Fundamentals of Corporate Finance, 2/e

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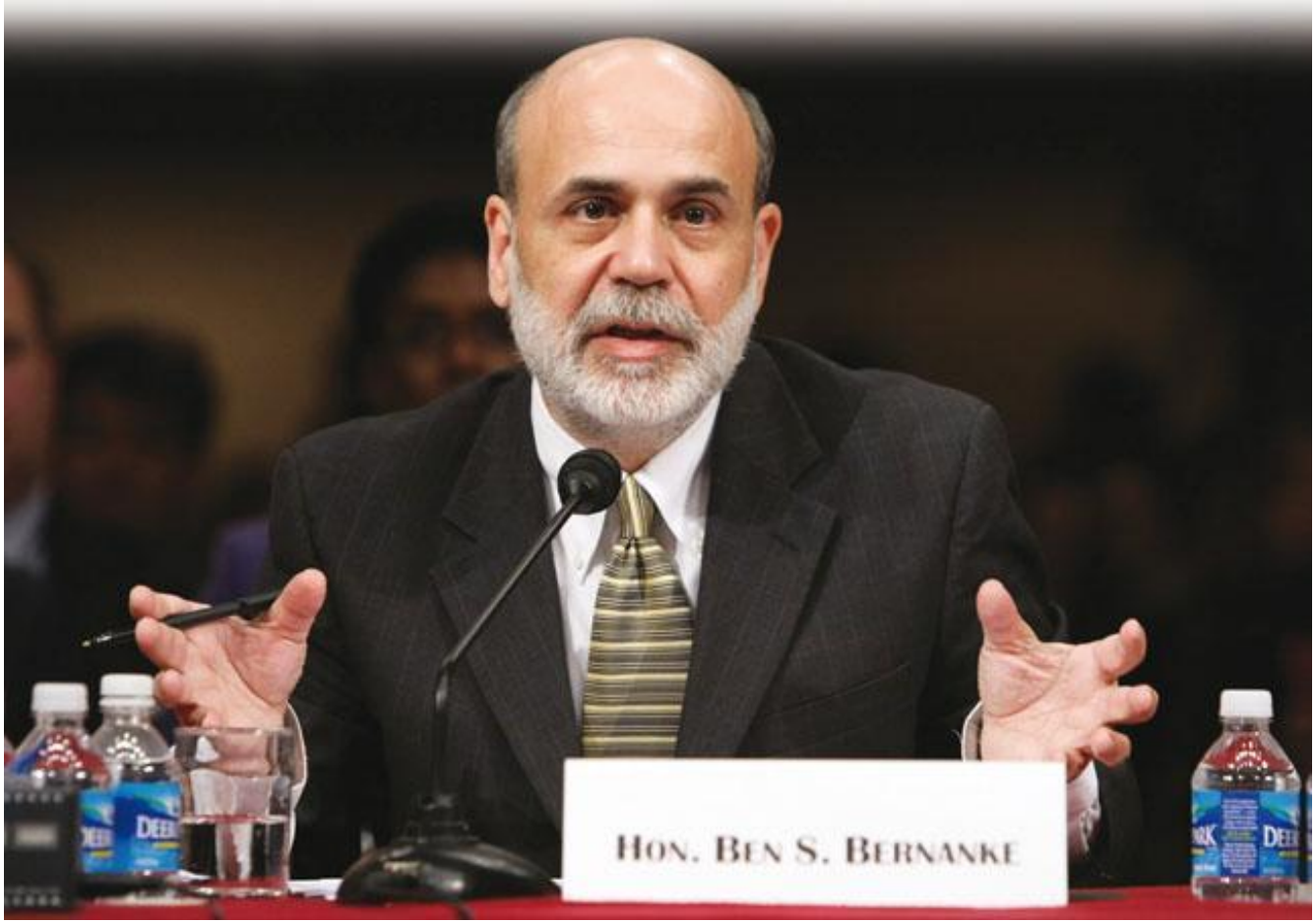
Chapter 2: The Financial System and the Level of Interest Rates



Learning Objectives

1. DESCRIBE THE ROLE OF THE FINANCIAL SYSTEM IN THE ECONOMY AND THE TWO BASIC WAYS IN WHICH MONEY FLOWS THROUGH THE SYSTEM.
2. DISCUSS DIRECT FINANCING AND THE IMPORTANT ROLE THAT INVESTMENT BANKS PLAY IN THIS PROCESS.

Learning Objectives

3. DESCRIBE THE PRIMARY, SECONDARY, AND MONEY MARKETS, EXPLAINING THE SPECIAL IMPORTANCE OF SECONDARY AND MONEY MARKETS TO BUSINESS ORGANIZATIONS.
4. EXPLAIN WHAT AN EFFICIENT MARKET IS AND WHY MARKET EFFICIENCY IS IMPORTANT TO FINANCIAL MANAGERS.

Learning Objectives

5. EXPLAIN HOW FINANCIAL INSTITUTIONS SERVE THE NEEDS OF CONSUMERS, SMALL BUSINESSES, AND CORPORATIONS.
6. COMPUTE THE NOMINAL AND THE REAL RATES OF INTEREST, DIFFERENTIATING BETWEEN THEM.

The Financial System

- FINANCIAL MARKETS AND INSTITUTIONS
  - **Financial markets include markets for trading financial assets such as stocks and bonds**
  - **Financial institutions include banks, credit unions, insurance companies, and finance companies**

The Financial System

- THE FINANCIAL SYSTEM AT WORK
  - **The financial system is competitive**
  - **Money is borrowed in small amounts and loaned in large amounts**
  - **The system directs money to the best investment opportunities in the economy**
  - **Lenders earn profit from the spread between lending and borrowing rates**

The Financial System

- MOVE FUNDS FROM LENDER TO BORROWER
  - **The primary function of a financial system is to efficiently transfer funds from lender-savers to borrower-spenders**
  - **Basic mechanisms by which funds are transferred in the financial system**
    - Direct Financing
    - Indirect Financing

The Flow of Funds Through the Financial System

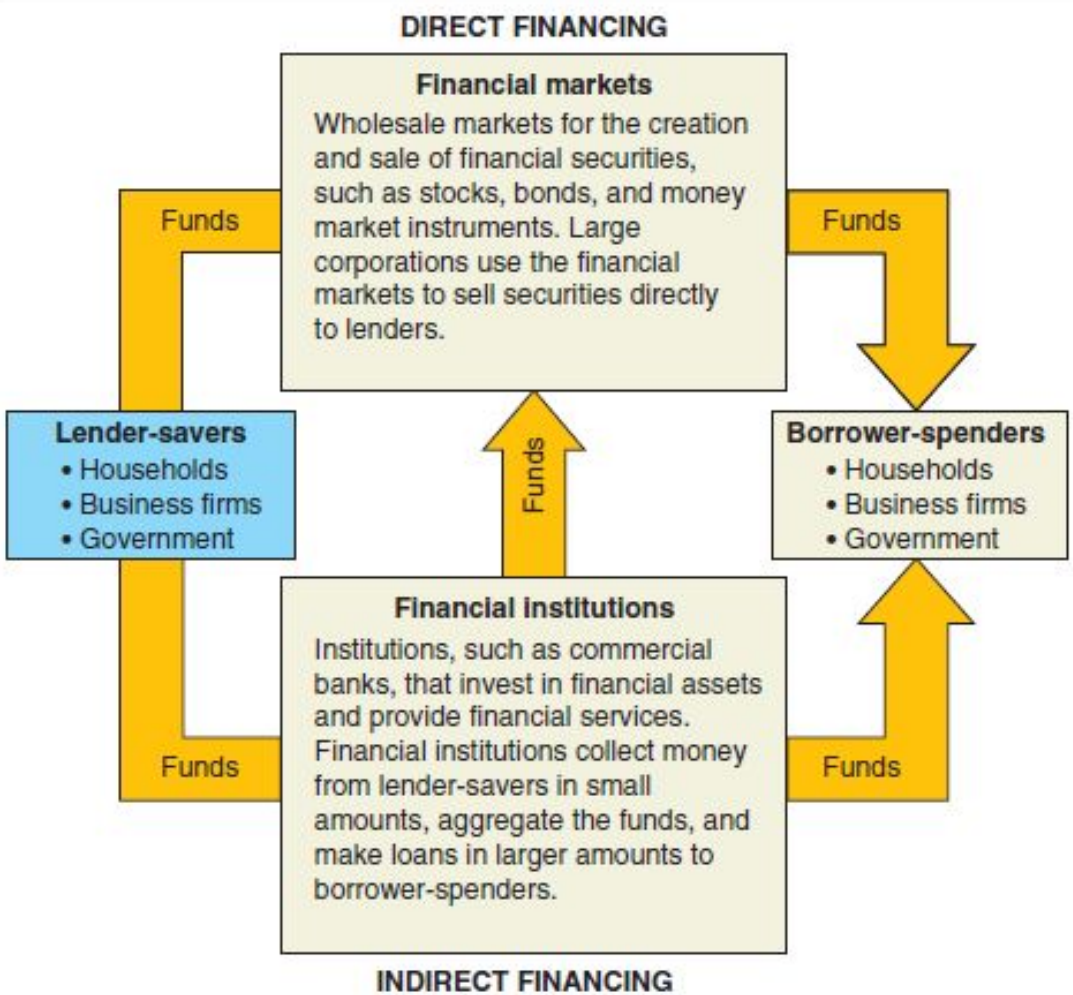


EXHIBIT 2.1
The Flow of Funds Through the Financial System

The role of the financial system is to gather money from people and businesses with surplus funds and channel it to those who need it. Money flows through the financial system in two basic ways: *directly*, through wholesale financial markets, as shown in the top route of the diagram, and *indirectly*, through financial institutions, as shown in the bottom route.

Direct Financing

- DIRECT TRANSFER OF FUNDS
  - lender-saver contracts with a borrower-spender
  - minimum transaction $1 million
  - investment banks and money center banks help with origination, underwriting and distribution of new debt and equity

Direct Financing

- DIRECT TRANSFER OF FUNDS
  - **Underwriting is a service to assist firms in selling their debt or equity securities in a direct financing market**

Types of Financial Markets

- WHOLESALE AND RETAIL MARKETS
  - **Primary Market**

    wholesale market where firms' new securities are issued and sold for the first time
  - **Secondary Market**

    retail market where previously issued securities are resold (traded)

Types of Financial Markets

- MARKETABILITY AND LIQUIDITY
  - **Marketability**

    ease with which a seller or buyer for an asset can be found
  - **Liquidity**

    ease with which an asset can be converted into cash without loss of value

Types of Financial Markets

- MARKETABILITY AND LIQUIDITY
  - **Financial markets increase marketability and liquidity of securities**
  - **Financial markets lower the costs of making transactions and make participants more willing and able to pay higher prices**

Types of Financial Markets

- BROKERS AND DEALERS
  - **A broker brings a seller and a buyer together but does not buy or sell in the transaction**

    broker does not take on risk
  - **A dealer participates in trades as a buyer or seller using her own inventory of securities**

    dealer takes on risk

Types of Financial Markets

- EXCHANGES & OVER-THE-COUNTER MARKETS
  - **Exchange**

    location where sellers and buyers meet to conduct transactions

    - *New York Stock Exchange (NYSE)*
    - *Chicago Board Options Exchange (CBOE)*

Types of Financial Markets

- EXCHANGES & OVER-THE-COUNTER MARKETS
  - **Over-the-Counter Market**

    dealers conduct transactions over the phone or via computer.

    - *National Association of Securities Dealers Automated Quotations (NASDAQ)*

Types of Financial Markets

- MONEY AND CAPITAL MARKETS
  - **Money Market**

    market for low-risk securities with maturities of less than one year.

    - *Treasury Bills (T-bills)*
    - *Commercial Paper*

Types of Financial Markets

- MONEY AND CAPITAL MARKETS
  - **Capital Market**

    market for securities with maturities longer than one year

    - *bonds*
    - *common stock*

Selected Money Market and Capital Market Instruments June 2010

EXHIBIT 2.2 **Selected Money Market and Capital Market Instruments, June 2010 ($ billions)**

The exhibit shows the size of the U.S. market for each of the most important money market and capital market instruments. Notice that the largest security market is the market for corporate stock, followed by those for mortgage debt, corporate and foreign bonds, and at a distant fourth, Treasury notes. Compared with money market instruments, capital market instruments are less marketable, have higher default risk, and have longer maturities.

Money market instruments		
Treasury bills		$ 1,777
Bank negotiable CDs		200
Commercial paper		1,028
Other marketable short-term securities		378
	Total	$ 3,383
Capital market instruments		
Treasury notes		$ 4,935
Treasury bonds		803
State and local government bonds		2,257
Corporate and foreign bonds		11,379
Corporate stock (at market value)		18,629
Mortgages		14,020
	Total	$ 52,023

Sources: Board of Governors, Federal Reserve System, Flow of Funds Accounts (Sept. 17, 2010) and Bureau of Public Debt, Monthly Statement of the Public Debt of the United States (June 30, 2010).

Market Efficiency

- EFFICIENT MARKET
  - **Current prices of securities incorporate the knowledge and expectations of all participants**
  - **Security prices are correct: securities are not over-valued or under-valued.**
  - **Participants are confident they pay or receive the intrinsic (fair) value of a security**

Market Efficiency

- MARKET EFFICIENCY
  - **Operational Efficiency**

    extent to which transaction costs are minimized
  - **Informational Efficiency**

    extent to which security prices reflect all relevant information

Market Efficiency

- EFFICIENT MARKET HYPOTHESIS
  - **A theory about how efficiently the stock market processes and incorporates information available from**
    - private sources of information
    - public sources of information
    - historical stock prices

Market Efficiency

- EFFICIENT MARKET HYPOTHESIS
  - **Strong-Form Efficiency**

    Security prices always reflect all information, from every source. Even inside, or confidential information, is reflected.

Market Efficiency

- EFFICIENT MARKET HYPOTHESIS
  - **Semistrong-Form Efficiency**

    Security prices always reflect all public information. Inside, or confidential information, is not reflected.

Market Efficiency

- EFFICIENT MARKET HYPOTHESIS
  - **Weak-Form Efficiency**

    Security prices always reflect the information in past prices. No other information is reflected.

Market Efficiency

- EFFICIENT MARKET HYPOTHESIS
  - **Public markets, such as the NYSE are more efficient than private markets due to the information provided by a large number of participants and effective regulation**

Financial Institutions and Indirect Financing

- INDIRECT FINANCING
  - **An institution is both a borrower and lender**

    borrows money from a saver

    lends money to a borrower

    must repay funds to the saver – whether or not it is repaid by the borrower

    – *Examples: banks & insurance companies*

Financial Institutions and Indirect Financing

- FINANCIAL INSTITUTIONS
  - **Provide lending and borrowing opportunities at the retail level for small customers and wholesale level for large customers**
  - **Efficiently collect funds in small amounts and lend them in larger amounts**
  - **Tailor loan amounts and contract terms to fit the needs of consumers, corporations, and small businesses**

Cash Flows Between the Firm and the Financial System

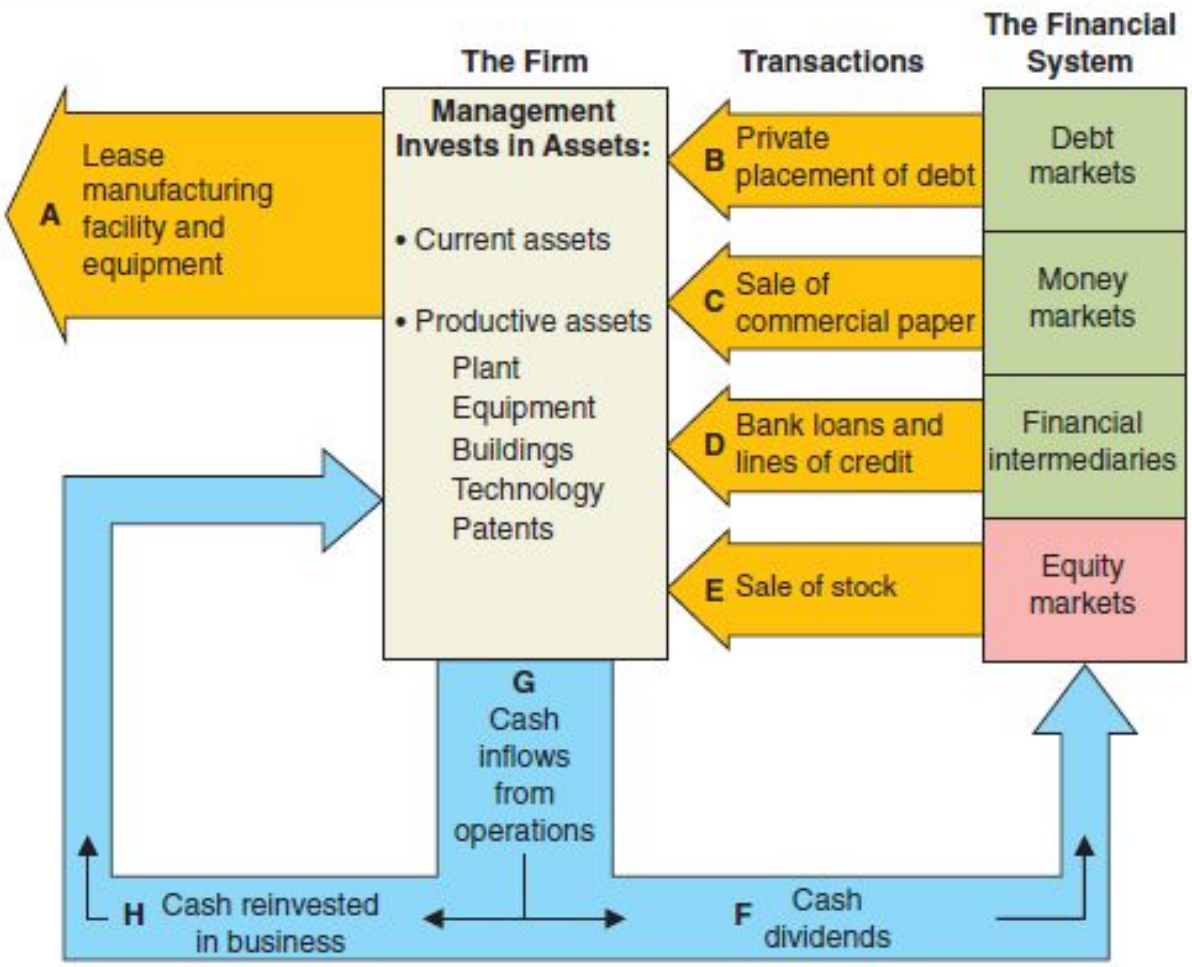


EXHIBIT 2.3
Cash Flows between the Firm and the Financial System

This exhibit shows how the financial system helps businesses finance their activities. The arrows in the exhibit indicate the major cash flows into and out of a firm over a typical operating cycle. Money obtained from the financial system, combined with reinvested cash from operations, enables a firm to make necessary investments and fund any other requirements.

The Determinants of Interest Rate Levels

- INTEREST RATE
  - **The fee for borrowing money expressed as a percentage of a loan**
    - real rate of interest
      - *interest rate that would exist in the absence of inflation (deflation)*
    - nominal ate of interest
      - *interest rate adjusted for inflation (deflation)*

The Determinants of Interest Rate Levels

- REAL RATE OF INTEREST
  - **Determinants of the real rate of interest**

    expected return on productive assets

    time preference for consumption

The Determinants of Interest Rate Levels

- EQUILIBRIUM RATE OF INTEREST
  - **Is a function of supply and demand**

    savers supply more funds at higher rates

    spenders borrow (demand) less at higher rates
  - **Is the interest rate at which the quantity of funds supplied equals the quantity of funds demanded**

The Determinants of the Equilibrium Rate of Interest

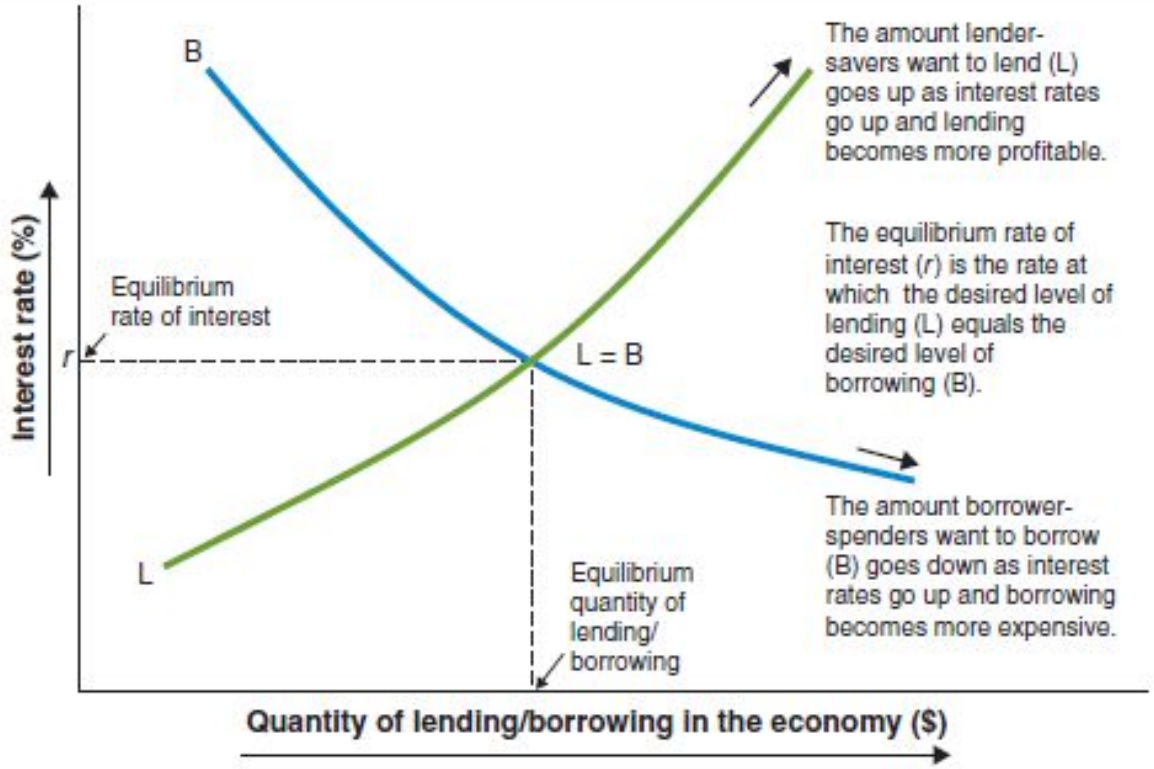


EXHIBIT 2.4
The Determinants of the Equilibrium Rate of Interest

The equilibrium rate of interest is a function of supply and demand. Lender-savers are willing to supply more funds as interest rates go up, but borrower-spenders demand fewer funds at higher interest rates. The interest rate at which the supply of funds equals the demand for those funds is the equilibrium rate.

[5]The model presented here is based on the loanable funds theory of market equilibrium. Saving (or giving up current consumption) is the source of loanable funds, and personal and business spending (or investment) is the use of funds.

The Determinants of Interest Rate Levels

- INFLATION AND LOAN CONTRACTS
  - **Lenders want the interest rates in loan contracts to include compensation for the inflation predicted to occur over the life of the contract**
  - **Compensation for expected inflation adjusts loan rates to offset the higher prices for goods and services expected to exist when a loan is repaid and a lender spends the money**

The Determinants of Interest Rate Levels

- FISHER EQUATION & NOMINAL INTEREST RATE
  - **The Fisher Equation**

$$i = r + \Delta P_e + r\Delta P_e \qquad (2.1)$$

-

Where:

i = nominal interest rate

r = real rate of interest

ΔP_e = expected annualized price-level change

$r\Delta P_e$ = adjustment for expected price-level change

The Determinants of Interest Rate Levels

- FISHER EQUATION & NOMINAL INTEREST RATE
  - **Simplified Fisher Equation**

$$i = r + \Delta P_e \qquad (2.2)$$

The Determinants of Interest Rate Levels

- FISHER EQUATION EXAMPLE

$$r = 0.04 \quad \Delta P_e = 0.10 \quad i = ?$$

$$i = r + \Delta P_e + r\Delta P_e$$

$$= 0.04 + 0.10 + (0.04 \text{ x } 0.10)$$

$$= 0.1440 \text{ or } 14.40\%$$

The Determinants of Interest Rate Levels

- SIMPLIFIED FISHER EQUATION EXAMPLE

$$r = 0.04 \quad \Delta Pe = 0.10 \quad i = ?$$

$$i = r + \Delta Pe$$

$$= 0.04 + 0.10$$

$$= 0.14 \text{ or } 14\%$$

The Determinants of Interest Rate Levels

- REAL RATE OF INTEREST EXAMPLE

$$i = 0.14 \quad \Delta P_e = 0.10 \quad r = ?$$

$$i = r + \Delta P_e$$

$$0.14 = r + 0.10$$

$$0.14 - 0.10 = r$$

$$0.04 = r$$

The Determinants of Interest Rate Levels

- CYCLICAL & LONG-TERM INTEREST RATES
  - **Interest rates tend to rise and fall with changes in the rate of inflation**
  - **Rates tend to rise when the growth rate of the economy increases and tend to fall when the growth rate of the economy slows**

The Determinants of Interest Rate Levels

- INTEREST RATE, BUSINESS CYCLE & INFLATION
  - **Interest rates tend to follow the business cycle**
  - **Interest rates tend to increase during an economic expansion**
  - **Interest rates tend to decrease during an economic contraction**

Relation Between Annual Inflation Rate and Long-Term Interest Rate

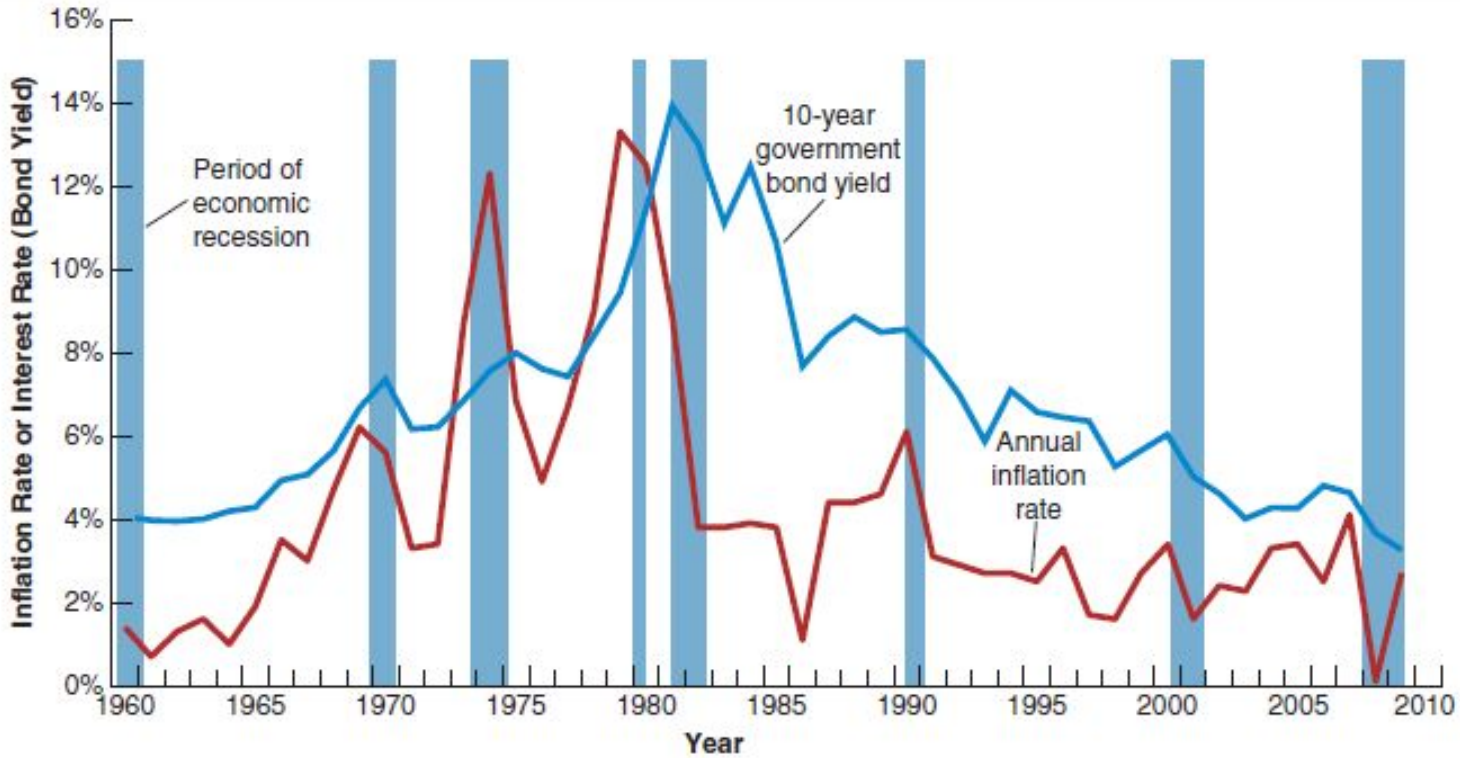


EXHIBIT 2.5

Relation between Annual Inflation Rate and Long-Term Interest Rate (1960–2009)

Based on the graph shown in the exhibit, we can draw two important conclusions about interest rate movements. First, the level of interest rates tends to rise and fall with the actual rate of inflation—a conclusion also supported by the Fisher Equation, which suggests that interest rates rise and fall with the *expected* rate of inflation. Second, the level of interest rates tends to rise during periods of economic expansion and decline during periods of economic contraction.