

**BUAD 340 Principles of Finance Fall 2018/Dr. Minor Time Value of Money/Value Handout 181005**

**Calculating PV of Complex or Mixed FV Cash Flows**

Checkpoint 6.6: What is the present value of cash flows of \$300 at the end of years 1 through 5, a cash flow of negative \$600 at the end of year 6, and cash flows of \$800 at the end of years 7-10 if the appropriate discount rate is 10%?

- Group the cash flow in to three types, all with  $i=10\%$ 
  - ❖ \$300 from year 1 to 5
  - ❖ -\$600 at year 6
  - ❖ \$800 from year 7-10

Year 0	0
Year 1	\$300
Year 2	\$300
Year 3	\$300
Year 4	\$300
Year 5	\$300
<b>Year 6</b>	<b>-\$600</b>
Year 7	\$800
Year 8	\$800
Year 9	\$800
Year 10	\$800



Step 1:

Find PV of an annuity of \$300 for 5 years at a discount rate of 10%. **\$1137.24**

Step 2:

Find PV of a FV of -\$600 six years from now at a discount rate of 10%. **\$338.68**

Step 3:

Find PV of an annuity of \$800 for 4 years, six years from now at a discount rate of 10%. **\$1431.44**

Find PV of an annuity of \$800 for 4 years at a discount rate of 10%. **\$2535.80**

Find PV of a FV of \$2535.80 six years from now at a discount rate of 10%. **\$1431.89**

## Van Horne Chapter 4. The Valuation of Long-Term Securities

---

### What is Value?

- **Going-concern value** represents the amount a firm could be sold for as a continuing operating business.
- **Book value** represents either:
  - **An asset:** the accounting value of an asset – the asset’s cost minus its accumulated depreciation;
  - **A firm:** total assets minus liabilities and preferred stock as listed on the balance sheet.
- **Intrinsic value** represents the price a security “ought to have” based on all factors bearing on valuation. Intrinsic value is calculated as the present value of projected future earnings plus the future sale price of the firm.
- **Market value** is the value of a company according to the stock market. Market value is calculated by multiplying a company’s shares outstanding by its current market price also known as market capitalization.

### Bonds

---

A **bond** is a long-term debt instrument issued by a corporation or government.

- The **maturity value (MV)** [or face value] of a bond is the stated value. In the case of a US bond, the face value is usually \$1,000.
- The bond’s **coupon rate** is the stated rate of interest; the annual interest payment divided by the bond’s face value.
- The **discount rate,  $k_d$** , (capitalization rate) is dependent on the risk of the bond and is composed of the risk-free rate plus a premium for risk.

### Different Types of Bonds

A **perpetual bond** is a bond that *never* matures. It has an infinite life.

### Example

Bond P has a \$1,000 face value and provides an 8% annual coupon. The appropriate discount rate is 10%. What is the value of the perpetual bond?

$$V = I / k_d$$

V = value of the bond

I = annual interest payment

$k_d$  = discount rate

$$\begin{aligned} I &= \$1,000 (8\%) = \$80. \\ &= \$80/10\% = \$800. \end{aligned}$$

### Exam 2 Content

---

- Presentations 3, 4
- Van Horne Chapters 3, 4 (value, bond definition, and perpetual bonds)
- Van Horne Chapter 3 Online Quiz
- Handouts 180921 - 181005