• In previous chapters we were mostly loaning money to someone else, expecting a certain percent interest back.

• Now we’re talking about investing in a business,
  – If the business grows, you’ll make some money (you don’t know how much)
  – If the business does poorly, you may make no money, and may even lose all the money you spent.

Apple Inc stock from April 2011-April 2016

• Stocks
  – When you buy stock in a corporation you’re buying part ownership.
  – For a large company like Coke, they have over 4 billion outstanding shares (as of July 2014). So buying one share is buying a tiny portion of the company

  – There are Stock Exchanges (New York Stock Exchange or NASDAQ) where people can buy and sell stocks.
- **Public Companies** are companies whose shares are traded in established exchanges.
  * The Coca-Cola Company (NYSE: KO) over 4 billion shares (July 2014)
  * Apple Inc. (NASDAQ: AAPL) almost 6 billion (2014)
  * Weis Markets (NYSE: WMK) about 27 million shares (2014)

- **Private Companies** do not make their shares available to buy or sell on stock exchanges.
  * Sheetz, Inc.
  * Dell
  * Many small businesses
Dividends and Dividend Yields

- *Dividends* are the profits that corporations distribute to their stockholders.
  - Not not all profits are given out as dividends (e.g. some are reinvented in the company)
  - Dividends are often stated as an amount per share.
    - *Quarterly dividend of 14 cents per share.*
    - Dividends can be paid using any time period, (including irregularly)

- Dividend Yield
  - Expressing the company’s dividend as a percent (per year). So it’s easier to compare stocks and compare to other investments (like bank interest).

  - As a Percent of what...?
    - Fair Current Market Price
      - For stocks that are bought and sold frequently (*liquid stocks*) this is easy to determine.
      - For stocks that are bought/sold infrequently (*illiquid stocks*) you may have to guess at this.

  - Two kinds of calculations:
    - **Current Dividend Yield** = (quarterly dividend rate x 4)/(market price per share)
    - **Trailing Dividend Yield** = (trailing dividend rate)/(market price per share)
      Where trailing dividend rate is total dividends for the past year.
• Dividends are not the only story with stocks
  - Not all stocks pay Dividends.
  - Often people buy stocks because they hope the price will rise and they’ll sell them later for a profit.

  - The profits due to selling a stock at increased price are capital gains.
    * Capital gains are often subject to lower tax rates than dividends (which count like regular income)
    * Some investors prefer more dividends
    * Some investors prefer no dividends

• Compound Annual Growth Rate OR Rate of Return
  \( CARG \) in book, \( i \) on formula sheet.

• Rate of Return Formula (Compound Annual Growth Rate Formula)

  \[ i = \left( \frac{FV}{PV} \right)^{1/n} - 1 \]

  \( i \) = rate of return
  \( FV \) = future value
  \( PV \) = present value
  \( n \) = number of years
• Stock Splits
  – Sometimes companies will announce things like 2:1 stock split.
  – This means every share is now worth 2 shares.
  – So if you owned 3 shares (each worth $300), after the split you would own 6 shares, each worth $150.

• Total Rates of Return
  – Want to take into account dividends AND profits from selling a stock.
    Tough to compare do to changing stock prices.

• Dividend Reinvestment Plans
  This is when stocks will pay you in more stock (at the current market value), rather than cash dividends
• Volatility and Risk

- In banks, you know how much your money will grow (you can calculate how much you will have at any point). There is (virtually) no risk of losing your money.
- With stocks, there's the risk you could lose some or all your money.
- Stocks (if they grow) have historically provided better rates of return.
- Their growth is *volatile* not smooth.

- Hershey Company stock from April 2011-April 2016

- Honda stock from April 2011-April 2016
1. (a) **True/False:** You don’t have to sell a stock to profit from dividends.
   (b) **True/False:** You don’t have to sell a stock to profit from increase in the stock’s value (capital gains).
   (c) **True/False:** When you buy a stock you’re guaranteed not to loose money.
   (d) **True/False:** The past performance of a stock guarantees future performance of the stock.
   (e) **True/False:** The Current Dividend Yield allows you to compare the returns from the stocks dividends to a simple interest rate.
   (f) **True/False:** The CAGR (rate of return) of a stock allows you to compare the growth/decline of the stock’s price to a compound interest rate.
   (g) **True/False:** The total rate of return of a stock is (about) equal to the CARG + Dividend Yield.

2. In Feb 2016, the Hershey Company’s stock paid a quarterly dividend of $0.583. On April 11, 2016, their stock price was $91.65.

   (a) Find their stock’s dividend yield.
   (b) If the dividends of the Hershey Company for the previous 3 quarters was $0.585, $0.585, and $0.535 (respectively), find their trailing dividend yield.


3. You bought 3 shares of stock in the Hershey Company 5 years ago (April 15, 2011) for $57.30 each. Today (April 11, 2016) you sell all 3 shares for $91.67 each. What compound annual growth rate will your capital gain represent?

4. 3.5 years ago (in October 2012) you bought one share of Apple stock for $594.88. Then, in the spring of 2014 Apple stock underwent a 7:1 split. Currently (April 2016) each share is worth $109.67.


   (a) How many shares of Apple stock do you currently own?
   (b) What compound annual growth rate does your capital gain represent?

5. If the Dividend Yield rate on the Apple stock has averaged about 1.89% over the time you’ve owned it, what is the approximate total rate of return you have revived on this investment?

   [http://ycharts.com/companies/AAPL/dividend_yield](http://ycharts.com/companies/AAPL/dividend_yield)
6. Nine years ago you invested $1200 in a dividend reinvestment plan offered by a local supermarket chain. The value of your original investment, including reinvested dividends has grown to $2,147.83. What is your total rate of return?

7. The following graphs show stock prices for Nike (1980-2016) and the NY Times (1978-2016). Use the to answer the following questions:

(a) Which stock has been showing steadier growth (from the 80’s to now)?
(b) Which stock do you estimate would make you more money if you bought it now? why?
(c) Which stock is guaranteed to make you money?
8. (Optional) In August 2015 Weis Market stock paid a quarterly dividend of $0.30. On October 14, 2015, their shares are selling at $42.28. Calculate their dividend Yield.

http://www.nasdaq.com/symbol/wmk/dividend-history