determines one and only one corresponding yield or real interest rate \(R\). The yield or return on an asset, like a bond, is inversely-related to its price. The equilibrium \(P_b\) and its corresponding \(R\) is shown on the diagram.

Since real wealth \(= M/P + B\), there is only one independent portfolio decision. Therefore, once you decide your optimal level of bonds, you automatically choose your optimal holdings of real money. As a result, the equilibrium \(R\) can also be determined as the intersection point between the demand for real money \(kY - hR\) and the fixed supply of real money \(M^s/P\).

Therefore, according to Keynes, the equilibrium short-run real interest rate \(R\) is that rate which simultaneously clears or equilibrates both the money and bond markets.