

FINANCE ETS REVIEW

TIME VALUE OF MONEY

Bill plans to fund his individual retirement account (IRA) with a contribution of \$2,000 at the end of each year for the next 20 years. If Bill earns 12% on his contributions, how much will he have at the end of the 20th year?

- a) \$19,292
- b) \$14,938
- c) \$40,000
- d) \$144,104

(d) \$144,104

Only one value is greater than \$40,000 which is how much he actually deposited ($20 \times \$2000$), so interest earned would make the FV higher than this.

TIME VALUE OF MONEY

_____ refers to finding the present value of a lump sum (e.g. moving it back in time)?

- a) Compounding
- b) Discounting

(b) Discounting

Compounding refers to finding a FV, or moving money forward in time.

Discounting refers to finding a PV, or moving money back in time.

TIME VALUE OF MONEY

The future value of \$1,000 today will be larger if investors earn an interest rate compounded more frequently.

- a) True
- b) False

(a) TRUE

Compounding and discounting work in a similar manner. The more FREQUENT the compounding period, the LARGER the difference in either present or future value.

If calculating future value (FV), monthly compounding would result in a larger FV than quarterly compounding.

If calculating present value (PV), monthly compounding would result in a lower PV than quarterly compounding.

A borrower (who will repay money in the future) would prefer a slower/smaller compounding period, but a saver (who will receive money in the future) would prefer a faster/larger compounding period.

TIME VALUE OF MONEY

The present value of \$1,000 promised in the future (i.e., $FV = \$1,000$) will be larger if the investor requires a higher interest rate.

- True
- False

(b) False

The higher the interest rate, the higher the FV of a lump sum but also the lower the PV of a lump sum. The interest rate will magnify the change in either PV/FV .

TIME VALUE OF MONEY

This time line depicts what type of cash flow stream?

- a) Ordinary annuity
- b) Annuity due
- c) Perpetuity



(b) annuity due

With an annuity due, payments occur at the beginning of each period, as depicted above. Note the first payment occurs at the beginning of the first year, or at $T=0$.

With an ordinary annuity, payments occur at the end of each period, as depicted below. Note the first payment occurs at the end of the first year, or at $T=1$.



Someone **MAKING** payments would prefer an ordinary annuity (defer the first payment for one year).
Someone **RECEIVING** payments would prefer an annuity due (get the first payment earlier).

A **perpetuity** is an annuity that lasts forever (payments last to infinity).

TIME VALUE OF MONEY

Which of the following statements concerning the effective annual rate are correct?

- I. When making financial decisions, you should compare effective annual rates rather than annual percentage rates.
 - II. The more frequently interest is compounded, the higher the effective annual rate.
 - III. A quoted rate of 6% compounded continuously has a higher effective annual rate than if the rate were compounded daily.
 - IV. When borrowing and choosing which loan to accept, you should select the offer with the highest effective annual rate.
- a) I and II only
 - b) I and IV only
 - c) I, II, and III only
 - d) II, III, and V only
 - e) I, II, III and IV

(c) I, II and III only

The effective annual rate (EAR or EFF) incorporates compounded interest whereas the stated rate (or oftentimes called the annual percentage rate, APR, or quoted rate) does not, but it is how rates are quoted.

The two rates will equal if interest is compounded annually. For more frequent compounding periods (e.g. monthly or quarterly), the effective annual rate will always be larger.

For a stated interest rate equal to 10%:

Compounding frequency	APR	EFF
Annual	10%	10%
Semi-annual	10%	10.25%
Quarterly	10%	10.38%
Monthly	10%	10.47%

STOCK VALUATION

The constant growth stock valuation model assumes:

- a) The first dividend received if stock is bought at T=0 is D1
- b) Cash flows should be discounted at investor's required return (r), sometimes called the market rate
- c) Since stocks do not have a maturity period (stock is infinite), we value stock as the present value of future dividends
- d) All of the above are true

(d) All of the above are true

The constant growth stock valuation model is expressed as:

$$P_0 = \frac{D_1}{r - g}$$

D1 = the dividend paid one year from today

r = investors required return (what they want to earn, given the risk of the stock)

g = the expected constant growth rate in dividends

STOCK VALUATION

The total rate of return earned on a stock is comprised of which two of the following?

- I. Current yield
- II. Yield to maturity
- III. Dividend yield
- IV. Capital gains yield

- a) I and II only
- b) I and IV only
- c) II and III only
- d) II and IV only
- e) III and IV only

(e) III and IV only

The constant growth stock valuation model can be rewritten as:

$$P_0 = \frac{D_1}{r - g} \qquad r = \frac{D_1}{P_0} + g\%$$

Next year's annual dividend divided by the current stock price (the first term) is called the dividend yield.

The rate at which a stock's price is expected to appreciate or depreciate (the second term or $g\%$) is called the capital gains yield.

Investors TOTAL return is the sum of the dividend yield and capital gains yield ($r\%$). Investors make money from both receiving dividends and having the stock price appreciate.

STOCK VALUATION

As investor's required return (the market rate of return) increases, the price of a share of common stock will _____.

- a) decline
- b) increase
- c) have no effect

(a) decline

A stock price is equal to the PV of expected future dividends; if the discount rate (investor's required return or the market rate) increases, then the present value of the dividends will decline so the stock price will decline. In the equation below, if r were to increase, the value of the ratio will decline.

$$P_0 = \frac{D_1}{r - g}$$

If the growth rate in dividends was to increase, the price of the stock would increase. Faster growth in dividends means the cash flows to investors will be larger in the future, adding value. In the equation below, if g were to increase, the value of the ratio will increase.

$$r = \frac{D_1}{P_0} + g\%$$

STOCK VALUATION

The closing price of a stock is quoted at 22.87, with a P/E of 26 and a net change of +1.42. Based on this information, which one of the following statements is correct?

- a) The closing price on the previous day was \$1.42 higher than today's closing price.
- b) The earnings per share have increased by \$1.42 this year.
- c) The earnings per share are equal to $1/26^{\text{th}}$ of \$22.87.

(c) The earnings per share are equal to $1/26^{\text{th}}$ of \$22.87.

The net change is the increase or decrease in price from the prior day. If the net change was positive, then the closing price on the previous day must have been lower than today's closing price. In a stock quote, net change refers to the stock price, not earnings per share.

$$\text{Earnings per share} = \frac{\text{Net Income}}{\text{\# shares outstanding}}$$

STOCK VALUATION

A second way to value common stock is the _____ method.

- a) Comparables method
- b) Multiples method
- c) Relative valuation model
- d) All of the above

(d) All of the above

These are all different names for the same approach which values stock as a multiple of some measure of a firm's performance, such as the firm's earnings per share, book value per share, sales per share, cash flow per share, where the multiple is determined by the multiples observed from comparable companies.

Think Verizon – what gives them value? How about the number of subscribers they have? If you can say each subscriber is worth \$200 (the metric) and Verizon has 100 subscribers, then it should be valued at $\$200 * 100 = \$20,000$.

The most common metric is earnings per share.

EPS = Earnings per share equal $\frac{\text{Net Income}}{\text{\# shares outstanding}}$

A stocks P/E ratio is equal to $\frac{\text{Price per share}}{\text{\# of shares outstanding}}$

→ If comparable companies are selling at P/E ratios of 10x and you have earnings per share (EPS) equal to \$100, then your company would be valued at $10 * 100 = \$1,000$.

$$Po = \frac{P}{E} * EPS$$

STOCK VALUATION

Label each as TRUE or FALSE

- a) Common stockholders claim on assets or income comes after bondholders and preferred stockholders.
- b) Common stockholders do receive dividends, but they are not guaranteed. They can increase/decrease. There is no guarantee.
- c) Common stockholders have voting rights with respect to major firm decisions
- d) Common stockholders have limited liability; if the firm goes bankrupt, you are NOT personally liable to pay additional amounts if sued. The most you can lose is your initial investment
- e) Preferred stock is often considered a “hybrid” investment in that it has some features that are similar to bondholders, and others similar to common stockholders. Dividends are “fixed” (say \$2 per year), but if not paid, the firm is not forced into bankruptcy.
- f) Preferred stock dividends are fixed.
- g) Preferred stock dividends are cumulative. If skipped in one year, they must eventually be paid before common stock dividends can be paid.

- a) **TRUE.** Common stockholders claim on assets or income comes after bondholders and preferred stockholders.
- b) **TRUE.** Common stockholders do receive dividends, but they are not guaranteed. They can increase/decrease. There is no guarantee.
- c) **TRUE.** Common stockholders have voting rights with respect to major firm decisions
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- f) **FALSE.** Preferred stock dividends are fixed.
- g) **TRUE.** Preferred stock dividends are cumulative. If skipped in one year, they must eventually be paid before common stock dividends can be paid.

BOND VALUATION

Which statement is false?

- a) A bond's interest payment made each period is called the coupon payment.
- b) The principal amount of a bond that is repaid at the bond's maturity is called the bond's face value (also called maturity value or par value).
- c) The rate of return required by investors in the market for investing in a bond (what investors want to earn) is called the yield to maturity (YTM) or required return or the current market rate.
- d) A bond that pays no coupon payment and is initially priced at a discount is called a zero-coupon bond.
- e) Bondholders are last in line to claim the assets/income of a firm in the event of bankruptcy.

(e) Bondholders are last in line to claim the assets/income of a firm in the event of bankruptcy.

- ✓ A bond is similar to a loan. It represents a "creditor" position, not an owner's position.
- ✓ Bondholders generally have no voting rights, but they are first in line in the event of bankruptcy.
- ✓ Stockholders are "owners" and can vote, but are last in line in the event of bankruptcy.

BOND VALUATION

A bond with a face value (par value) of \$1,000 that currently sells for \$1,000 in the market is called a discount bond.

- a) True
- b) False

(b) False

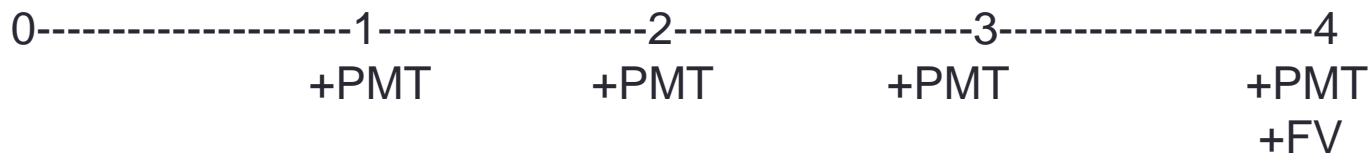
- ✓ A bond sells at “par” (current price = \$1,000) when the coupon rate is equal to the YTM (investor’s required return or the market rate). The coupon payments provide exactly the return investors require, so they loan \$1,000 in exchange for a return of a \$1,000 principal.
- ✓ A bond sells at a “discount” (current price < \$1,000) when the coupon rate is less than to the YTM (investor’s required return or the market rate). The coupon payments do not provide enough return to investors, so they are willing to loan less than \$1,000 in exchange for a return of a \$1,000 principal.
- ✓ A bond sells at a “premium” (current price > \$1,000) when the coupon rate is greater than the YTM (investor’s required return or the market rate). The coupon payments provide more than what investors expect to return, so they are willing to loan more than \$1,000 in exchange for a \$1,000 principal

BOND VALUATION

Bond prices move opposite (inverse) to changes in interest rates. That is, if market interest rates rise, bond prices will fall.

- a) True
- b) False

(a) True



A bond's price is the PV of its future cash flows (periodic interest payments or coupon payments, and the bond's par value or FV). If the discount rate increases, the bond price (PV) must fall as PVs fall when rates increase.

BOND VALUATION

You own a bond that has a 7% coupon and matures in 12 years. You purchased this bond at par value when it was originally issued. If the current market rate for this type and quality of bond is 7.5%, then you would expect:

- a) The bond issuer to increase the amount of each interest payment on these bonds
- b) The yield to maturity to remain constant due to the fixed coupon rate
- c) To realize a capital loss if you sold the bond at the market price today
- d) Today's market price to exceed the face value of the bond.
- e) The current yield today to be less than 7%

(c) To realize a capital loss if you sold the bond at the market price today

Bond prices move inversely with interest rates. If you purchased the bond at “par”, then your required return must have equaled to the coupon rate of 7%. If the current market rate for this bond increased to 7.5%, then the bond's price would have decreased and you would suffer a capital loss if you sold prior to maturity.

BOND VALUATION

When interest rates change, the change in a bond's price is _____ related to its maturity and _____ related to its coupon rate.

- a) Directly (+) ; inversely (-)
- b) Directly (+) ; directly (+)
- c) Inversely (-) ; directly (+)
- d) Inversely (-) ; inversely (-)

(a) Directly (+) ; inversely (-)

MATURITY (+). The longer the maturity, the more the price will change for any given change in interest rates. Cash flows further in the future are more impacted by a change in rates because they are discounted back to $T=0$ at a larger number of years.

COUPON (-). The smaller the coupon rate, the more the price will change for any given change in interest rates. When the coupon rate is small, the investor relies more on the FV (par or \$1000) which is further out in time, and we know cash flows further out in time have a larger impact on the current price when rates change.

BOND VALUATION

A _____ means the corporation can buy back the bond at a predetermined price before the bond's maturity. In essence, the firm (corporation) can refinance the debt should rates fall.

- a) Sinking fund
- b) Conversion feature
- c) Call provision

(c) Call provision

Some may have a call provision (this allows the firm to call back or buy back the bond before it matures so it can effectively refinance the loan should interest rates fall)

A sinking fund requires the firm set aside funds to repay the principle on a periodic basis (to a bank or trustee), even though bondholders will only receive the periodic interest payments. A sinking fund protects bondholders.

If a bond is convertible, bondholders can exchange their bonds for a pre-specified number of shares of common stock, providing upside return potential if the stock price increases. The convertible feature allows the corporation to issue bonds at a lower interest rate initially since investors have the potential for a future gain.

RISK/RETURN, DIVERSIFICATION and CAPM

The _____ measures the tendency of two asset's prices/returns to move with one another.

- a) coefficient of variation
- b) correlation coefficient
- c) standard deviation
- d) variance

(a) correlation coefficient

- ✓ The correlation coefficient measures the tendency of two items to move in the same or opposite direction.
- ✓ It is bounded between +1.0 and -1.0.
- ✓ If the correlation coefficient is equal to -1.0, the two prices move perfectly opposite one another
- ✓ If the correlation coefficient is equal to +1.0, the two prices move perfectly in the same direction.
- ✓

The coefficient of variation measures the ratio of risk/return for a security or portfolio. It is found by dividing standard deviation by expected return.

Variance and standard deviation measure the total risk of a security or portfolio. We say total risk, because they does not ask why stock returns move up or down, they simply measures how much they move up or down.

Standard deviation is simply the square root of variance.

Correlation between investment returns	Diversification Benefits
+1	No benefit
0.0	Substantial benefit
-1	Maximum benefit. Indeed, the risk of portfolio can be reduced to zero.

RISK/RETURN, DIVERSIFICATION and CAPM

Combining two negatively correlated assets having the same expected return (5%) and same standard deviation (e.g. 10%) results in a portfolio with a _____ level of expected return and a _____ level of risk.

- a) higher; lower
- b) lower; higher
- c) the same; lower
- d) the same; higher

(c) the same; lower

Portfolio return is weighted average so if both assets have an expected return of 5%, then the portfolio will have an expected return of 5%.

If two assets are negatively correlated, then some risk can be diversified away so the portfolio's risk , or standard deviation) will be less than the individual assets standard deviation of 10%.

If, however, the two assets were perfectly positively correlated (correlation coefficient = +1.0), then the portfolio's risk , or standard deviation would equal the individual stock's standard deviation of 10%. There is no diversification benefits to be had when two assets move in exactly the same direction all of the time.

RISK/RETURN, DIVERSIFICATION and CAPM

_____ represents the portion of an asset's risk that can be eliminated by combining assets into a portfolio that have less than a perfectly positive correlation (the correlation coefficient is less than +1.0).

- a) Systematic (also called market risk)
- b) Unique (also called firm-specific risk)
- c) Total risk(systematic risk plus unique risk)

(b) Unique (also called firm-specific risk)

Factors causing stock prices to rise or fall (total risk) can be broken down into two components:

(1) Systematic risk - Factors affecting the general market (economy) affect all assets, so it cannot be eliminated.

(2) Unique risk - factors unique to a single firm or specific industry can be eliminated, or “diversified away” since these risks do not affect all assets.

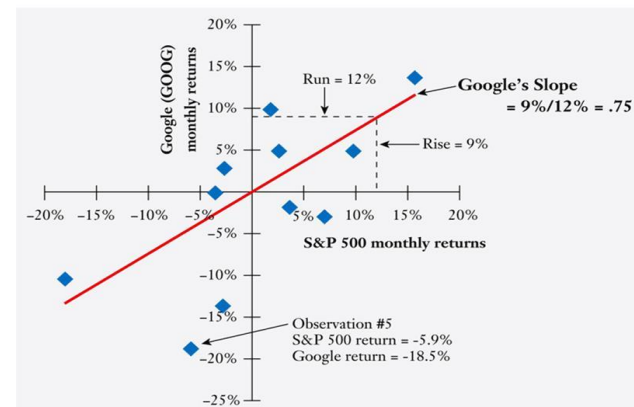
$$1 + 2 = \text{Total risk}$$

Systematic or market risk is measured by beta. Beta measures how an asset's returns moves with broad market returns.

Total risk is measured by standard deviation or variance.

Estimating Google's (GOOG) Beta Coefficient

A firm's beta coefficient is the slope of a straight line that fits the relationship between the firm's stock returns and those of a broad market index. In the graph below the market index used is the Standard and Poor's (S&P) 500 Index.



RISK/RETURN, DIVERSIFICATION and CAPM

Which of the following is an example of systematic risk?

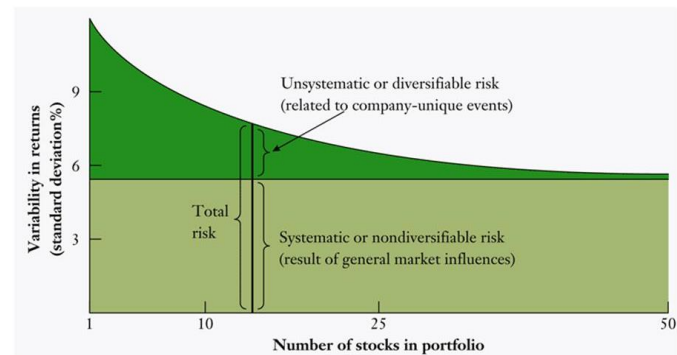
- a) The price of lumber declines sharply
- b) Airline pilots go on strike
- c) The Federal Reserve increases interest rates to slow the economy
- d) A hurricane hits a tourist destination
- e) People become diet conscious and avoid fast food restaurants

(c) The Federal Reserve increases interest rates to slow the economy

An event initiated by the Federal Reserve to influence interest rates will affect all companies, hence that risk cannot be diversified away.

Portfolio Risk and the Number of Investments in the Portfolio

Adding more investments to a portfolio that are not highly correlated with the other assets in the portfolio can dramatically reduce the portfolio's risk. In fact, for randomly selected shares of common stock, the benefits of diversification can be virtually fully achieved with a portfolio of less than 50 stocks (assuming equal investment in each stock).

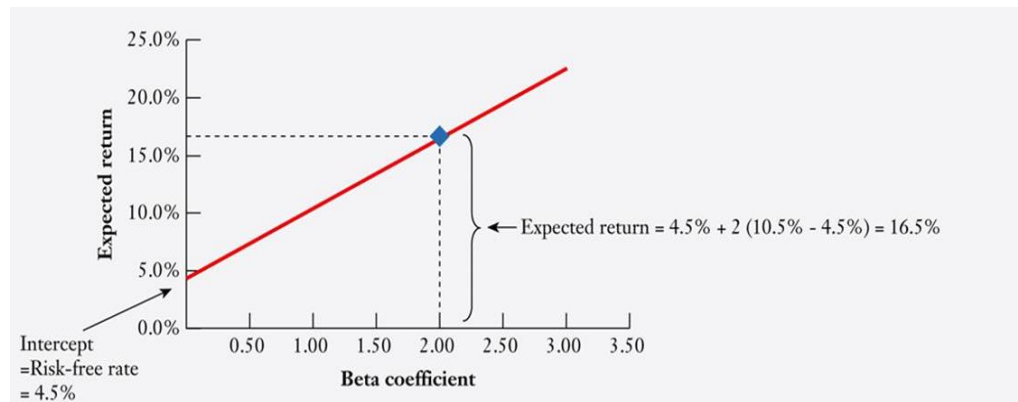


RISK/RETURN, DIVERSIFICATION and CAPM

According to the CAPM,

- a) the expected return on a security is negatively and non-linearly related to the security's beta.
- b) the expected return on a security is negatively and linearly related to the security's beta.
- c) the expected return on a security is positively and non-linearly related to the security's beta.
- d) the expected return on a security is positively and linearly related to the security's beta.

(d) the expected return on a security is positively and linearly related to the security's beta.



RISK/RETURN, DIVERSIFICATION and CAPM

The y-intercept of the security market line (SML) is the rate of return that corresponds to:

- a) the risk free rate of return.
- b) the market rate of return.
- c) a value of zero.
- d) a value of 1.0.
- e) the beta of the market.

(a) the risk free rate of return

A stock with an actual rate of return that lies above the security market line would be considered undervalued. It yielded a higher return than what was expected for the level of risk assumed.

RISK/RETURN, DIVERSIFICATION and CAPM

Asset P has a beta of 0.9. The risk-free rate of return is 8 percent, while the return on the market portfolio is 14 percent. Asset P's required rate of return, according to the CAPM model is:

- a) 10 percent
- b) 6.0 percent
- c) 5.4 percent
- d) 13.4 percent

(d) 13.4%

Expected return = $R_f + (R_m - R_f) \cdot B$

$$8 + (14 - 8) \cdot 0.9 = 8 + 6 \cdot 0.9 = 8 + 5.4 = 13.4\%$$

RISK/RETURN, DIVERSIFICATION and CAPM

If asset prices fully reflect all past market information, then the market is said to be _____ efficient.

- a) Strong form
- b) Semi-strong form
- c) Weak form

(c) Weak form

Market efficiency - The efficient market hypothesis (EMH) states stock prices equal the present value of expected future cash flows. Stock prices reflect all known information, thus the future flow of news is random and unknowable. Future stock prices follow a random walk. EMH generally implies you cannot make above-average returns.

Weak-form: stock prices fully reflect all historical information

Semi-strong form: stock prices fully reflect all historical and newly available information – share prices adjust instantaneously and unbiased to publicly available new information.

Strong form: stock prices reflect all available information – historical, new, and even unknown (insider) information. Insiders cannot profit on the basis on information only they know.

In general, markets are expected to be at least weak form and semi-strong form efficient. If there did exist simple profitable strategies, then the strategies would attract the attention of investors, who by implementing their strategies would compete away the profits.

WORKING CAPITAL MANAGEMENT

Net working capital is defined as:

- a) The current assets in a business
- b) Current assets minus current liabilities
- c) The present value of short-term cash flows
- d) The difference between all assets and liabilities

(b) Current assets minus current liabilities

Working capital management encompasses the day-to-day activities of managing the firm's current assets and current liabilities.

The **current ratio** (current assets divided by current liabilities) and **net working capital** (current assets minus current liabilities) are two popular measures of liquidity. Both measures of liquidity provide the same information. However, current ratio can be more easily used for comparing firms.

- ✓ CA represent a USE of cash (you must pay for them)
- ✓ CL represent a SOURCE of cash (you are borrowing)
- ✓ Generally CA > CL, so NWC is + and is a net USE of cash that must be funded

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

	Firm A	Firm B
Current Assets	\$100,000	\$10,000
Current Liabilities	\$50,000	\$5,000
Net Working Capital	\$50,000	\$5,000
Current Ratio	2.0	2.0

WORKING CAPITAL MANAGEMENT

Other things held constant, which of the following will cause an increase in net working capital (NWC)?

- a) Cash is used to buy marketable securities.
- b) A cash dividend is declared and paid.
- c) Merchandise is sold at a profit, but the sale is on credit.
- d) Long-term bonds are retired with the proceeds of a preferred stock issue.

(c) Merchandise is sold at a profit, but the sale is on credit.

Merchandise sold at a profit but on credit will increase a firm's accounts receivables, thus increasing NWC.

WORKING CAPITAL MANAGEMENT

Which of the following is not included in current assets?

- a) Cash
- b) Inventories
- c) Accrued wages
- d) Accounts receivable

(c) Accrued wages

Accrued wages are a current liability, not a current asset.

Cash & marketable securities		Accounts payable
Accounts receivable		Accrued wages and taxes
<u>Inventories</u>		<u>Short-term notes payable</u>
Current assets		Current liabilities

WORKING CAPITAL MANAGEMENT

The three components of a firm's credit policy are:

- a) collection policy, credit analysis, and interest rate determination.
- b) collection policy, credit analysis, and terms of the sale
- c) collection policy, interest rate determination, and repayment analysis
- d) credit analysis, repayment analysis, and terms of the sale
- e) interest rate determination, repayment analysis and terms of sale

(b) collection policy, credit analysis, and terms of the sale

WORKING CAPITAL MANAGEMENT

On September 1, a firm grants credit with terms of 2/10 net 45. The creditor:

- a) Must pay a penalty of 2% when payment is made later than September 1st.
- b) Must pay a penalty of 10% when payment is made later than 2 days after September 1st.
- c) Receives a discount of 2% when payment is made at least 10 days before September 1st.
- d) Receives a discount of 2% when payment is made before September 1st and pays a penalty of 10% if payment is made after September 1st.
- e) Receives a discount of 2% when payment is made within 10 days after the effective invoice date of September 1st.

(e) Receives a discount of 2% when payment is made within 10 days after the effective invoice date of September 1st.

WORKING CAPITAL MANAGEMENT

A short-term loan where a lender holds a firm's receivables as underlying security is called _____.

- a) A compensating balance
- b) Assigned receivables financing
- c) Factored receivables financing
- d) Letter of credit
- e) Line of credit
- f) Revolving credit

(b) Assigned receivables financing

- ✓ A fraction of the available credit on a loan agreement deposited by the borrower with the bank in a low or non-interest-bearing account is called a compensating balance.
- ✓ Factoring is a type of short-term loan where the firm actually sells its receivables to the lender up-front, but at a discount. When a firm assigns receivables, it is simply offering them as collateral for the loan.
- ✓ A letter of credit, issued by a bank, is a promise by that bank to make a loan if certain conditions are met.
- ✓ A line of credit is a prearranged, short-term bank loan made on a formal or informal basis, and typically reviewed for renewal annually
- ✓ A prearranged credit agreement with a bank typically open for two or more years is called revolving credit.

WORKING CAPITAL MANAGEMENT

The _____ is the number of days between when the company makes a sale, and when it collects cash from the sale.

- a) Average collection period (receivables collection period)
- b) Payables deferral period
- c) Inventory conversion period

(b) Average Collection Period

RCP: Average collection period (aka receivables collection period) – number of days between the sale of the product and the collection of cash from receivables. When customers purchase on credit, the firm must wait for its cash inflow.

PDP: Payables deferral period – length of time between the purchase of inventory and the actual cash payment for inventory. When the firm is able to purchase items of inventory on credit, cash is not tied up until payment is required.

ICP: Inventory conversion period – length of time between the purchase of inventory and the time the product is sold. It takes time to make your product!!

WORKING CAPITAL MANAGEMENT

The _____ measures the time period that elapses from the date inventory is purchased, but not necessarily paid for, until the firm collects cash from the sale.

- a) Cash conversion cycle
- b) Operating cycle

(b) operating cycle

The **operating cycle** measures the time period that elapses from the date that an item of inventory is purchased until the firm collects the cash from its sale.

$$\text{Operating Cycle} = \text{ICP} + \text{RCP}$$

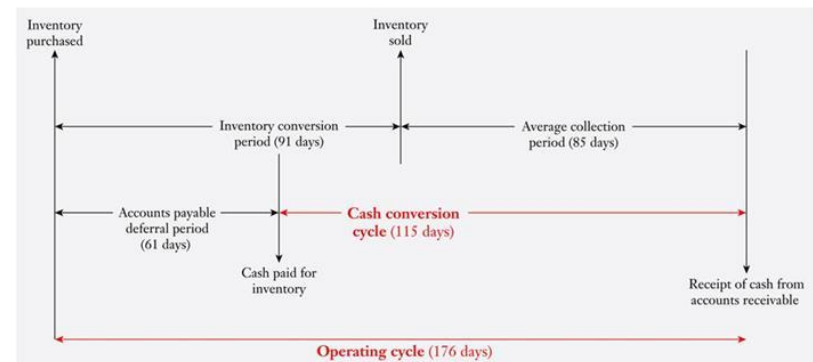
The **cash conversion cycle** measures the time period that elapses from the date an item of inventory is paid for (cash out) until the firm collects the cash from the sale (cash in).

$$\text{Cash conversion cycle} = \text{ICP} + \text{RCP} - \text{PDP}$$

CCC is the average length of time a dollar is “tied up” – this must be financed!! The goal is to decrease CCC without affecting sales (\downarrow ICP, \downarrow RCP, \uparrow PDP).

The Cash Conversion Cycle

A firm's operations typically follow a sequence of milestones: the purchase of items for inventories, the sale of items from inventory for credit, and the collection of accounts receivable. The period of time required for this entire process is called the operating cycle. However, for firms that are able to purchase items for their inventories on credit using accounts payable, the cash conversion cycle is shorter than the operating cycle by the number of days that the firm has to pay its accounts payable.



CAPITAL BUDGETING

A firm is evaluating three (independent) projects. The NPV for each project follows. The firm should:

<u>Project</u>	<u>NPV</u>
1	\$100
2	\$ 10
3	-\$100

- a) reject all projects
- b) accept projects 1 and 2 and reject project 3
- c) accept projects 1 and 3 and reject project 2
- d) accept projects 1 and reject projects 2 and 3

(b) accept projects 1 and 2 and reject project 3

If the projects were mutually exclusive (only one can be selected) then D is the correct answer

	<u>Independent</u>	<u>Mutually exclusive</u>
Payback = # years to recover project's cost	Accept if PB < pre-specified cutoff	Accept project with fastest payback given PB < pre-specified cutoff
NPV = PV cash inflows – PV cash outflows	Accept if NPV > 0	Accept project with largest NPV given NPV > 0
IRR - % rate of return project is earning	Accept if IRR > % required return	Accept project with largest IRR given IRR > % required return

CAPITAL BUDGETING

All else constant, the NPV of a project will increase when _____, but the IRR will not be affected.

- a) Each cash flow is delayed by one year
- b) The total amount of the cash inflows is reduced.
- c) The initial cash outflow increases
- d) The discount rate (project required return) decreases

(d) the discount rate decreases

The actual calculation of IRR does not depend on the discount rate, ... the discount rate is used in the decision. If IRR is greater than the discount rate, the project should be accepted. In contrast, NPV uses the discount rate in its calculation. If the discount rate is increased, then NPV will decline.

CAPITAL BUDGETING

A project may have more than one IRR if:

- a) The IRR is positive.
- b) The IRR is negative.
- c) The NPV is zero.
- d) The cash flow pattern exhibits more than one sign change.
- e) The cash flow pattern exhibits exactly one sign change.

(d) The cash flow pattern exhibits more than one sign change

Modified IRR (MIRR) handles the multiple IRR problem by discounting costs to $T=0$ and compounding cash inflows to $T=N$ so there is only one sign change in the cash flow pattern, hence a project can have only one MIRR.

MIRR compounds cash flows at the project's required return.

CAPITAL BUDGETING

Which of the following statements is **TRUE**?

- a) One must know the discount rate to compute the NPV of a project but one can compute the IRR without referring to the discount rate.
- b) One must know the discount rate to compute the IRR of a project but one can compute the NPV without referring to the discount rate.
- c) Payback accounts for time value of money
- d) The IRR can be defined as the market rate of interest less the risk-free rate.
- e) The IRR can be defined as the difference between the market rate of interest and the NPV.

(a) One must know the discount rate to compute the NPV of a project but one can compute the IRR without referring to the discount rate.

CAPITAL BUDGETING

The most valuable investment given up if an alternative investment is chosen is called a(n):_____.

- a) sunk cost
- b) opportunity cost
- c) erosion

(b) opportunity cost.

- ✓ A sunk cost is a cost that has already been paid, or the liability to pay has already been incurred, hence they must be paid regardless of whether the project under consideration is accepted or rejected.
- ✓ The most valuable investment given up if an alternative investment is chosen is an opportunity cost.
- ✓ The loss of a firm's current sales due to a new project being implemented is called erosion (sometimes also called cannibalization).

CAPITAL BUDGETING

Bet'r Bilt Toys just purchased some MACRS 5-year property at a cost of \$230,000. Which of the following will correctly give you the book value of this equipment at the end of year 2?

- a) 52% of the asset's initial cost
- b) 48% of the asset's initial cost
- c) 68% of 80% of the asset's initial cost
- d) The asset's initial cost, minus 20% of the assets cost, minus 32% of 80% of the assets

MACRS 5-year property

<u>Year</u>	<u>Rate</u>
1	20.00%
2	32.00%
3	19.20%
4	11.52%
5	11.52%
6	5.76%

(b) 48% of the asset's initial cost

The book value of an asset is primarily used to compute the amount of tax due at the time the asset is sold. The resulting cash flow (sale price adjusted for taxes) is called the after-tax salvage value (ATSV).

If, at the time an asset is sold:

market value > book value

→ taxes will be paid on the difference equal to $(MV - BV) \times \text{Tax rate}$

market value = book value

→ no taxes will be due

market value < book value

→ a tax shelter (savings) will be created equal to $(BV - MV) \times \text{Tax rate}$

CAPITAL BUDGETING

Which one of the following will decrease net working capital (NWC) of a firm?

- a) A decrease in accounts payable.
- b) An increase in inventory
- c) A decrease in accounts receivable
- d) An increase in the firm's checking account balance
- e) A decrease in fixed assets

(c) A decrease in accounts receivable

$NWC = \text{current assets} - \text{current liabilities}$

NWC requirements generally, but not always, create a cash outflow at the beginning of a project.

NWC often increases throughout a project's life because it is often affected by the growing level of sales generated by a new project, so changes in NWC can also affect the interim cash flows of the project.

NWC is typically recovered at the end of a project's life, generating a cash inflow.

CAPITAL BUDGETING

A project's operating cash flow (OCF) will increase when:

- a) Depreciation expense increases
- b) Sales projections are lowered
- c) Interest expense is lowered
- d) NWC requirements increase
- e) ATSV increases

(a) depreciation expense increases

- ✓ Sales projections are lowered (this will lower OCF)
- ✓ Interest expense is lowered (no effect on OCF)
- ✓ NWC requirements increase (no effect on OCF)
- ✓ ATSV increases (no effect on OCF)

There are multiple ways to calculate OCF, including:

- ✓ $OCF = EBIT + Depreciation - Taxes$
- ✓ $OCF = Net\ Income + Depreciation$
- ✓ $OCF = (Sales - Expenses - Depreciation) * (1 - T) + Depreciation$
- ✓ $OCF = (Sales - Expenses) * (1 - T) + (Depreciation) * T$
- ✓ Note OCF reflects data from the income statement,.. balance sheet changes like NWC and ATSV are not included in its calculation.

FINANCIAL STATEMENT ANALYSIS

For each ratio, denote which category it belongs to.

L = Liquidity ratio
D = Debt management or financial leverage ratio
AM = Asset management ratio
P = Profitability ratio

_____ Return on Assets
_____ Quick Ratio
_____ Equity Multiplier
_____ Receivables Turnover
_____ Times Interest Earned (TIE) Ratio
_____ Equity Multiplier
_____ Net Profit Margin
_____ Current Ratio
_____ Total Debt Ratio
_____ Inventory turnover
_____ Return on equity
_____ Fixed Asset Turnover
_____ Total Asset Turnover

P Return on Assets
L Quick Ratio
D Equity Multiplier
AM Receivables Turnover
D Times Interest Earned (TIE) Ratio
D Equity Multiplier
P Net Profit Margin
L Current Ratio
D Total Debt Ratio
AM Inventory turnover
P Return on equity
AM Fixed Asset Turnover
AM Total Asset Turnover

FINANCIAL STATEMENT ANALYSIS

Note whether you would find each account on the Income Statement (IS) or Balance Sheet (BS) or neither (N).

IS = Income Statement
BS = Balance Sheet
N = Neither statement

_____ Interest expense
_____ Annual additions to retained earnings
_____ Cash
_____ Accumulated depreciation
_____ Principle payment on loans outstanding
_____ Accounts payable
_____ Total equity
_____ Annual depreciation expense
_____ Taxes
_____ Inventory
_____ Accrued wages
_____ COGS
_____ Long-term bonds outstanding
_____ Accumulated retained earnings
_____ Gross plant and equipment

IS Interest expense
IS Annual additions to retained earnings
BS Cash
BS Accumulated depreciation
N Principle payment on loans outstanding
BS Accounts payable
BS Total equity
IS Annual depreciation expense
IS Taxes
BS Inventory
BS Accrued wages
IS COGS
BS Long-term bonds outstanding
BS Accumulated retained earnings
BS Gross plant and equipment

FINANCIAL STATEMENT ANALYSIS

As seen on an income statement

- a) Interest is deducted from income and increases the total taxes incurred.
- b) The tax rate is applied to the earnings before interest and taxes when the firm has both depreciation and interest expenses
- c) Depreciation is shown as an expense but does not affect taxes payable
- d) Depreciation reduces both taxes and net income
- e) Interest expense is added to earnings before interest and taxes to get pretax income

(d) Depreciation reduces both taxes and net income

Depreciation is a noncash expense recorded on the income statement, but it does reduce taxable income (and hence taxes which are a cash expense).

Note also that interest expense reduces the firm's tax bill; an equivalent payment in dividends will not, as it is paid out of after-tax net income.

Sales
-Cost of goods sold
Gross profit
-Operating expenses (mkt, advert,..)
-Depreciation expense
Operating profit = EBIT
-Interest expense
Earnings before taxes = EBT
-Taxes
Net Income → Common dividends → Additions to retained earnings

FINANCIAL STATEMENT ANALYSIS

When making financial decisions the relevant tax rate is the _____ tax rate.

- a) Marginal
- b) Average
- c) Total
- d) Variable
- e) fixed

(a) **Marginal**

The marginal rate is the rate the firm will pay on the next dollar earned.

The average rate is calculated as taxes due divided by taxable income.

FINANCIAL STATEMENT ANALYSIS

A _____ standardizes items on the income statement and balance sheet as a percentage of total sales and total assets respectively

- a) Tax reconciliation statement
- b) Statement of standardization
- c) Common-size statement
- d) Common-base year statement
- e) Pro-forma statement

(c) Common-size statement

A pro-forma statement is a projection of future financial statements.

A common-base year statement standardizes items on the income statement and balance sheet as a percentage of that account's value in a prior year.

FINANCIAL STATEMENT ANALYSIS

If a firm produces a 10% return on assets and also a 10% return on equity, then the firm:

- a) has no debt of any kind
- b) is using its assets as efficiently as possible
- c) has no net working capital
- d) also has a current ratio of 10
- e) has an equity multiplier of 2

(a) has no debt of any kind

According to the DuPont equation $ROE = ROA * EM$

$EM = TA/TE, \dots$ If a firm has no debt, then its $TA=TE$, so $ROE = ROA$

If a firm has debt, then its EM will be > 1 , so financial leverage (the use of debt) will magnify ROA .

FINANCIAL STATEMENT ANALYSIS

The only difference between Joe's and Moe's is that Joe's has old, fully depreciated equipment. Moe's just purchased all new equipment which will be depreciated over eight years. Assuming all else equal:

- a) Joe's will have a lower net profit margin
- b) Joe's will have a lower return on equity
- c) Moe's will have a higher net income
- d) Moe's will have a lower net profit margin
- e) Moe's will have a higher return on assets

(d) Moe's will have a lower profit margin

Net profit margin = NI/S . Moe will be subtracting depreciation expense, while Joe will not if its equipment is already fully depreciated. Because of the additional expense, Moe's NI will be lower, hence its net profit margin will be lower.

FINANCIAL STATEMENT ANALYSIS

Joe's has a capital structure that consists of 40% debt and 60% equity. Moe has no money borrowed – he is 100% equity financed. Who will have a higher equity multiplier (EM)?

- a) Joe's will have a lower profit margin
- b) Joe's
- c) Moe's

(a) Joes

MULTINATIONAL FINANCE

Which of the following would most likely occur as a result of the United States government's imposing tariffs on foreign steel imports?

- a) The price of steel produced in the United States would decrease.
- b) The price of imported steel in the United States would decrease.
- c) Employment in the United States steel industry would increase.
- d) Government tax revenue would fall.

(c) Employment in the United States steel industry would increase.

Tariffs are a tax on imported goods. If the US imposes a tariff this will increase price of imported steel. This increase in price will lead to lower demand for foreign steel and increased demand for domestically produced steel. This increased demand for U.S. steel should increase employment in the U.S. steel industry. If the U.S. imposed a quota (a limit on the amount of an imported good) the results would be the similar. The only difference is that with a tariff the government gets to collect additional tax revenue, whereas with a quota no taxes are collected on imported goods.

MULTINATIONAL FINANCE

If the spread between the spot and forward exchange rates of two currencies equals the interest rate difference between the two countries, this phenomenon is referred to as

- a) purchasing-power equality
- b) commodity arbitrage
- c) currency hedging
- d) interest-rate parity

(d) interest-rate parity

Interest rate parity holds due to covered interest arbitrage. An implication of interest rate parity is that if a country has a relatively high interest rate its currency will be in forward discount. You may recall that foreign exchange quotes are of two type, spot quote and forward quote. Spot quote (or rate) is for exchange of two currencies on the 'spot' (i.e. immediately). The forward rate is for exchange of two currencies in the future, but an exchange rate agreed upon today. Multinational firms use forward contracts to hedge transaction exposure (i.e. currency hedging). The other important concept this question raises is purchase power parity (PPP). PPP is an important theory in finance and economics which states that in the absence of market frictions things should cost the same everywhere. The implication of this theory for exchange rates are that countries that see large increases in prices (i.e. high inflation) tend to see their currency depreciate.

MULTINATIONAL FINANCE

When a domestic firm permits a foreign company to manufacture and sell its product in exchange for a fee or royalty, the process is termed

- a) importing
- b) exporting
- c) licensing
- d) countertrading

(c) Licensing

Licensing is very common in the pharmaceutical industry. Large pharmaceutical firms prefer not to set up a manufacturing operation in a country like India. Hence they license their drug cocktail to an Indian manufacturer in exchange for a fee. Licensing is a low risk way to penetrate foreign market. Foreign Direct Investment (FDI or DFI) is when a firm purchases fixed assets in a foreign country which is a higher risk entry strategy as the firm now owns assets in a foreign land.

MULTINATIONAL FINANCE

LIBOR stands for:

- a) Lausanne Interest Basis Offered Rate.
- b) London International Offered Rate.
- c) London Interbank Offered Rate.
- d) London Interagency Offered Rate.

(c) London Interbank Offered Rate

This is the rate offered between large financial institutions in the City of London. This rate is very important as it is used as the benchmark rate to price a variety of financial assets. LIBOR is a variable rate and often firms are quoted interest rates as LIBOR plus some basis points. There are 100 basis points in a percentage. For example a firm maybe quoted LIBOR plus 50 basis points. Whilst the firm would have to pay whatever LIBOR is set at plus 0.50%. The number of basis points added increases as the risk level of the firm increased.

MULTINATIONAL FINANCE

A security issued in the United States that represents shares of a foreign stock and allows that stock to be traded in the United States is called a(n):

- a) American Depository Receipt
- b) Yankee Bond
- c) Yankee stock
- d) Eurostock
- e) Foreign obligation trust certificate

(a) American Depository Receipt

American Depository Receipts (ADRs) were created to help Americans invest in foreign companies more efficiently. ADRs trade on U.S. exchanges and pay dividends in U.S. dollars.

MULTINATIONAL FINANCE

The implicit exchange rate between two currencies when both are quoted in some third currency is called a(n):

- a) open exchange rate
- b) cross-rate
- c) backward rate
- d) forward rate
- e) interest rate

(b) cross rate

85% of foreign exchange trades have the US dollar on one side of the transaction. Due to this most currencies are quoted verse the US dollar. For example, let's assume that the Mexican Peso and Malaysian Ringgit are quoted against the US dollar. If you wanted to know the exchange rate between the Mexican Peso and the Malaysian Ringgit you would divide the two exchange rates. This exchange rate is called the cross-rate.

MULTINATIONAL FINANCE

A foreign bond issued in Japan and denominated in yen is called a(n):

- a) American Depository Receipt
- b) European Currency Unit
- c) Swap Bond
- d) Samurai bond
- e) Eurobond

(d) Samurai bond

It is also important to note the definition of a Eurobond. The Eurobond market is comprised of US dollar debt issued outside of the US, primarily in Europe.

MULTINATIONAL FINANCE

Last year the spot exchange rate between the Ethiopian Birr and the US dollar was 45 Birr per US dollar. Today the exchange rate is 50 Birr per US dollar. Which of the following is correct?

- a) The US dollar appreciated
- b) The Ethiopian Birr depreciated
- c) The forward rate increased
- d) Both A and B are correct
- e) All of the above are correct

(d) The Ethiopian Birr depreciated.

It now takes more Birr to buy a Dollar. This implies that the Birr is weaker today than yesterday, we say that the Birr depreciated. Ipso facto the dollar appreciated. In exchange rates when one currency appreciates the other currency depreciates. Normally countries whose currencies depreciate are able to export more goods as their products are not less expensive to foreigners. On the other hand nations whose currencies appreciate tend to see lower exports and increases in imports. In the context of this question, the depreciation of the Birr would likely cause the US to import more goods from Ethiopia.

CAPITAL STRUCTURE

The firm's capital structure refers to:

- a) The way a firm invests its assets.
- b) The amount of capital in the firm.
- c) The amount of dividends a firm pays.
- d) The mix of debt and equity used to finance the firm's assets.
- e) How much cash the firm holds.

(d) The mix of debt and equity used to finance the firm's assets.

The capital structure decision is one of the most important financial decision in corporations. A firm's capital structure refers to the way it finances its assets. Most corporations have a mix of capital that includes: Common stock, preferred stock, and debt.

CAPITAL STRUCTURE

The written agreement between a corporation and its bondholders might contain a prohibition against paying dividends in excess of current earnings. This prohibition is an example of a(n):

- a) maintenance of security provision.
- b) collateral restriction.
- c) affirmative indenture.
- d) restrictive covenant.

(d) restrictive covenant

Bondholders are lenders to corporations. Lenders prefer not to see the risk level of a firm increase as this will result in a decline in the value of their bonds. To protect themselves from potential managerial actions that may increase the firm's risk level they protect themselves by including restrictive covenants in the bond indenture (bond contract).

CAPITAL STRUCTURE

A levered firm is a company that has:

- a) accounts payable as the only liability on the balance sheet.
- b) some debt in the capital structure.
- c) all equity in the capital structure.
- d) all of these.

(b) some debt in the capital structure

Leverage refers to the use of debt in most contexts in finance. Financial leverage is typically highest in the banking sector. Leverage is one potential way to increase returns for shareholders, but may also increase the risk level of the corporation if earnings are not sufficient to pay the increased interest payments due to higher debt levels.

CAPITAL STRUCTURE

A firm should select the capital structure which:

- a) Produces the highest cost of capital
- b) Maximizes the value of the firm
- c) Minimizes taxes
- d) Is fully unlevered
- e) Has no debt.

(b) Maximizes the value of the firm

In finance our objective is ALWAYS to maximize the value of the firm. When selecting the appropriate mix of debt and equity (i.e. the capital structure decision) the goal is to minimize the cost of obtaining capital, thereby maximizing value.

CAPITAL STRUCTURE

The explicit costs, such as the legal expenses, associated with corporate default are classified as _____ costs.

- a) flotation
- b) beta conversion
- c) direct bankruptcy
- d) indirect bankruptcy
- e) unlevered

(c) direct bankruptcy

The other form of bankruptcy costs are indirect bankruptcy costs which include loss of sales if your customers perceived that your firm is in financial distress. Indirect costs of bankruptcy are highest in industries that produce durable goods or if their products require significant after sales services. Examples of industries with high indirect costs of bankruptcy include: the auto industry and the airline industry. Direct costs of bankruptcy are more easily measurable than indirect costs of bankruptcy.

COST OF CAPITAL (WACC)

The weighted average of the firm's costs of equity, preferred stock and after-tax debt is the:

- a) Reward to risk ratio for the firm
- b) Expected capital gains yield for the stock
- c) Expected capital gains yield for the firm
- d) Portfolio beta for the firm
- e) Weighted average cost of capital (WACC)

(e) Weighted average cost of capital (WACC)

The WACC is an important concept in finance. It is important to remember the tax benefit of debt when calculating the WACC. Remember that payments to debt are out of before tax income whereas payments to equity are from after-tax income. For this reason, we use the after tax cost of debt in the calculation of WACC.

COST OF CAPITAL (WACC)

The use of WACC to select investments is acceptable when the:

- a) Correlations of all new projects are equal
- b) NPV is positive when discounted by WACC
- c) Risks of the projects are equal to the risk of the firm
- d) The firm is well-diversified and the unsystematic risk is negligible

(c) Risks of the projects are equal to the risk of the firm

Remember that NPV is the present value of expected cash-flows minus the initial cost (outlay). When finding NPV a firm needs a discount rate. If the firm is finding the NPV of a typical project then the appropriate discount rate is equal to the firm's average cost of capital (i.e. WACC). However, if a firm is doing NPV analysis for a project that is higher risk (i.e. investing in a country like Mongolia) then they should adjust the discount rate upwards to account for the greater risks of the project.

COST OF CAPITAL (WACC)

Financial economics prefer to use market values when calculating WAC because:

- a) Market values are more stable than book values
- b) Market values are a better reflection of current value than historical value
- c) Market values are readily available and do not have to be calculated like book values
- d) Market values are more difficult to calculate which makes financial economics more valuable

(b) Market values are a better reflection of current value than historical value

Book value reflects historical costs, but does not necessarily indicate the 'actual' value of equity or debt of a firm. For example, assume you purchased the island of Manhattan in 1626 for \$24. The book value of Manhattan would still remain at \$24. However the current market value of Manhattan is clearly greater than \$24. When finding weights for a firms WACC always use market values as they give a more accurate reflection of the firms actual cost of capital.

COST OF CAPITAL (WACC)

The first public equity issue made by a company is a(n):

- a) Initial private offering
- b) Initial public offering
- c) Secondary offering
- d) Seasoned new issue

(b) Initial public offering

Initial public offering or IPO is the first time a company sells equity to the public. This is the most expensive form of capital because the firm must enlist the services of an investment bank to aid in the issuing the new equity. This process is called underwriting and the investment bank takes a fee of approximately 7% of the issuance for their services.

COST OF CAPITAL (WACC)

For a typical firm, which of the following is correct? All rates are after taxes, and assume the firm operates at its target capital structure.

- a) Cost of Debt $>$ Cost of Preferred Stock $>$ Cost of Common Stock
- b) Cost of Debt $<$ Cost of Preferred Stock $<$ Cost of Common Stock
- c) Cost of Debt $>$ Cost of Preferred Stock $<$ Cost of Common Stock
- d) Cost of Debt $<$ Cost of Preferred Stock $>$ Cost of Common Stock

(b) Cost of Debt $<$ Cost of Preferred Stock $<$ Cost of Common Stock

Debt is the cheapest form of capital as it has the least risk. Recall that in times of financial distress debt payments have priority over preferred stock and common stock. Preferred stocks payments have priority over common stock. Investors demand higher returns for assuming higher risk, hence the relationship given in 'b'.

Miscellaneous definitions

Money market instruments (maturity < 1 year; all short-term debt instruments)

Treasury Bills

- Issued by the federal government.

Repurchase Agreement (REPO)

- An arrangement where one firm sells some of its financial assets with a simultaneous agreement to repurchase it back at a higher price.

Federal Funds

- Overnight loans from one bank to another – used to meet Fed reserve requirements

Banker's Acceptance

- Similar to a post-dated check with a bank guarantee – used lots for international trade

Commercial Paper

- Short-term IOU - unsecured loan issued by large creditworthy corporations.

Negotiable Certificate of Deposit (CD)

- Time deposit at a bank or another financial intermediary
- Payable to the bearer, so they can be sold (traded) prior to maturity

Eurodollar Deposit

- A U.S.-dollar denominated deposit held at a bank outside of the U.S.
- No exchange rate risk, and earns (usually higher) foreign interest rate

Money Market Mutual Funds

- Pooled funds managed by an investment company – invests in above securities

Miscellaneous definitions

Capital market instruments (maturity > 1 year; long-term debt instruments and equities)

Treasury Bonds

- Issued by federal government

Municipal Bonds

- Issued by state and local government

U.S. Government Agency securities

- GNMA, FNMA, Freddie Mac, Sallie Mae, Farm Credit Agencies

Corporate bonds

- Issued by corporations (think loans!)

Corporate stocks

- Issued by corporations (think ownership!)

ADR (American Depository Receipt)

- An ADR is created by a U.S. bank that buys stock in foreign corporations in their currency. The dollar-denominated ADR is issued, backed by the shares of the foreign stock, and trade on exchanges in the U.S. The major attraction to U.S. investors is that they trade on U.S. exchanges in dollars.

Miscellaneous definitions

IPO market – new public offerings by previously private firms.

Primary market – additional (new) shares sold by publicly owned companies.

Secondary market – outstanding shares of established, publicly owned companies.

Miscellaneous definitions

Federal funds rate - Depository institutions trade excess reserves held at the Fed among themselves; the interest rate on these inter-bank transactions is called the federal funds rate.

LIBOR – Interest rate paid on dollar-denominated deposits, known as Eurodollars, traded between banks in London as an alternative source of overnight funding. LIBOR and the Fed Funds rates tend to be closely related.

Discount Rate – Rate charged by the Fed for banks to borrow overnight funds.