BUACCFUND 2020 – SESSION 6

AGENDA

- Bonds
- Accounting basics

WHAT IS A BOND?

- Bond - Security that obligates the issuer to make specified payments to the bondholder.

- Bond is basically a loan
  - Borrower: bond issuer *(the one who sells the bond)*
  - Lender: bond holder *(the one who buys the bond)*
  - Interest payment: coupon

BONDS

Terminology

- Coupon - The interest payments made to the bondholder.

- Face Value (Par Value or Principal Value) - Payment at the maturity of the bond.

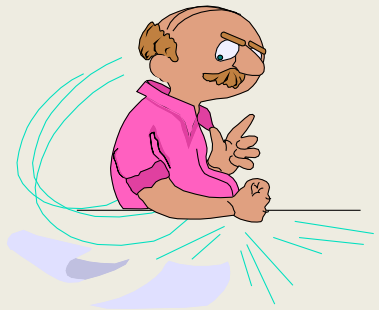
- Coupon Rate – Annual interest payment, as a percentage of face value.

BONDS

WARNING

The coupon rate IS NOT the discount rate used in the Present Value calculations.

The coupon rate merely tells us what cash flow the bond will produce.



Since the coupon rate is listed as a %, this misconception is quite common.

BOND PRICE

- Remember that the Present Value of any multiple future cash-flows is given by

$$\sum \frac{C_n}{(1+r)^n}$$

BOND PRICING

$$PV = \frac{cpn}{(1+r)^1} + \frac{cpn}{(1+r)^2} + \ldots + \frac{(cpn + par)}{(1+r)^t}$$

The price of a bond is **equal to the Present Value of all cash flows** generated by the bond (i.e. coupons and face value) discounted at the required rate of return (the appropriate discount rate).

BOND PRICING

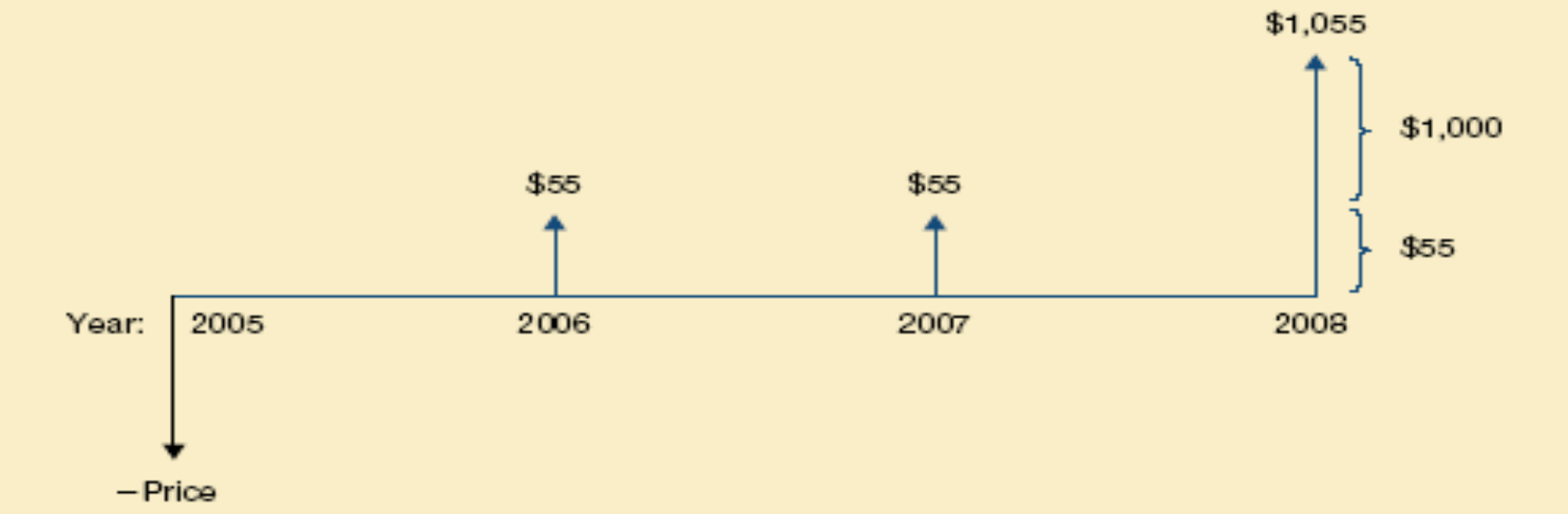
Example

What is the price of a 5.5 % annual coupon bond, with a $1,000 face value, which matures in 3 years? Assume a required return of 3.5%.

$$PV = \frac{55}{(1.035)^1} + \frac{55}{(1.035)^2} + \frac{1{,}055}{(1.035)^3}$$

$$PV = \$1{,}056.03$$

BOND CASH FLOWS



BOND PRICING

Example (continued)

What is the price of the same bond (5.5 % annual coupon, 1,000 face value, maturity 3 years) if the required rate of return is 5.5 %?

$$PV = \frac{55}{(1.055)^1} + \frac{55}{(1.055)^2} + \frac{1{,}055}{(1.055)^3}$$

$$PV = \$1{,}000$$

BOND PRICING

Example (continued)

What is the price of the bond if the required rate of return is 15 %?

$$PV = \frac{55}{(1.15)^1} + \frac{55}{(1.15)^2} + \frac{1{,}055}{(1.15)^3}$$

$$PV = \$783.09$$

BOND PRICING

Example (continued)

What is the price of the bond if the required rate of return is 3.5% AND the coupons are paid semi-annually?

$$PV = \frac{27.50}{(1.0175)^1} + \frac{27.50}{(1.0175)^2} + \ldots + \frac{27.50}{(1.0175)^5} + \frac{1{,}027.50}{(1.0175)^6}$$

$$PV = \$1{,}056.49$$

BOND PRICING

Example (continued)

Q: How did the calculation change, given semi-annual coupons versus annual coupon payments?

BOND PRICING

Example (continued)

Q: How did the calculation change, given semi-annual coupons versus annual coupon payments?

Time Periods

Paying coupons twice a year, instead of once doubles the total number of cash flows to be discounted in the PV formula.

Discount Rate

Since the time periods are now half years, the discount rate is also changed from the annual rate to the half year rate.

BOND YIELDS

- Current Yield - Annual coupon payments divided by bond price.

- Yield To Maturity - Interest rate for which the present value of the bond's payments equal the price.

BOND YIELDS

Calculating Yield to Maturity (YTM=r)

If you are given the price of a bond (PV) and the coupon rate, the yield to maturity can be found by solving for r.

$$PV = \frac{cpn}{(1+r)^1} + \frac{cpn}{(1+r)^2} + \ldots + \frac{(cpn+par)}{(1+r)^t}$$

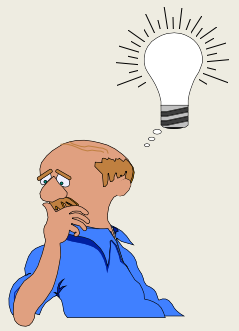
BOND YIELDS

Example

What is the YTM of a 5.5 % annual coupon bond, with a $1,000 face value, which matures in 3 years? The market price of the bond is $1,056.03.

$$PV = \frac{55}{(1+r)^1} + \frac{55}{(1+r)^2} + \frac{1{,}055}{(1+r)^3}$$

$$PV = \$1{,}056.03$$



BOND YIELDS

WARNING

There is no direct way of calculating the YTM. On the other hand, calculating YTM by hand can be very tedious.

Imagine that you are tasked with calculating the yield-to-maturity of a bond (and you have no access to Excel or a financial calculator). How would you approach the task? What would your solution look like?

FINANCIAL AND MANAGEMENT ACCOUNTING

- **Financial Accounting**
  - Serves external decision makers
    - Stockholders
    - Suppliers
    - Banks
    - Government agencies
- **Management Accounting**
  - Serves internal decision makers
    - Top executives
    - Department heads
    - People at other management levels

ANNUAL REPORT

- Document prepared by management and distributed to current and potential investors
- Informs about:
  - Company's past performance
  - Future prospects
- Used by investors and others outside company

ELEMENTS OF ANNUAL REPORTS

- Financial statements
- Letter from corporate management
- Discussion and analysis of economic events
- Footnotes explaining elements of financial statements
- Report of management and auditors on company's internal controls
- Other corporate information

FORM 10-K

- **Securities and Exchange Commission (SEC)**: Regulates capital markets in the United States
  - It is where Form 10- K must be filed annually
- **Publicly-traded stock**: Shares in ownership of a company that are sold to the public
  - Must file 10-Ks and many other forms with the SEC

FORM 10-K

- Includes:
  - Basic financial statements
  - Detailed financial information
- Enables decision makers to answer:
  - What is the financial picture of the organization at a moment in time?
  - How well did the organization do during a period of time?

THE BALANCE SHEET

- **Statement of financial position**
  - Shows financial status of companies at a particular instant in time

Two counterbalancing sections

Resources of firm

Claims against resources

THE BALANCE SHEET EQUATION

- Forms of equations

Assets = Liabilities + Owners' Equity

Assets – Liabilities = Owners' Equity

- **Assets**
  - Economic resources
  - Help generate future cash inflows
  - Reduce or prevent future cash outflows

THE BALANCE SHEET EQUATION

- **Liabilities**
  - Economic obligations to outsiders
  - Claims against assets by outsiders
  - **Notes payable**: Promissory notes that are evidence of a debt and state terms of payment
- **Owners' equity**
  - Owners' claim on assets
  - Equal to total assets less total liabilities
    - Debt holders have first claim on assets

THE BALANCE SHEET EQUATION ILLUSTRATED

- Investment of **$400,000** in business owned by Lopez
- Borrowing **$100,000** from a local bank

Assets		Liabilities and Owners' Equity	
Cash	$500,000	Liabilities (note payable)	$100,000
		Lopez, capital	400,000
Total assets	$500,000	Total liabilities and owners' equity	$500,000

THE BALANCE SHEET EQUATION

- Residual, or leftover, nature of owners' equity is expressed as:

$$\text{Owners' Equity} = \text{Assets} - \text{Liabilities}$$

  - Shows owners' claims are the amount left over after deducting liabilities from assets
  - **Net assets**: Another term for owner's equity

BALANCE SHEET TRANSACTIONS

- **Entity**
  - An organization or section of an organization
  - Stands apart from other organizations as a separate economic unit
- **Transaction**
  - An event affecting financial position of an entity
  - Can be recorded in monetary terms

BALANCE SHEET TRANSACTIONS

- Every transaction affects balance sheet
  - At least two entries are recorded
  - Total assets = Total liabilities + Owners' equity
- Called double-entry accounting system
  - As single entries cannot maintain balance in balance sheet

TRANSACTION 1 - INITIAL INVESTMENT

- Investment of **$400,000** by owner in a business bank account

	Assets	=	Liabilities	+	Owners' Equity
	Cash				Lopez, Capital
(1)	+400,000	=			+400,000

- Effects
  - Increase in asset, cash
  - Increase in owners' equity
  - Does not affect liabilities

TRANSACTION 2 - LOAN FROM BANK

- Signed a promissory note for **$100,000**

	Assets	=	Liabilities	+	Owners' Equity
	Cash				Lopez, Capital
Bal.	+400,000	=			+400,000
(2)	+100,000	=	+100,000		
Bal.	500,000	=	100,000	+	400,000
	500,000		500,000		

- Effects
  - Increase in asset, cash
  - Increase in liability, notes payable

TRANSACTION 3 - ACQUIRE STORE EQUIPMENT FOR CASH

- **Long-lived asset**: An asset that a company expects to use for more than 1 year
- Acquired miscellaneous store equipment for $15,000 cash

TRANSACTION 3 - ACQUIRE STORE EQUIPMENT FOR CASH

	Assets		=	Liabilities	+	Owners' Equity
	Cash	Store Equipment		Notes Payable		Lopez, Capital
Bal.	500,000		=	100,000	+	400,000
(3)	–15,000	+15,000	=			
Bal.	485,000	15,000	=	100,000	+	400,000
	500,000			500,000		

- Effects
  - Increase in asset, store equipment
  - Decrease in asset, cash

TRANSACTION ANALYSIS

- Transactions recorded on company's accounts
- **Account**: Summary record of changes in a particular asset, liability, or owners' equity
- Account balance - Total of all entries to the account to date

TRANSACTION ANALYSIS

- For each transaction the accountant determines:
  - Which specific accounts the transaction affects
  - Whether it increases or decreases account balance
  - Amount of change in each account balance

TRANSACTION 4 - PURCHASE INVENTORY FOR CASH

- **Inventory**: Goods held by a company for the purpose of sale to customer
- Acquired products from vendor for **$120,000** cash

TRANSACTION 4 - PURCHASE INVENTORY FOR CASH

	Assets			=	Liabilities	+	Owners' Equity
	Cash	Merchandise Inventory	Store Equipment		Notes Payable		Lopez, Capital
Bal.	485,000		15,000	=	100,000	+	400,000
(4)	–120,000	+120,000		=			
Bal.	365,000	120,000	15,000	=	100,000	+	400,000
		500,000			500,000		

- Effects
  - Decrease in assets, cash
  - Increase in assets, inventory

TRANSACTION 5 - PURCHASE INVENTORY ON CREDIT

- **Open account**: Buying or selling on credit, usually by just an authorized signature of the buyer
- **Account payable**: A liability that results from a purchase of goods or services on open account

TRANSACTION 5 - PURCHASE INVENTORY ON CREDIT

- Purchased parts (merchandise inventory) for **$10,000** on credit

- Effects
  - Increase in liability, account payable
  - Increase in asset, merchandise inventory

	Assets			=	Liabilities		+	Owners' Equity
	Cash	Merchandise Inventory	Store Equipment		Notes Payable	Accounts Payable		Lopez, Capital
Bal.	365,000	120,000	15,000	=	100,000		+	400,000
(5)		+10,000		=		+10,000		
Bal.	365,000	130,000	15,000	=	100,000	10,000	+	400,000
		510,000				510,000		

TRANSACTION 6 - PURCHASE INVENTORY FOR CASH PLUS CREDIT

- A **compound entry**: Affects more than two balance sheet accounts
- Bought product from vendor for **$30,000**
  - Cash down payment of **$10,000** and remaining on credit of **30** days

TRANSACTION 6 - PURCHASE INVENTORY FOR CASH PLUS CREDIT

	Assets			=	Liabilities		+	Owners' Equity
	Cash	Merchandise Inventory	Store Equipment		Notes Payable	Accounts Payable		Lopez, Capital
Bal.	365,000	130,000	15,000	=	100,000	10,000	+	400,000
(6)	–10,000	+30,000		=		+20,000		
Bal.	355,000	160,000	15,000	=	100,000	30,000	+	400,000
		530,000				530,000		

- Effects
  - Increase in asset, merchandise inventory
  - Decrease in asset, cash
  - Increase in liability, accounts payable

TRANSACTION 7 - SALE OF ASSET FOR CASH

- Sold store equipment for $1,000

	Assets			=	Liabilities		+	Owners' Equity
	Cash	Merchandise Inventory	Store Equipment		Notes Payable	Accounts Payable		Lopez, Capital
Bal.	355,000	160,000	15,000	=	100,000	30,000	+	400,000
(7)	+1,000		–1,000	=				
Bal.	356,000	160,000	14,000	=	100,000	30,000	+	400,000
		530,000				530,000		

- Effects
  - Increase in asset, cash
  - Decrease in assets, store equipment

TRANSACTION 8 - RETURN OF INVENTORY TO SUPPLIER

- Returned to supplier **$800** worth of goods purchased on credit

	Assets			=	Liabilities		+	Owners' Equity
	Cash	Merchandise Inventory	Store Equipment		Notes Payable	Accounts Payable		Lopez, Capital
Bal.	356,000	160,000	14,000	=	100,000	30,000	+	400,000
(8)		–800		=		–800		
Bal.	356,000	159,200	14,000	=	100,000	29,200	+	400,000
		529,200				529,200		

- Effects
  - Decrease in asset, merchandise inventory
  - Decrease in liability, accounts payable

TRANSACTION 9 - PAYMENT TO CREDITOR

- Paid **$4,000** to vendor for credit purchase

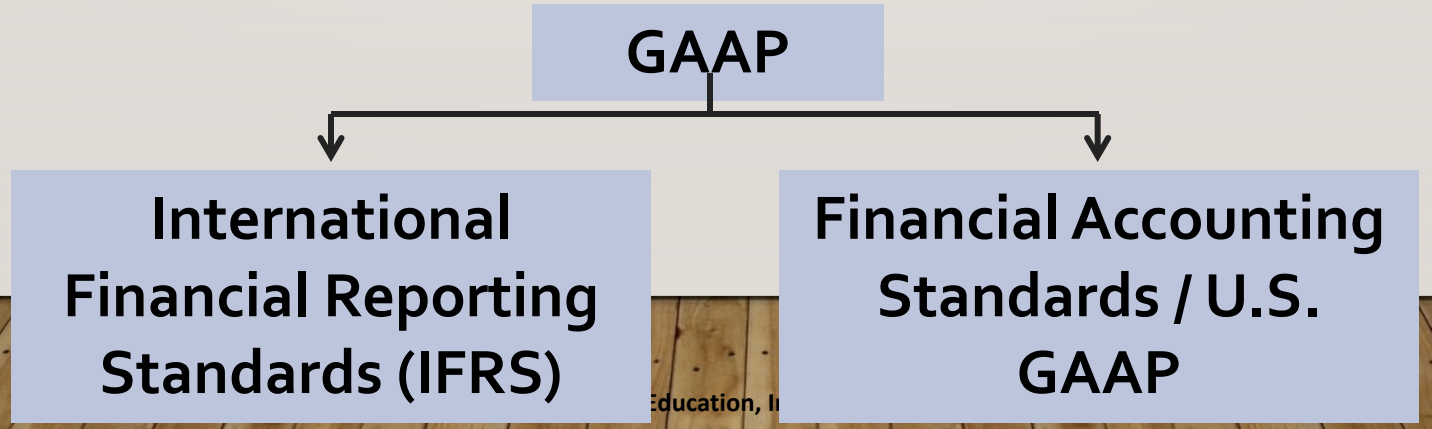
	Assets			=	Liabilities		+	Owners' Equity
	Cash	Merchandise Inventory	Store Equipment		Notes Payable	Accounts Payable		Lopez, Capital
Bal.	356,000	159,200	14,000	=	100,000	29,200	+	400,000
(9)	–4,000			=		–4,000		
Bal.	352,000	159,200	14,000	=	100,000	25,200	+	400,000
		525,200				525,200		

- Effects
  - Decrease in asset, cash
  - Decrease in liability, accounts payable

Explain the Regulation of Financial Reporting, Including Differences between U.S. GAAP and IFRS

GENERALLY ACCEPTED ACCOUNTING PRINCIPLES (GAAP)

- Applies to all broad concepts and detailed practices to be followed in preparing and distributing financial statements
  - Includes all the conventions, rules, and procedures which comprise acceptable accounting practice



GENERALLY ACCEPTED ACCOUNTING PRINCIPLES (GAAP)

- **U.S. GAAP**: Applies to financial reporting in the U.S.
  - Used by companies with stock traded on U.S. stock exchanges
- **IFRS**: Applies to companies reporting in more than 100 countries around the world
  - Used by foreign companies listed on U.S. exchanges
  - In future U.S. regulators may allow all U.S. companies to use IFRS as well

FINANCIAL ACCOUNTING STANDARDS BOARD (FASB)

- Responsible for establishing U.S. GAAP since 1973
  - An independent entity formed of 7 members
  - A mandatory fee assessed on all public companies
- Issued 168 Financial Accounting Standards between 1973 and 2009

FINANCIAL ACCOUNTING STANDARDS BOARD (FASB)

- **FASB Accounting Standards Codification**
  - Compilation of all standards and other elements of U.S. GAAP into a single searchable database that is organized by topic to make it easy to research financial reporting issues
  - Updated via *Accounting Standards Updates*

FINANCIAL ACCOUNTING STANDARDS BOARD (FASB)

- Securities and Exchange Commission (SEC) responsible for specifying GAAP for companies with publicly traded stocks
  - SEC delegated much rule-making power to the FASB
- U.S. Congress can overrule FASB as well as SEC decisions

INTERNATIONAL ACCOUNTING STANDARDS BOARD (IASB)

- Established to develop a single set of high-quality, understandable and enforceable global accounting standards
- Sets International Financial Reporting Standards (IFRS)
  - Nearly 120 counties, 19 of the G20 countries, and European Union either prescribe or permit the use of IFRS

INTERNATIONAL ACCOUNTING STANDARDS BOARD (IASB)

- Has 16 members who represent a diversity of geographic and professional backgrounds
- Allows comparison of financial information across companies in different countries required