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**PRINCIPLES OF FINANCIAL
MANAGEMENT
FIN 335**

**LECTURE NOTES AND STUDY GUIDE
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**To Accompany Brigham and Houston's
FUNDAMENTALS OF FINANCIAL MANAGEMENT,
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CHAPTER 1

AN OVERVIEW OF FINANCIAL MANAGEMENT

This chapter provides an overview of financial management and should give you a better understanding of the following: (1) how finance fits into the structure of a firm's organization, (2) how businesses are organized, (3) what the goals of a firm are and how financial managers can contribute to the attainment of these goals, (4) important business trends, (5) business ethics: what companies are doing and the consequences of unethical behavior, and (6) conflicts that arise between managers, stockholders, and bondholders.

I. LEARNING OBJECTIVES

- A. Explain the role of finance and the different types of jobs in finance.
- B. Identify the advantages and disadvantages of different forms of business organization.
- C. Explain the links between stock price, intrinsic value, and executive compensation.
- D. Discuss the importance of business ethics and the consequences of unethical behavior.
- E. Identify the potential conflicts that arise within the firm between stockholders and managers and between stockholders and bondholders.

II. WHAT IS FINANCE?

Finance grew out of economics and accounting and it is divided into three areas: (1) financial management, (2) capital markets, and (3) investments.

- A. Financial Management (Corporate Finance)
 - 1. Decisions relating to how much and what types of assets to acquire
 - 2. How to raise the capital needed to buy assets
 - 3. How to run the firm so as to maximize its value (Job #1 for management)
- B. Capital Markets
 - 1. Markets where interest rates, along with stock and bond prices, are determined
 - 2. Financial institutions assist in capital allocation
 - 3. Federal agencies such as the Federal Reserve and the SEC provide regulatory oversight

C. Investments

1. *Security analysis* deals with finding the proper values of individual securities.
2. *Portfolio theory* deals with the best way to structure individual/institution portfolios.
3. *Market analysis* deals with the issue of whether stock and bond markets at any given time are too high, too low, or just right

III. FORMS OF BUSINESS ORGANIZATION

A. *[Sole] Proprietorship* is an unincorporated business owned by one individual.

1. Its advantages are:
 - a. It is easily and inexpensively formed,
 - b. It is subject to few government regulations, and
 - c. It is subject to lower income taxes than are corporations.
2. Its disadvantages are:
 - a. The proprietor has unlimited personal liability for business debts, which can result in losses that exceed the money they have invested in the company,
 - b. It has a life limited to the life of the individual who created it, and
 - c. It is limited in its ability to raise large sums of capital.

B. *Partnership* is a legal arrangement between two or more persons.

1. Its advantages are:
 - a. Low cost and ease of formation,
 - b. Income is allocated on a pro rata basis to partners and taxed on an individual basis.
2. Its disadvantages are:
 - a. Unlimited personal liability,
 - b. Limited life,
 - c. Difficulty of transferring ownership, and
 - d. Difficulty of raising large amounts of capital

C. *Corporation* is a legal entity created by a state, and it is separate and distinct from its owners and managers.

1. Its advantages are:

- a. unlimited life,
 - b. ownership is easily transferred through the exchange of stock,
 - c. limited personal liability, and
 - d. ease of raising large amounts of capital
2. Its disadvantages are:
- a. corporate earnings may be subject to double taxation and
 - b. setting up a corporation and filing required state and federal reports are more complex and time-consuming than for a proprietorship or partnership.

D. Subchapter S Corporations

- 1. Taxed as if they were a proprietorship or a partnership rather than a corporation.
- 2. S status is retained until stock is sold to the public, at which time they become C corporations.

E. Limited Liability Corporation (LLC) is a hybrid between a partnership and a corporation.

- 1. LLCs have limited liability like corporations.
- 2. LLCs are taxed like partnerships.
- 3. *Limited liability partnerships* are similar to LLCs, but are used for professional firms in such fields as accounting, law, and architecture.

IV. MANAGEMENT'S PRIMARY GOAL IS STOCKHOLDER WEALTH MAXIMIZATION

- A. Wealth maximization is connected to stock price and stock price is driven by investor expectations about future earnings.
- B. Future earnings are a function of managerial decisions regarding new products and markets, reductions in costs, and making profitable capital investments.
- C. Occasionally corporate managers consider other typically non-wealth maximizing actions; e.g. increasing their pay and prerogatives
 - 1. The Agency problem: when managers neglect their obligations to the firm's owners.
 - 2. Owners use employment contracts with performance goals to guide manager compensation: *corporate governance issues*

D. Intrinsic Value vs. Market Price

1. Intrinsic Value is defined simple as the *true* price.
2. In equilibrium, market prices should be identical to intrinsic value.
3. Incorrect investor expectations (fear or greed) will drive market prices from their [theoretically correct] intrinsic values
4. The focus of market research is detect when market prices have strayed from intrinsic values (as computed using a variety of models and methods).

V. IMPORTANT TRENDS IN BUSINESS

- A. Increased globalization
- B. Improved communications and information transmission (IT)
- C. Increased focus on business ethics
 1. Sarbanes-Oxley (2002): CEO and CFO must attest to truthfulness of financial reports
 2. Severe penalties for dishonest behavior

VI. HOMEWORK QUESTIONS

- A. When is a stock's price considered to be in equilibrium?
- B. Job #1 for managers is maximizing the value of the firm. How do they accomplish this task?
- C. What are the four major forms of business organization? What are the principal advantages/disadvantages?

CHAPTER 3

FINANCIAL STATEMENTS, CASH FLOW, TAXES

I. BALANCE SHEET

The balance sheet is a snap-shot of the condition of the firm at the close of business on the last day of the fiscal year. We should keep in mind that some firms will "dress up" the balance sheet prior to reporting results to stockholders. The most important use of the B/S is the information it provides on how the firm financed its asset structure, and the distribution of that investment in current and fixed assets.

(Left-hand side)	(Right-hand side)
Current Assets	Current Liabilities
1. Cash	1. Accounts payable
2. Marketable Securities	2. Notes payable (bank loans)
3. Accounts Receivable	3. Accrued expenses
4. Inventory	4. Current portion of l-t debt
5. <u>Prepaid expenses</u>	_____
Total Current Assets	Total Current Liabilities
Long-Term Assets	Long term Liabilities
1. Gross Fixed Asset	1. Long term debt (bonds)
2. -Accumulated Depreciation	2. Deferred taxes
3. Net fixed assets	
Other Assets	Stockholders' Equity
1. Patents, copyrights	1. Preferred stock (if issued)
2. Goodwill	2. Common stock (outstanding)
3. Stock in other cos.	3. Paid-in-capital
4. _____	<u>4. Retained earnings</u>
Total Assets	Total Liabilities & Equity

Stockholders' equity is a frequent source of confusion. The common stock account represents the number of shares outstanding times the par value of the stock. Paid-in-capital or "capital surplus" or "paid-in surplus" represents the amount above the par value at which the stock was sold; i.e., a stock with a par value of \$1 may have been sold originally for \$10. In that case, we would have \$1 in common, and \$9 in paid-in capital for each share sold. We can use these two accounts to determine the average price for which company shares were sold. Preferred stock is an equity investment. However, from the point of view of the common stockholder, the residual owner of the firm, preferred is viewed very much like long-term debt.

II. INCOME STATEMENT (PROFIT & LOSS)

The income statement is a flows statement. Net Sales are sales revenues net of allowances for returns and adjustments. The cost of goods sold captures the impact of labor and materials costs. Selling costs include all the cost associated with selling. Administrative expenses reflect the cost of the corporate staff. General expenses are items like rent, phone bills, etc. Depreciation expenses are an important means for sheltering cash flow from the tax collector. In theory, depreciation expenses recognize the wearing out of assets over their economic life. Empirically, depreciation is an important as a strategy for managing cash flow. Interest expenses record how much the company paid in interest on borrowed funds. Interest income reflects funds earned via investing in short-term fixed income securities (mostly t-bills). Taxes include federal, state, and foreign.

Net Sales (gross sales minus allow for returns.)
minus **Cost of Goods Sold** (direct labor, materials, o/h burden.) (COGS)
= **Gross profit** (contribution to overhead expenses.)
minus Selling, Administrative, and General expenses (SGA)
= Operating Income before depreciation, etc. (EBITDA)
minus Depreciation/Depletion/Amortization of goodwill, etc.
= **Net Operating Income** (EBIT = earnings before interest and taxes.)
minus **Interest Expense** (cost of borrowed funds.)
plus **Interest Income** (interest earned on s-t investments.)
= Earnings Before Taxes. (EBT)
minus **Taxes** (includes federal, state, and foreign taxes.)
= Net Income before extraordinary items and discontinued operations
Earnings per share (EPS) = Net Income ÷ Shares Outstanding
± Charges for Extraordinary Items, Discontinued Operations¹
= Net Income Including Extra. Items and Discontinued Operations
minus **Preferred Stock Dividends** (if preferred stock is issued).
= Earnings Available For Common Stockholders.
minus Cash Dividends To Common Stockholders (if paid).
= **Retained Earnings** (reinvested in the business)

¹ Firms sometimes sell unneeded assets or close obsolete facilities. They take charges against current revenues to reflect the impact on these decisions on corporate assets and cash flows. *They are always net of tax effects.*

1. Earnings Per Share (EPS);
 - a. Primary EPS; before potential dilution of ownership.
 - b. Fully Diluted EPS;

III. STATEMENT OF CASH FLOWS (FASB 95, INDIRECT METHOD)

Up until 1986, corporations generated a *sources and uses* statement. Sources were increases in liability accounts (RHS) or decreases in asset accounts (LHS); uses were increases in asset accounts (LHS) or decreases in liability accounts. No real distinctions were made as to whether funds were generated by operating activities, financing activities, or investing activities. FASB #95 addressed that distinction. The differences are important; they tell us where the cash is really coming from and where it is going.

A. Cash Flows from Operating Activities;

1. Net income; what's left after expenses and taxes.
2. Adjustments to determine operating cash flows;
 - a. + Depreciation expense; (a non-cash expense)
 - b. - Increases in current asset accounts.
+ Decreases in current asset accounts.
 - c. + Increases in current liability accounts.
- Decreases in current liability accounts.

3. Net Cash Flows from Operating Activities

4. B. Cash Flows from Investing Activities;

1. - Increases in investments (buying securities).
+ Decreases in investments (selling securities).
+ Interest/dividends received from investments.

Firms frequently hold the securities of other firms as investments OR they may be acquiring another firm's stock in preparation for a merger or acquisition attempt. These investments are different from the short term investments made to optimize the presence of excess cash balances in the business.

2. - Increases in plant, property, and equipment (PP&E).
+ Decreases in plant, property, and equipment.

Firms invest most of their capital in new or additional plant, property, and equipment. Increases in PP&E represent outflows; sales of PP&E are inflows.

3. Net Cash Flows from Investing Activities
4. C. Cash Flows from Financing Activities (obtaining capital);
 1. + Increase in bonds outstanding (selling bonds).
 - Decrease in bonds outstanding (retiring bonds).
 2. - Payments of interest on bonds sold by the firm.
 3. + Increases in common stock (selling common shares).
 - Decreases in preferred and/or common stock (buying back co. shares).
 - Payment of dividends on preferred and/or common stock.
4. Net Cash Flows from Financing Activities
5. D. Total Cash Flows (= net change in Cash Balance)

TCF = Algebraic sum of the net flows from operations, investing, and financing.

IV. ACCOUNTING INCOME VERSUS CASH FLOW

- A. Firm Value and Cash Flow Relationship;
 1. Value as a function of cash flow
 2. Cash flow volatility and riskiness of the firm
 3. Maximization of value \cong maximizing cash flow while minimizing volatility
- B. Role of Depreciation.
 1. Recognition of economic wear and tear
 2. Important Tax Shield
 3. Driving force behind Capital Maintenance
 - a. Firms must maintain the quality of their productive assets.
 - b. Failure to maintain quality results in increased operating costs.
- C. Operating versus Non-Operating Cash Flow Cycle
 1. Operating: Cash to Inventory to Accounts Receivable to Cash etc.
 2. Non-operating: Capital investments, capital servicing,

V. OTHER ANNUAL REPORT ITEMS

A. Net Worth, Book Values;

Net worth is a method for assessing the net value of the firm. The notion is simply to assume sale of the company's assets at book value and retirement of the firm's debt at the same. What is left is the net worth of the company. This calculation is typically done on a per [common] share basis. The usual term for this is book value (per share). The most important use of book value is to compare it to the market valuation of the firm's common stock.

1. Net worth = total assets - total liabilities.
 - a. Common stockholders consider preferred like debt.
 - b. Liabilities = total debt plus preferred stock.
2. Book value = net worth \div number of shares outstanding.

B. Marginal versus Average Tax Rates

3. Marginal rate; rate paid on the last dollar of income.
4. Average rate = Total taxes paid \div earnings before taxes.

VI. HOMEWORK: LEARNING OBJECTIVES. CHAPTER 2

A. Questions: 3-3, 3-5, 3-7, 3-10

B. Problems: 3-1, 3-3, 3-5

CHAPTER 3

ANALYSIS OF FINANCIAL STATEMENTS

The objective of financial analysis (FA) is to direct managerial attention to areas of concern in corporate financial performance. FA does not provide solutions to corporate problems nor does it consider all the possible interactions. FA is first and always *an analytical tool*. Our objective is to evaluate financial performance. Performance analysis is based on ratios computed from published financial data or data obtained from the corporate financial records data base. The analysis generally compares the most recent period of operations relative to industry norms or past performance of the company. Financial analysis is done for a variety of reasons. Some analysts are involved in internal cost control functions. Other analysts (i.e., certified financial analysts, CFA's) may be analyzing a company or group of companies to determine their attractiveness as investment candidates. The most general case is an outsider using a variety of financial ratios to rank corporate performance in different categories. The end result is a "profile" of the company relative to other companies in the industry or other companies in the investment opportunity set.

I. SOURCES OF INFORMATION

A. Financial Statement Data

1. Quarterly, Annual Reports;
2. Computerized Data Bases; Compustat^(r)
3. Standard & Poor's Industrial Manuals, Moody's

B. Industry Averages

1. Risk Management Associates (formerly Robert Morris Associates).
2. Dun & Bradstreet

C. Federal Agencies

1. Department of Commerce
2. Federal Reserve

II. RATIO CATEGORIES

A. Liquidity Ratios; Short Term Solvency

Liquidity ratios measure the company's ability to pay their bills. Suppliers of credit (i.e., commercial banks) use liquidity ratios to determine ability to service debt: pay interest and principle when due. Maintaining sufficient liquidity keeps the company on a sound financial footing. (Cash and Marketable Securities also termed *cash equivalents*). Accordingly, financial planners plan their budgets to

maintain a desired level of liquidity. Too little liquidity means reliance on short-term loans. Too much liquidity indicates inadequate cash management. Excess cash balances also invite takeover bids.

1. Current Ratio (CR, times)

c. $CR = \text{Current Assets} \div \text{Current Liabilities}$.

d. $C.A. = \text{Cash} + M/S + A/R + INV$

e. $C.L. = A/P + N/P + \text{Accruals} + \text{LTD maturing this year}$.

f. Rule of thumb; CR of 2.0x or better is good average working capital strategy.

2. Quick Ratio (QR, times); also called the *Acid Test Ratio*

$$(1) QR = (C.A. - \text{Inventory}) \div \text{Current Liabilities}$$

We must subtract Inventories from [total] current assets. Why you may ask? Inventories have the lowest liquidity. They cannot quickly convert into cash. Cash and marketable securities (M/S) are liquid. It is possible to *factor* A/R: sell your receivables to a financial institution like GE Capital. Inventory is difficult to get rid of at market values. If buyers know you need to move inventory, they will only pay "fire sale" prices.

3. Cash Ratio = $(\text{Cash} + M/S) \div \text{current liabilities}$

A company's most liquid assets are cash and M/S. The absolute level of this ratio is important only if the company does not have ready access to credit. Small companies must borrow funds from a commercial bank via a revolving credit agreement or a regular loan. The cash ratio tells you how many dollars of cash and cash equivalents (marketable securities) the company has per dollar of current liabilities, typically, ≤ 1.00 .

4. 4. Defensive Interval (DI, days) ²

$$DI = [(\text{Cash} + M/S + A/R) * 365] \div (\text{COGS} + \text{SGA}).$$

DI ratio indicates the number of days of operating expenses the company can pay from currently available quick assets (cash, M/S, A/R). The SGA amount should exclude depreciation and other non-cash charges. The DI ratio assumes no other revenues to cover out-of-pocket operating expenses.

² Additional ratio This ratio is not in the current text but considered important from a liquidity management point of view

B. Debt Management Ratios (Leverage Ratios) Long Term Solvency

Debt utilization or debt-leverage ratios measure the extent to which companies use debt to finance assets. Assets are financed in three ways; (1) by reinvesting profits, (2) by raising debt capital (sell bonds), or (3) by raising equity capital (sell stock). These ratios are important for two reasons. First, they give the financial analyst an idea of the capital structure strategy pursued by the firm. Second, they give the financial analyst an idea of the riskiness of the firm. The more money a firm borrows, the harder it becomes to service debt when times get bad. This is the source of risk. We call the probability of non-payment *default* risk.

5. 1. Debt Ratio (DR, decimal or percentage)

a. $DR = \text{total debt} \div \text{total assets}$

b. $\text{Total debt} = \text{current liabilities} + \text{long term debt}$

Companies typically have some debt on their books. Total debt includes current liabilities & long-term debt. The ratio indicates what percent of the total asset investment was financed by borrowing.

6. 2. Times Interest Earned (TIE, times)

$$TIE = \text{Net Operating Income (EBIT)} \div \text{Interest Expense}$$

Short-term lenders are interested in this value: This ratio captures the ability to pay interest on borrowed funds. Lenders prefer higher ratios (at least in the 5x to 7x range). Very high ratios typically indicate very low levels of debt-leverage (and vice-versa). The level of sales relative to fixed expenses will also have an impact.

7. 3. Fixed Charge Coverage (FCC, times)

$$FCC = \frac{\text{Operating Income} + \text{Lease Payments}}{\text{Interest Charges} + \text{Lease Payments}}$$

Some companies have **leased** a large portion of their assets. Lenders and lessors are interested in the ability of companies to cover their fixed charges (interest expense and lease payments) from operating income. Low ratios & poor sales indicate potential problems. The text also refers to this ratio as the EBITDA ratio. Operating income is measured as **Earnings Before Interest, Taxes and Depreciation / Amortization** expenses.

C. Asset Management Ratios; (Activity Ratios)

Asset management ratios measure the efficiency of asset management: How fast does management collect on credit sales? How well does management manage its inventories? Is the level of sales commensurate with the investment in assets (problem of mass vs. sales). Note: some texts assume all sales are credit sales. There are other possibilities. Some use net sales. Herein, we show two possible forms of the ratio.

1. Accounts Receivable Turnover (ARTO, times)

a. $\text{ARTO} = \text{credit sales} \div \text{A/R (preferred form)}$

b. $\text{ARTO} = \text{net sales} \div \text{A/R (normal form)}$

Whether you use credit sales or net sales is a matter of company policy. You must be consistent. This ratio indicates how often your receivables turnover. For example, an A/R t/o ratio of six times (6x) means that you have a new set of receivables every two months (on average).

2. Days Sales Outstanding (DSO, days)

a. $\text{DSO} = \text{A/R} \div \text{average credit sales per day or}$

b. $\text{DSO} = \text{A/R} \div \text{average sales per day}$

This ratio measures the average number of days it takes to collect receivables. Not so obvious is the lower the number of days the better our cash flows. The quicker we collect money owed to us the less we have to borrow to finance operations. How fast we collect amounts due us is a function of the company's credit policy. Some textbooks use the term *Average Collection Period* to describe this measure. We compute both in exactly the same way. Most companies extend credit to their customers: They ship goods then bill them. Hence, the term *credit* in the first formula to denote that portion of sales not made on credit. If all sales are on credit, then the second formula applies.

3. Inventory turnover (ITO), inventory utilization (IU) ³

a. $\text{ITO} = \text{cost of goods sold} \div \text{inventory}$

b. $\text{IU} = \text{net sales} \div \text{inventory}$

There are two different ratios here. The preferred ratio is the ITO. The reason is that this ratio compares "apples to apples"; both the COGS

³ I include the IU ratio for illustration. Some textbooks still use the IU ratio as well as some companies. The preferred form is the ITO. Also, some analysts use the average inventory rather than the "ending" inventory reported in the annual reports.

and the INV values are at cost. The reason some analysts use the IU as a surrogate for the ITO is unclear. It does not compare the relationship between NS and INV on a cost basis. Moreover, the IU gives an inflated value for the number of inventory turns per year.

$$\text{Days Sales in Inventory} = 365 / \text{ITO}$$

A number of retail-type companies track their inventories in terms of sales days. This is especially true in the auto industry.

4. Total Asset Turnover (TATO, times)

$$\text{TATO} = \text{net sales} \div \text{total assets.}$$

The TATO gives the analyst an idea of how well the investment in assets supports sales activity. The greater the ratio, the more sales produced per dollar of investment in assets. Very low ratios (compared to historical or industry averages) indicate the company is not generating enough sales to support the size of the asset investment; either increase sales or consider downsizing. We note that there is no theoretically correct value for this ratio. The best gauge is to compare the company to a benchmark for the industry.

5. Fixed Assets Turnover (FATO, times)

$$\text{FATO} = \text{net sales} \div \text{net fixed assets}$$

Like the TATO ratio, the FATO measures the relationship between the investment in fixed assets and the level of sales. Low ratios (comparatively speaking) indicate under-utilization of fixed assets; high ratios may indicate accelerated wear and tear on the physical plant necessitating early replacement.

D. Profitability Ratios

Profitability ratios measure the company's ability to turn sales revenues into profits. The *cost structure* of the company affects all these ratios. We derive three profit ratios to determine the ability of the company to control direct costs, indirect costs, and total costs before taxes.

1. Gross Profit Margin (GPM) = gross profit ÷ net sales

$$\text{Gross profit} = \text{net sales} \text{ minus cost of goods sold.}$$

Both the numerator and denominator are income statement items. This ratio measures the company's ability to control direct costs; labor and materials. This ratio is "tainted" if company uses *full absorption costing*. Another name for this ratio is *contribution margin*.

What is full absorption costing? Companies typically distinguish between *cost* centers and *profit* centers. Manufacturing activities are

cost centers. They ship finished goods to distribution and sales departments. The "invoice" is at full cost. Full costs include labor, materials, and all of the indirect expenses of the manufacturing activity. This accounting technique permits the cost center to budget its operations and is the basis for performance analysis. An outsider has no way of knowing if the cost of goods sold (COGS) recorded in the financial statements includes indirect expenses.

2. Operating Profit Margin (OPM) = Operating Income ÷ Net Sales

$$\text{Operating Income (EBIT)} = \text{Gross Profit} - \text{Selling, Admin. \& General Expenses}$$

OPM measures the firm's ability to control indirect costs; selling, general, and administrative expenses (SGA) as well as direct costs. We subtract the OPM from the GPM to obtain the percent of sales it takes to cover SGA expenses. EBIT comes after deducting depreciation expenses.

3. Basic Earning Power (BEP – not to be confused with Breakeven Point)

$$\text{BEP} = \text{EBIT (Operating Income)} \div \text{Total Assets}$$

This ratio measures the efficiency with which the firm's management utilizes assets to generate cash flow after covering its variable (COGS) and fixed (SGA) expenses. An increasing ratio suggests better cost controls (less expense per dollar of sales) or fewer assets needed to generate the same dollar level of EBIT.

4. Net profit margin (NPM) = net income ÷ net sales.

$$\text{NI} = \text{NS} - \text{COGS} - \text{SGA} - \text{interest expense} - \text{taxes.}$$

Net income excludes charges for extraordinary items and discontinued operations. We do not include extraordinary items or discontinued operations since these do not occur in the normal course of business activity. The net income figure is relatively "clean." NPM is a direct measure of how much of every sales dollar results in [accounting method] profits.

5. Return on assets (ROA) = net income ÷ total assets.

This ratio involves an income statement item and a balance sheet item. It is a measure of gross investment efficiency. If we consider the total asset structure of the company (current + fixed + other assets) as "money in the bank", then the net income amount is analogous to the interest earned on our money. The higher the ROA (also called ROI

and ROTA), the better the investment efficiency of the company. An important objective of cost control is to maximize ROA (or ROI).

6. Return on [common] equity (ROE) = net income ÷ (TA - TL).

a. TA = total assets, TL = total liabilities.

b. TL = current liabilities + long-term debt + pref. stock.

The ROE ratio measures net investment efficiency using the common stockholders' equity as a base (denominator). The reason for this ratio is that stockholders want to determine the return they are earning on their "equity" or the portion of the company they own, net of liabilities. Of the Five Profitability Ratios, Three measure cost control efficiency, and two measure investment efficiency. Together, they give the analyst an idea of how profitably corporate management is running the business.

III. OTHER RELATIONSHIPS

A. Market Valuation Ratios

1. Price Earnings Ratio (P/E) = P_0 / EPS

a. P_0 = Current Market Value (price) of Stock.

b. EPS = Expected Earnings Per Share (next 12 months).

Expected earnings per share (EPS) are an analyst's estimate of how much the company will earn in the next 12 months. The current market price of the stock is divided by the expected EPS to derive a P/E ratio. The average P/E ratio for stocks is approximately 12-15 times. These ratios will be higher in *bull* markets, lower in bear markets.

2. Book Value = Total Common Equity (TCE) / # Shares Out.

TCE. = Common Stock + Capital Surplus + Retained Earnings.

3. Earnings Per Share (EPS) = Net Income / # Shares Out.

EPS are typically reported in the annual report. The *expected EPS is an estimate of earnings for the next 12 months*. Expected EPS are typically the average of many forecast values by different analysts [averaged by I.B.E.S.]

B. Internal and Sustainable Growth Rates

The ability of the firm to grow is driven partly by the degree to which profits are reinvested in the business: e.g., investment in new product lines, additional plant capacity, etc. Many firms distribute a portion of their profits to investors as dividends

and retain the rest in the business. The [average] amount retained is referred to as the retention ratio (b). Two ratios are described in the literature: (1) Internal Growth Rate and (2) Sustainable Growth Rate. The first relates internal growth to the firm's average Return on Assets (ROA). The second ratio relates sustainable growth rates to Return on Equity (ROE).

1. Internal Growth Rate: $= (\text{ROA} * b) \div (1 - \text{ROA} * b)$
2. Sustainable Growth Rate $= (\text{ROE} * b) \div (1 - \text{ROE} * b)$

C. DuPont System of Financial Analysis

The DuPont System was developed as a methodology to improve the usefulness of financial ratio analysis. It is a guide to what management options are available to remedy poor financial performance. The model presented below is an abbreviated version of the full model.

[illegible]

IV. SOME FINAL COMMENTS ON RATIO ANALYSIS

- A. Firms operate in several different industries (problem of heterogeneity)
- B. Financial reports subject to *window dressing*
- C. Accounting practices may vary across companies in the same industry
- D. Firms typically have combinations of good and bad ratios in the same year

V. HOMEWORK CHAPTER 4 (*Exam type problems*)

- A. Questions: 4-2, 4-6, 4-10, 4-11 (parts a, b, f, h, m, q)
B. Problems: 4-1, 4-6, 4-18, 4-21

CHAPTER 15

WORKING CAPITAL MANAGEMENT

I. WORKING CAPITAL MANAGEMENT

A. Working Capital Policy

Working capital policy involves two basic questions: (1) What is the optimal amount of each type of current asset for the firm to carry and (2) how should current asset holdings be financed? Current assets include cash, accounts receivable, and inventory. A portion of current assets are financed by permanent capital (debt and equity). The balance is financed by short-term liabilities (trade credit, accruals, and short term loans).

B. Net Working Capital

Net Working Capital is defined as the dollar difference between total current assets and total current liabilities: $NWC = TCA - TCL$. While this is a simple accounting formula, its implications go to the very core of management's efforts to maximize the value of the firm. At issue is the risk-return trade-off for investments in current assets against the firm's current liabilities.

Current liabilities represent a source of short-term capital. Current assets are short-term investments made to support sales activities. The essence of the problem is to invest just enough to ensure smooth day-to-day operations, provide adequate liquidity, support to the sales effort, and meet the maturing liabilities (bills) of the firm.

1. In a perfect world, the firm would hold just enough;

- a. Cash to pay its bills
- b. Inventory to meet sales requirements
- c. Accounts receivable to support the credit policy
- d. Accounts payable to finance inventory acquisition

2. Importance of Current Assets

- a. Current assets typically comprise half of total assets.
- b. Current asset investment can be quite volatile.
- c. Fixed assets may be acquired via leasing: Current assets cannot be leased.
- d. Current asset investment levels dominated by sales.

II. WORKING CAPITAL MANAGEMENT STRATEGIES

A. Average (Moderate) Working Capital Management; financing

1. Permanent current assets financed with permanent capital.
2. Temporary current assets financed with short-term funds.

B. Aggressive Working Capital Management; financing

1. Small part of permanent assets financed with permanent capital.
2. Most by short-term sources; i.e., bank loans or spontaneous sources
3. All temporary assets financed by increased borrowing and trade credit.

Recall that the Basic Earning Power denominator is Total Assets (= Current plus Fixed Assets). If we reduce total asset investment (hold less cash and inventory, faster collection of receivables, or less invested in fixed assets) for a given level of EBIT, the BEP increases.

C. Conservative Working Capital Management; financing

1. Larger part (or most) of variable portion financed with permanent capital
2. Marked reduction in reliance on spontaneous sources

D. Financing the Permanent Portion of Current Assets

1. Financing is matched to the permanence of assets;
 - a. Current assets are self-liquidating within 1 year.
 - b. Fixed assets last [much] more than one year.
 - c. Match maturity structure of financing to maturity structure of assets.
2. Matching Principle;
 - a. Long term assets financed with long term capital
 - b. Permanent portion of spontaneous sources
3. Spontaneous Sources;
 - a. Accounts payable (using supplier capital).
 - b. Salaries and wages payable (using human capital)
 - c. Taxes payable (small businesses remit periodically).

E. Financing the Temporary Portion of Current Assets;

1. Short-term assets financed with short-term capital;
 - a. Bank loans (RLOC), commercial paper, banker's acceptances.
 - b. Trade credit; non-permanent portion of spontaneous sources
2. Short term imbalances between forecast and actual sales:

III. CASH MANAGEMENT

A. Requirement for Cash Balances

1. Transaction needs; day-to-day cash needs
2. Precautionary needs; "rainy day" needs
3. Speculation needs; take advantage opportunities
4. Compensatory Balances;

B. Essence of Cash Management

1. Speed up collections:
 - a. Lock-boxes and remote depositories.
 - b. Cash Concentration – then EFT to main bank.
2. Slow down Disbursements; remote banking
 - a. Managing “float”
 - b. Float = time between check writing and check clearing.
 - c. EDI and EFT effectively ended “float”.

C. Determining Level of Cash Balances

1. Level of cash balances determined by;
 - a. Desired level of liquidity (loan covenants)
 - b. Pace of sales activity (volatile sales, more cash)
 - c. Compensatory balance requirements (bank services)
 - d. Scheduled receipts and expenditures
 - e. Impact of “Float” and EDI - EFT: mail, processing, and availability delays
2. Cash Conversion Cycle (CCC) Determining the Required cash
 - a. $CCC = \text{Inventory Conversion Period} + \text{Receivables Collection Period} - \text{Payables Deferral Period}$ (See Fig 15.3 page 522)
 - b. The Inventory Conversion Period (ICP) is determined by how long Inventory is in stock before sold
 - c. Receivables Collection Period (RCP) measures the number of days from making the sale to collection of the receivable
 - d. Payables Deferral Period (PDP) measures the number of days between receiving materials and when suppliers are paid
 - e. CCC affected by management policies; inventory, credit, WCM.

$$CCC = 365 \left[\frac{\text{Inv}}{\text{COGS}} + \frac{\text{A/R}}{\text{Sales}} + \frac{\text{Payables}}{\text{COGS}} \right]$$

3. Deficits in Cash Flows Made Up By Borrowing Short-Term.

- a. Commercial Paper
- b. Short term loans
- c. Revolving lines of credit

D. Importance of a Cash Budget

- 1. Forecasts cash inflows, outflows, and ending cash balances.
- 2. Used to plan loans needed or funds available to invest.
- 3. Can be daily, weekly, or monthly, forecasts.
 - a. Monthly for annual planning
 - b. Daily for actual cash management

IV. THE CASH BUDGET

- A. Budgets are planning (and control) tools.
- B. Estimating receipts and disbursements
 - 1. Timing
 - 2. Magnitude
- C. Cash budgets identify the flow of cash into and out of the firm.
- D. Cash budgets identify when the firm will need short-term sources of finance.
 - 1. Bank borrowing (notes payable)
 - 2. Floating commercial paper (notes payable)

V. CASH & MARKETABLE SECURITIES

- A. Cash
 - 1. Currency
 - 2. Demand deposits
- B. Marketable Securities (T-Bills, Commercial Paper, Negotiable CDs)
 - 1. Marketability; salability without price penalty
 - 2. Minimum default risk; getting your investment back
 - 3. Minimizing interest rate risk; keeping maturities short
 - 4. Minimizing purchasing power risk; effects of inflation

VI. ACCOUNTS RECEIVABLE (A/R) MANAGEMENT

- A. A/R arise from Credit Sales Activity
- B. A/R must be financed by the Company (Working Capital Balances)
- C. A/R and Credit Policy: Managing Average Collection Period;
 - 1. Easy policy results in higher levels of sales and A/R.
 - 2. Tight policy results in lower sales and A/R.
 - 3. Policy also affects the bad debt experience level.
 - 4. Use discounts to induce early payment.
 - 5. Collection efforts key to managing receivables turnover.
- D. Credit Policy and Credit Scoring; the Five C's
 - 1. Character; credit history of borrower
 - 2. Capacity; how much income do they make?
 - 3. Capital; what assets do they have?
 - 4. Collateral; do they need to pledge assets?
 - 5. Conditions; expectations relative to economy
- E. Credit Rating Agencies;
 - 1. Dun & Bradstreet (Small Firms)
 - 2. Standard & Poor's, Moody's, Fitch (Large Firms)
 - 3. Equifax, Experian, Trans Union (Individuals)

VII. INVENTORY MANAGEMENT

- A. Rationales for Inventory
 - 1. Help smooth production effort.
 - 2. Take advantage of economies of scale
 - 3. Separate production and consumption functions
 - 4. Hedge against unexpected supply and demand incidences
- B. Types of Inventory Costs
 - 1. Carrying costs – storage and handling costs, insurance, property taxes, depreciation, and obsolescence
 - 2. Ordering costs – cost of placing orders, shipping, and handling costs
 - 3. Costs of running short – loss of sales or customer goodwill, and the disruption of production schedules

C. Composition of Manufacturing Inventories;

1. Raw materials (RM); least cost level
2. Work-in-process (WIP); adding labor and overhead
3. Finished goods (FG); what is sold, full cost investment

If you must carry large inventories; streamline production and distribution system to minimize WIP and FG inventory dollars. Companies that lose control of WIP will generally incur high scrap costs and loss of control over the planned production schedule.

D. Inventory Accounting Methods and Inflationary Conditions;

1. FIFO; reduces COGS, increases net income.
2. LIFO; increases COGS, decreases net income.
3. IRS permits one change in accounting method.

VIII. FINANCING CURRENT ASSETS

A. Accounts Payable (trade credit)

1. Trade credit usually carries terms
2. Implicit in these terms is an interest rate or cost of trade credit; $A / B \text{ Net } C$
3. Cost of Trade Credit = $[A / (100-A)] * [365 / (C - B)]$

Example: What is the implied cost of trade credit if the terms are 3/10 net 30?

$$\text{COTC} = (3/97) * (365/20) = .564 \text{ or } 56.4 \text{ percent per annum}$$

B. Bank Loans

1. Promissory Notes
 - a. Rate may be fixed or floating
 - b. May be interest only with principal at maturity or amortized
 - c. May require collateral
2. Line of Credit: repaid at end of term
3. Revolving Line of Credit: may be carried over to next period
4. Costs
 - a. May be linked to LIBOR or Prime rate
 - b. Simple Interest
 - c. Add-on interest
 - d. Discount interest

C. Commercial paper

1. Short-term IOUs issued by creditworthy companies
2. Some may be collateralized by [credit] receivables (asset-backed)

D. Accruals (Wages & Salaries Payable, Taxes Payable)

1. Accruals are essentially free money as no interest is paid
2. There are dangers when accrued payroll taxes are not remitted on time to the government (Federal, State, Local)

IX. HOMEWORK CHAPTER 15

A. Self-Test - 1: parts a, c, e, f, i

B. Questions: 15-2, 15-3, 15-9, 15-10

C. Problems: 15-4, 15-5, 15-7

D. What's on the Web? 17.1 Enter the following URL:

E. Special WCM Management Spreadsheet Simulation

1. Students will receive a set of instructions and an Excel file.
2. The problems requires analysis of several management options
3. Students will prepare a short comment on the effects of each option.
4. The comment sheet must be emailed to instructor when due. Date TBA

CHAPTER 16

FINANCIAL PLANNING AND FORECASTING

I. THE SALES FORECAST

- A. All financial and production plans begin with a sales forecast
1. The best guess of the business owners or economist as to the level of next year's sales
 2. For large multinational corporations, there will be two sales forecasts: domestic (USA) and International (non-USA)
 3. The initial forecast will be in gross [dollar] terms
 4. Sales forecasts are then apportioned to the various business activities of the company; Amateur film, camera & battery divisions, Industrial Products, etc.
- B. Financing Investments required by the sales forecast
1. Additional sales will require assets
 - e. Additional [plant] capacity
 - f. Additional inventory
 - g. Higher levels of receivables
 2. Some of these items will be financed by short term liabilities and retained profits
 3. The balance will be financed by external sources
- C. Computing Additional Funds Needed for next year's operations (AFN)

AFN = Projected increase in assets – Spontaneous Increases in S-T liabilities – Increase in Retained Earnings (profits)

$$AFN = (A_0/S_0) \cdot \Delta S - (L_0/S_0) \cdot \Delta S - M \cdot S_1 \cdot (1 - \text{Payout})$$

Where:

ΔS = the change in next year's sales ($S_1 - S_0$)

A_0/S_0 = ratio of [total] assets to sales

L_0/S_0 = ratio of [S-T] liabilities to sales

M = net profit margin

$(1 - \text{Payout})$ = retention ratio

S_1 = next year's sales

S_0 = current year's sales

D. Capacity Adjustments

1. Firms may occasionally have excess capacity (more plant than the need to meet sales requirements).
2. A_0/S_0 is also called the capital intensity ratio

In theory, firms will have enough capital invested to support sales activity when operating at 100% of capacity. If managers believe they will operate at a lower level of capacity utilization, they will adjust the capital intensity ratio accordingly. (see example on at top of page 560)

II. PRO FORMA STATEMENTS

A. Inputs

1. Sales
2. Expenses: Operating and Non-Operating
3. Expected profits – payout = retained earnings
4. Changes in asset investments: current and fixed

B. Outputs

1. Income Statement
2. Balance Sheet
3. Financial ratios: Especially NPM, ROA, and ROE

C. Techniques

1. Regression Analysis (econometric modeling)
2. Percent of sales

D. Simulation Exercises

1. Varying cost structures
2. Varying cost of capital
3. Sensitivity to changes in forecasted sales

III. HOMEWORK CHAPTER 16

- A. Self-Test: ST-1 parts c, d, f
- B. Questions: 16-1, 16-4
- C. Problems: 16-1, 16-4, 16-6