Maroun Semaan Faculty of
Engineering and Architecture

American University of Beirut

Introduction to Financial Engineering

ENMG 602

# Introduction to Financial Accounting [Voice over Slides Video 1] (Chapter 1, Antle)

## What is accounting?

- Accounting is the act of gathering and reporting the financial history of an organization (company).

- This requires a continuous process of
  - Capturing financial data,
  - Organizing it,
  - Producing financial reports.

## Why study accounting?

- To assist in decision making.

- Such decision making includes
  - Granting credit,
  - Making investments,
  - Borrowing money,
  - Adhering to regulations,
  - Determining remuneration of executives,
  - Evaluating competition,
  - Evaluating potential litigation,
  - What else?

## A word of caution

- Accounting produces scores of numbers with vague, often misunderstood implications.

- When making decisions based on financial statements, it is important to look beyond the numbers and understand the economic concept, accounting convention and institutional context involved.

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# Economic Concepts
# [Voice over Slides Video 2]
# (Chapter 1, Antle)

# Economic concepts: Financial value

- Three main economic concepts are at the heart of accounting: Financial value, wealth, and economic income.
- The financial value is the amount of money an item would bring if sold.
- The accuracy of financial valuation depends on how well a market functions.
- In a *well-functioning market*, goods and services will be properly valued.
- If no well-functioning market for an item exists, then its financial value is assessed (estimated).

## Economic concepts: Financial value

- A well-functioning market have three characteristics,
  - *Competitiveness*. All items are sold at the same price (reflecting the true financial value) at a point in time.
  - *Low transaction costs*. Price paid to buy/sell a good requires few operational resources to complete transaction.
  - *Organization and regulation*. Market has standard definitions of tradable items, rules and conventions for making transactions, and procedures for policing traders.
- Examples of a well-functioning market include the market for gold and the stock market. An example for a not-too-well functioning market is the market for real-estates.

## Economic concepts: Wealth

- The wealth of an organization is the sum of the financial values of the things (material and non-material) it owns.

- Things an organization owns are classified to *assets* (produce future benefits) and *liabilities* (involve future sacrifices).

- Wealth and Equity are synonyms,

$$\text{WEALTH} \equiv \text{EQUITY} = \text{ASSETS} - \text{LIABILITIES}$$

# Economic concepts: Income

- Economic income is the change in an organization's wealth, excluding capital transactions with its owners (i.e. income from operations).
- It describes an organization's success in using its economic resources over a period.
- Owner investments are not counted as income because increase in wealth attributable to them is *not* generated by use of the organization's resources.

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# GAAP and Institutional Context [Voice over Slides Video 3] (Chapter 1, Antle)

# Generally Accepted Accounting Principles (GAAP)

- GAAP are the commonly understood and accepted conventions for gathering, organizing, and reporting financial history of organization.
- GAAP apply in three main areas: *valuation*, *recognition* and *disclosure*.
- *Accounting valuation*: GAAP help to specify value of items reported. It provides guidance and restrictions on accounting values used in financial statements.
- E.g., Union Plaza's "plant and equipment are carried at cost less accumulated depreciation and amortization."

## Generally Accepted Accounting Principles (GAAP)

- *Recognition*: This is the act of recording a transaction in the accounting records (i.e. creating an *account*).

- GAAP specifies how an item should be treated in accounting records. E.g., when an item is sold on credit, GAAP help determining when an asset increase and revenue realization should be recorded.

## Generally Accepted Accounting Principles (GAAP)

- *Disclosure*: This is the act of providing information about the organization and the construction of its accounting reports.

- GAAP require disclosure of measurement methods, assumptions, and, in places, results of adopting alternative sets of assumptions.

# Generally Accepted Accounting Principles (GAAP)

- Securities and Exchange Commission (SEC) is the federal agency that has authority to determine GAAP for public companies in the US.
- In practice, SEC has delegated establishing GAAP to FASB.
- Financial Accounting Standards Board (FASB) is a private, not-for-profit organization.
- So, GAAP originates in the US and is adopted in the US and beyond.
- Another set of accounting standard that are international from the onset are International Financial Reporting Standards (IFRS).
- IFRS are used in EU, especially. Nice summary of GAAP vs. IFRS is here .
- It does not matter in this class (GAAP or IFRS) because we focus on accounting concept, not accounting mechanics.

# Factors Affecting GAAP

- *Market richness*. Where market for a good is well- functioning, GAAP will use market valuations to drive accounting.
- *Complexity of transactions*. When transactions are simple, GAAP is simple and conversely.
- An example of a simple transaction is buying lunch. A complex transaction is paying for an AUB professor in salary, social benefits, and a pension plan.
- *Type of business entity*. E.g., sole proprietor, partnership, corporation, not-for-profit, governmental. (We focus on for- profit organizations.)

## Institutional Context

- GAAP cannot dictate exact accounting treatments for all situations, since new transactions are constantly being constructed (e.g., derivatives).
- Therefore, we need to consider the human element in accounting.
- These include the incentives that faced the issuers of the accounting reports.
- E.g., when management compensation is based on net income, management may bias net income estimation.
- In addition, understanding the legal, business and cultural environment in which the organization operates is crucial.

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# Financial Statements – Balance Sheet [Voice over Slides Video 4] (Chapter 1, Antle)

# Financial statements: Balance Sheet

- An organization's balance sheet is a list of resources available (*assets*), resources committed (*liabilities*), and their difference (*equity*) at a point in time.

**Union Plaza Hotel and Casino, Inc. and Subsidiaries**
**Consolidated Balance Sheet as of December 31, 2001**
**(dollars in thousands)**

| **ASSETS** | |
|---|---|
| Cash and cash equivalents | $ 3,552 |
| Accounts receivable, net | 786 |
| Inventories of food, beverage, etc. | 423 |
| Prepaid expenses | 793 |
| Total current assets | $ 5,554 |
| Property and equipment: | |
| Land | $ 7,012 |
| Buildings | 48,040 |
| Leasehold improvements | 3,564 |
| Furniture and equipment | 31,659 |
| | $90,275 |
| Less accumulated depreciation and amortization | (55,903) |
| Net property and equipment | $34,372 |
| Other assets | 587 |
| **TOTAL ASSETS** | **$40,513** |

| **LIABILITIES** | |
|---|---|
| Accounts payable | $ 2,441 |
| Accrued liabilities | 2,353 |
| Other current liabilities | 609 |
| Total current liabilities | $ 5,403 |
| Long-term debt | 32,900 |
| Obligations under capital leases | 1,582 |
| TOTAL LIABILITIES | $39,885 |
| STOCKHOLDERS' EQUITY | |
| Common stock | $ 750 |
| Additional paid-in capital | $ 5,462 |
| Retained earnings | $ 8.313 |
| Less treasury stock | (13,897) |
| TOTAL STOCKHOLDERS' EQUITY | $ 628 |
| **TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY** | **$40,513** |

## Financial statements: Balance Sheet

- The numbers on the balance sheet add up. Assets and liabilities and stockholders' equity must balance.

- This is the **fundamental accounting identity**,

$$\text{ASSETS} = \text{LIABILITIES} + \text{EQUITY} .$$

- Equivalently,

$$\text{ASSETS} - \text{LIABILITIES} = \text{EQUITY} .$$