CHAPTER 10 LECTURE - SAVINGS, INVESTMENT SPENDING, AND THE FINANCIAL SYSTEM

CHAPTER 10 LECTURE - SAVINGS, INVESTMENT SPENDING, AND THE FINANCIAL SYSTEM


WHAT YOU WILL LEARN IN THIS CHAPTER

- What is the relationship between savings and investment spending?
- How does the loanable funds market match savers with borrowers?
- What are the purposes of the four principal types of financial assets: loans, bonds, stocks, and bank deposits?
- How do financial intermediaries help investors achieve diversification?
- What are the competing views about how asset prices are determined and why asset market fluctuations can be a source of macroeconomic instability?

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THE NECESSITY OF FINANCE

SAVINGS AND INVESTMENT

- Having a good idea isn't enough to build a business.
- Entrepreneurs need funds: You have to spend money to make money.
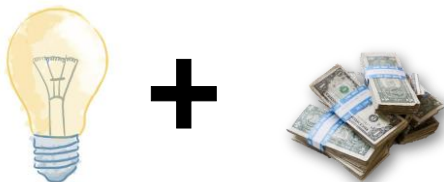
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MATCHING UP SAVINGS AND INVESTMENT SPENDING

Who Pays for Private Investment Spending?

In the modern economy, individuals and firms that create physical capital often do it with other people's money.

- *Savings–investment spending identity:* savings and investment spending are always equal for the economy as a whole.
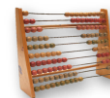
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THE SAVINGS–INVESTMENT SPENDING IDENTITY IN A CLOSED ECONOMY (1 of 3)

$$GDP = C + I + G.$$

- Total income = total spending. Total income can go to consumer spending (C) or government purchases of goods and service (G) or be saved (S)

$$GDP = C + G + S.$$

- Total income = consumption spending + savings.

- Total spending consists of either consumption spending (C) or government spending (G) or investment spending (I):

$$GDP = C + G + I.$$

THE SAVINGS–INVESTMENT SPENDING IDENTITY IN A CLOSED ECONOMY (2 of 3)

- Total income = consumption spending + *investment* spending. Putting these equations together, we get:

$$C + G + S = C + G + I$$

- Consumption spending = consumption spending + savings + investment spending. Subtracting (C + G) from both sides:

$$S = I \text{ or } \textbf{savings = investment spending.}$$

THE SAVINGS–INVESTMENT SPENDING IDENTITY

- Now let's take a closer look at savings.
- **Government can also save (or not).**
- **Budget surplus:** excess of tax revenue over government spending
- **Budget deficit:** excess of government spending over tax revenue
- **Budget balance:** the difference between tax revenue and government spending
- **National savings:** the sum of private savings and the budget balance (the total amount of savings generated within the economy)

THE SAVINGS–INVESTMENT SPENDING IDENTITY IN A CLOSED ECONOMY (3 of 3)

$$S_{Government} = T - TR - G$$

- T = the value of tax revenues and TR = the value of government transfers.

$$S_{National} = S_{Government} + S_{private}$$

- And since $S = I$ has been established, we can say

$$S_{National} = I$$

National savings = investment.

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THE DIFFERENT KINDS OF CAPITAL

- It's important to stay clear about the different kinds of capital (as explained in the previous chapter):
  1. Physical capital consists of manufactured resources, such as buildings and machines.
  2. Human capital is the improvement in the labor force generated by education and knowledge.
  3. Financial capital is funds from savings that are available for investment spending.

THE SAVINGS–INVESTMENT SPENDING IDENTITY IN AN OPEN ECONOMY (1 of 2)

- What happens when a country sends savings to or receives savings from abroad? This affects national savings.
- **Net capital inflow** is the total flow of funds into a country minus the total flow of funds out of a country.
- A country with a positive net capital inflow has an extra flow of funds from abroad that can be used for investment spending.

THE SAVINGS–INVESTMENT SPENDING IDENTITY IN AN OPEN ECONOMY (2 of 2)

- **A country that spends more on imports than it earns from exports must borrow the difference from foreigners.**
$$NCI = IM - X$$
- Net capital inflow = imports − exports
- Rearrange GDP = $C + I + G + X - IM$… to
$$I = (GDP - C - G) + (IM - X)$$
- We know that GDP − C − G is equal to national savings,
$$I = S_{National} + (IM - X) = S_{National} + NCI$$
- **Investment spending = national savings + net capital inflow**

• LEARN BY DOING PRACTICE QUESTION 1

- **Capital inflow** is the:
  a) net inflow of foreign funds plus domestic savings into an economy.
  b) net inflow of funds into a country, or the total inflow of foreign funds into a country minus the total outflow of domestic funds to other countries.
  c) total outflow of domestic funds to other countries minus the net inflow of foreign funds into a country.
  d) total outflow of domestic funds to other countries plus the net inflow of foreign funds into a country.

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THE MARKET FOR LOANABLE FUNDS

- On any given day, the people with money to lend are not usually the same as people who want to borrow.
- **How are savers and borrowers brought together?**
- **Financial markets** channel the savings of households to businesses that want to borrow in order to purchase capital equipment.
- There are many financial markets. For our purposes we'll assume one market where savers and borrowers come together.

THE MARKET FOR LOANABLE FUNDS PART 2

- The **loanable funds market:** a hypothetical market that illustrates the market outcome of the demand for funds generated by borrowers and the supply of funds provided by lenders
- We assume the **price of loans is the (nominal) interest rate.**
    - (Again, we assume a simplified world with just one interest rate, knowing that the real world contains many interest rates according to length of loan, risk, and customers.)

THE DEMAND FOR LOANABLE FUNDS

- **The interest rate is the price of borrowing funds.**
- Firms borrow more when the interest rate falls because more projects will earn enough to pay for themselves.
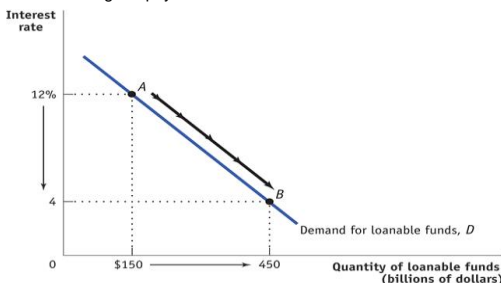

FIGURE 10-2 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

PRESENT VALUE

- **The demand for loanable funds**
- An investment is worth making only if it generates a future return that is *greater* than the monetary cost of making the investment today.
- **Present value** is the amount of money needed today to receive a given amount of money at a future date given the interest rate.
    - *If you need $1,000 in a year and the interest rate on savings is r, how much do you need to put in the bank now (X)?*
- $X \times (1 + r) = \$1,000$. Rearrange: $X = \$1,000/(1 + r)$.

PRESENT VALUE

- *A firm has two potential investment projects in mind, each of which will yield $1,000 a year from now.*
  - **Each project has different initial costs:**
    - One requires that the firm borrow $900 right now.
    - The other requires that the firm borrow $950.
- **Which of these projects is worth borrowing money to finance and undertake?**
  - *Depends on the interest rate.*
  - A 10% interest rate means $1,000 is worth $909 now, so only the first project is worth it, since its initial cost ($900) is less than the present value. **More projects are worth it as interest rate falls.**

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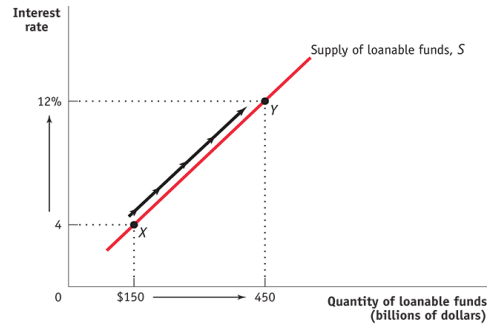## THE SUPPLY OF LOANABLE FUNDS

FIGURE 10-3 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

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THE SUPPLY OF LOANABLE FUNDS

- Why does the supply of loanable funds curve slope upward?
  - **More people are willing to forgo current consumption and make a loan to a borrower when the interest rate is higher.**
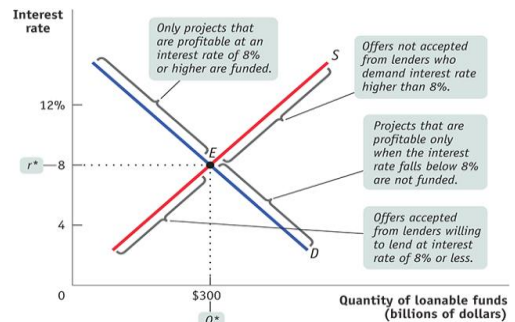

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THE EQUILIBRIUM INTEREST RATE

FIGURE 10-4 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

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SHIFTS OF THE DEMAND FOR LOANABLE FUNDS

- Factors that can cause the demand curve for loanable funds to shift:
  - **changes in perceived business opportunities**
  - **changes in government borrowing**

AN INCREASE IN THE DEMAND OF LOANABLE FUNDS

Interest rate

. . . leads to a rise in the equilibrium interest rate.

r_2
r_1

S

An increase in the demand for loanable funds . . .
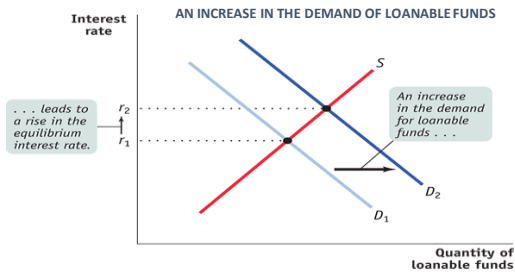
D_2

D_1

Quantity of loanable funds

FIGURE 10-5 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

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SIDE EFFECTS OF GOVERNMENT BORROWING?

- **Crowding out** occurs when a government budget deficit drives up the interest rate and leads to reduced investment spending.
- **Crowding out is not a concern in a depressed economy; rather, increased government spending raises income (and private savings).**

'Crowding out effect' in Economics

Increase in interest rate

Private borrowing

Government borrowing

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SHIFTS OF THE SUPPLY OF LOANABLE FUNDS

- Factors that can cause the supply curve for loanable funds to shift:
  - changes in private savings behavior
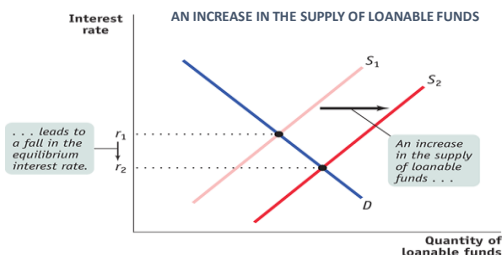 - changes in net capital inflows

AN INCREASE IN THE SUPPLY OF LOANABLE FUNDS

Interest rate

. . . leads to a fall in the equilibrium interest rate.

r_1
r_2

S_1

S_2

An increase in the supply of loanable funds . . .

D

Quantity of loanable funds

FIGURE 10-6 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

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GLOBAL LOANABLE FUNDS

- A global loanable funds market arises when international capital flows are so large that they equalize interest rates across countries.
- What if the process of capital inflows went all the way and equalized interest rates globally? (There is an incentive for capital to flow to where the returns are higher.)
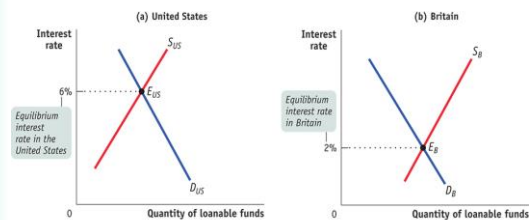
(a) United States

Interest rate

S_{US}

6%

E_{US}

Equilibrium interest rate in the United States

D_{US}

0   Quantity of loanable funds

(b) Britain

Interest rate

S_B

Equilibrium interest rate in Britain

2%

E_B

D_B

0   Quantity of loanable funds

FIGURE 10-7 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

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EQUILIBRIUM IN THE GLOBAL LOANABLE FUNDS MARKET

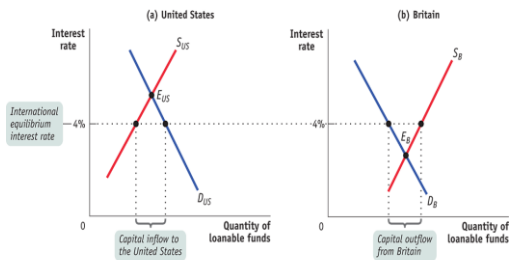- Capital moves away from lower returns toward higher returns.

FIGURE 10-8 Krugman/Wells, Macroeconomics, 5e, © 2018 Worth Publishers

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EQUILIBRIUM IN THE GLOBAL LOANABLE FUNDS MARKET

- Anything that shifts either the supply of loanable funds curve or the demand for loanable funds curve changes the interest rate.

- Major changes in interest rates have been driven by many factors, including:

  - *changes in government policy.*

  - *technological innovations that created new investment opportunities.*

- But most important, people's expectations about future inflation.

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INFLATION AND INTEREST RATES

- Real interest rate = nominal interest rate – inflation rate.

- The true cost of borrowing (and payoff to lending) is the real interest rate.

- But neither lenders nor borrowers know what inflation will be, so loan contracts specify a nominal interest rate.

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THE FISHER EFFECT

The Fisher Effect defines the relationship between real rates, nominal rates and inflation

- $(1 + R(\text{or } i)) = (1 + r)(1 + \pi)$

  - R = nominal rate (Quoted rate)
  - r = real rate
  - π = expected inflation rate

- $1 + R = 1 + r + \pi + r\pi$

Approximation: $R = r + \pi$ (we assume $r\pi$ is relatively small and close to 0.

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THE FISHER EFFECT

• According to the *Fisher effect,* an increase in expected future inflation drives up the nominal interest rate, leaving the expected real interest rate unchanged.

If the tide rises, these boats will still float on the surface.

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EXAMPLE

If we require a 10% real return and we expect inflation to be 8%, what is the nominal rate?

• $(1 + R) = (1 + r)(1 + \pi h) = 1 + r + \pi + r\pi$

• $R = (1.1)(1.08) - 1 = .188 = 18.8\%$

• Approximation: $R = 10\% + 8\% = 18\%$

• Because the real return and expected inflation are relatively high, there is significant difference between the actual Fisher Effect and the approximation.

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THE EXPECTED REAL INTEREST RATE IS UNAFFECTED BY CHANGES IN EXPECTED FUTURE INFLATION.
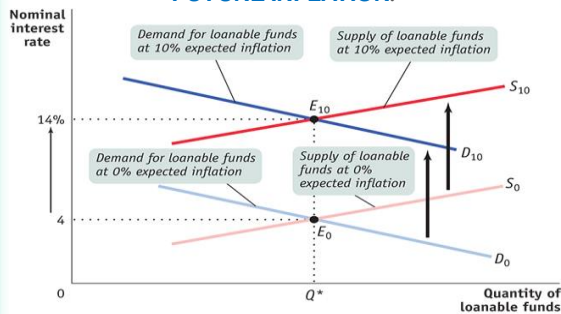

FIGURE 10-9 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

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SIXTY YEARS OF U.S. INTEREST RATES

• **Changes in expected future inflation and changes in the expected return on investment spending clearly move interest rates.**
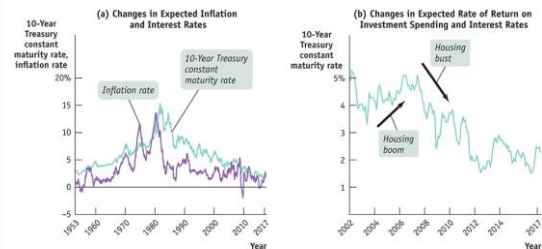

FIGURE 10-10 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Federal Reserve Bank of St. Louis.

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THE FINANCIAL SYSTEM

- Most economies have some sort of financial system to handle household wealth and make loans.
- *Wealth* is the value of a household's accumulated savings.
- A *financial asset* is a paper claim that entitles the buyer to future income from the seller.
- A *physical asset* is a tangible object that can be used to generate future income.
- A *liability* is a requirement to pay income in the future.

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THE NEED FOR A SOUND FINANCIAL SYSTEM

- A well-functioning financial system is a critical ingredient in achieving long-run growth because it encourages greater savings and investment spending.

- It also ensures that savings and investment spending are undertaken efficiently.

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AN OVERVIEW OF THE FINANCIAL SYSTEM

- Introduction to Financial Markets and Institutions

    - We will start our discussion of financial and money markets with some basic definitions:
        - There exist two different forms of exchange in financial markets. The first one is direct finance, in which lenders and borrowers meet directly to exchange securities.
        - Securities are claims on the borrower's future income or assets. Common examples are stock, bonds or foreign exchange
- Basic definitions:

    - The second type of financial trade occurs with the help of financial intermediaries and is known as indirect finance.

    - In this scenario borrowers and lenders never meet directly, but borrowers provide funds to a financial intermediary such as a bank and those intermediaries independently pass these funds on to lenders.

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AN OVERVIEW OF THE FINANCIAL SYSTEM

- Financial markets are split into debt and equity markets.

- Debt titles are the most commonly traded security. In these arrangements, the issuer of the title (borrower) earns some initial amount of money (such as the price of a bond) and the holder (lender) subsequently receives a fixed amount of payments over a specified period of time, known as the maturity of a debt title
- Common debt titles are bonds or mortgages.

- Equity titles are somewhat different from bonds. The most common equity title is (common) stock.

- First and foremost, an equity instruments makes its buyer (lender) an owner of the borrower's enterprise.

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AN OVERVIEW OF THE FINANCIAL SYSTEM

- Markets are divided into primary and secondary markets

- Primary markets are markets in which financial instruments are newly issued by borrowers.
- Secondary markets are markets in which financial instruments already in existence are traded among lenders. Secondary markets can be organized as exchanges, in which titles are traded in a central location, such as a stock exchange, or alternatively as over-the-counter markets in which titles are sold in several locations.

- Finally, we make a distinction between money and capital markets.
- Money markets are markets in which only short term debt titles are traded.
- Capital markets are markets in which longer term debt and equity instruments are traded.

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THREE TASKS OF A FINANCIAL SYSTEM

- Task 1: reducing transaction costs
  - *Transaction costs:* the expenses of negotiating and executing a deal.
- Task 2: reducing risk
  - *Financial risk:* uncertainty about future outcomes that involve financial losses or gains.
  - *Diversification:* investing in several assets with unrelated, or independent, risks; reduces risk.
- Task 3: providing liquidity
  - *Liquidity:* a measure of how quickly an asset can be converted into cash with relatively little loss of value.
  - If it can be converted quickly, it's *liquid;* if not, *illiquid.*

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FINANCIAL INTERMEDIARIES

- *Financial intermediary:* an institution that transforms the funds it **GATHERS** from many individuals into financial assets.
  - mutual funds
  - pension funds and life insurance companies
  - banks
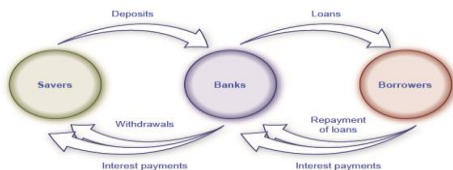
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BANKS

- *Bank:* a financial intermediary that provides liquid assets in the form of bank deposits to lenders and uses those funds to finance the illiquid investment spending needs of borrowers *who don't want to use the stock or bond markets.*

- *Bank deposit:* a financial asset (a claim on the bank's cash) owned by the depositor—and a liability of the bank that holds it.

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TYPES OF FINANCIAL ASSETS

- Bond: an IOU issued by the borrower, usually with a set interest and maturity date
  - *A concern for investors is the possibility of default (failure of a borrower to make payments as specified)*
  - *More risky bonds carry higher interest rates*
- Loan-backed securities: assets created by pooling individual loans and selling shares in that pool (a process called securitization)
  - *With so many loans packaged together, it can be difficult to assess the true quality of the asset, as in the financial crisis of 2008.*
- Stock: a share in the ownership of a company

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It's hard for people without large amounts of money to build a diversified portfolio. The solution is mutual funds.

Mutual fund: financial intermediary that builds a stock portfolio and resells shares of this portfolio to individual investors.

Table 10-1 Fidelity 500 Index Fund, Top Holdings (as of December 2016)

Company	Percent of mutual fund assets invested in a company
Apple Inc.	3.03%
Microsoft Corp.	2.39
Exxon Mobil Corp.	1.84
Johnson & Johnson	1.55
Berkshire Hathaway Inc. B	1.52
Amazon.com Inc.	1.50
JPMorgan Chase & Co.	1.47
General Electric Co.	1.40
Facebook Inc. A	1.40
Wells Fargo & Co.	1.22

- *Data from:* Fidelity Investments.

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PENSION FUNDS AND LIFE INSURANCE COMPANIES

- *Pension fund:* a type of mutual fund that holds assets to provide retirement income to its members.
- *Life insurance company:* sells policies that guarantee a payment to a policyholder's beneficiaries when the policyholder dies.

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FINANCIAL FLUCTUATIONS

- A healthy financial system is essential; when it fails, it causes instability.
- *What causes asset price fluctuations?*
  - the demand for stocks
  - the demand for other assets
  - asset price expectations

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HOW NOW, DOW JONES?

- Stock indexes: what and why?
- Dow Jones Industrial Average, S&P 500, and NASDAQ are averages of a group of stocks.
- Each index gives investors a quick view of how different sectors are doing (or rather, how investors expect them to do in the future).

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ARE STOCK MARKETS EFFICIENT?

- According to the *efficient markets hypothesis,* asset prices embody all publicly available information.
- Implications:
  - *At any time stock prices are fairly valued: They reflect all available information about fundamentals.*
  - *The prices of stocks and other assets should change only in response to new information about the underlying fundamentals—and should move in a random walk (a "random walk" is the movement over time of an unpredictable variable.)*

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BEHAVIORAL FINANCE

- Behavioral economics (and its subfield in finance) study how people make (predictable) mistakes in their decisions.
- Investors depart from rationality in systematic ways:
  - *Overconfidence:* having misguided faith that they are able to spot a winning stock.
  - *Loss aversion:* being unwilling to sell an unprofitable asset and accept the loss.
  - *Herd mentality:* buying an asset when its price has already been driven high and selling it when its price has already been driven low.

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World Stock Markets

Asian-Pacific Stock Indexes

Europe, Africa, Middle East Stock Indexes

Qatar Stock Index

U.S., North/Latin America Stock Indexes

World Stock Indexes

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