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ASTRA

ACCOUNTING 1 MIDTERM

1ST YEAR BEMACS

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Session 1 - FINANCIAL STATEMENTS AND BUSINESS DECISIONS

In a firm there are the *managers*: they take the choices and interact with many different people. The main activities they are engaged in are:

1. purchase parts and labor (suppliers, employees);
2. manufacture products and services (infrastructure, property, plan and equipment);
3. sell products to customers (clients, dealers);
4. obtain financial resources (debtholders, shareholders);

There are 3 main types of business activities:

- 1) financing activities:
 - borrowing or paying back money to lenders;
 - receiving additional funds from shareholders;
 - paying dividends;
- 2) investing activities (long-term):
 - buying or selling items (like PPE)(both tangible and intangible);
- 3) operating activities (day-to-day activities to run the business):
 - purchasing raw material from suppliers;
 - manufacturing the product;
 - delivering it to customers;
 - collecting cash from customers;
 - paying suppliers;

RECORDING BUSINESS OPERATIONS

Keeping track of business transactions is fundamental:

1. for managers: to fulfill contractual obligations, to understand whether the firm is doing well;
2. for external subjects: to decide whether or not to invest in a company, to monitor whether the company is performing well, for contractual purposes;

THE ACCOUNTING SYSTEM:

organized format used by companies to accumulate the dollar effects of transactions;

The accounting system begins by:

- 1) collecting and processing financial informations;
- 2) reporting information to decision makers (which can be internal, like managers, and external, like investors and creditors).

There are 2 types of accounting system:

- 1) financial accounting system:
 - periodic financial statements and related disclosures.
 - used by external decision makers (investors, creditors, suppliers, customers)
- 2) managerial accounting system:
 - detailed plans and continuous performance reports.
 - used by internal decision makers (managers throughout the organization)

In 1968, professor Ball and Brown showed that there is a connection between a firm's financial situation and the stock prices:

- if the company gains profits, the stock price goes up;
- if the company has losses, the stock price goes down;

The output of the systems are 4 BASIC FINANCIAL STATEMENTS:

1) income statement; it includes:

- *revenues* earned from sales to customers;
- *expenses* incurred to produce those revenues;

2) balance sheet; it includes all *resources owned and amounts owed*.

It has 2 sides:

- *assets*: economic resources the company owns and controls, necessary to produce;
- *liabilities*: obligations towards banks, shareholders,... that provide inputs/money.

$$\text{ASSETS} = \text{LIABILITIES} + \text{STOCKHOLDERS' EQUITY}$$
$$\text{stockholders' equity} = \text{resources owned} - \text{amounts owed}$$

3) statement of cash flows; it lists all *sources and uses of cash*.

It includes operating, investing and financing activities.

4) statement of shareholders' equity; it accumulates:

net earnings - dividends paid to owners (representing the reinvestments in the business).

$$\text{beginning retained earning (profits reinvested in the company)} + \text{net income} - \text{dividends} = \text{ending retained earnings}$$

RELATIONSHIPS AMONG THE STATEMENTS

- 1) Net income from the *IS* results in an increase in ending retained earnings on the statement of stockholders' equity.
- 2) Ending retained earnings from the statement of stockholders' equity is one of the two components of stockholders' equity on the balance sheet.
- 3) The change in cash on the statement of cash flows is added to the beginning-of-year balance in cash to arrive at end-of-year cash on the balance sheet.

FINANCIAL STATEMENTS' USERS

1. Every subject that has an interest in a company can be a user of financial statements.
2. People can use financial statements in many ways:
 - marketing managers and credit managers use customers' financial statements to decide whether to extend credit.

- purchasing managers use suppliers' financial statements to decide whether suppliers have the resources to meet the demand for products.
- employees' union and human resources managers use the company's financial statements as a basis for contract negotiations and pay rates.

ACCOUNTING PRINCIPLES

- Two important aspects on financial statements:
 1. the accounting information should truthfully reflect business operations.
 2. it has to be clear so that the receiver can understand it.

accounting principles → accounting measurement rules that firms have to fulfill at the moment of redacting financial statements.

Absent the rules, firms would be free to record the business operations that they want.

- prior to 1933, management teams were free to choose the accounting principles used to keep track of its transactions.
- in 1934: Securities Act and Security Exchange Act.
The Security and Exchange Commission (SEC), has been given broad powers to determine measurement rules for financial statements.
- the SEC work out the detailed rules that have become known as GAAP.
- Currently, the Financial Accounting Standards Board (FASB) is recognized as the body to formulate GAAP.
- since 2002, there has been substantial movement to develop international financial reporting standards by the International Accounting Standards Board (IASB).
- In 2002 the European Union agreed that from 1 January 2005 International Accounting Standards (IAS) would apply for the consolidated accounts of the EU listed companies.

The accuracy of financial statements is ensured by:

1. *board of directors* monitoring managers' actions;
2. *system of internal controls*;
3. *outside independent auditors*. They have to:
 - examine the financial reports to ensure compliance with GAAP.
 - examine the underlying transactions incorporated into the financial statements.
 - express an opinion on the fairness of presentation of financial information;

Session 2 - INVESTING AND FINANCING DECISIONS AND BALANCE SHEET

CHARACTERISTICS OF ACCOUNTING INFORMATION

Accounting information should be:

1. relevant to decision makers: it provides feedback and predictive value on a timely basis;

2. reliable: accurate, unbiased and verifiable;
3. comparable across companies;
4. consistent over time: the same accounting rule is used in every accounting period;

THE BALANCE SHEET

The balance sheet reports the amount of assets, liabilities, and stockholders' equity of an accounting entity at a point in time (it considers all the past activities).

It includes 3 things:

1. assets: economic resources with probable future benefits owned or controlled by an entity as a result of past transactions.
(cash, account receivable, inventories, property, investment in unconsolidated entities,...)
Every asset is initially measured at the total cost incurred to acquire it.
2. liabilities: probable debts or obligations that result from a company's past transactions and will be paid with assets or services.
(long-term debt, accounts payable, deferred income taxes,...)
3. stockholders' equity: financing provided by the owners and business operations.
$$\text{stockholders' equity} = \text{contributed capital} + \text{retained earnings}$$
 - capital → dividends and capital gains distributed to shareholders and investors;
 - retained earnings → earnings reinvested in the firm (not distributed as dividends).

CURRENT AND NONCURRENT ASSETS

- *current assets*: resources the company will use/turn into cash < 1 year (cash, accounts receivables, inventories);
- *non-current assets*: resources that company will user/turn into cash > 1 year (PPE);

CURRENT AND NON-CURRENT LIABILITIES

- *current liabilities*: liabilities that the company needs to pay or settle < 1 year (accounts payable, short-term borrowings, current portion of long-term debt);
- *non-current liabilities*: liabilities that the company needs to pay/settle > 1 year (long-term debt)

RECORDING TRANSACTIONS (from external environment to financial statements)

1. identify the transaction;
2. identify the accounts involved;
3. determine the effects (increase vs decrease) of the transaction on each account;
4. record the effect of the transaction for each account, making sure that the accounting equation is fulfilled;

Remember that most transactions with external parties involve an exchange where the business entity gives up something but receives something back.

THE ACCOUNTING EQUATION

$$A = L + SE$$

assets = liabilities + stockholders' equity

ACCOUNTS

Transactions affect the balance sheet through single accounts.

THE DEBIT-CREDIT FRAMEWORK

- assets: debit for increase (left), credit for decrease (right);
- liabilities: debit for decrease (left), credit for increase (right);
- equities: debit for decrease (left), credit for increase (right);

After the journal entries are prepared, the accountant posts (transfers) the dollar amounts to each account affected by the transaction.

- example 1: *Kellogg's repays its suppliers for \$6000.*

| - | | debit | credit |
|---|-----------------------|-------|--------|
| | accounts payable (-L) | 6000 | |
| | cash (-A) | | 6000 |

- example 2: *Kellogg's distributes dividends for \$10000.*

| c) | | debit | credit |
|----|------------------------|-------|--------|
| | retained earnings (-E) | 10000 | |
| | cash (-A) | | 10000 |

- example 3: *Kellogg's purchases new equipment for 20,000, paying 5,000 in cash and signing a 3-year note for the rest.*

| | debit | credit |
|---|-------|--------|
| equipment (+A) | 20000 | |
| cash (- A) | | 5000 |
| note (+ L) (noncurrent, we know the length of the contract) | | 15000 |

At the end of the year, all the T-accounts related to the balance sheet are combined in the final balance sheet.

Session 3 - OPERATING DECISIONS AND THE INCOME STATEMENT

Income statement → shows the outcome of business operations for which the firm makes investments and obtains financial resources and how it has been achieved.

The balance sheet is a picture that considers activities in the past, the income statement focuses on just one year (it understands the revenues, the list of expenses).

KEY ELEMENTS OF THE INCOME STATEMENT

1. *Revenues*: Increases in assets or settlements of liabilities from ongoing operations.
 - derive from the sale of goods and services;
 - accounts also for amounts expected to be received for goods/services that have been delivered but not paid for.
 - *recorded when cash is received (the delivery has taken place);*
2. *Expenses*: Decreases in assets or increases in liabilities from ongoing operations.
 - dollar amount of resources the entity used to earn revenues during the period;
 - expenses reported in one accounting period may be paid for in later;
 - some may require the use of another resource, which may have been paid for before
 - *recorded when cash is paid;*
3. *Net income*: excess of total revenues over total expenses;
 - if expenses exceed revenues, we have a net loss;
 - not necessarily equal the net cash from operations, reported in the CF statement;
4. *Gains*: Increases in assets or settlements of liabilities from peripheral transactions.
5. *Losses*: Decreases in assets or increases in liabilities from peripheral transactions.

THE OPERATING CYCLE

- It is different in each company, and may last more than 1 year;
- Yet, financial statements refer to a fiscal year;
- No perfect overlap between operating cycle and the fiscal year of the financial statements;

This creates two problems:

1. Recognition Issues: when should the effects of operating activities be recorded?
2. Measurement Issues: and for which amount?

INCOME STATEMENT: EXPANDED TRANSACTION ANALYSIS MODEL

- retained earnings: debit for decrease, credit for increase;
- revenues: debit for decrease, credit for increase;
- expenses: debit for increase, credit for decrease

$$\text{REVENUES} = \text{EXPENSES} + \text{NET INCOME}$$

examples theory:

- *selling in the same day when receiving cash*

| | debit | credit |
|----------------------------|-------|--------|
| sales revenue (+ Ri; + SE) | | X |
| cash (+ A) | X | |

- *cash received after the company delivers goods or services:*

| | debit | credit |
|--------------------------|-------|--------|
| sales revenue (+ Ri +SE) | | X |
| account receivable (+ A) | X | |

- *cash received before the company delivers goods or services:*

| | debit | credit |
|--|-------|--------|
| unearned revenue (+ L) (is a liability toward the customer) | | X |
| cash (+ A) | X | |

When the company delivers the goods or services UNEARNED REVENUE is reduced and REVENUE is recorded.

EXPENSES:

According to the matching expense principle: *resources consumed to earn revenues in an accounting period should be recorded in that period, regardless of when cash is paid.*

examples theory:

- *cash is paid on the date the expense is incurred:*

| | debit | credit |
|--------------|-------|--------|
| expense (+E) | X | |
| cash (-A) | | X |

- *cash is paid after the company receives goods or services:*

| | debit | credit |
|--------------|-------|--------|
| expense (+E) | X | |

| | | |
|--------------|--|---|
| payable (+L) | | X |
|--------------|--|---|

When cash is paid the PAYABLE is reduced.

Session 4 - ADJUSTING AND CLOSING ENTRIES

The fiscal year usually starts on January 1st and ends on December 31st. However, financial statements are not made public on the 31st December: they are made public later, after.

Yet, December 31st is a relevant date because it represents the cut-off to distinguish which expenses / revenues should be recorded in a financial statement: the firm will make adjusting entries.

example 1 - cash received immediately

In October 2019, Kellogg's decided to rent his building to a company for the next 10 years. The terms of the lease contract are the following: the rental fee for 4 months is 8000\$ and it needs to be paid at the beginning of each period. Thus, on October 1st the firm receives cash for 8000\$.

| 1/10/2019 | a) | debit | credit |
|-----------|-----------------------|-------|--------|
| | cash (+A) | 8000 | |
| | unearned revenue (+L) | | 8000 |

On December 31st, although the firm received cash for the full amount (4 months), Kellogg's earned revenues just for 3 months (October, November, December).

Hence, it should just record the amount relative to 3 months:

| 31/12/2019 | a) | debit | credit |
|------------|-----------------------|-------|--------|
| | unearned revenue (-L) | 6000 | |
| | revenue (+R; +SE) | | 6000 |

On December 31st, 2020, the firm will record the remaining part of revenue:

| 31/12/2020 | a) | debit | credit |
|------------|-----------------------|-------|--------|
| | unearned revenue (-L) | 2000 | |
| | revenue (+R; +SE) | | 2000 |

example 2 - cash received afterwards

“On 30th September 2019, Kellogg’s lent 45000\$ to Monsanto. Monsanto and Kellogg’s signed a contract according to which Monsanto has to pay interest to Kellogg’s every 6 months for 1800\$. The first payment of Monsanto will be on 31st March 2020”.

First of all, on 30th September we have to bookkeep a decrease in cash. The decrease in cash is associated with a new asset (notes receivable) that Kellogg’s now owns. The new asset is controlled by the firm and will generate economic benefits in the future (interest income).

- accounts receivable: short-term payment; no interest;
- notes receivable: legal contract; long-term payment; usually interests;

The journal entry on 30th September will be:

| 30/09/2019 | a) | debit | credit |
|------------|-----------------------|-------|--------|
| | cash (-A) | | 45000 |
| | notes receivable (+A) | 45000 | |

On 31st December, Kellogg’s should make an adjusting entry because the loan granted implies the payment of interests every 6 months.

As the contract started on 30th September, the firm earned interest for 3 months.

On December 31st, the revenues of the firm are understated as the interests related to the loan have not been reported. Kellogg’s has to record the interests for the part relative to the current fiscal year.

Thus, the firm will record a new revenue that we call “Accrued Revenue”.

Accrued Revenues → revenues that have been earned but not yet recorded as cash will be received in subsequent periods after the services will be performed and goods will be delivered.

The firm did not receive the cash so it will also report a new account receivable “Interest receivable”.

| 31/12/2019 | a) | debit | credit |
|------------|-------------------------------|-------|--------|
| | interest receivable (+A) | 900 | |
| | (interest) revenue (+Ri; +SE) | | 900 |

On March 31st 2020, the company will receive the cash.

However, it will record revenues just for 3 months as the revenues for the other 3 months have already been recorded last year when they were earned.

At the same time, the firm will decrease the “Interest receivable” account as the firm received the cash. The journal entry is:

| | | | |
|------------|-----------------------------|-------|--------|
| 31/03/2020 | a) | debit | credit |
| | cash (+A) | 1800 | |
| | interest receivable (-A) | | 900 |
| | interest revenue (+Ri; +SE) | | 900 |

example 3 - case of expenses

On 31st October 2019, Kellogg’s signed a lease contract to rent a new factory for its new products. The lease contract requires the payment of rent fees every 2 months for 7500\$.

Yet, on 31st December 2019 (when the payment was due), Kellogg’s had a problem in processing the payment so it was postponed to next year.

At the end of the year Kellogg’s should make an adjusting entry as the firm used the factory for the production for 2 months.

As the firm incurred an expense for the use of the factory, it needs to be recorded. Thus, the expense should be added to the income statement through an “Accrued expense” account.

Accrued Expenses: expenses that have been incurred but not yet recorded as cash will be paid subsequently after the goods and services will be used.

As Kellogg’s did not pay yet, we need to record an increase in liability:

| | | | |
|------------|------------------------------|-------|--------|
| 31/12/2019 | a) | debit | credit |
| | rent fee (+E; -SE) | 7500 | |
| | accrued expense payable (+L) | | 7500 |

When Kellogg’s will be able to pay the rent (January 2020), it will report a reduction in cash equal to 7500\$. Yet, the payment will reduce the “Accrued Interest Payable” account created in 2019.

The journal entry for January 2020 is the following one:

| | | | |
|--|------------------------------|-------|--------|
| | b) | debit | credit |
| | cash (-A) | | 7500 |
| | accrued expense payable (-L) | 7500 | |

example 4:

It might also be the case that, on December 31st, Kellogg's needs to record expenses for which it already paid. It is the case where, throughout the year, the firm reported Prepaid or Deferred Expenses as it paid the suppliers without incurring in the expense. On December 31st, if the expense is incurred, Kellogg's should record it and credit the prepaid expense account for the same amount.

On December 1st, Kellogg's signed a new insurance contract. The insurance premium needs to be paid every 6 months in advance and it is equal to 36000\$.

On December 1st, Kellogg's has to account for a cash decrease because of the anticipated payment:

| | | | |
|------------|----------------------|-------|--------|
| 31/12/2019 | a) | debit | credit |
| | prepaid expense (+A) | 36000 | |
| | cash (-A) | | 36000 |

On Dec 31st Kellogg's has to make an adjusting entry to record the expenses that it incurred in relation to the insurance for which it already made the payment.

The required premium is 36000 for 6 months. Thus, just the expense relative to one month (December 2019) should be recorded. As the payment has already been made, Kellogg's should not record any payment rather it has to decrease the "Prepaid expense" for 6000\$:

| | | | |
|------------|-----------------------------|-------|--------|
| 31/12/2019 | a) | debit | credit |
| | insurance expense (+E; -SE) | 6000 | |
| | prepaid expense (-A) | | 6000 |

Note that in May 2020, Kellogg's will make a similar journal entry:

| | | | |
|------------|-----------------------------|-------|--------|
| 31/12/2019 | b) | debit | credit |
| | insurance expense (+E; -SE) | 30000 | |
| | prepaid expense (-A) | | 30000 |

example 5:

In November 2019, Kellogg's purchased supplies for 5000\$, immediately paying for cash.

In November 2019:

| Nov 2019 | a) | debit | credit |
|----------|---------------|-------|--------|
| | supplies (+A) | 5000 | |
| | cash (-A) | | 5000 |

Now, lacking the information on the actual use of the supplies and on whether they were used to generate revenues, no adjusting entry is made.

However, if we knew that the supplies have been used to realize the products sold throughout the year, on December 31st, Kellogg's will record the expense for the usage of the supplies.

Thus, assuming that all supplies previously purchased have been used:

| 31/12/2019 | a) | debit | credit |
|------------|-----------------------------|-------|--------|
| | supplies expenses (+E; -SE) | 5000 | |
| | supplies (-A) | | 5000 |

example 6:

In 2019, Kellogg's purchased new equipment for the production of biscuits for 15000\$. The estimated life of the equipment is 5 years so the cost allocated to each year (i.e. depreciation) would be 5000\$.

On December 31st, 2019, Kellogg's has to make the following journal of entry:

| 31/12/2019 | a) | debit | credit |
|------------|------------------------------------|-------|--------|
| | depreciation (+E; -SE) | 5000 | |
| | accumulated depreciation (+XA; -A) | | 5000 |

Accumulated Depreciation → contra-account (linked to another account), but with an opposite balance. It includes the depreciation related to PPE allocated in previous periods.

| | <i>Description</i> | <i>Impact on IS</i> | <i>Impact on BS</i> |
|-------------------------|---|--|---|
| Accrued Expense | Cash payment occurs in later periods. | Expenses are understated so a new expense should be added. | New account payable should be created. |
| Accrued Revenue | Cash will be received later. | Revenues are understated so a new revenue should be added. | New account receivable should be created. |
| Deferred Expense | Firm pays for expenses that did not incur | Report the portion of expenses relative to the current year. | New asset should be created (Deferred or Prepaid Expense). |
| Deferred Revenue | Firm receives cash for revenues that did not earn | Report the portion of revenues relative to the current year | New liability should be created (Deferred or Unearned Revenue). |

- deferred expenses and deferred revenues → included in the income statement → at the end of the fiscal year as additional expenses and revenues, respectively.
- accrued revenues and accrued expenses → have an impact on the balance sheet. The account receivable/payable will be deleted when cash will be received/paid. Thus, they refer to transactions for which the cash movement is postponed to the next period.

Notice: account receivable/payable related to accrued revenues/expenses are similar to accounts receivable/payable relative to sales and purchases but they are different as they refer to transactions for which an adjusting entry was necessary and tend to occur in more than one fiscal year.

→ part of the transaction belongs to 2019 and part to 2020 but the cash account is affected in 2020.

2019: Accrued Expense —————→ 2020: Cash Payment
 2019: Accrued revenue —————→ 2020: Cash Reception

Instead, when the cash payment or cash receipt are anticipated, two new accounts are reported in the balance sheet:

1. Prepaid Expenses: previously recorded assets that were created when cash was paid in advance and that must be reduced for the amount of expense actually incurred during the period through the use of assets.
2. Unearned Revenues: previously recorded liabilities that were created when cash was received in advance and must be reduced for the amount of revenues actually earned during the period.

Deferred revenues and deferred revenues are due to cash movements occurring in advance:

2019: Cash Payment —————→ 2020: Prepaid Expense

2019: Cash Reception \longrightarrow 2020: Unearned Revenue

Adjusting entries are part of the accounting cycle but they are not the last step. Indeed, once the adjusting entries are done, the next step is to prepare financial statements. To do so, managers have to close the accounts.

first accounts to be closed \rightarrow the ones relative to the IS, that determine the net income and the retained earnings to include in the statement of stockholders' equity and, then, in the balance sheet.

closing entry \rightarrow dated the last day of the accounting period.

net amount \rightarrow net income that is transferred to the Retained Earnings account in the balance sheet.

After the closing process is complete, all income statement accounts have a zero balance.

Session 6-7 - REPORTING AND INTERPRETING SALES REVENUES, RECEIVABLES AND CASH

We have 2 main problems with revenues:

- recognition;
- measurement:

$$\text{gross revenues} = \text{price} \times \text{units sold}$$

However, the gross amount of revenues is reduced in case of:

1. sales discount: if the customers pay in advance, they have a discount;
2. credit card discount: fee charged by the credit card company for its services;
3. sales returns: reduction of revenues for returns or allowances for unsatisfactory goods;

These are contra-revenues accounts (+XR; -R).

When reporting the revenues, we have 2 cases:

a) cash payment from the client is immediate:

| a) | debit | credit |
|---------------------|-------|--------|
| cash (+A) | X | |
| net sales (+R; +SE) | | X |

b) payment not immediate

| a) | debit | credit |
|--------------------------|-------|--------|
| accounts receivable (+A) | X | |
| revenues (+R; +SE) | | X |

accounts receivable can be classified as:

1. accounts/notes receivable → requiring payment of principal and interest;
2. trade/non trade receivable → related to the normal course of the business/related to transactions other than normal sale of services;
3. current/non-current receivable;

At the end of the year we have to do some adjustments:

- *acc. receivable (gross)* = *collectible amounts receivable* + *uncollectible amounts receivable*
- *acc. receivable (net)* → portion of the accounts receivable the company expects to collect;
 - allowance for doubtful accounts = *acc. rec. (gross)* - *acc. rec. (net)*
 - account receivables that the firm expects to be uncollectible.

So, the firm knows that some of the customers will not pay their debts, so they have to report a BDE.

The process to report a BDE follows the allowance method:

1. journal entry during the year:

| a) | debit | credit |
|--------------------------|-------|--------|
| accounts receivable (+A) | X | |
| revenues (+R; +SE) | | X |

2. on the 31/12, I estimate a BDE:

| b) | debit | credit |
|---|-------|--------|
| BDE (+E; -SE) | X | |
| allowance for doubtful accounts (+XA; -A) | | X |

3. during the following year, I record a write off: I know who and for how much will not pay:

| c) | debit | credit |
|---|-------|--------|
| allowance for doubtful accounts (-XA; +A) | X | |
| accounts receivable (-A) | | X |

This journal entry does not affect the IS, as it is related to a BDE that has already been recorded in the prior years.

4. if a customer pays for an account that has already been written off:

| d) | debit | credit |
|--|-------|--------|
| cash (+A) | X | |
| allowance for doubtful accounts (+XA; -A) | | X |

The recognition of the BDE:

- is consistent with the accounting principle of conservatism;
- should be done in the same accounting period in which the related sales are made (matching principle);

The bad debt expense can be estimated in 2 ways:

1. percentage of credit sales method:

BDE is based on the historical percentage of credit sales that result in bad debts:

$$\text{average percentage of credit sales} = \text{bad debt losses} / \text{total credit sales}$$

2. aging of accounts receivable:

as accounts receivables become older and more overdue, it is less likely that they will be collectible.

remember: if the BDE refers to the possibility of not collecting accounts receivable relative to one specific accounting period, the all. for doubtful accounts includes all the BDE done in the past and in the current accounting period.

some formulas to remember:

1. COGS = beg. inventories + purchases - end. inventories
2. ending inventories = goods available for sale (\$) - COGS
3. gross profit = net sales revenues - COGS
4. pretax income = gross profit - expenses

Session 8-9 - REPORTING AND INTERPRETING COST OF GOODS SOLD AND INVENTORIES

- Sales revenue = (number of units sold)*(sales price)
- Cost of goods sold = (number of units sold)*(unit costs)

Their difference is the gross margin, which is a first indicator of a firm's profitability.

The units that the firm sells are not always equal to the units that the firm produced during the year. Two cases are possible:

1. units produced > units sold. Hence, the firms held inventories at the end of the year.
 - for the matching expense principle, the firm has to adjust the costs so that only those related to the units sold are reported in the income statement.

- the portion of costs that the firm sustained but was not matched with revenues.

It represents a sort of prepaid expenses that the firm will transfer from one period to another. Thus, they represent assets available to the firm in the following years and will be reported in the balance sheet as Inventories.

2. units produced < units sold. Hence, the firms used the inventories previously accumulated.

- in addition to the costs sustained for the production of new products, the firm has to account for costs related to products that were realized in the past but were sold in the period. According to the matching expense principle, such expenses need to be reported in the income statement of the year in which the related revenues are earned. Thus, the expenses should be added to the costs incurred in the year to determine the correct cost of goods sold.
- At the same time, as the products were sold, we observed a reduction in the prepaid expenses and, hence, a decrease of assets reported in the balance sheet. Those assets did provide economic benefits to the firm (new revenues) through their selling.

Cost of goods sold (COGS) → strictly related to the Inventories reported in the balance sheet.

Inventory can be defined as a tangible property that the firm held for sale in the normal course of business or to use in the production of goods or services for sale.

Inventories are located below Cash and cash equivalents and Accounts Receivable (net) because they are normally used/converted into cash within the next 12 months.

They include:

- *Raw materials and supplies* that haven't been used during the year;
- *Materials or work in process*: goods that are not finished, completed, and cannot be sold, yet.
- *Finished goods* that have not been sold;
- *Merchandise* inventory namely goods held for resale in the normal course of business.

The distinction is relevant as it can point out potential problems in:

- Purchasing policy: firm is acquiring more raw materials and supplies than it needs;
- Production: delays in the production process.
- Selling related policies: the firm has problems in selling the product → increase effort in advertising and promotion

EVALUATION OF INVENTORIES

The final objective is to:

1. Determine the ending value of inventories that should be reported in the balance sheet;
2. Determine the cost of goods sold that should be reported in the income statement;

Goods in inventory are initially recorded at cost.

Inventory costs include the costs incurred by the firm to bring an article to usable or salable condition and location.

Once the merchandise goods and materials are purchased and made ready for use, new merchandise will increase the merchandise inventory in the balance sheet.

When they are sold, the merchandise inventory will be reduced and the cost of goods sold will increase by the same amount.

In the case of manufacturers, the issue is more complex as the production process is involved:

The first step is the purchase of raw materials, which will temporarily increase raw materials inventories. As the raw materials are transformed into work in progress and finished goods, we will observe a decrease in raw materials inventories and an increase in work in progress and finished goods inventories. Yet, as the passage does not involve external subjects, no journal entry is needed and the passage will only be recorded in the inventory management system.

Once the finished goods are sold, we observe a decrease in the finished goods inventories leading to an increase in the cost of goods sold.

example

| | 2020 | 2019 |
|--------------------|--------|--------|
| inventories | \$1284 | \$1226 |
| cost of goods sold | \$9043 | \$9197 |

The inventories reported at the end of 2019 represent the beginning inventories in 2020 and, hence, the starting point to determine the cost of goods sold.

Inventories that the firm holds at the beginning of 2020 represent potential goods that the firm can complete and sell.

Yet, the variation between inventories at the beginning of the year (1,226\$) and inventories at the end of the year (1,284\$) is due to:

1. New purchases done during the year (firm acquired new raw materials to produce goods).
2. Goods are completed and sold.

As the cost of goods sold refers to the cost of producing the goods that have been sold, the beginning and ending values of inventories as well as the amount of purchases are key.

In particular, the cost of goods sold can be determined as:

$$\text{COGS} = \text{Beginning value of inventories} + \text{Purchases} - \text{Ending value of inventories}$$

- if we have all the 3 information, we calculate the dollar amount of the COGS;
- if we have the number of units sold, $\text{COGS} = \text{units sold} \times \text{cost}$

Kellogg's in 2020:

$$\text{COGS} = \text{Beginning value of inventories} + \text{Purchases} - \text{Ending value of inventories}$$

$$9,043 = 1,226 + \text{Purchases} - 1,284$$

$$\text{Purchases} = 9,101 \$$$

10,327\$ represents the value of goods available for sales. In order to determine the cost of goods sold, we have to subtract the ending value of inventories (1,284\$) that will be reported in the 2020 balance sheet.

PERPETUAL AND PERIODIC INVENTORY SYSTEM

1. perpetual inventory system:

- purchase transactions are recorded directly in the inventory account.
- when the sale is recorded, we recognize the cost of goods sold by.
 - a) increasing expenses.
 - b) decreasing the inventory.
- so, a detailed record is maintained for each inventory throughout the year.

2. periodic inventory system:

- no up-to-date record of the inventory is maintained during the year.
- so, the amount of inventory is not known until the end of the period when the inventory count is taken.

INVENTORY COSTING METHODS

To pursue their operations, firms make different purchases during the year. This can create an issue as the price for each material can change throughout the year. Given that, which cost should we use to determine the cost of goods sold and the ending value of the inventory?

Remember, no matter how we compute the COGS, the journal entry will always be the same (only the cost will change).

We can follow four distinct methods that differ in their identification of inflows and outflows of inventories:

1. Specific identification.
2. First-in, first-out (FIFO).
3. Last-in, first-out (LIFO).
4. Average cost.

1. SPECIFIC IDENTIFICATION → cost of each item = COGS

This method identifies individual items that remain in inventory or are sold, so it is fundamental to keep track of the purchase cost of each item.

This method is not feasible when large amounts of items are stocked. Yet, it is suitable in case of expensive unique items.

On the contrary, the other three methods do not focus on the cost of a specific item, rather they assume that inventory cost follows a certain flow.

2. The FIRST-IN, FIRST-OUT (FIFO) METHOD → the first goods purchased are the first goods sold.

COGS = (units sold)(cost of beginning inventories)

The ending inventory is determined with the newest value.

example

| Date | Quantity | Cost | Value |
|-----------------------|----------|-------|-----------|
| Beginning inventory | 15,000 | 4\$ | 60,000 \$ |
| Sept 30 th | 2,000 | 5\$ | 10,000 \$ |
| Oct 24 th | 4,000 | 7.5\$ | 30,000 \$ |
| Nov 21 st | 3,600 | 6\$ | 21,600 \$ |
| Ending Inventories | 20,000 | | ? |

Units sold = 15,000 + 2,000 + 4,000 + 3,600 – 20,000 = 4,600

COGS = (4,600*4) = 18,400\$

Ending Inventory = (BI + P) – COGS = (60000 + 10000 + 30000 + 21600) – 18400 = 103 200

Which is equal to (3,600*6) + (4,000*7.5) + (2,000*5) + (10,400 * 4) = 103,200\$

This means that:

- If the price of goods ↑ , COGS ↓ , ending inventory ↑
- If the price of goods ↓ , COGS ↑ , ending inventory ↓

3. The LAST-IN, FIRST-OUT (LIFO) METHOD → the last goods purchased are the first goods sold.

COGS = (units sold)(cost of ending inventories)

- Thus, the first goods purchased are left in the ending inventory.
- The ending inventory is determined with the first day *after* the beginning inventory (!)

example

$$\text{COGS} = (3,600 \times 6) + (1,000 \times 7,5) = 29,100\$$$

Instead, the goods purchased on *Sept 30th* will be the ones left that should be considered to determine the value of ending inventory to report in the balance sheet.

$$\text{Ending Inventory} = (60,000 + 10,000 + 30,000 + 21,600) - 29,100 = 92,500\$$$

$$\text{Which is equal to } (15,000 \times 4) + (2,000 \times 5) + (3,000 \times 7.5) = 60,000 + 10,000 + 22,500 = 92,500\$$$

This means that:

- If the price of goods ↑ , COGS ↑ , ending inventory ↓
 - If the price of goods ↓ , COGS ↓ , ending inventory ↑
4. The AVERAGE COST METHOD uses the weighted average unit cost of the goods available for sale for both cost of goods sold and ending inventory.

$$\text{average cost} = (\text{goods available for sale } (\$)) / \text{goods available for sale } (n)$$

(goods available for sale = beginning inventories + purchases)

example

sum of these values = $((15,000 \times 4) + (2,000 \times 5) + (4,000 \times 7.5) + (3,600 \times 6)) = 121,600 \$$
divided by the sum of the quantity of beginning inventory and subsequent purchases:

$$(15,000 + 2,000 + 4,000 + 3,600) = 24,600$$

$$\text{Average cost} = 121,600 / 24,600 = 4.94\$$$

The average cost is used to determine both the cost of goods sold and ending inventories:

$$\text{COGS} = 4,600 \times 4.94 = 22,724 \$$$

$$\text{Ending inventories} = 20,000 \times 4,94 = 98,800 \$$$

The choice of the inventory evaluation method is quite relevant.

Managers usually consider two factors:

1. Net income effects as manager will prefer to report higher earnings;
2. Income taxes effects as managers will try to pay the least amount of taxes on the net income.

By combining the two factors, we can expect the following:

| | <i>Net income effects</i> | <i>Income taxes effects</i> |
|----------------------------------|---------------------------|-----------------------------|
| <i>Decreasing inventory cost</i> | LIFO | FIFO |
| <i>Increasing inventory cost</i> | FIFO | LIFO |

- If the manager wants to report the highest net income (report lowest COGS):
 - a) inventory cost ↓ , LIFO (allows reporting the lowest COGS)
 - b) inventory cost ↑ , FIFO
- If the manager wants to minimize the income taxes (report highest COGS):
The opposite will hold.

Regulators introduced the LIFO conformity rule: if firms use LIFO in the income tax return, they should also use it in the financial statement.

YEAR-END ADJUSTMENT

It may happen that the ending inventories are computed using the last purchase during the year, and they do not match the market price of the inventories.

So, on the 31/12 I have to compare 2 prices:

- the original cost used to record inventories;
- the sales price (if the firm decides to sell the goods);

We have 2 possibilities:

1. $EI < \text{market value}$ → no adjusting entry (because accounts are conservative and our assets should not be overstated)
2. $EI > \text{market value}$ → adjusting entry (because the entries are overstated).

lower cost of market (LCM) → the firm has to record a new expense (that will increase the COGS) and write down the inventories. The journal entry is:

| | debit | credit |
|------------------|-----------------------|--------|
| COGS (+E; -SE) | X (market value - EI) | |
| inventories (-A) | | X |

(the LCM is consistent with the conservatism principle).

Session 11-12-13 - REPORTING AND INTERPRETING PPE; INTANGIBLE AND NATURAL RESOURCES

Now, we move on by considering the non-current assets: these assets will not turn into cash in the next accounting period.

$$\text{Capital intensity} = (\text{non-current assets}) / (\text{total assets})$$

Non-current assets: tangible and intangible resources owned by a business and used in its operations for several years. They can be:

1. *tangible*: I can touch and measure them;
2. *intangible*: they do not have a physical substance, and it's difficult to measure them;

TANGIBLE ASSETS

They can be divided in 3 categories:

- land;
- natural resources;
- PPE (buildings, equipment, machinery,...);

PPE

we can distinguish 3 steps of their life:

1. purchase;
2. use;
3. disposal (sale);

1. initial measurement (purchase)

PPE is recorded at cost (with all the expenditures made in acquiring & preparing the asset for use).

All these expenditures are included in the balance sheet, and they are called capitalized expenditures (transportation cost, installation cost, legal fees).

$$\text{cost} = (\text{price}) - (\text{discount}) + (\text{expenses before production starts})$$

PPE could be obtained in 2 ways:

- *external purchase* (from suppliers);
companies have different ways in which they can be paid:
 - a) cash
 - b) debt (when cash isn't enough)
 - c) equity (shareholders provide additional resources).
(if it's the first time they ask for money: IPO, if it's not: SEO)
- *internal construction*: the company creates the PPE;

Companies often use leases to obtain the PPE. Until 2019, we could distinguish between two types:

- Operating leases: the PPEs for which the firm obtained a lease are not reported in the balance sheet as assets (because the firm does not own/control them: it pays for using them) and the leases are not reported in the BS as a liability.
Instead, the payment of the lease is an operating expense to be recorded in the IS.
- Financing or capital leases: in this case, the company has the right to purchase the PPE at the end of the lease.
The PPE is recorded as an asset and the lease obligation is recorded as a liability.

Starting from 1st January 2019, this distinction does not exist anymore: there are only capital leases.

Remember:

- before the production, the expenses relative to PPE must be inserted in the balance sheet;
- after the production starts, the expenses must be inserted in the income statement; (exception: expansion expense will be capitalized and included in the balance sheet)

2. use

As the long-lived assets will be used in a repeated manner for a certain number of periods, the firm has to allocate part of that cost (prepaid expense) in each period.

This is in line with the matching expense principle.

Long-lived assets contribute to generating revenues so, once the revenues are recognized, the firm has to recognize:

- the expenses incurred to purchase the materials;
 - the expenses related to the use of the PPE;
- This expense is incurred every period PPEs are used for and we call it "depreciation".

Depreciation → the process of allocating the cost of buildings and equipment over their productive lives using a systematic and rational method.

Thus, as for the prepaid expenses, at the end of the accounting period we need to make an adjusting entry on the 31/12 to recognize the use of equipment and buildings for the period. The depreciation will be included in the income statement as a separate item or as one component of the cost of goods sold.

In the case of PPE, when we recognize the depreciation, we do not directly recognize the decrease in PPE. Instead, we create a contra-asset (accumulated depreciation) that indirectly reduces the value of PPE.

As for the allowance for doubtful accounts, the accumulated depreciation contains:

- the current depreciation included in the current income statement;
- the depreciation that occurred in the past (since the acquisition of PPE).

Thus, the accumulated depreciation represents the extent to which we used PPEs and the net amount of PPEs tells us the magnitude of economic benefits that PPEs can still generate in the future. So:

$$PPE \text{ (gross)} - \text{accumulated depreciation} = PPE \text{ (net)}$$

The adjusting journal entry to do is:

| | | |
|------------------------------------|-------|--------|
| 31/12 | debit | credit |
| depreciation expense (+E; -SE) | x | |
| accumulated depreciation (+XA; -A) | | x |

depreciation

We have 3 alternatives of depreciation:

1. straight-line (SL). To compute it I need:
 - acquisition cost (initial measurement);
 - estimated useful life (number of years I think I will use the PPE)
 - estimated residual value (the value i think the PPE will have at the end of the estimated useful life)
2. accelerated:
 - double declining period
3. units of production

straight-line depreciation

$$\text{depreciation expense} = (\text{acquisition cost} - \text{estimated residual value}) / \text{estimated useful life}$$

double-declining method

$$\text{depreciation expense} = (\text{acquisition cost} - \text{acc. dep. beg}) \times 2 / \text{estimated useful life}$$

units of production

In this case the dep. expense will change over time:

$$\text{dep. expense} = (\text{depreciation rate} \times \text{unit})(\text{actual production})$$

$$\text{depreciation rate} = (\text{acquisition cost} - \text{est. res. value}) / \text{estimated total production}$$

- You do not need the estimated useful life;
- You need both actual production (refers to 1 year) and estimated total production (refers to all the years you will use the PPE)
- Estimated total production is the same over time, and is decided when you purchase the PPE.

example:

$$\text{dep. rate} \times \text{unit} = (6000 - 400) / 7000 = 0.8$$

$$\text{dep. expense} = 0.8 \times 1000 = 800$$

After you prepare the end of the year adjusting entry, ALWAYS compute the PPE(net) and compare it with the market value of the PPE; impairment test. If:

- PPE(net) < fair value: no adjusting entry.
- PPE(net) > fair value: our assets are overestimated, I have to add this entry:

| adj. on 31 Dec | debit | credit |
|---------------------------|-------|--------|
| impairment loss (+E; -SE) | x | |
| PPE (-A) | | x |

3. disposal

The disposal can be:

- voluntary when the firm decides to sell the assets as they are considered old and no longer able to contribute to the production process.
- involuntary if the long-lived assets are no longer available or an accident occurred.

Let's focus on the case of a voluntary disposal.

We need to make the following journal entries:

1. Recognition of the depreciation expense for the use of the PPE from the beginning of the accounting period (1st Jan) to the moment of the sale.

| <i>recognition of dep.expense</i> | debit | credit |
|------------------------------------|-------|--------|
| depreciation expense (+E; -SE) | x | |
| accumulated depreciation (+XA; -A) | | x |

2. Closing the accumulated depreciation account + determine the PPE(net).
(this journal entry is not on the 31 Dec, but at the moment of the sale).

| <i>closing of acc. depreciation account</i> | debit | credit |
|---|-------|--------|
| accumulated depreciation (-XA; +A) | x | |
| PPE (-A) | | x |

3. Recognition of potential gains and losses relative to the PPE sale.
 - $PPE(\text{net}) = \text{original cost} - \text{accumulated depreciation}$
 - $PPE(\text{net}) - \text{sales price} = \text{gain/loss from sale}$

| <i>recognition of a loss</i> | debit | credit |
|------------------------------|-------------------|--------|
| cash (+A) | x (selling price) | |
| loss from sale (+Loss; -SE) | x (loss) | |
| PPE (-A) | | x |

INTANGIBLE ASSETS

Nowadays intangible assets represent an important portion of the long-lived assets of firms.

Intangible assets differ from tangible assets along 3 dimensions:

1. Intangible assets are recognized in the balance sheet only if they are purchased from external parties. Intangibles that are internally generated are not included in the balance sheet.

The difference is due to the difficulty to measure intangibles reliably.

2. We will not refer to depreciation rather to amortization.
3. We will not determine the amortization for all the intangible assets. Rather, we can distinguish intangible assets into:
 - Intangible assets with a definite useful life → I compute the amortization.
 - Intangible assets with an indefinite useful life → I do not compute the amortization.

The steps of intangible assets life are:

- 1) initial recognition: external purchases.
- 2) amortization: if i do not have any information I use the straight line depreciation method setting the estimated residual value equal to 0.

The journal entry to do is:

| adj. on the 31 December | debit | credit |
|------------------------------------|-------|--------|
| amortization expense (+E; -SE) | x | |
| accumulated amortization (+XA; -A) | | x |

On the 31/12 we may have to prepare a second journal entry if there is an impairment loss.

Remember: the impairment test must be done for both definite and indefinite intangible assets!