EM600 - Engineering Economics and Cost Analysis

Lecture 13: *Introduction to Basic Accounting*

- References:
  - Park, Chan S. Contemporary Engineering Economics. New Jersey: Pearson Prentice Hall, 2006 (Chapter 02)
  - *Horngren, Charles T., Gary L. Sundem and William O. Stratton Introduction to Management Accounting , Pearson Prentice hall*

Learning Objectives

After completing this module you should have a clear idea about the following:

- What is accounting?
- Importance of accounting to engineering and project managers
- Basic Accounting Terms and Concepts
- How financial data is used by investors, managers and others
- The structure of the four most important financial reports and how to use them
- Important financial ratios

Definition of Accounting:

- The process of systematically recording, classifying, verifying and summarizing business transactions, and presenting this information in periodic, interpretative financial statements and reports.

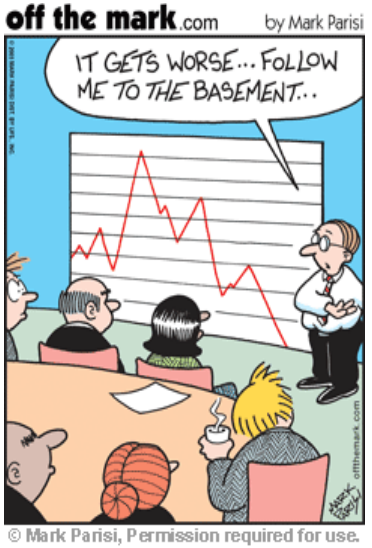
  (http://www.ncbuy.com/credit/glossary.html?action=LETTER&term=A)

- Basic function is to record and report financial transactions
- Link between business activities and decision-making
- Accounting is primarily a Service Activity
- Accounting aids decision makers to make resource allocation decisions between and within organizations.

What is Accounting? (Cont'd…)

- Accounting information is used by investors, creditors, stakeholders, managers, employees. Government, etc. as a part of their decision-making process.
- Reveals the financial situation (profit / loss/break-even) of any organization for a given period (a specific point of time or a range).
- Accounting provides information on:
  - resources available to a firm
  - the means employed to finance those resources
  - the results achieved through their use.

(http://www.businessdictionary.com/definition/accounting.html)



Importance of Accounting:

- Globalization, outsourcing and rapid technological advancement has increased the importance of accounting.
- Engineers need to know the cost and profitability of the products they design or the service they provide before undertaking a project.
- Accounting (and engineering economics) helps to understand the financial viability of engineering projects
- Accounting prepares an engineer for management duties or interactions through the understanding of the uses of accounting information for planning, controlling, and decision-making.

Generally Accepted Accounting Principles (GAAP)

- Concepts, rules, and procedures that guide accountants in the practice of financial accounting
- A Standard Framework of accounting
- Emphasis on the term "general", since not all accounting exercises employ the same method and generate the same results.
- Organizations generally follow ‘GAAP’ while preparing their financial report.
- **Basic GAAP Concepts**
  - *Entity Concept*
  - *Reliability (Objectivity) Principle*
  - *Cost Principle*
  - *Going-Concern Concept*
  - *Stable Monetary Unit Concept*

- **Debit and Credit**

  - Debit: *An accounting entry which results in either an increase in assets or a decrease in liabilities or net worth*

  - Credit: *A contractual agreement in which a borrower receives something of value now and agrees to repay later*

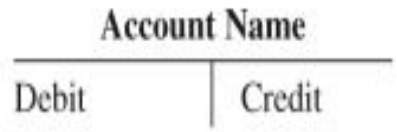
Total Debit = Total Credit

- **Double Entry System**

  - Each Transaction has to be recorded in at least two accounts with one account being debited and the other being credited

- **Fundamental Equation of Accounting**

Assets = Liabilities + Owners' Equity



The T- Account:

- Derives its name from the shape it assumes (The English Alphabet ‘T’)
- Normally used to represent general Ledger Account
- Generally, the left side of the T-Account is referred to as the ‘Debit’ side and the right side as the ‘Credit’ side.
- For every adjustment made to the left side of a T, there must be one or more adjustments made to the right side of one or more Ts so that the net entries balance
- The goal of T accounts is for debit entries to equal credit entries.

- Accounting Equation: Assets = Liabilities + Equity
- T Account : Total Debits = Total Credits
- Therefore, Combining the two, we have,

Assets		=	Liabilities		+	Equity	
Debit	Credit		Debit	Credit		Debit	Credit
Increases	Decreases		Decreases	Increases		Decreases	Increases
(+)	(-)		(-)	(+)		(-)	(+)

The *accrual basis* of accounting recognizes revenues and expenses when they occur instead of when cash is received or paid

The accrual basis is the principal concept for relating accomplishments (revenues) with efforts (expenses)

The *cash basis* of accounting recognizes revenue and expense when cash is received or paid

The cash basis fails to match expenses and revenues in a manner that properly measures financial position

Some Key Accounting Terms

Accounting Terms	Definition
Entities	An organization, business, etc. that has its own existence for legal and tax purposes
Assets	Any item of economic value that is owned by an individual or corporation and could be converted to cash*
Liabilities	A financial obligation incurred by an individual or an organization and therefore needs to be paid off*
Transactions	An contractual agreement between a buyer and a seller to exchange an asset for payment*
Capital	Cash or goods used to generate income of any organization. The 'net worth' of a business *
Revenues	Total amount of money received for goods and services that the customers agree to pay
Expenses	Cost of resources used to produce and deliver goods to the customers
Accounting Equation	Assets = Liabilities + Owners' Equity

**** http://www.investorwords.com/***

Some Key Accounting Terms (Cont'd…)

Accounting Terms	Definition
Journal	An accounting record where all business transactions are first recorded
Ledger	An accounting record of final entry where the transactions are listed in separate accounts *
Trial Balance	A list of all accounts with credit or debit balance
Income Statement	A statement depicting the financial status of sales, expenses and net profit for a given period (usually 1 year).
Balance Sheet	Summary of a company's financial status at a specific point in time, including assets, liabilities and net worth *
Cash Flow Statement	A record of cash inflows and outflows over a given period of time
Stockholders' Equity	Capital received from investors in exchange for stock (paid-in capital), donated capital and retained earnings – also referred to as the 'Book value' of the company *(www.investopedia.com)*
Financial Ratio	The ratio of selected values on an enterprises' financial staements

* ***http://www.investorwords.com/***

Journal

- *Any Financial Transactions are first recorded in a Journal*
- *Records the date of transaction, type of transaction and debit / credit balance*
- *The Double-Entry method is followed*

ABC Corporation Journal

	Date	Account	Ref #	Debit	Credit
01	01/02/03	Accounts Receivable	1	$ 210,000.00	
02		Revenue			$ 210,000.00
03	01/03/03	Computer	2	$ 5,000.00	
04		Accounts Payable			$ 5,000.00
05	01/21/03	Cash	3	$ 195,000.00	
06		Accounts Receivable			$ 195,000.00
07	01/22/03	Accounts Payable	4	$ 5,000.00	
08		Cash			$ 5,000.00
09	01/31/03	Rent Expense	5	$ 12,000.00	
10		Cash			$ 12,000.00
11	01/31/03	Wage Expense	6	$ 110,000.00	
12		Cash			$ 110,000.00
13	02/03/03	Legal Expense	7	$ 10,000.00	
14		Cash			$ 10,000.00
15	02/05/03	Cash	8	$ 50,000.00	
16		Note Payable			$ 50,000.00
17		Totals		$ 597,000.00	$ 597,000.00

(Source: http://www.artlogic.com)

Ledger – Final Statement

- *A set of T-Accounts that supports the items in financial statements*
- *Two columns (debit & credit) are used to record any increase / decrease in a particular account*
- *Double Entry Method is followed*

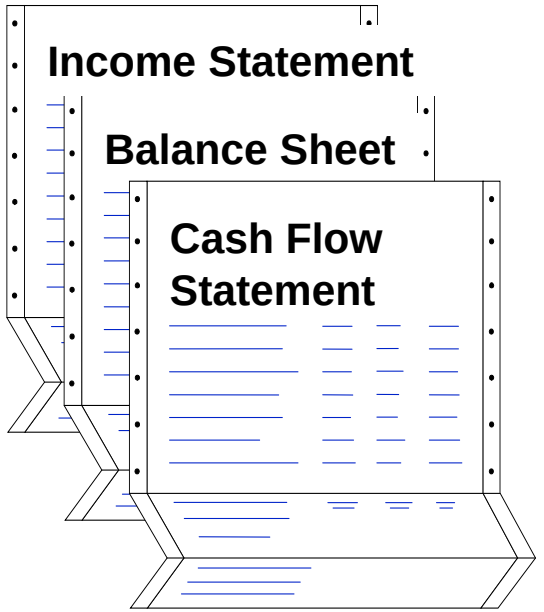
- A statement of ledger account balances within a ledger, at particular instance
- Consists of three columns – Item, Debit and Credit
- The total amount of the Debits column **MUST EQUAL** the total amount in the Credits Column
- Generally done at the end of the accounting period
- An imbalance in the trial balance denotes an accounting error

ENGLAND TOURS COMPANY
Post-Closing Trial Balance
December 31, 20X3

	Debits	Credits
Cash	$ 15,500	
Accounts receivable	4,500	
Equipment	45,000	
Accumulated depreciation		$ 5,000
Accounts payable		4,000
Salaries payable		2,000
Interest payable		1,200
Notes payable		20,000
Unearned revenue		1,200
Capital stock		30,000
Retained earnings	-	1,600
	$ 65,000	$ 65,000

(Source: http:// www.principlesofaccounting.com)

- Financial status of any business can be assed by looking at three major financial reports that are as follows,



  - ***Income Statement***
  - ***Balance Sheet***
  - ***Cash Flow Statement***

- **The Fourth Financial Statement**
  - ***Statement of Retained Earnings or Stockholder's Equity***

- A financial snapshot of a firm over a period of time
- A summary of how the business incurs its revenues and expenses through both operating and non-operating activities.
- Also shows the net profit or loss incurred over a specific accounting period, typically over a fiscal year.
- Also known as the "profit and loss statement" or "statement of revenue and expense".
- The income statement always represent s a period of time, unlike a single point of time that is represented by the balance sheet

- **Some typical components of an Income Statement are as follows:**

- Revenue

*- Cost of Goods Sold (COGS)**

- Gross Profit / Gross Margin

- Operating Expenses

- Operating Income

- Other Income and Expense

- Earnings per Share (EPS)

- Taxes

- Net Income

(* Manufacturing, Merchandising firms)

- If the Balance sheet is a statement of "Condition" then the Income statement is a statement of "***Performance***"
- **Gross Profit = Revenue – Cost of Goods Sold (COGS)**
- Gross Profit is also known as Gross Margin
- The 'Bottom line' of any Income Statement is the ***"Net Income"***
- **Net Income = Taxable Income – Income Taxes**
- Net income is also known as Accounting Income
- **Earning per Share (EPS) = Available earnings to Common Stockholders / # Shares of Common Stock Outstanding**

A Typical Income Statement

	Fiscal Year Ended		
	January 28, 2005	January 30, 2004	January 31, 2003
Net revenue	$ 49,205	$ 41,444	$ 35,404
Cost of revenue	40,190	33,892	29,055
Gross margin	9,015	7,552	6,349
Operating expenses:			
Selling, general, and administrative	4,298	3,544	3,050
Research, development, and engineering	463	464	455
Total operating expenses	4,761	4,008	3,505
Operating income	4,254	3,544	2,844
Investment and other income, net	191	180	183
Income before income taxes	4,445	3,724	3,027
Income tax provision	1,402	1,079	905
Net income	$ 3,043	$ 2,645	$ 2,122
Earnings per common share:			
Basic	$ 1.21	$ 1.03	$ 0.82
Diluted	$ 1.18	$ 1.01	$ 0.80
Weighted average shares outstanding:			
Basic	2,509	2,565	2,584
Diluted	2,568	2,619	2,644

(Source: Park, Chan S., Contemporary Engineering Economics, Chapter 02)

- A financial snapshot of a firm at the end of the reporting period
- Also known as the “statement of financial position” and “statement of condition”
- Provides information about a company’s period-end **solvency**, **liquidity and flexibility**
- A Balance Sheet provides the information regarding how much the business owns and owes as of a particular date
- Comparison of a company’s balance sheet at two different dates reveals:
  - *change in financial position*
  - *change in total owner’s equity*

- **Some typical components of a Balance Sheet are as follows:**

  - *Current Assets and Liabilities*
  - *Non-Current Assets and Liabilities*
  - *Working Capital*
  - *Goodwill, Patents and other Intellectual Property*
  - *Operating Income*
  - *Accounts Receivable and Accounts Payable*
  - *Cash and Cash Equivalents*
  - *Stockholders' Equity (to be discussed later)*

- **Current Asset**

-Assets that will, in the normal course of business, be converted into cash or used up within the next twelve months. For example, amounts that customers owe and are likely to pay within the next year (called "Accounts Receivable")

- **Non-Current Asset**

-An Asset which is not easily convertible to cash or not expected to become cash within the next twelve months (www.investorwords.com).

- **Current Liabilities**

  -Liabilities that must be paid off within the next twelve months. For example, amounts owed to vendors (typically labeled "Accounts Payable")

- **Non-Current Liabilities**

  - Any Liability (or Debt) that is not due to be paid within the next twelve months (www.investorwords.com).

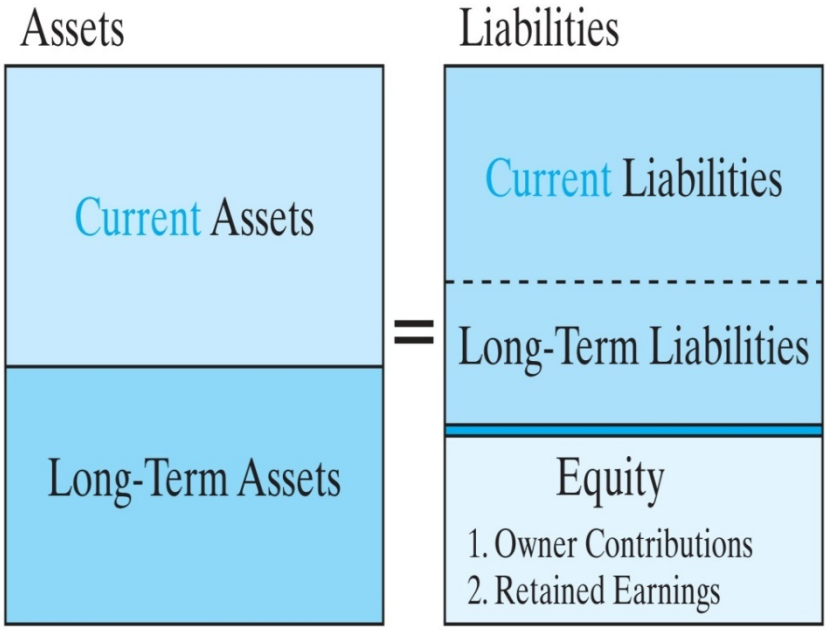
- **Liquidity**

  - *Liquidity* is a measure of how **quickly** an item can be converted into cash
  - Cash is most liquid asset
  - Inventory is least liquid because it must first be sold, and then funds collected.

- **Working Capital**

  - *The amount of liquid asset a company has in order to build its business* (www.investorwords.com).
  - *Working Capital = Current Asset – Current Liabilities*

- The Accounting Equation forms the cornerstone of any Balance Sheet
- The Liquidity of a firm can be assessed by its 'Current Ratio', i.e., Current Assets / Current Liabilities
- The Net Worth of a firm is given by Total Assets – Total Liabilities
- Records of the values of each line in the balance sheet are usually maintained using the Double-Entry System



The Four Quadrants of a Balance Sheet

(Source: Park, Chan S., Contemporary Engineering Economics, Chapter 02)

A Typical Balance Sheet

	January 28, 2005	January 30, 2004
Assets		
Current assets:		
Cash and cash equivalents	$ 4,747	$ 4,317
Short-term investments	5,060	835
Accounts receivable, net	4,414	3,635
Inventories	459	327
Other	2,217	1,519
Total current assets	16,897	10,633
Property, plant, and equipment, net	1,691	1,517
Investments	4,319	6,770
Other noncurrent assets	308	391
Total assets	$ 23,215	$ 19,311
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 8,895	$ 7,316
Accrued and other	5,241	3,580
Total current liabilities	14,136	10,896
Long-term debt	505	505
Other noncurrent liabilities	2,089	1,630
Total liabilities	16,730	13,031
Commitments and contingent liabilities (Note 8)	—	—
Stockholders' equity:		
Preferred stock and capital in excess of $.01 par value; shares issued and outstanding: none	—	—
Common stock and capital in excess of $.01 par value; shares authorized: 7,000; shares issued: 2,769 and 2,721, respectively	8,195	6,823
Treasury stock, at cost; 284 and 165 shares, respectively	(10,758)	(6,539)
Retained earnings	9,174	6,131
Other comprehensive loss	(82)	(83)
Other	(44)	(52)
Total stockholders' equity	6,485	6,280
Total liabilities and stockholders' equity	$ 23,215	$ 19,311

Will be discussed subsequently

(Source: Park, Chan S, Contemporary Engineering Economics, Chapter 02)

- Represents the **‘Net Cash Flow’** during a specific period
- Monitoring the Cash Flow is often stated to be even more important than the firms Net Income as investment decisions are often made on the basis of cash flow rather than profits
- The Cash Flow Statement shows changes in company’s cash balance by summarizing cash effects of conducting business over a given period of time
- Cash Flow generally Comprise of three major activities:
  - ***Operating Activities***
  - ***Investing Activities***
  - ***Financing Activities***

Operating Activities:

-Activities related to production and sale of goods and services

- Operating cash flow is the cash that a company generates through running its business.

- Common Components:

  - **Inflows:** revenue ,transactions with customers

  - **Outflows:** expenses ,payments to employees and suppliers , sales and marketing costs, General and Administrative costs, Depreciation, taxes

- Operating Cash Flow checks the quality of a company's reported earnings.

Investing Activities:

- Cash flows resulting from investing in the financial markets and operating subsidiaries, and on investments in capital assets such as plant and equipment.

- Common Components:

  - **Inflows:** sale of property, plant and equipment, receipts of loan repayments,

  - **Outflows:** purchasing of property, plant and equipment, making loans, purchase securities that are not cash equivalents

Financing Activities:

- Cash Flows resulting from issuing cash dividends, adding or changing loans, or issuing and selling more stock.

- Common Components:

  - **Inflows:** borrowing cash from creditors, sale of company's equity securities (company's own stock)

  - **Outflows:** repayments of amount borrowed, payments of dividends, repurchase of equity shares, etc.

- Measures the flow of cash between a firm and its owners and creditors

A Typical Cash Flow Statement

	Fiscal Year Ended		
	January 28, 2005	January 30, 2004	January 31, 2003
Cash flows from operating activities:			
Net income	$ 3,043	$ 2,645	$ 2,122
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	334	263	211
Tax benefits of employee stock plans	249	181	260
Effects of exchange rate changes on monetary assets and liabilities denominated in foreign currencies	(602)	(677)	(537)
Other	78	113	60
Changes in:			
Operating working capital	1,755	872	1,210
Noncurrent assets and liabilities	453	273	212
Net cash provided by operating activities	5,310	3,670	3,538
Cash flows from investing activities:			
Investments:			
Purchases	(12,261)	(12,099)	(8,736)
Maturities and sales	10,469	10,078	7,660
Capital expenditures	(525)	(329)	(305)
Purchase of assets held in master lease facilities	—	(636)	—
Cash assumed in consolidation of Dell Financial Services, L.P.	—	172	—
Net cash used in investing activities	(2,317)	(2,814)	(1,381)
Cash flows from financing activities:			
Repurchase of common stock	(4,219)	(2,000)	(2,290)
Issuance of common stock under employee plans and other	1,091	617	265
Net cash used in financing activities	(3,128)	(1,383)	(2,025)
Effect of exchange rate changes on cash and cash equivalents	565	612	459
Net increase in cash and cash equivalents	430	85	591
Cash and cash equivalents at beginning of period	4,317	4,232	3,641
Cash and cash equivalents at end of period	$ 4,747	$ 4,317	$ 4,232

(*Source: Park, Chan S., Contemporary Engineering Economics, Chapter 02*)

Cash Flow Statement – Direct Method:

- A More easily Understood Method

- Less widely used

Format for Direct Method:

Cash flows from operating activities		
(list individual items)		XXXX
Net cash provided (used) by operating activities		XXXX
Cash flows from investing activities		
(list individual inflows and outflows)	XXXX	
Net cash provided (used) by investing activities		XXXX
Cash flows from financing activities		
(list individual inflows and outflows)	XXXX	
Net cash provided (used) by financing activities		XXXX
Net increase (decrease) in cash		XXXX
Cash at beginning of period		XXXX
Cash at end of period		XXXX
Non-cash investing and financing activities		
(list of individual non-cash transactions)		XXXX

Cash Flow Statement – Indirect Method:

- More widely used (a survey in the mid nineties indicated almost 97% of the companies use this method)

-Uses net-income as a starting point, makes adjustments for all transactions for non-cash items, then adjusts for all cash-based transactions (www.wikipedia.org)

- Depicts the relationship of net income to cash flow

- Only the section pertaining to **"Cash Flow from Operation"** differs between the two methods

Anchor Corporation
Statement of Cash Flows - Indirect Method for Operating Activities
For the Year Ended December 31, 19X2
Increase (Decrease) in Cash and Cash Equivalents
(amounts in thousands)

Cash Flows from operating activities:		
Net Income		$41
Add/subtract items that affect net income and cash flow differently:		
Depreciation	$18	
Gain on sale of plant assets	($8)	
Increase in accounts receivable	($13)	
Increase in interest receivable	($2)	
Decrease in inventory	$3	
Increase in prepaid expenses	($1)	
Increase in accounts payable	$32	
Decrease in salary and wage payable	($2)	$27
Net cash inflow from operating activities		$68
Cash flows from investing activities:		
Acquisition of plant assets	($306)	
Loan to another company	($11)	
Proceeds from sale of plant assets	$62	
Net cash outflow from investing activities		($255)
Cash flows from financing activities		
Proceeds from issuance of common stock	$101	
Proceeds from issuance of long-term debt	$94	
Payment of long-term debt	($11)	
Payment of dividends	($17)	
Net cash inflow from financing activities		$167
Net decrease in cash		**($20)**
Cash balance, December 31, 19X1		$42
Cash balance, December 31, 19X2		$22

Direct versus Indirect Method:

- **Direct** form for financial (external) reporting is required by GAAP

- **Indirect** form of the cash flow is widely used for managerial (internal) purposes (97.7% of firms)

- **Indirect** is faster to calculate

- Investing, financing, and non-cash section are **the same** in **Direct** and **Indirect** methods

• One of the two types of claims against assets (the other being Liabilities)

• Also known as the "owners' net worth" and "statement of retained earnings"

•It is the Liability of a company to its owners – amount that is available to the owners after all other debts have been paid

•Generally comprised of **Stocks**, **Dividends** and **Paid-in Capital**

• **Retained Earnings:** The cumulative net income of the firm since its inception, less the total dividends that have been paid to the stockholders

- **Some typical components of Stockholders' Equity are as follows:**

  - *Treasury Stock*
  - *Dividends*
  - *Capital Stock*
  - *Paid-in Capital*
  - *Retained Earnings*

- **Treasury Stock:**

  - The Stock that a corporation issues and buys back at a later point of time.

  - Why buy back???

  - *Avoid Takeover Threat*
  - *Incentive to Employees*
  - *Increase net assets, etc.*

- **Dividends:**

  - Payment made by a corporation to its shareholders

  - Can take the form of cash or shares

  - Have to be approved (or 'declared') by the company's BODs each time they are paid

  - Payment of dividend might increase the financial leverage of a company

- **Capital Stock:**

  -Common Stock – Most basic form of capital stock

  - Preferred Stock – A hybrid between common stock and debt. Is more valuable than a common stock

- **Paid-In capital:**

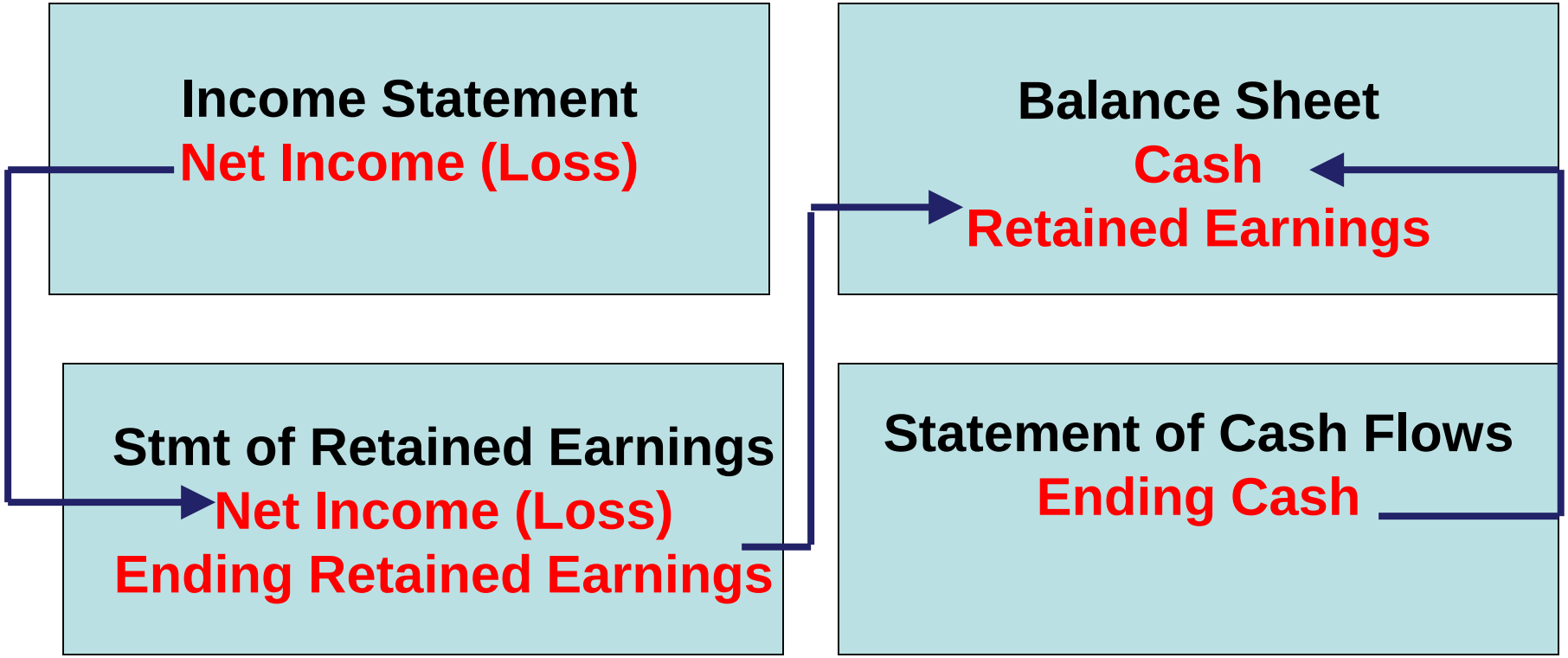
  - Amount of money that is received from the sale of stock that is over and above the par value of the stock. It is the amount of capital supplied by the equity investors

- **Retained Earnings:**

  -Cumulative net income of the firm since its inception.

  - Retained Earnings = Earnings - Dividends

Flowchart of the Relationships Among Financial Statements



- Fundamental Method for analyzing a financial statement

- Easy and straightforward calculation

- Ratio of selected values of a firm's financial statement

- An accurate indication of a firm's financial health

- Used by managers within a firm, by current and potential stockholders, and by a firm's creditors.

Financial Ratios (Cont'd…)

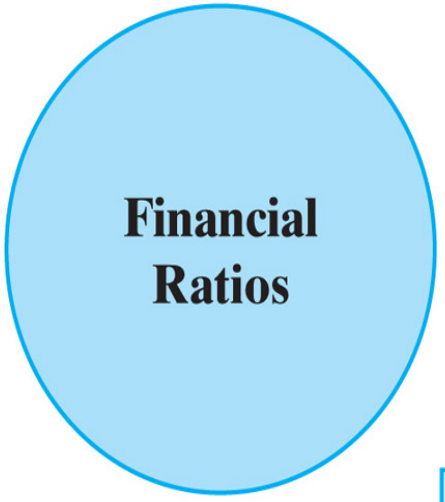
- Security Analysts use financial ratios to compare the strengths and weaknesses in various companies

- Expressed in decimal value (or a equivalent percentage value)

- There are many standard ratios but only the critical ones will be discussed

- ***Standard textbooks on managerial finance provides further in-depth idea about this concept***

Categories of Financial Ratios



Debt Management

Ratios that show how a firm uses debt financing and its ability to meet debt repayment obligations.

- **Debt ratio**
- **Times-interest-earned ratio**

Market Trend

A set of ratios that relate the firm's stock price to its earnings and book value per share.

- **P/E ratio**
- **Market/book ratio**

Liquidity

Ratios that show the relationship of a firm's cash and other assets to its current liabilities.

- **Current ratio**
- **Quick ratio**

Asset Management

A set of ratios which measure how effectively a firm is managing its assets.

- **Inventory turnover ratio**
- **Day's sales outstanding ratio**
- **Total assets turnover ratio**

Profitability

A set of ratios which show the combined effects of liquidity, asset management, and debt on operating results.

- **Profit margin on sales**
- **Return on total assets**
- **Return on common equity**

(Source: Park, Chan S., Contemporary Engineering Economics, Chapter 02)

Most Common Financial Ratio

Ratio	Expression	Remarks
Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	• Measures a firm's short-term solvency • Higher the Current ratio, the greater the margin of safety
Quick Ratio	$\frac{\text{Current Assets–Inventories}}{\text{Current Liabilities}}$	• Indicator of a firm's immediate liquidity • Also known as 'Acid Test' Ratio
Debt Ratio	$\frac{\text{Total Debt}}{\text{Total Assets}}$	• Indication of a firm's debt relative to its assets • Provides an idea regarding the leverage of the firm
Liquidity Ratio	$\frac{\text{Cash + Cash Equivalents}}{\text{Current Liabilities}}$	• Indication of a firm's immediate liquidity
Times Interest Earned Ratio	$\frac{\text{EBIT}}{\text{Interest Charges}}$	• Indicates how many times a company can cover its interest charges on a pretax basis • Indicates a firm's ability to meet its debt obligation
Inventory Turnover Ratio	$\frac{\text{Sales}}{\text{Average Inventory}}$	• Indicates the rate at which the inventory is being sold

Additional Financial Ratios

Ratio	Expression	Remarks
Total Asset Turnover Ratio	$\frac{\text{Net Sales}}{\text{Total Assets}}$	• Indicates whether a company is generating a sufficient volume of business for the size of its asset investment.
Day's Sales Outstanding	$\frac{\text{Accounts Receivable}}{\text{Average Sales per day}}$	• Determines whether receivables are being collected aggressively enough
Return on Sales	$\frac{\text{Net Income}}{\text{Total Sales}}$	• Relates the net income to total sales
Return on Assets	$\frac{\text{Net Income}}{\text{Total Assets}}$	• Compares earnings to total assets, the total amount owned by the company
Return on Equity	$\frac{\text{Net Income}}{\text{Average Equity}}$	• Indicates an organization's profitability • Measures the rate of return on the owner's investment
EPS	$\frac{\text{Net Income}}{\text{Common Shares Outstanding}}$	• Indicates earnings attributable to each share of stock • One of the most widely used indicators of a firm's performance

Additional Financial Ratios (Cont'd…)

Ratio	Expression	Remarks
Book Value per Share	$\frac{\text{Total Equity}}{\text{\# Shares Outstanding}}$	• Shows difference between market price and book value of shares
P / E Ratio	$\frac{\text{Accounts Receivable}}{\text{Average Sales per day}}$	• Determines whether receivables are being collected aggressively enough
Market / Book Ratio	$\frac{\text{Market Price per Share}}{\text{Book vale per Share}}$	• Indicates how investors regard the company – a higher ratio indicates that investors are willing to bet a higher return on investment
Payout Ratio	$\frac{\text{Dividends per Share}}{\text{Earnings per Share}}$	• Shows how what portion of earnings is retained and reinvested in the business
Yield	$\frac{\text{Dividends per Share}}{\text{Market Price per Share}}$	• Ratio of cash returns (dividends) as a percent of the market price
Debt Equity Ratio	$\frac{\text{Total Debt}}{\text{Total Equity}}$	• Indicates the relative contribution of creditors and owners to the company's financing

- **No absolute standards**
  - Higher or Lower not always clearly better
  - Many factors involved
    - industry characteristics
    - stage of company's development
    - management philosophy
- **Ratio shows trends**
  - Provide an picture of where business is going
- **Ratio shows comparison with similar companies**
  - reveals performance versus competitors

Limitations of Financial Ratios

- Ratio analysis is useful, but analysts should be aware of ever-changing market conditions and make necessary adjustments
- It is difficult to generalize about whether a particular ratio is good or bad.
- Ratio analysis based on any one year may not represent the true business condition – a more effective indication is looking at ratios over a time range (say, 5 years)

- ✓ Definition of Accounting
- ✓ Importance of Accounting in Engineering
- ✓ Key Accounting Concepts and Terms
- ✓ Financial Statements and usefulness
- ✓ Financial Ratios and usefulness
- ✓ Uses and Interpretation of Financial Data

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Questions?