

**Finance 303 – Financial Management
Review Notes for Final**

Chapters 11&12

- Capital budgeting
- Project classifications
- Capital budgeting techniques (5 approaches, concepts and calculations)
- Cash flow estimation (concepts and calculations)
- Optimal capital budget (concepts and calculations)

Chapter 13

- Target capital structure
- Business risk vs. financial risk
- Break-even analysis
- Determining the optimal capital structure (concepts and calculations)
- Capital structure theories

Chapter 14

- Dividend vs. retained earnings
- Dividend policy: three basic views
- The clientele effect
- The information content
- Dividend policy in practice (concepts and calculations)
- Dividend payment procedures
- Factors influencing dividend policy
- Stock repurchase, stock dividends and stock splits (concepts and calculations)

Chapter 15

- Working capital
- Net working capital and net operating working capital
- Working capital management
- Working capital management techniques (concepts and calculations)

Sample Questions

1. Given the following cash flows (c)

After-tax cash flow	

Year	Project S

0	- \$100,000
1	60,000
2	60,000

What is the discounted payback period for Project S if the cost of capital is 8%?

- a. 1.65 years b. 1.76 years c. 1.86 years d. 1.95 years e. 2.00 years

(First find PV for CF₁ and CF₂, enter FV=60,000, N=1, PMT=0, i/y=8%, solve for PV=55,556, then enter FV=60,000, N=2, PMT=0, i/y=8%, solve for PV=51,440; DPB=1 + 44,444/51,440=1.86 years)

For the next five questions, suppose the following holds:

The net cash flows for projects X and Y are as follows:

Net Cash Flow		

Year	Project X	Project Y

0	-\$10,000	-\$100,000.00
1	6,500	35,026.27
2	3,000	35,026.27
3	3,000	35,026.27
4	1,000	35,026.27

The company uses a 12% cost of capital. NPV_x = \$966.01 and IRR_x = 18.03%.

2. What is the PB period for project X? (b)

- a. 1.95 years b. 2.17 years c. 2.25 years d. 2.50 years e. 3.00 years
 (2+500/3,000)=2.17

3. What is the NPV of project Y? (b)

- a. \$5,385.29
 b. \$6,387.02
 c. \$7,385.29
 d. \$8,385.29
 e. \$9,385.29

(CF₀=-100,000, CF₁=35,026.27, F01=4 (or you can enter one by one), I=12%, solve for NPV=6,387.02)

4. What is the IRR of project Y? (d)
- a. 10% b. 12% c. 14% d. 15% e. 18%
- ($CF_0 = -100,000$, $CF_1 = 35,026.27$, $F01 = 4$ (or you can enter one by one), solve for $IRR = 15\%$)

5. Which project should be accepted if they are mutually exclusive? (b)
- a. Project X
b. Project Y
c. Both of them
d. None of them
e. It cannot be determined
- (There is a ranking problem because $NPV_Y > NPV_X$ but $IRR_Y < IRR_X$. Since Y and X are mutually exclusive, your decision should be based on NPV)

6. Which project(s) should be accepted if they are independent? (c)
- a. Project X
b. Project Y
c. Both of them
d. None of them
e. It cannot be determined
- (Since both projects have $NPV > 0$ and therefore both are good projects)

7. If a firm adheres strictly to the residual dividend model, a sale of new common stock by the company would suggest that (e)
- a. the dividend per share has remained constant.
b. the dividend per share is increasing.
c. the dividend per share is decreasing.
d. the dollar amount of investment has decreased.
e. the dividend per share is zero.
- (Under the residual dividend policy, firms will pay dividends only if they have extra cash after financing all good projects. If a firm issues new common stock to raise money it implies that the firm has no extra cash to pay for dividend)

8. Given the debt and equity ratios for NBC, select the optimal capital structure for the company. (b)
- a. Debt = 20%; Equity = 80%; EPS = \$2.00; Stock price = \$25.00.
b. Debt = 40%; Equity = 60%; EPS = \$2.25; Stock price = \$28.00.
c. Debt = 60%; Equity = 40%; EPS = \$2.40; Stock price = \$26.50.
d. Debt = 80%; Equity = 20%; EPS = \$2.55; Stock price = \$23.50.
e. It cannot be determined.
- (Remember the goal is to maximize stock price (shareholder's wealth) not EPS)

For the next three questions, suppose the following holds:

Flavortech Inc. expects EBIT of \$2,000,000 for the coming year. The firm's capital structure consists of 50% debt and 50% equity, and its marginal tax rate is 40%. The company pays a 10% rate on its \$5,000,000 of long-term debt and has 1,000,000 shares of common stock outstanding. In its next capital budgeting cycle, the firm expects to fund one large positive NPV project costing \$1,200,000, and it will fund this project in accordance with its target capital structure. The firm follows a residual dividend policy and there are no other projects for the company.

9. What is its expected net income next year? (c)
- a. \$1,200,000
 - b. \$1,000,000
 - c. \$900,000
 - d. \$850,000
 - e. \$800,000
- (NI=(EBIT-INT)*(1-T)=(2,000,000-5,000,000*(0.1))*(1-0.4)=\$900,000)
10. What is the expected dividend payout ratio? (b)
- a. 25.00%
 - b. 33.33%
 - c. 50.00%
 - d. 66.67%
 - e. 75.00%
- (Dividend=NI-R/E for projects=900,000-1,200,000*(0.5))=\$300,000;
Payout ratio=Dividend/NI=300,000/900,000=33.33%)
11. What is the expected DPS? (b)
- a. \$0.25
 - b. \$0.30
 - c. \$0.35
 - d. \$0.40
 - e. None of the above
- (DPS=dividend/# of share outstanding)=300,000/1,000,000=\$0.30

For the next five questions, suppose the following holds:

The president of Real Time, Inc. has asked you to evaluate the proposed acquisition of a new computer. The computer's price is \$40,000 and there will be another \$2,000 for shipping and installation. The computer falls into MACRS 3-year class (Use 33%, 45%, 15%, 7% depreciation schedule). Purchase of the computer would require an increase in net working capital of \$2,000. The computer would increase the firm's before-tax revenues by \$20,000 per year but would also increase operating costs by \$5,000 per year. The computer is expected to be used for 3 years and then be sold for \$15,000. The firm's marginal tax rate is 40%, and the project's cost of capital is 14%.

12. What is the net initial outlay (at time t = 0)? (c)
- a. \$40,000
 - b. \$42,000
 - c. \$44,000
 - d. \$46,000
 - e. None of the above
- (Initial outlay=40,000+2,000+2,000=44,000, where 42,000 is the depreciation basis and 2,000 is the increase in net working capital. Refer to lecture notes)

13. What is the expected operating cash flow in year 1? (d)

- a. \$19,845
- b. \$16,535
- c. \$15,238
- d. \$14,544
- e. \$13,538

$(20,000 - 5,000) * (1 - 0.4) + 42,000 * (0.33) * (0.4) = 14,544$ (the first term is the net increase in revenue after tax and the second term is the depreciation tax savings)

14. What are the expected operating cash flows in year 2 and 3? (a)

- a. \$16,560; \$11,520
- b. \$16,500; \$12,350
- c. \$15,600; \$11,520
- d. \$12,350; \$14,250
- e. \$13,650; \$13,890

(Similar to the procedure in 13, but you need to change the depreciation rates. In year 2, the rate is 45% and in year 3 the rate is 15%)

15. What is the expected terminal cash flow in year 3, excluding the operating cash flow? (b)

- a. \$13,456
- b. \$12,176
- c. \$11,234
- d. \$10,246
- e. None of the above

$15,000 - [(15,000 - 42,000 * (0.07)) * (0.4) + 2,000] = 12,176$ (The first 15,000 is the salvage value, $42,000 * (0.07)$ is the remaining book value (2,940) and the difference in bracket $[15,000 - 2,940] = 12,060$ is the capital gains which is taxable; $12,060 * (0.4) = 4,824$ is the capital gains tax; the last term of 2,000 is the recapture of net working capital which was invested at $t=0$; After tax terminal cash flow is equal to the salvage value – capital gains tax + recapture of net working capital)

16. Should the firm purchase the new computer? (e)

- a. Yes, since the NPV is $\$2,505.60 > 0$
- b. Yes, since IRR is $15.84\% > 14\%$
- c. No, since the NPV is $-\$2,505.60 < 0$
- d. No, since IRR is $10.84\% < 14\%$
- e. Both c and d are correct.

(Since $NPV < 0$, it is not a good project; or since $IRR = 10.84\% < 14\% = RRR$ it is not a good project)

17. As a general rule, the capital structure that (d)
- Maximizes expected EPS also maximizes the price per share of common stock.
 - Minimizes the interest rate on debt also maximizes the expected EPS.
 - Minimizes the required rate on equity also maximizes the stock price.
 - Maximizes the price per share of common stock also minimizes the WACC.
 - Gives the firm the best credit rating.
- (Remember the goal is to maximize stock price or shareholder's wealth. If WACC is the lowest, the stock price must be the highest)
18. Which of the following statements is correct? (d)
- The internal rate of return method (IRR) is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
 - The payback method is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
 - The discounted payback method is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
 - The net present value method (NPV) is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
 - The modified internal rate of return method (MIRR) is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
- (NPV is regarded as the best method in evaluating capital budgeting projects)
19. Assume a project has normal cash flows. All else equal, which of the following statements is correct? (b)
- The project's IRR increases as the WACC declines.
 - The project's NPV increases as the WACC declines.
 - The project's MIRR is unaffected by changes in the WACC.
 - The project's regular payback increases as the WACC declines.
 - The project's discounted payback increases as the WACC declines.
- (Since WACC is used as the discount rate to calculate NPV, the lower the WACC, the higher the NPV)

20. Which of the following statements is correct? Assume that the project being considered has normal cash flows, with one outflow followed by a series of inflows. (c)
- a. A project's NPV is found by compounding the cash inflows at the IRR to find the terminal value (TV), then discounting the TV at the WACC.
 - b. The lower the WACC used to calculate it, the lower the calculated NPV will be.
 - c. If a project's NPV is less than zero, then its IRR must be less than the WACC.
 - d. If a project's NPV is greater than zero, then its IRR must be less than zero.
 - e. The NPV of a relatively low risk project should be found using a relatively high WACC.

(Remember that NPV approach and IRR approach will always provide the same accept/reject decisions. So if $NPV < 0$, IRR must be less than WACC)

21. The relative risk of a proposed project is best accounted for by (a)
- a. Adjusting the discount rate upward if the project is judged to have above average risk.
 - b. Adjusting the discount rate downward if the project is judged to have above average risk.
 - c. Reducing the NPV by 10% for risky projects.
 - d. Picking a risk factor equal to the average discount rate.
 - e. Ignoring it because project risk cannot be measured accurately.

(If a project is risky, investors are requiring a higher return. Therefore, firms will adjust the discount rate upward to evaluate risky projects)

22. A company uses a WACC of 8% for below-average risk projects, 10% for average-risk projects, and 12% for above-average risk projects. Which of the following independent projects should the company accept? (b)
- a. Project A has average risk and an IRR = 9%.
 - b. Project B has below-average risk and an IRR = 8.5%.
 - c. Project C has above-average risk and an IRR = 11%.
 - d. All of the projects should be accepted.
 - e. None of the projects should be accepted.

(If return (IRR) from a project is higher than its WACC (cost) it is a good project)

23. When evaluating a new project, firms should include all the projected cash flows except: (b)
- a. Changes in net working capital attributable to the project.
 - b. Previous expenditures associated with a market test to determine the feasibility of the project that have been expensed for tax purposes.
 - c. The value of a building owned by the firm that will be used for this project.
 - d. A decline in sales of an existing product that is directly related to this project.
 - e. Salvage value of assets used for the project at the end of the project's life.

(Sunk costs should be ignored in cash flow estimations)

For the next two questions, suppose the following holds:

Buchanan Brothers anticipates that its EBIT at the end of the year will be \$4 million (before any recapitalization). The company currently has 600,000 shares of common stock outstanding and has no debt. The company's stock trades at \$40 a share. The company is considering a recapitalization, where it will issue \$10 million worth of debt at a YTM of 10% (or \$1 million interest expense) and use the proceeds to repurchase stock. Assume the stock price remains unchanged by the transaction, and the company's tax rate is 40%.

24. What will be the company's earnings per share if it doesn't recapitalize? (c)
- a. \$3.00 b. \$3.50 c. \$4.00 d. \$4.50 e. \$5.00
(Find NI first: $4,000,000 \times (1 - 0.4) = 2,400,000$ since the firm has no debt;
Next find $EPS = NI / \# \text{ of shares outstanding} = 2,400,000 / 600,000 = \4.00)
25. What will be the company's earnings per share if it recapitalizes? (e)
- a. \$3.23 b. \$3.75 c. \$4.14 d. \$4.82 e. \$5.14
(Find new NI: $(4,000,000 - 1,000,000) \times (1 - 0.4) = 1,800,000$; Next find new # of
shares outstanding: $600,000 - (10,000,000 / 40) = 350,000$ (repurchase 250,000 shares
with \$10,000,000 at \$40 per share); Find new $EPS = 1,800,000 / 350,000 = \5.14)
26. The firm's target capital structure is consistent with which of the following? (e)
- a. Maximum earnings per share (EPS)
b. Minimum cost of debt (r_d)
c. Highest bond rating
d. Minimum cost of equity (r_s)
e. Minimum weighted average cost of capital (WACC)
(A firm chooses its target capital structure to either maximize firm's value (stock price) or minimize its WACC)
27. Michael Technologies buys raw materials on terms of 3/10, net 60, and it currently pays after 10 days and takes discounts. Michael plans to expand, and this will require additional financing. If Michael decides to forego discounts and to obtain additional credit from its suppliers, what would the nominal cost of that credit be, assuming 365 days per year? (d)
- a. 19.45%
b. 20.06%
c. 21.52%
d. 22.58%
e. 23.44%
(Using the formula in Chapter 15: $[(3 / (100 - 3)) \times (365) / (60 - 10)] = 22.58\%$)

28. The LAZ Co. produces 500 chairs per day at a cost of \$50 per chair for materials and labor. It takes the firm 20 days to convert raw materials into a chair and make a sale. LAZ allows its customers 40 days in which to pay for the chairs, and the firm pays its suppliers in 30 days. Under these conditions, what is the dollar amount of working capital LAZ must finance? (e)

- a. \$355,000
- b. \$595,000
- c. \$575,000
- d. \$657,000
- e. \$750,000

(Inventory conversion period=20 days; Average collection period=40 days;
Payable deferral period=30 days, CCC (cash conversion cycle)=30 days;
 $500 * 50 * 30 = \$750,000$)

29. Which of the following terms is (are) used in a cash conversion cycle analysis? (d)

- a. The inventory conversion period
- b. The average collection period
- c. The payable deferral period
- d. All of the above
- e. None of the above

(Remember the relationship: $DPO + CCC = DSI + ACP$)

30. Self-Test questions, problems assigned at the end of each chapter, and sample problems discussed in class