

Chapter Two

Asset Classes and Financial Instruments

INVESTMENTS | BODIE, KANE, MARCUS

Chapter Overview

- Building an investment portfolio
 - Asset allocation involves making decisions about how much money to allocate to broad classes of assets
 - Security selection occurs when the investor selects specific assets from within each class
- Financial markets
 - **Money markets** are made up of short-term, marketable, liquid, low-risk debt securities
 - **Capital markets** include longer term and riskier securities
 - Divided into four segments – longer term bond markets, equity markets, and the derivative markets for options and futures

Money Market Securities

(1 of 3)

- Treasury Bills (i.e., T-bills)
 - Simplest form of borrowing wherein the government raises money by selling bills to the public
 - **Ask price** is the price you would have to pay to buy a T-bill from a securities dealer
 - **Bid price** is the slightly lower price you would receive if you wanted to sell a bill to a dealer
 - **Bid-ask spread** is the difference in these prices, which is the dealer's source of profit
- Certificates of Deposit (CD)
 - Bank pays interest and principal to the depositor only at maturity
 - Time deposit cannot be withdrawn on demand

Money Market Securities

(2 of 3)

- **Commercial paper**
 - Short-term unsecured debt notes, often issued by large, well-known companies and backed by a bank line of credit
- **Bankers' acceptance**
 - An order to a bank by a customer to pay a sum of money at a future date
- **Eurodollars**
 - Dollar-denominated deposits at foreign banks or foreign branches of American banks

Money Market Securities

(3 of 3)

- **Repurchase agreements**
 - Short-term, often over-night, sales of securities with an agreement to repurchase them at a slightly higher price
- **Federal funds**
 - Funds in a bank's reserve account at the Federal Reserve Bank
- **Brokers' calls**
 - Investors may buy stocks on **margin** and brokers, in turn, may borrow the funds from a bank

The Bond Market

- Bond market is composed of longer term borrowing or debt instruments than those that trade in the money market
 - Treasury notes and bonds
 - Corporate bonds
 - Municipal bonds
 - Mortgage securities
 - Federal agency debt

Debt Instruments

(1 of 4)

- **Treasury notes and treasury bonds**
 - U.S. government borrows funds in large part by selling T-notes and T-bonds
 - Notes – maturities range up to 10 years
 - Bonds – maturities range from 10 to 30 years
- Inflation-protected treasury bonds
 - Many countries' governments issue bonds linked to an index of the cost of living in order to provide their citizens with an effective way to hedge inflation risk
 - In the U.S., inflation-protected T-bonds are called TIPS

Debt Instruments

(2 of 4)

- **Municipal Bonds**
 - Tax-exempt bonds issued by state and local governments
 - General obligation – backed by general taxing power of issuer
 - Revenue – backed by proceeds from the project or agency they are issued to finance
 - Typically issued by airports, hospitals, etc.
 - Industrial development – revenue bond issued to finance commercial enterprises
 - Vary widely in maturity

Debt Instruments

(3 of 4)

- Corporate bonds
 - Means by which private firms borrow money directly from the public
 - Secured bonds
 - Unsecured bonds (i.e., debentures)
 - Subordinated debentures
 - Similar to Treasury issued securities in that they usually pay semiannual coupons and return face value to bondholder at maturity
 - Larger default risk than Treasury issued securities
 - May come with options attached
 - Callable or convertible options

Debt Instruments

(4 of 4)

- Mortgage- and asset-backed securities
 - Ownership claim in a pool of mortgages or an obligation that is secured by such a pool
 - *Conforming mortgages*
 - Loans must satisfy certain underwriting guidelines before they may be purchased by Fannie Mae or Freddie Mac
 - *Subprime mortgages*
 - Riskier loans made to financially weaker borrowers

Equity Securities: Common Stock

- Represent ownership shares in a corporation
- Each share entitles owner to one vote
- Corporation controlled by board of directors elected by shareholders
- **Residual claim**
 - Stockholders are last in line of all who have a claim on the assets and income of the corporation
- **Limited liability**
 - Most shareholders can lose in the event of failure of the corporation is their original investment

Equity Securities: Preferred Stock

- Preferred stock has features similar to both equity and debt
 - Like a bond, promises to pay a fixed amount of income each year
 - Does not convey voting power regarding the management of the firm
 - Contractual obligation to pay interest, but not dividends
 - Preferred stock payments are treated as dividends rather than interest, so they are not a tax-deductible expense for the firm

Stock Market Indexes

- Dow Jones Industrial Average (DJIA)
 - Includes 30 large blue-chip corporations
 - Computed since 1896
 - **Price-weighted average**
- Standard & Poor's 500 (S&P 500)
 - Improvement over DJIA in two ways
 1. More broadly based index of 500 firms
 2. **Market-value-weighted Index**

| Dow Industrials in 1928 | Current Dow Companies | Ticker Symbol | Industry | Year Added to Index |
|-------------------------|-----------------------|---------------|--------------------------------|---------------------|
| Wright Aeronautical | 3M | MMM | Diversified industrials | 1976 |
| Allied Chemical | American Express | AXP | Consumer finance | 1982 |
| North American | Apple | AAPL | Electronic equipment | 2015 |
| Victor Talking Machine | Boeing | BA | Aerospace and defense | 1987 |
| International Nickel | Caterpillar | CAT | Construction | 1991 |
| International Harvester | Chevron | CVX | Oil and gas | 2008 |
| Westinghouse | Cisco Systems | CSCO | Construction | 1991 |
| Texas Gulf Sulphur | Coca-Cola | KO | Beverages | 1987 |
| General Electric | DuPont | DD | Chemicals | 1935 |
| American Tobacco | ExxonMobil | XOM | Oil and gas | 1928 |
| Texas Corp | General Electric | GE | Diversified industrials | 1907 |
| Standard Oil (NJ) | Goldman Sachs | GS | Investment banking | 2013 |
| Sears Roebuck | Home Depot | HD | Home improvement retailers | 1999 |
| General Motors | Intel | INTC | Semiconductors | 1999 |
| Chrysler | IBM | IBM | Computer services | 1979 |
| Atlantic Refining | Johnson & Johnson | JNJ | Pharmaceuticals | 1997 |
| Paramount Publix | JPMorgan Chase | JPM | Banking | 1991 |
| Bethlehem Steel | McDonald's | MCD | Restaurants | 1985 |
| General Railway Signal | Merck | MRK | Pharmaceuticals | 1979 |
| Mack Trucks | Microsoft | MSFT | Software | 1999 |
| Union Carbide | Nike | NKE | Apparel | 2013 |
| American Smelting | Pfizer | PFE | Pharmaceuticals | 2004 |
| American Can | Procter & Gamble | PG | Household products | 1932 |
| Postum Inc. | Travelers | TRV | Insurance | 2009 |
| Nash Motors | UnitedHealth Group | UNH | Health insurance | 2012 |
| American Sugar | United Technologies | UTX | Aerospace | 1939 |
| Goodrich | Verizon | VZ | Telecommunications | 2004 |
| Radio Corp | Visa | V | Electronic payments | 2013 |
| Woolworth | Wal-Mart | WMT | Retailers | 1997 |
| U.S. Steel | Walt Disney | DIS | Broadcasting and entertainment | 1991 |

Table 2.5

Companies included in the Dow Jones Industrial Average: 1928 and 2016

Example 2.2 Price-Weighted Average

Consider the data in Table 2.3 for a hypothetical two-stock version of the Dow Jones Average. Let's compare the changes in the value of the portfolio holding one share of each firm and the price-weighted index. Stock ABC starts at \$25 a share and increases to \$30. Stock XYZ starts at \$100, but falls to \$90.

Portfolio: Initial value = $\$25 + \$100 = \$125$
Final value = $\$30 + \$90 = \$120$
Percentage change in portfolio value = $-5/125 = -.04 = -4\%$

Index: Initial Index value = $(25 + 100)/2 = 62.5$
Final Index value = $(30 + 90)/2 = 60$
Percentage change in Index = $-2.5/62.5 = -.04 = -4\%$

The portfolio and the index have identical 4% declines in value.

Notice that price-weighted averages give higher-priced shares more weight in determining performance of the index. For example, although ABC increased by 20%, while XYZ fell by only 10%, the index dropped in value. This is because the 20% increase in ABC represented a smaller price gain (\$5 per share) than the 10% decrease in XYZ (\$10 per share). The "Dow portfolio" has four times as much invested in XYZ as in ABC because XYZ's price is four times that of ABC. Therefore, XYZ dominates the average. We conclude that a high-price stock can dominate a price-weighted average.

Table 2.3

Data to construct stock price indexes

| Stock | Initial Price | Final Price | Shares (million) | Initial Value of Outstanding Stock (\$ million) | Final Value of Outstanding Stock (\$ million) |
|-------|---------------|-------------|------------------|---|---|
| ABC | \$ 25 | \$30 | 20 | \$500 | \$600 |
| XYZ | 100 | 90 | 1 | <u>100</u> | <u>90</u> |
| Total | | | | \$600 | \$690 |

Example 2.4 Value-Weighted Indexes

To illustrate how value-weighted indexes are computed, look again at Table 2.3. The final value of all outstanding stock in our two-stock universe is \$690 million. The initial value was \$600 million. Therefore, if the initial level of a market-value-weighted index of stocks ABC and XYZ were set equal to an arbitrarily chosen starting value such as 100, the index value at year-end would be $100 \times (690/600) = 115$. The increase in the index reflects the 15% return earned on a portfolio consisting of those two stocks held in proportion to outstanding market values.

Unlike the price-weighted index, the value-weighted index gives more weight to ABC. Whereas the price-weighted index fell because it was dominated by higher-price XYZ, the value-weighted index rises because it gives more weight to ABC, the stock with the higher total market value.

Other Indexes

- U.S. market-value indexes
 - NYSE, NASDAQ, Wilshire 5000, CRSP
- Equally weighted indexes
 - Do not correspond to buy-and-hold strategies
- Foreign and international stock market indexes
 - Nikkei, FTSE, DAX, Hang Seng, TSX

| 20210909 | 盈利收益率 | 市盈率 | 市净率 | 股息率 | ROE | 场内基金 | 场外基金 |
|----------|--------|-------|------|-------|--------|--------|--------|
| 50AH优选 | 10.67% | 9.37 | 0.93 | 3.08% | 9.93% | 501050 | 501050 |
| 中证银行 | | | 0.88 | 3.63% | | 512800 | 001594 |
| 央视50 | 10.07% | 9.93 | 1.17 | 2.78% | 11.81% | 159965 | 217027 |
| 300价值 | 9.87% | 10.13 | 1.01 | 3.12% | 9.95% | | 519671 |
| 医药100 | | 28.02 | 5.08 | 0.51% | 18.14% | | 001550 |
| 基本面50 | 9.70% | 10.31 | 1.00 | 2.98% | 9.68% | 512750 | 160716 |
| 中证500 | | 26.50 | 2.23 | 0.97% | 8.42% | 510580 | 161017 |
| H股指数 | 9.80% | 10.21 | 1.12 | 2.33% | 11.00% | 510900 | 110031 |
| 上证红利 | 8.20% | 12.19 | 1.12 | 4.52% | 9.16% | 510880 | |
| 500低波动 | | 27.02 | 1.58 | 1.60% | 5.84% | 512260 | 003318 |
| 中证红利 | 8.42% | 11.88 | 1.17 | 4.34% | 9.87% | 515180 | 090010 |
| 证券行业 | | | 1.86 | | | 512000 | 004069 |
| 上证50 | 9.23% | 10.84 | 1.27 | 2.28% | 11.73% | 510100 | 110003 |
| 恒生指数 | 9.18% | 10.89 | 1.15 | 2.91% | 10.57% | 159920 | 000071 |
| 红利机会 | | 15.87 | 1.76 | 2.88% | 11.09% | 501029 | 501029 |
| 沪深300 | | 13.40 | 1.53 | 1.70% | 11.45% | 510310 | 110020 |
| 上证180 | 8.75% | 11.43 | 1.26 | 2.10% | 10.98% | 510180 | 040180 |
| 可选消费 | | 29.12 | 2.88 | 1.20% | 9.90% | 159936 | 001133 |
| 科创50 | | 61.59 | 6.56 | 0.43% | 10.64% | 588080 | |
| 深证成指 | | 26.62 | 3.33 | 0.63% | 12.51% | 159943 | 163109 |
| 中证消费 | | 32.49 | 7.10 | 0.80% | 21.87% | 159928 | 000248 |
| 中证养老 | | 23.43 | 2.98 | 1.06% | 12.71% | | 000968 |
| 香港中小 | | 16.24 | 1.77 | | 10.90% | 501021 | 501021 |
| 基本面120 | | 20.78 | 2.75 | 0.88% | 13.24% | 159910 | 070023 |
| 基本面60 | | 20.00 | 2.83 | 0.90% | 14.16% | 159916 | 530015 |
| 深证100 | | 28.15 | 4.09 | 0.60% | 14.54% | 159901 | 161227 |
| 纳斯达克100 | | 31.67 | 9.04 | | 28.53% | 513100 | 161130 |
| 标普500 | | 25.68 | 4.35 | | 16.93% | 513500 | 050025 |
| 创业板 | | 54.38 | 8.05 | 0.19% | 14.81% | 159915 | 161022 |
| 十年期国债 | 2.89% | | | | | | |

Derivative Markets

- **Derivative asset** is a claim whose value is directly dependent on or is contingent on the value of some underlying assets
 - Options
 - Futures

Derivatives Markets: Options

- **Call option**
 - Gives holder the right to purchase an asset for a specified price, called the **exercise** or **strike price**, on or before a specified expiration date
- **Put option**
 - Gives holder the right to sell an asset for a specified exercise price on or before a specified expiration date

Derivatives Markets: Futures Contract

- **Futures contract**
 - Calls for delivery of an asset (or cash value) at a specified delivery or maturity date for an agreed-upon price, called the futures price, to be paid at contract maturity
 - *Long position* held by the trader who commits to purchasing the asset on the delivery date
 - *Short position* held by trader who commits to delivering the asset at contract maturity

Comparison

Options

- Right, but not obligation, to buy or sell
- Option is exercised only when it is profitable
- Options must be purchased
 - The *premium* is the price of the option itself

Futures Contract

- Obligated to make or take delivery
- Long (short) position must buy (sell) at the futures price
- Futures contracts are entered into without cost