Summary Accounting for Managers

Course: Accounting for Managers (B-KUL-D0N83a-1920)

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Preface

This is a summary of the slides for the course Accounting for Managers at KU Leuven. Sometimes I follow the book, instead of the slides or I add information from the book. The chapter numbers are the same as the lecture numbers until chapter 9, then it messes up because of the quizzes (not included).

Book: Managerial Accounting, Sixth Edition (ISBN: 978-1-118-09689-5).

Be aware that this is a student writing. Typos, wrong conclusions, bad structure... will happen. If you see any (real) mistakes, please let me know on <u>robin.kelchtermans@student.kuleuven.be</u>.

Dear future reader, this has been written in 2019-2020. So, please do not send me an email after 2020.

If you fail your exam: blame yourself. If you succeed: flowers and gifts are always welcome!

Good luck with this!

Definition = this is a definition (or something important).

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1. Accounting Basics

Please refer to the introduction to accounting for more details on this part, this should be known.

1.1. The Basics

Basic accounting equation:

Assets = Liabilities + Owner's equity

Activa = passiva (eigen vermogen + shulden)

- Assets: resource a business owns
- Liabilities: debts and obligations
- Owner's equity: (=residual equity) capital (money from the owner, shareholders...)

Assets = liabilities + (investment - drawings + revenues - expenses)

- Investment (Capital): When owner puts in cash in the business (+)
- Revenues: Anything coming into the business due to business activity (+)
- Drawings: When owners withdraw cash from business (-)
- Expenses: Costs of assets and services consumed or used (-)

Account = a record of increases and decreases in a specific asset, liability, equity, revenue, or expense.

General ledger = a record of all accounts used by the company (*grootboek*).

Accounts are the categories into which the effects of transactions are recorded, and from which financial reports are created. There are five major account categories.



Ledger = a collection of all accounts for an accounting system.

Chart of accounts = a list of all accounts and includes an identifying number for each account.

How to know is something is an asset or a liability? Look for key words:

- Receivable prepaid \rightarrow Asset
- Payable unearned \rightarrow Liability

1.2. Debit, Credit and Transactions

T-account = represents a ledger account and is used to depict the effects of one or more transactions.



Debit = credit after every **transaction**.

Increase or decrease?

Balance Sheet			Income Statement				
Assets		Liabilities		Expenses		Income	
Bank, Cus	tomer	Debt, Sup	oplier	Expense, Debit	Fees	Revenue,	Wage
	s creat		- Crean	Debit	- Credit		- Crean

Processing transactions:

- 1. Identifying the transaction and any source documents
- 2. Analyze the transaction using the accounting equation
- 3. **Record** the transaction in journal entry form applying double entry accounting
- 4. Post the entry (for simplicity, we use T-accounts to represent ledger accounts)

Example:

1) Identify: FastForward receives \$30,000 cash from Chas Taylor in exchange for common stock.



1.3. Trial Balance and Financial Statements

Preparing the **trial balance** (*proefbalans*):

- 1. List each account title and its amount (from ledger) in the trial balance. If an account has a zero balance, list it with a zero in the normal balance column (or omit it entirely).
- 2. Compute the total of debit balances and the total of credit balances.
- 3. Verify (prove) total debit balances equal total credit balances.

Four types of **financial statements**:

- 1. **Income statement:** reports revenues less expenses along with the resulting net income or loss over a period of time due to earnings activities.
- 2. **Statement of retained earnings**: reports how equity changes over the reporting period from net income (or loss) and from any owner investments and withdrawals over a period of time.
- 3. **Balance sheet**: reports the financial position (types and amounts of assets, liabilities, and equity) at a point in time.
- 4. Statement of Cash Flows: lists the cash inflows and cash outflows for the period. (see next chapter)

Income statement

FASTFORWARD Income Statement For Month Ended December 31, 201		
Revenues		
Consulting revenue (\$4,200 + \$1,600)	\$ 5,800	
Rental revenue	300	
Total revenues		\$ 6,100
Expenses		
Salaries expense	1,400	
Rent expense	1,000	
Utilities expense	305	
Total expenses		2,705
Net income		\$ 3,395

Statement of retained earnings



Balance sheet

	FASTFORWARD Statement of Retained Earnings For Month Ended December 31, 2017							
	Retained earnings, Dece	mber 1, 201	7	\$ 0				
	Plus: Net income			3,395 🔫				
				3,395				
	 Less: Cash dividends . 			200				
	Retained earnings, Dece	mber 31, 20	17	\$ 3,195 🔫				
		FA Ba Dece	STFORWARD slance Sheet mber 31, 2017					
	Assets		Liabilities					
Γ	Cash	\$ 4,275	Accounts payable	\$ 6,200				
Ш	Supplies	9,720	Unearned consult. revenue	3,000				
·	Prepaid insurance	2,400	Total liabilities	9,200				
Ш	Equipment	26,000	Equity					
L			Common stock	30,000				
			Retained earnings	3,195 🔫				
			Total equity	33,195				

2. Cost Concepts and Classifications

2.1. Managerial Accounting

Managerial accounting = provides information for managers <u>inside</u> an organization who direct and control its operations.

Financial accounting = provides information to stockholders, creditors and others who are <u>outside</u> the organization.

Management does:

- **Planning**: Process of determining the organization's objectives and deciding how to accomplish them.
- **Directing and motivating:** managing day to day activities to keep the organization running smoothly.
- **Controlling**: ensure that plans are being followed. Feedback in the form of performance reports that compare actual results with the budget are an essential part of the control function.



	Financial Accounting	Managerial Accounting
1. Users	External persons who make financial decisions	Managers who plan for and control an organization
2. Time focus	Historical perspective	Future emphasis
3. Veriflability versus relevance	Emphasis on veriflability	Emphasis on relevance for planning and control
4. Precision versus timeliness	Emphasis on precision	Emphasis on timeliness
5. Subject	Primary focus is on the whole organization	Focuses on segments of an organization
6. Requirements	Must follow GAAP and prescribed formats	Need not follow GAAP or any prescribed format

2.2. Cost Concepts and Classification

There are different types of cost and how to classify them, we will look at:

- Cost and cost object
- Direct vs. Indirect costs
- Variable vs. Fixed costs
- Period vs. Product costs
- Prime cost and conversion cost
- Flow of costs
- Presentation of costs

2.2.1. Cost and Cost Object

Cost = a resource sacrificed or forgone to achieve a specific objective.

Actual cost = the cost incurred (a historical cost) as distinguished from budgeted costs.

Cost object = anything for which a separate measurement of costs is desired.

 \rightarrow The "product" is most of the time the cost object.

2.2.2. Direct vs. Indirect costs

Direct costs = costs that can be specifically identified with a particular cost object (=accurately).

Indirect costs = costs that cannot be identified specifically with a given cost object (=estimates).

 \rightarrow Sometimes direct costs are treated as indirect cost, because tracing the direct cost is not cost effective.

Examples of costs:

- Direct:
 - Materials: wood used to manufacture a desk
 - o Labor: wages of operatives who assemble parts into finished goods
- Indirect:
 - Materials: the repair of a machine used to manufacture desks
 - Labor: wages of factory supervisors
- **Overhead cost**: These cannot be traced directly to products → a cost allocation system is needed!

2.2.3. Variable vs. Fixed costs

Cost behaviour = how costs respond to a change in activity level within the relevant range.

Relevant range = activity levels within which a given total fixed cost or unit variable cost will be unchanged.

Fixed costs = remain unchanged as volume changes within the relevant range.

 \rightarrow Fixed costs per unit varies inversely to a change in activity.

Variable costs = changes in direct proportion with a change in the volume within the relevant range.

 \rightarrow Variable cost per unit stays constant when activity changes within the relevant range.







Cost driver of variable costs = the level of activity or volume whose change causes the (variable) costs to change proportionately.

2.2.4. Period vs. Product costs

Accounting standards usually require firms to **only include manufacturing costs** in the calculation of **product costs** for inventory valuation \rightarrow accountant classify costs as "product costs" and "period costs".

Product costs =

Costs that are identified with goods purchased or produced for sale; They are included in inventory valuation; When sold, they are then recorded as expenses and matched against sales.

Period costs =

Costs that are not included in inventory valuation \rightarrow expenses

As such, they are treated in as expenses in the period in which they are incurred.

ightarrow Period costs are **all costs** in the income statement **other than cost of goods sold**.

2.2.5. Prime Cost and Conversion Cost

There are three types of manufacturing costs:

- Direct materials
- Direct labor
- Manufacturing overhead: indirect material, indirect labor, other costs



These costs are categorized into prime and conversion cost.

2.2.6. Flow of Costs

Manufacturing-sector companies typically have one or more of the following three types of inventories:

- 1. Direct materials inventory
- 2. Work in process inventory (work in progress; WIP)
- 3. Finished goods inventory

Merchandising-sector companies hold only one type of inventory: the product in its original purchased form.

Service-sector companies do not hold inventories of tangible products.

During the flow of cost, you have three different costs:

- Manufacturing Costs (MC)
- Cost of Goods Manufactured (CGM or COGM)
- Cost of Goods Sold (CGS or COGS)

The flow of costs:





 \rightarrow Example in the slides if needed.

Inventoriable costs (assets) become cost of goods sold after a sale takes place.

2.2.7. Presentation of Costs

For a **service company**: a service company generates service revenue. A service company's cost of services sold is the cost of **billable hours**.



For a **merchandise company**: a merchandise company generates sales revenues. A merchandise company's cost of goods sold is the **cost incurred to purchase the goods that are sold**.



For a **manufacturing company**: a manufacturing company is a little more complicated than a service company or merchandise company because a manufacturing company makes the product it sells. Financial reporting distinguishes costs in a manufacturing firm based on when the costs are recognized as expenses on the financial statements. Product costs are those costs incurred to manufacture a product. A product cost is recorded as an asset in inventory when the cost is incurred and recognized as an **expense on the income statement** when the product is sold.



3. Job Order Costing

In the previous chapter, we defined a lot of different costs a company can have. In this chapter (and the following chapters) we will use that information to calculate the cost of a product, and thus its price.

3.1. Types of Cost Accounting Systems

There are two traditional ways of calculating the cost of a product: process costing and job order costing.

Process costing = a company produces many units of a single product. One unit of product is indistinguishable from other units of product. The identical nature of each unit of product enables assigning the same average cost per unit.

Job order costing = Many different products are produced each period. Products are manufactured to order. The unique nature of each order requires tracing or allocating costs to each job and maintaining cost records for each job.

We will compare both methods.

Attribute	Process costing	Job order costing
Number of jobs worked	Single Product	Many
Cost accumulated by	Department	Job
Average cost computed by	Department	Job
Workflow	Process Costing System	Job-Order Costing
	$\frac{WIP A}{COGS} = \frac{WIP C}{Gods}$	DM DL Job 100 MOH Job 101 Job 101 Job 101 Job 102 WOrk in Process Finished Goods Cost of Goods Sold Cost of Goods Sold Cost of Goods Sold
Work in process accounts	One for each process	One for multiple jobs
Documents used	Production cost reports	Job cost sheets
Determination of total	Each period	Each job
manufacturing costs		
Unit cost computations	Total manufacturing costs / Units	Costs of each job / Units produced for
	produced during the period	the job
Examples	Scott Paper Company for Kleenex; Heinz	Architects; Caterer for a wedding
	for ketchup.	reception; Builder of commercial fishing vessels.

In this chapter we will focus on job order costing, in the next one on process costing.

More information from the slides from lecture 4:

- The manufacturing cost elements: Both systems track Direct Materials, Direct Labor, and Manufacturing Overhead.
- The accumulation of the costs: Both systems accumulate costs by debiting Raw Materials Inventory, Factory Labor, and Manufacturing Overhead.
- **The flow of costs**: Both systems assign costs to Work in Process, Finished Goods, and Cost of Goods Sold. The method of assigning costs differs significantly, however.

3.2. Job Order Cost Flow

For this part we follow the slides and book.

The flow of costs (direct materials, direct labor, and manufacturing overhead) in job order cost accounting parallels the physical flow of the materials as they are converted into finished goods.

Companies first **accumulate** manufacturing costs in the form of raw materials, factory labor, or manufacturing overhead. They then **assign** manufacturing costs to the Work in Process Inventory account. When a job is completed, the company transfers the cost of the job to Finished Goods Inventory. Later when the goods are sold, the company transfers their cost to Cost of Goods Sold.

3.2.1. Accumulating Manufacturing Costs

Like said earlier, there are three key components:

- Raw material costs
- Factory labor costs
- Manufacturing overhead costs

 \rightarrow Costs are just debited from their respective T-accounts and journals. Example:

 (a) Raw Materials Inventory Accounts Payable (Purchases of raw materials on account) 	4,200	4,200
 (b) Factory Labor Factory Wages Payable Employer Payroll Taxes Payable (To record factory labor costs) 	18,000	15,000 3,000
 (c) Manufacturing Overhead Utilities Payable Prepaid Insurance Accumulated Depreciation (To record overhead costs) 	7,500	2,200 1,800 3,500

3.2.2. Assigning Manufacturing Costs to Work in Process

Assigning manufacturing costs to work in process results in the following entries:

- **Debits** made to Work in Process Inventory.
- Credits made to Raw Materials Inventory, Factory Labor, and Manufacturing Overhead.

Charge direct material and direct labor costs to each job as work is performed.



Job cost sheet = a form used to record the costs chargeable to a specific job and to determine the total and unit costs of the completed job.

 \rightarrow Each job gets a job cost sheet.

An example (with three jobs, and thus three sheets):



3.2.3. Manufacturing Overhead Costs

The last part is to add the manufacturing overhead cost, but there is a need for an allocation base.

Manufacturing overhead is applied to jobs that are in process. An allocation base, such as direct labor hours, direct labor dollars, or machine hours, is used to assign manufacturing overhead to individual jobs.

Why use an allocation base?

- It is impossible or difficult to trace overhead costs to particular jobs.
- Manufacturing overhead consists of many different items ranging from the grease used in machines to production manager's salary.
- Many types of manufacturing overhead costs are fixed even though output fluctuates during the period.

Predetermined overhead rate (POHR) = based on the relationship between estimated annual overhead costs and expected annual operating activity, expressed in terms of a common <u>activity/allocation base</u>.

For example, the used allocation base is labor hours. Keep in mind that this can be other possible drivers: Units produced, Direct Labor Hours, Direct Labor \$, Machine Hours, Direct Materials... Try to find the **cause-and-effect relationship**.

So, for each job, we can calculate the **overhead applied**:

 $Overhead applied = POHR \times Actual activity$

We can do this in our example:

GENERAL LEDGER			SUBSIDIARY LEDGER Job Cost Sheets				
V	Vork in Process Inventory		Job No.	101		Quantity I,0	000 Units
1/31 1/31	24,000 28,000		Date	Direct Materials	Direct Labor	Manufacturing Overhead	Total
1/31	22,400		1/6 1/10 1/12 1/26	1,000 7,000 4,000	9,000	7,200	<
			1/31	.,	6,000	4,800	
				12,000	15,000	12,000	39,000
		Г	Job No.	102		Quantity I,	500 Units
			Date	Direct Materials	Direct Labor	Manufacturing Overhead	Total
	\$22,400 assigned to		1/10	3,800	4 000	3 200	
	specific jobs	1	1/17	3,200	5,000	4,000	
		L	1722	7,000	9,000	7,200	23,200
		Г	Job No.	103		Quantity 2,0	000 Units
			Date	Direct Materials	Direct Labor	Manufacturing Overhead	Total
Sou post	rce documents for ting to job cost sheets:		1/27 1/29	5,000	4,000	3,200	
(805	% of direct labor cost)	L		5,000	4,000	3,200	12,200

You can always calculate the **average unit cost**. But the average unit cost should not be interpreted as the costs that would actually be incurred if an additional unit were produced! Fixed overhead would not change if another unit were produced, so the incremental cost of another unit may be somewhat less than the calculated amount.

3.2.4. Assigning Costs to Finished Goods

When a job is **completed** its cost can be transferred to the **finished goods** inventory. Finished Goods Inventory is a **control account**. It controls individual finished goods records in a finished goods subsidiary ledger.

Work in Proc	ess Inventory	Finished Goods Invento		
24,000	39,000	> 39,000		
28,000				
22,400				

3.2.5. Assigning Costs to Cost of Goods Sold

Happens when a sale has been done. Example:

Jan. 31	Accounts Receivable Sales Revenue (To record sale of Job No. 101)	50,000	50,000
31	Cost of Goods Sold Finished Goods Inventory (To record cost of Job No. 101)	39,000	39,000

3.2.6. Summary of Job Order Cost Flows

We can summarize this in one figure:

Flow of Costs



 \rightarrow There is somewhat more information in the slides, but I get the feeling that it is all quite repetitive.

3.3. Under- and Overapplied Overhead

The **difference** between the overhead cost applied to Work in Process and the actual overhead costs of a period is referred to as either **underapplied** or **overapplied overhead**.

Underapplied overhead = exists when the amount of overhead applied to jobs during the period using the predetermined overhead rate is less than the total amount of overhead actually incurred during the period.

Overapplied overhead = exists when the amount of overhead applied to jobs during the period using the predetermined overhead rate is greater than the total amount of overhead actually incurred during the period.

How to deal with the difference? (example from slides)



We know that PearCo applied \$680,000 of overhead but incurred only \$650,000 of actual overhead. The manufacturing overhead account has a \$30,000 credit balance, representing the overapplied overhead during the year. PearCo chooses to adjust cost of goods sold for the entire amount.

PearCo's Cost of Goods Sold		Pea Mfg. Ov	PearCo's Mfg. Overhead			
Unadjusted Balance		Actual overhead costs	Overhead applied to jobs			
	\$30,000	\$650,000	\$680,000			
Adjusted Balance		\$30,000	\$30,000 overapplied			

! The adjustment necessary at the end of the year is to debit the

manufacturing overhead account for \$30,000, and credit, or reduce, cost of goods sold by the same amount.

If done on the three accounts:

	Amount	Percent of Total	Allocation of \$30,000		
Work in process	\$ 68,000	10%	\$	3,000	
Finished Goods	204,000	30%		9,000	
Cost of Goods Sold	408,000	60%		18,000	
Total	\$ 680,000	100%	\$	30,000	

Overview:

If Manufacturing Overhead is	Alternative 1 Close to Cost of Goods Sold	<u>Alternative 2</u> Allocation
UNDERAPPLIED (Applied OH is less than actual OH)	INCREASE Cost of Goods Sold	INCREASE Work in Process Finished Goods Cost of Goods Sold
OVERAPPLIED (Applied OH is greater than actual OH)	DECREASE Cost of Goods Sold	DECREASE Work in Process Finished Goods Cost of Goods Sold

To this point, we have assumed that there is a **single predetermined overhead rate** called a **plantwide overhead rate**. Large companies often use multiple predetermined overhead rates \rightarrow more complex \rightarrow may be more accurate because it reflects differences across departments.

Final notes:

- Job order costing is used in many different types of service companies.
- Technology plays an important part in many job order cost systems. When combined with Electronic Data Interchange (EDI) or a web-based programming language called Extensible Markup Language (XML), bar coding eliminates the inefficiencies and inaccuracies associated with manual clerical processes.

4. Process Costing

Please refer to chapter 3 for the similarities and differences between process costing and job order costing.

4.1. Process Cost Flow

The complete flow of process costing, in this case with two departments (this depends on the process):



 \rightarrow You should intuitively understand this process, based on chapter 3. If not refer to the slides.

Important differences:

- You can assign any material, labor or other manufacturing overhead to each department.
- Between each department the unfinished goods are transferred.

Other differences mentioned in the slides:

- In a process cost system, fewer **materials requisition slips** are usually required than in a job order cost system, since materials are used for processes rather than for specific jobs.
- Materials are usually added to production at the beginning of the first process. However, in subsequent processes, other materials may be added at various points.
- In process costing, as in job order costing, **time tickets** may be used to determine the cost of labor assignable to the production departments. Since labor costs are assigned to a process rather than a job, the labor cost chargeable to a process can alternatively be obtained from the **payroll register** or **departmental payroll summaries**.
- The objective in assigning overhead in a process cost system is to allocate the overhead costs to the production departments on an **objective and equitable basis**.
 - That basis is the activity that "drives" or causes the costs. A primary driver of overhead costs in continuous manufacturing operations is **machine time used**, not direct labor. Thus, **machine hours** are widely used in allocating manufacturing overhead costs.

4.2. Equivalent Units

Equivalent units of production = measure the work done during the period, expressed in fully completed units. Companies use this measure to determine the cost per unit of completed product.

You can calculate this by:

For example, using the weighted-average method:

- 1000 units are completed, 1000 units are 60% completed
- Equivalent units of production = 1000 + 1000 * 0.6 = 1600
- → there are 1600 units "completed"

Weighted-average method = considers the degree of completion (weighting) of the units completed and transferred out and the ending work in process.

Another way is using the **FIFO method**, this will not be discussed here.

4.2.1. Conversion costs

Direct labor cost can be small in comparison to the other costs made during the process. We can add these costs to the overhead costs.

Conversion costs = the sum of labor costs and overhead costs.

4.2.2. Refinements on the Weighted-Average Method

The earlier formula used to compute equivalent units of production can be refined to show the computations for materials and conversion costs, as follows:

Units Completed and Transferred Out— Materials	+	Equivalent Units of Ending Work in Process—Materials	=	Equivalent Units of Production— Materials
Units Completed and Transferred Out— Conversion Costs	+	Equivalent Units of Ending Work in Process—Conversion Costs	=	Equivalent Units of Production— Conversion Costs

 \rightarrow Example can be found in the slides.

4.3. Production Cost Report

Production cost report = the key document that management uses to understand the activities in a department; it shows the production <u>quantity</u> and <u>cost</u> data related to that department.

Production cost reports provide a basis for **evaluating the productivity of a department**. In addition, the cost data can be used to assess whether unit costs and total costs are reasonable. When the quantity and cost data are compared with predetermined goals, top management can also ascertain whether current performance is meeting planned objectives.



In order to complete a production cost report, the company must perform **four steps**, which, as a whole, make up the process cost system:

- 1. Compute the **physical unit flow**.
- 2. Compute the equivalent units of production.
- 3. Compute unit production costs.
- 4. Prepare a cost reconciliation schedule.

Mixing Department Production Cost Report For the Month Ended June 30, 2014									
	E	quivalent Uni	its						
	Physical Units	Materials	Conversion Costs						
QUANTITIES	Step 1	Step 2							
Units to be accounted for									
Work in process, June 1	100,000								
Started into production	800,000								
Total units	900,000								
Units accounted for									
Transferred out	700,000	700,000	700,000						
Work in process, June 30	200,000	200,000	120,000	(200,000 × 60%)					
Total units	900,000	900,000	820,000						
COSTS									
Unit costs Step 3		Materials	Conversion Costs	Total					
Total cost	(a)	\$450,000	\$205,000	\$655,000					
Equivalent units	(b)	900,000	820,000						
Unit costs [(a) ÷ (b)]		\$0.50	\$0.25	\$0.75					
Costs to be accounted for									
Work in process, June 1				\$85,000					
Started into production				570,000					
Total costs				\$655,000					
Cost Reconciliation Schedule Step 4									
Costs accounted for									
Transferred out (700,000 $ imes$ \$0.75)				\$525,000					
Work in process, June 30									
Materials (200,000 $ imes$ \$0.50)			\$100,000						
Conversion costs (120,000 $ imes$ \$0.25)			30,000	130,000					
Total costs				\$655,000					

 \rightarrow Step 1-3 are quite obvious based on the example. A detailed explanation of each step can be found in the slides. It's quite clear there, so I will not copy paste it entirely. But we will look at the step 4 in more detail.

Cost Reconciliation Schedule

We want to determine the cost of goods that will be transferred to the next department, in our case the baking department.

We assign the costs (655k – total costs in step 3) to (a) units transferred out to the Baking Department (525k) and (b) ending work in process (130k). Thus, (b) stays in the mixing department.

Cost reconciliation schedule = shows that the total costs accounted for equal the total costs to be accounted for.

4.4. Operation Costing

Operation costing = a hybrid of job and process costing. It is used in manufacturing goods that have some common characteristics plus some individual characteristics.



Example:



5. Activity-Based Costing

5.1. Activity Based Costing versus Traditional Costing Methods

In traditional costing methods, overhead was allocated using a single predetermined rate. Direct labor in job order costing and machine hours in process costing. Assumption was satisfactory when direct labor was a major portion of total manufacturing costs, since there is a wide acceptance of a high correlation between direct labor and overhead costs.

Change in manufacturing and service industries \rightarrow less direct labor \rightarrow increase in overhead costs \rightarrow inappropriate to use plant wide predetermined overhead rates \rightarrow Activity Based Costing (ABC).

Activity-based costing (ABC) = an approach for <u>allocating overhead costs</u>. More specifically, ABC allocates overhead to multiple <u>activity cost pools</u>, and it then assigns the activity cost pools to products and services by means of <u>cost</u> <u>drivers</u>.

Let's define some parts of that definition:

Activity = an event that causes the consumption of overhead resources.

Activity cost pool = a "cost bucket" in which costs related to a single activity measure are accumulated.

Cost driver = activity measure = any factors or activities that have a direct cause effect relationship with the resources consumed.

Let's look at some characteristics of traditional costing methods, compared to ABC.

Traditional Product Costing	Activity Based Costing
Allocation: costs are allocated to products based on assumed linkages or convenient alternatives such as direct labor hours	Resource drivers: costs are assigned to activities based on effort expended
Focus on the product in the costing process.	Activity drivers: activity costs are assigned to products on unique consumption patterns
Costs are traced to the product with assumption to consuming of the resources in proportion to the volume produced.	ABC focuses on activities in the costing process.
These volume drivers, fails to account for product diversity in the form of size or complexity.	Costs are traced from activities to products, based on the product's demand for these activities during the production process.
There is not a direct relationship between production volume and cost consumption.	ABC theory contends that, virtually all of a company's activities exists to support production and delivery of services, they should all be included as product costs.

5.2. How Costs are Treated Under Activity–Based Costing



Three big differences:

- ABC assigns both types of costs to products
- ABC does not assign all manufacturing costs to products
- ABC uses more cost pools
 - Each ABC cost pool has its own unique measure of activity

Two common types of activity measures (cost driver):

- **Transaction driver**: Simple count of the number of times an activity occurs. e.g., the number of bills sent out to customers.
- Duration driver: A measure of the amount of time needed for an activity. e.g., the time spent preparing
 individual bills for customers.

5.2.1. Hierarchy of Activity Levels

ABC defines at least four levels of activity that largely do not relate to the volume of units produced:

- 1. Unit level activities
 - a. This activity is performed for each unit of product produced and sold.
 - b. E.g. cost of raw materials, inserting a component, packaging...
- 2. Batch (or order) level activities
 - a. This activity is performed for each batch of product produced or sold.
 - b. E.g. cost of processing sales order, issuing and tracking work order, equipment setup...
- 3. Product (or customer) level activities
 - a. This activity is performed to support each different product that can be produced.
 - b. E.g. cost of product development, marketing, specialized equipment...
- 4. Facility level activities
 - a. This activity is performed to maintain general manufacturing capabilities.
 - b. E.g. cost of maintaining general facilities, nonspecialized equipment, real property taxes...

Order and customer are often used in merchandising organizations or sales divisions.

5.2.2. Allocation of costs

ABC allocates overhead costs in two stages:

- 1. Overhead costs are allocated to activity cost pools.
- The overhead costs allocated to the cost pools is assigned to products using cost drivers

 \rightarrow The more complex a product's manufacturing operation, the more activities and cost drivers likely to be present.



5.2.3. ABC in service industry

The overall objective is to **identify key cost generation activities** and keep track of quantity of activities performed for each service provided.



 \rightarrow Major difficulty: A larger proportion of overhead costs are **company-wide costs** that cannot be directly traced to specific services.

5.2.4. Costly Customer

A customer that demands a few (or all) of the following is called a **costly customer**:

- Orders small quantities
- Often changes orders
- Required special packaging
- Demands fast service
- Orders frequently

5.2.5. General notes

More accurate product costing through:

- ⇒ Use of more cost pools to assign overhead costs
- \Rightarrow Enhanced control over overhead costs
- ⇒ Better management decisions

5.2.6. Example of ABC

→ Good example in slides! (lecture 5, 28-55)

The **five steps** mentioned there are:

- 1. Define activities, activity cost pools, and activity measures
- 2. Assign overhead costs to activity cost pools
- 3. Calculate activity rates
- 4. Assigning overhead to products
- 5. Prepare management reports \rightarrow product margin calculations

5.3. Product Margins

The way the cost of a product is determined has an influence on the **product margins**.

5.3.1. The traditional way

- 1. Gather each product's sales and direct cost data
- 2. Compute the plantwide overhead rate
- 3. Allocate manufacturing overhead to each product
- 4. Compute the product margins

Example in the slides.

5.3.2. The ABC way

See previous section.

5.3.3. Differences

Now, we can look at the difference between the two calculations. An example (from the slides):

	SureStarts	LongLifes
Product margins – traditional	\$ 6,900,000	\$ 2,100,000
Product margins – ABC	8,372,000	(1,132,000)
Change in reported margins	\$ 1,472,000	\$ (3,232,000)

- The traditional cost system **overcosts** the SureStarts and reports a **lower product margin** for this product.
- The traditional cost system undercosts the LongLifes and reports a higher product margin for this product.

There are **three reasons** why the reported product margins for the two costing systems differ from one another:

- 1. Traditional costing allocates all manufacturing overhead to products. ABC costing only **assigns manufacturing overhead costs consumed by products** to those products.
- 2. Traditional costing allocates all manufacturing overhead costs using a volume-related allocation base. ABC costing also uses **non-volume related allocation bases**.
- 3. Traditional costing disregards selling and administrative expenses because they are assumed to be period expenses. ABC costing directly **traces shipping costs** to products and **includes nonmanufacturing overhead costs** caused by products in the activity cost pools that are assigned to products.

5.4. External Reporting & ABC Limitations

Most companies do not use ABC for **external reporting** because:

- External reports are less detailed than internal reports.
- It may be difficult to make changes to the company's accounting system.
- ABC does not conform to GAAP.
- Auditors may be suspect of the subjective allocation process based on interviews with employees.

ABC knows a few limitations:

- Substantial resources required to implement and maintain.
- Resistance to unfamiliar numbers and reports.
- Desire to fully allocate all costs to products.
- Potential misinterpretation of unfamiliar numbers.
- Does not conform to GAAP \rightarrow two costing systems may be needed.

Use ABC when one or more of the following exist:

- Products differ greatly in volume/manufacturing complexity
- Products lines are
 - Numerous
 - o Diverse
 - Require different degrees of support services
- Overhead costs are a significant portion of total costs
- Significant change in manufacturing process or number of products
- ⇒ Additional example in slides!
- ⇒ Kanthal case!

6. Activity Based Management (ABM)

Activity-based management (ABM) = a systemwide, integrated approach that focuses management's attention on activities with the objectives of improving customer value and the profit achieved by providing this value.

 \rightarrow Activity-based costing (ABC) is the major source of information for activity-based management. It focuses on activities to eliminate waste, decrease processing time, and reduce defects.

Recall, **ABC** improves **understanding** of the way resources are used in the current processes and **measures** product **costs** more accurately by analyzing costs associated with identified activities in the processes.

ABM adds to this:

- Identifies value-added and non-value-added activities.
- Identifies the **customer perceived value** of each activity.
- Identifies opportunities to enhance valueadded activities and reduce or eliminate nonvalue-added activities.



Process value analysis = fundamental to activity-based responsibility accounting, focuses on accountability for activities rather than costs, and emphasizes the maximization of systemwide performance instead of individual performance.

Process value analysis is concerned with:

- Driver analysis
- Activity analysis
- Activity performance measurement

We will focus on activity analysis.

6.1. Activity Analysis

Activity analysis = the process of identifying, describing, and evaluating the activities an organization performs.

Activity analysis should produce four outcomes:

- What activities are done.
- How many people perform the activities.
- The time and resources are required to perform the activities.
- An assessment of the value of the activities to the organization.

6.1.1. The Importance of Customer-Perceived Value

Activities create outcomes and consume resources. These activities be divided into two categories:

- Value-added activities: enhance the value of products and services in the eyes of the customer while meeting the goals of the organization.
- Non-value-added activities: do not contribute to customer perceived value.

Note: Activities needed to comply with the reporting requirements, such as the SEC (USA?), are value added by a mandate.

6.1.2. Eliminating Non-Value-Added Activities

Why do organizations have incentives to eliminate non-value-added activities?

- Competitors are constantly striving to create more value for customers at lower cost.
- Competition can appear quickly.
- The organization can apply the freed-up resources to value-added activities or distribute them to the owners and employees of the organization.

Sources of non-value-added activities:

- Producing defective products
- Producing to build up inventory
- Time and effort to move products from place to place
- Waiting time for processing
- Transporting workers to work sites

6.1.3. Identifying Value-Added Activities

Ask two questions and if it is "yes" for both, it is value-added:

- Would an **external** customer encourage the organization to **do more of the activity**?
- Would the organization be more likely to reach its goal by performing that activity?

6.2. Activity Management

One you have identified the sources of non-value-added activities and value-added activities \rightarrow redesign process.

Activity management reduces costs in four ways:

- Activity elimination: focuses on non-value-added activities.
- Activity **selection**: involves choosing among different sets of activities that are caused by competing strategies.
- Activity reduction: decreases the time and resources required by an activity.
- Activity sharing: increases the efficiency of necessary activities by using economies of scale.

6.2.1. Tools for Determining Root Cause

- The "5 Whys"
- Pareto Analysis (Vital Few, Trivial Many)
- Brainstorming
- Flow Charts / Process Mapping
- Cause and Effect Diagram
- Tree Diagram
- Benchmarking (after Root Cause is found)

\rightarrow Examples in slides.

6.2.2. Implementation of Activity Based Costing & Management

First of all, always consider the **benefits** and the **costs** of implementing ABC and ABM.

What resources are necessary?

- Management commitment: educate top management as to cost/benefits
- **Technology**: begin with existing commercial software
- **Personnel and time**: Significant projects will require a three-to-four-person, cross-functional team at least four to six months of full-time effort

How can you anticipate and overcome resistance to change?

• Education & training

- Incentives & rewards
- Widespread sponsorship and participation
- Be sensitive to differences in national cultures

7. Cost-Volume-Profit Relationships

Cost-volume-profit (CVP) analysis = the study of the effects of changes in costs and volume on a company's profits.

 \rightarrow CVP analysis is important in profit planning. It also is a critical factor in such management decisions as setting selling prices, determining product mix, and maximizing use of production facilities.

7.1. Contribution Margin

Key assumptions of CVP analysis:

- Selling price is constant.
- Costs are linear and can be accurately divided into variable (constant per unit) and fixed (constant in total) elements.
- In multiproduct companies, the sales mix is constant.
- In manufacturing companies, inventories do not change (units produced = units sold).

7.1.1. Basics of Cost-Volume-Profit Analysis

The **Contribution** (or **CVP**) **Income Statement** is helpful to managers in judging the impact on profits of changes in selling price, cost, or volume. The emphasis is on cost behavior.

Contribution Margin (CM) = the amount remaining from sales revenue after variable expenses have been deducted.

CM is used first to cover fixed expenses. Any remaining CM contributes to **net operating income**.

Sales, variable expenses, and contribution margin can also be expressed on a **per unit basis**.

7.1.2. The Contribution Approach

In example:

- CM must at least be \$80.000 to **break-even**!
- At least 400 bicycles need to be sold to be breakeven, this is called the **break-even point**.

We do not need to prepare an income statement to estimate profits at a particular sales volume. Simply multiply the number of units sold above break-even by the contribution margin per unit.

7.1.3. CVP Relationships in Equation Form

The contribution format income statement can be expressed in the following equation:

Profit = (Sales – Variable expenses) – Fixed expenses

Profit = (P * Q - V * Q) – Fixed expenses

With Q=Quantity sold, P=Selling price/unit and V=Variable expense/unit.

It is often useful to express the simple profit equation in terms of the unit contribution margin (Unit CM) as follows:

Profit = Unit CM * Q - Fixed expenses

With Unit CM = Selling price per unit Variable expenses per unit.

7.1.4. Cost-Volume-Profit Graph

The relationships among revenue, cost, profit, and volume can be expressed graphically by preparing a CVP graph.

Racing Bicycle Company Contribution Income Statement For the Month of June								
Total Per Unit								
Sales (500 bicycles)	\$	250.000	\$	500				
Less: Variable expenses		150.000		300				
Contribution margin		100.000	\$	200				
Less: Fixed expenses		80.000						
Net operating income	\$	20.000						



→ Important graph! Analyse it in detail. Slides shows how to build it.

7.1.5. Contribution Margin Ratio (CM Ratio)

The **CM ratio** is calculated by dividing the total contribution margin by total sales or by dividing the contribution margin per unit by the selling price per unit.

$$CM Ratio = \frac{CM per unit}{SP per unit}$$

 \rightarrow Each dollar in increased sales, has a margin contribution increase of 40 cents.

Racing Bicycle Company											
Contribution Income Statement											
For the Month of June											
	CM Ratio										
Sales (500 bicycles)	\$	250,000	\$	500	100%						
Less: Variable expenses		150,000		300	60%						
Contribution margin		100,000	\$	200	40%						
Less: Fixed expenses		80,000									
Net operating income	\$	20,000									
Net operating income	\$	20,000			/						

Profit = CM Ratio * Sales – Fixed expenses

7.1.6. Changes on Net Operating Income

Examples in slides! You can play with the numbers and see what the effect is. We try to always increase the net income!

The Variable Expense Ratio

The **variable expense ratio** is the ratio of variable expenses to sales. It can be computed by dividing the total variable expenses by the total sales, or in a single product analysis, it can be computed by dividing the variable expenses per unit by the unit selling price.

ightarrow The 60% in previous example.

7.2. The Break-even Point & Target Profit

7.2.1. Break-even Analysis

We take the one of the equations defined previously:

And set the profit = 0, the unit CM = 200 and the fixed expenses = 80000, we get:

$$0 = 200 * Q - 80000$$

Now, we can calculate the break-even point:

Q = 400

The formula stated differently:

$$break - even point = \frac{fixede xpenses}{CM per unit}$$

You can do the same with CM ratio-sales formula: Profit = CM Ratio * Sales - Fixed expenses

7.2.2. Computing the Break-even Point for a Multiproduct Company

The Concept of Sales Mix

Sales mix = the relative proportion in which a company's products are sold.

 \rightarrow Different products have different selling prices, cost structures, and contribution margins \rightarrow When a company sells more than one product, break-even analysis becomes more complex.

Example: bikes are 45% total sales and carts 55%.

		Bicyc	le	 Cart	S	Total			
Sales	\$	250,000	100%	\$ 300,000	100%	\$	550,000	100.0%	
Variable expenses		150,000	60%	 135,000	45%		285,000	51.8%	
Contribution margin		100,000	40.0%	165,000	55%		265,000	48.2%	
Fixed expenses							170,000		
Net operating income	Э					\$	95,000	/	
Sales mix	\$	250,000	45%	\$ 300,000	55%	\$	550,000	100%	
				<u>\$265</u> \$550	<u>,000</u> _	48	.2% (rc	ounded)	

If we want to break-even with the same sales mix:

	Dol	lars to br	eak – ev	en :	$=\frac{\$170\ 00}{48.2\%}$	$\frac{00}{0} = 35	2 69	97	
		Bicycl	е		Carts			🖌 Total	
Sales	\$	158,714	100%	\$	193,983	100%	\$	352,697	100.0%
Variable expenses		95,228	60%		87,293	45%		182,521	51.8%
Contribution margin		63,485	40%		106,691	55%		170,176	48.2%
Fixed expenses								170,000	
Net operating incom	е			Ro	unding erro	r —→	\$	176	
Sales mix	\$	158,714	45%	\$	193,983	55%	\$	352,697	100.0%

7.2.3. Target Profit Analysis

We can compute the number of units that must be sold to attain a target profit using either the (1) equation method, or the (2) formula method (basically the same).

Same as above, but this time profit is not 0, but the wanted profit. E.g. 100 000.

7.3. The Margin of Safety and its Significance

Margin of safety in dollars = the excess of budgeted (or actual) sales over the break-even volume of sales.

Margin of safety in dollars = Total sales - Break - even sales

In the example, the margin of safety is \$ 50 000 \rightarrow 20% of sales \rightarrow margin in units: 100.

	Bre	eak-eve	en 🔪			
		sales		Ac	tual sale	s
	4	00 unit	5	5	00 units	
Sales	\$	200,00	0	\$	250,000)
Less: variable expenses		120,00	00		150,000)
Contribution margin		80,00	00		100,000)
Less: fixed expenses		80,00	00		80,000)
Net operating income	\$	-		\$	20,000)
						_

7.3.1. Cost Structure and Profit Stability

Cost structure = refers to the relative proportion of fixed and variable costs in an organization.

Managers often have some latitude in determining their organization's cost structure.

High fixed cost structure (or low variable cost):

- Advantage: **income will be higher in good years** compared to companies with lower proportion of fixed costs.
- Disadvantage: income will be lower in bad years [...]

→ Companies with **low fixed cost structures** enjoy **greater stability** in income across good and bad years.

7.3.2. Operating Leverage

Operating leverage = a measure of how sensitive net operating income is to percentage changes in sales. It is a measure, at any given level of sales, of how a percentage change in sales volume will affect profits.

Degree of operating leverage $= \frac{Contribution margin}{Net operating income}$

In the last example, with 500 bikes, we get:

Degree of operating leverage
$$=$$
 $\frac{\$100\ 000}{\$20\ 000} = 5$

So, if the company has an increase of e.g. 10%, the net operating income will increase with 10% * 5 = 50%!

7.3.3. Structuring Sales Commissions

Companies generally compensate salespeople by paying them either a commission based on sales or a salary plus a **sales commission**.

Commissions based on sales dollars can lead to **lower profits** in a company. How? If you get a commission on the price of product A that has a higher price than product B, you will try to sell product A. But if the margin on product A is higher than product B, the firm "loses" money \rightarrow solution: base the commission on the contribution margin!

7.4. Formula Review

- P = Sale price per unit
- V = Variable cost per unit
- Sales = PQ
- Variable expenses (costs) = VQ
- Unit Contribution Margin = Unit CM = (P V)
- Contribution Margin = CM = (PQ VQ) = (P V) Q = Unit CM × Q
- If P, V stay as before: $\Delta CM = (P V) \times \Delta Q = Unit CM \times \Delta Q$

• CM Ratio=
$$\frac{CM}{Sales} = \frac{Unit CM}{P}$$

• CM Ratio= $\frac{\text{Unit CM}}{P} = \frac{P-V}{P} = 1 - \frac{V}{P} = 1 - \frac{VQ}{PQ} = 1 - \frac{\text{Variable Expenses}}{\text{Sales}}$

- Profit = (Sales Variable expenses) Fixed expenses
- Profit = (PQ VQ) Fixed expenses
- Profit = CM Fixed expenses = CM Ratio × Sales Fixed expenses
- Profit = (P V) Q Fixed expenses
- Profit = Unit CM × Q Fixed expenses

•
$$Q = \frac{Fixed Expenses + Profit}{P - V} = \frac{Fixed Expenses + Profit}{Unit CM}$$

• $PQ = P \times \frac{Fixed Expenses + Profit}{P - V} = \frac{P}{P - V} \times \frac{Fixed Expenses + Profit}{1} = \frac{Fixed Expenses + Profit}{CM Ratio}$

8. Relevant Information and Decision Making

8.1. Relevant and Irrelevant Costs

Relevant cost = a cost that differs between alternatives.

Relevant benefit = a benefit that differs between alternatives.

Avoidable cost = a cost that can be eliminated, in whole or in part, by choosing one alternative over another.

 \rightarrow Avoidable costs are relevant costs. Unavoidable costs are irrelevant costs.

Two broad categories of costs are **never relevant** in any decision. They include:

- Sunk costs
- A future cost that does not differ between the alternatives.

Two steps when making a decision:

- Eliminate costs and benefits that do not differ between alternatives.
- Use the remaining costs and benefits that differ between alternatives in making the decision. The costs that remain are the differential, or avoidable, costs.

Be aware that costs that are relevant in one decision situation may not be relevant in another context. Thus, in each decision situation, the manager must examine the data at hand and isolate the relevant costs.

 \rightarrow Example in slides \rightarrow Total approach

There is also the **differential approach**, where you only look at the differences. This is more desirable, because:

- Only rarely will enough information be available to prepare detailed income statements for both alternatives.
- Mingling irrelevant costs with relevant costs may cause confusion and distract attention away from the information that is really critical.

8.2. Adding and Dropping Segments

Managers will make important decisions, like adding or dropping a business segment \rightarrow impact on net operating income \rightarrow always calculate the cost to add/drop a segment \rightarrow if net operating income increases \rightarrow do.

Two ways to do this:

- **Contribution margin approach**: compare the contribution margin
- Comparative income approach: compare everything

 \rightarrow Beware of the allocated fixed costs! \rightarrow it can make a segment look more/less profitable than it really is.

8.3. Make or Buy Analysis

When a company is involved in more than one activity in the

entire value chain, it is vertically integrated. A decision to carry out one of the activities in the value chain internally, rather than to buy externally from a supplier is called a "make or buy" decision.



8.3.1. Vertical Integration and Value Chain Economies

The focal firm is able to create synergy with the other firm(s):

- cost reduction \rightarrow more revenue
- Smoother flow of parts and materials \rightarrow Better quality control

Companies may fail to take advantage of suppliers who can create economies of scale advantage by pooling demand from numerous companies \rightarrow but control over activities is important \rightarrow limitations of economies of scale.

8.3.2. The Make or Buy Decision

Compare the price to make a product in house and buying it from another company. Choose the cheapest one. Example in slides.

Opportunity cost = the benefit that is foregone as a result of pursuing some course of action.

→ Opportunity costs are not actual cash outlays and are not recorded in the formal accounts of an organization!

8.4. Special Orders

Special order = a one-time order that is not considered part of the company's normal ongoing business.

When analyzing a special order, only the **incremental costs and benefits are relevant**. Since the existing fixed manufacturing overhead costs would not be affected by the order, they are not relevant.

 \rightarrow Always compare the costs of the special order \rightarrow less than the benefits \rightarrow do it. Example in slides.

8.5. Constrained Resources

When a limited resource of some type restricts the company's ability to satisfy demand, the company is said to have a **constraint**. The machine or process that causes this is the **bottleneck**.

How to decide which product to give priority? Not especially the product with the highest contribution margin/unit, but highest **total contribution margin** \rightarrow calculate the **contribution margin/minute** for each product \rightarrow choose best (mix of) products.

No questions about the determination of the value of obtaining more of the constrained resource (lecture 8, slides 75 - 84), you can always look up the slides.

8.6. Joint Costs and Products

Joint product = two or more products that are produced from a common input.

Split-off point = the point in the manufacturing process where each joint product can be recognized as a separate product.



Joint costs are traditionally allocated among different products at the split-off point. A typical approach is to allocate joint costs according to the **relative sales value** of the end products. Although allocation is needed for some purposes such as balance sheet inventory valuation, allocations of this kind are **very dangerous** for decision making.

Joint costs are irrelevant in decisions regarding what to do with a product from the split-off point forward. Therefore, these costs should not be allocated to end products for decision making



purposes. With respect to sell or process further decisions, it is profitable to continue processing a joint product after the split-off point so long as the **incremental revenue** from such processing **exceeds the incremental processing costs** incurred after the split off point

Example in slides.

ABC can be used to help **identify potentially relevant costs** for decision making purposes \rightarrow People tend to assume that if a cost is traceable to a segment, then the cost is automatically avoidable, which is untrue. Before making a decision, managers must decide which of the potentially relevant costs are actually avoidable.

9. Financial Statement Analysis

The goal is to use financial data to evaluate current and past performance of the firm.

Analyzing financial statements involves:

- Characteristics
 - o Liquidity
 - Profitability
 - o Solvency
- Comparison bases
 - o Intracompany
 - o Industry averages
 - o Intercompany
- Tools of analysis
 - o Horizontal
 - \circ Vertical
 - o Ratio

9.1. Horizontal Analysis

Horizontal analysis = trend analysis = a technique for evaluating a series of financial statement data over a period of time.

 \rightarrow We want to determine the increase or decrease that has taken place. Applied on the balance sheet, income statement and statement of retained earnings.

Balance sheet:

Changes suggest that the company expanded its asset base during 2009 and **financed this expansion primarily by retaining income** rather than assuming additional long-term debt.

Quality Department Store Inc. Condensed Balance Sheets December 31					
			Increase or during	(Decrease) 2009	
	2009	2008	Amount	Percent	
Assets					
Current assets	\$1,020,000	\$ 945,000	\$ 75,000	7.9%	
Plant assets (net)	800,000	632,500	167,500	26.5%	
Intangible assets	15,000	17,500	(2,500)	(14.3%)	
Total assets	\$1,835,000	\$1,595,000	\$240,000	15.0%	
Liabilities	÷		.		
Current liabilities	\$ 344,500	\$ 303,000	\$ 41,500	13.7%	
Long-term liabilities	487,500	497,000	(9,500)	(1.9%)	
Total liabilities	832,000	800,000	32,000	4.0%	
Stockholders' Equity					
Common stock, \$1 par	275,400	270,000	5,400	2.0%	
Retained earnings	727,600	525,000	202,600	38.6%	
Total stockholders' equ	ity 1,003,000	795,000	208,000	26.2%	
Total liabilities and					
stockholders' equity	\$1,835,000	\$1,595,000	\$240,000	15.0%	

Income statement:

Overall, gross profit and net income were up substantially. Gross profit increased

17.1%, and net income, 26.5%. Quality's profit trend appears favorable.

Quality Department Store Inc. Condensed Income Statements For the Years Ended December 31

			Increase or during	(Decrease) 2009
	2009	2008	Amount	Percent
Sales revenue	\$2,195,000	\$1,960,000	\$235,000	12.0%
Sales returns and allowances	98,000	123,000	(25,000)	(20.3%)
Net sales	2,097,000	1,837,000	260,000	14.2%
Cost of goods sold	1,281,000	1,140,000	141,000	12.4%
Gross profit	816,000	697,000	119,000	17.1%
Selling expenses Administrative expenses	253,000 104,000	211,500 108,500	41,500 (4,500)	19.6% (4.1%)
Total operating expenses	357,000	320,000	37,000	11.6%
Income from operations Other revenues and gains	459,000	377,000	82,000	21.8%
Interest and dividends Other expenses and losses	9,000	11,000	(2,000)	(18.2%)
Interest expense	36,000	40,500	(4,500)	(11.1%)
Income before income taxes	432,000	347,500	84,500	24.3%
Income tax expense	168,200	139,000	29,200	21.0%
Net income	\$ 263,800	\$ 208,500	\$ 55,300	26.5%

Retained earnings statement:

In the horizontal analysis of the balance sheet the ending retained earnings increased 38.6%. As indicated earlier, the company retained a significant portion of net income to finance additional plant facilities.

Quality Department Store Inc. Retained Earnings Statements For the Years Ended December 31

			Increase or (Decrease) during 2009		
	2009	2008	Amount	Percent	
Retained earnings, Jan. 1	\$525,000	\$376,500	\$148,500	39.4%	
Add: Net income	263,800	208,500	55,300	26.5%	
	788,800	585,000	203,800		
Deduct: Dividends	61,200	60,000	1,200	2.0%	
Retained earnings, Dec. 31	\$727,600	\$525,000	\$202,600	38.6%	

9.2. Vertical Analysis

Vertical analysis = common size analysis = a technique that expresses each financial statement item as a percent of a base amount.

 \rightarrow Applied on the balance sheet and income statement.

lt	enables	а	comparison	between
cor	npanies.			

	(in thou	sands)		
	Quality D Stor	epartment e Inc.	J.C. Per Compa	iney any
	Dollars	Percent	Dollars	Percent
Net sales	\$2,097	100.0%	\$17,556,000	100.0%
Cost of goods sold	1,281	61.1%	10,646,000	60.6%
Gross profit Selling and administrative	816	38.9%	6,910,000	39.4%
expenses	357	17.0%	6,247,000	35.7%
Income from operations Other expenses and revenues	459	21.9%	663,000	3.7%
(including income taxes)	195	9.3%	412,000	2.3%
Net income	\$ 264	12.6%	\$ 251,000	1.4%

Example

Balance sheet:

successful.

These results reinforce the earlier observations that The Quality Department Store Inc. **£**: is cho growth earning issuing

is choosing to finance its		Amount	Percent	Amount	Percent
growth through retention of	Assets				
earnings rather than through	Current assets	\$1,020,000	55.6%	\$ 945,000	59.2%
issuing additional debt.	Plant assets (net)	800,000	43.6%	632,500	39.7%
0	Intangible assets	15,000	0.8%	17,500	1.1%
	Total assets	\$1,835,000	100.0%	\$1,595,000	100.0%
	Liabilities				
	Current liabilities	\$ 344,500	18.8%	\$ 303,000	19.0%
	Long-term liabilities	487,500	26.5%	497,000	31.2%
	Total liabilities	832,000	45.3%	800,000	50.2%
	Stockholders' Equity				
	Common stock, \$1 par	275,400	15.0%	270,000	16.9%
	Retained earnings	727,600	39.7%	525,000	32.9%
	Total stockholders' equity	1,003,000	54.7%	795,000	49.8%
	Total liabilities and				
	stockholders' equity	\$1,835,000	100.0%	\$1,595,000	100.0%
Income statement:	Qu	ality Departme	ent Store Inc		
Quality appears to be a	Cc	ondensed Incom	e Statements		
profitable enterprise that is	For	the Years Endeo	December 3	1	
becoming even more		200	9	200	8

	2009 2008		8	
	Amount	Percent	Amount	Percent
Sales revenue	\$2,195,000	104.7%	\$1,960,000	106.7%
Sales returns and allowances	98,000	4.7%	123,000	6.7%
Net sales	2,097,000	100.0%	1,837,000	100.0%
Cost of goods sold	1,281,000	61.1%	1,140,000	62.1%
Gross profit	816,000	38.9%	697,000	37.9%
Selling expenses	253,000	12.0%	211,500	11.5%
Administrative expenses	104,000	5.0%	108,500	5.9%
Total operating expenses	357,000	17.0%	320,000	17.4%
Income from operations	459,000	21.9%	377,000	20.5%
Other revenues and gains Interest and dividends	9,000	0.4%	11,000	0.6%
Other expenses and losses				
Interest expense	36,000	1.7%	40,500	2.2%
Income before income taxes	432,000	20.6%	347,500	18.9%
Income tax expense	168,200	8.0%	139,000	7.5%
Net income	\$ 263,800	12.6%	\$ 208,500	11.4%

Quality Department Store Inc. Condensed Balance Sheets

December 31

2009

2008

9.3. Ratio Analysis

Ratio analysis = expresses the relationship among selected items of financial statement data.

Financial ratio classifications:

- Liquidity: Measures short-term ability of the company to pay its maturing obligations and to meet unexpected needs for cash.
- Profitability: Measures the income or operating success of a company for a given period of time.
- **Solvency**: Measures the ability of the company to survive over a long period of time. •

The ratio itself is not useful, but the comparison with something else is. We will see:

٠ Intracompany comparison

- Intercompany comparison
- Industry averages

Relationships between numbers can be used by companies to detect **fraud** \rightarrow financial ratios that appear abnormal or have statistical abnormalities.

9.3.1. Liquidity Ratios

Interesting for short-term creditors such as bankers and suppliers.

Ratios include:

- Current ratio
- Acid-test ratio
- Receivable turnover
- Inventory turnover

We use the numbers from previous examples from Quality Department Store Inc.



9.3.2. Profitability Ratios

The lack of income affects the company's ability to obtain debt and equity financing, liquidity position, and the ability to grow.

Ratios include:

- Profit margin •
- Asset turnover
- Return on assets (ROA) •
- Return on common stockholders' equity (ROE)
- Earnings per share (EPS)
- Price-earnings (P-E) ratio .
- Payout ratio

5. Profit margin:

6. Asset turnover:

to generate sales.

Profit margin is a measure of the percentage of each dollar of sales that results in net income.



Net Income

7. Return on assets (ROA):

Return on assets is an overall measure of profitability.

8. Return on common stockholders' equity (ROE):

Return on common stockholders' equity measures profitability from stockholders' the common viewpoint. This ratio shows how many dollars of net income the company earned for each dollar invested by the owners.

9. Earnings per share (EPS):

Earnings per share (EPS) is a measure of the net income earned on each share of common stock.

10. The price-earnings (P-E) ratio:

Price-earnings (P-E) ratio is an oftquoted measure of the ratio of the market price of each share of common stock to the earnings per share. The price-earnings (P-E) ratio reflects investors' assessments of a company's future earnings.

11. Payout ratio:

Payout ratio measures the percentage of earnings distributed in the form of cash dividends.



9.3.3. Solvency Ratios

A company's business risk is determined, in large part, from the company's line of business.

Financial risk is the risk resulting from a company's choice of how to finance the business using debt or equity \rightarrow solvency ratios to assess a company's financial risk.



Ratios include:

- Debt to total assets
- Times interest earned

<u>12. Debt to total assets ratio:</u> Debt to total assets ratio measures the	Debt to Total Assets	Ratio = Total Debt Total Assets	
percentage of the total assets that creditors provide.	Quality Department Store		
	2009	2008	
	$\frac{\$832,000}{\$1,835,000} = 45.3\%$	$\frac{\$800,000}{\$1,595,000} = 50.2\%$	
	Industry average 34.2%	J.C. Penney Company 62.0%	

<u>13. Times interest earned:</u> Times interest earned provides an	Times Interest Earned Income before Income Taxes and Interest Expense Interest Expense			
meet interest payments as they come	Quality Department Store			
due.	$\frac{2009}{\frac{\$468,000}{\$36,000}} = 13 \text{ times}$	$\frac{2008}{\$388,000} = 9.6 \text{ times}$		
	Industry average 16.1 times	J.C. Penney Company 2.9 times		

9.3.4. Remarks and Limitations

⇒ Financial statements of publicly traded companies and industry averages of key items provide the raw material for analysts and investors to make investment recommendations and decisions.

Limitations:

- **Measurability.** Financial statements reflect what can be reliably measured. This results in nonrecognition of certain assets, often internally developed assets, the very assets that are most likely to confer a competitive advantage and create value. Examples are brand name, a superior management team, employee skills, and a reliable supply chain.
- **Non-capitalized costs.** Related to the concept of measurability is the expensing of costs relating to "assets" that cannot be identified with enough precision to warrant capitalization. Examples are brand equity costs from advertising and other promotional activities, and research and development costs relating to future products.
- **Historical costs.** Assets and liabilities are usually recorded at original acquisition or issuance costs. Subsequent increases in value are not recorded until realized and declines in value are only recognized if deemed permanent.

9.3.5. Summary of Ratios

Ratio	Formula	Purpose or Use
Liquidity Ratios		
1. Current ratio	Current assets Current liabilities	Measures short-term debt-paying ability.
2. Acid-test (quick) ratio	Cash + Short-term <u>investments + Receivables (net)</u> Current liabilities	Measures immediate short-term liquidity.
3. Receivables turnover	Net credit sales Average net receivables	Measures liquidity of receivables.
4. Inventory turnover	Cost of goods sold Average inventory	Measures liquidity of inventory.
Profitability Ratios		
5. Profit margin	Net income Net sales	Measures net income generated by each dollar of sales.
6. Asset turnover	Net sales Average assets	Measures how efficiently assets are used to generate sales.
7. Return on assets	Net income Average assets	Measures overall profitability of assets.
8. Return on common stockholders' equity	Net income – Preferred dividends Average common stockholders' equity	Measures profitability of owners' investment.
9. Earnings per share (EPS)	Net income – Preferred <u>dividends</u> Weighted-average common shares outstanding	Measures net income earned on each share of common stock.
10. Price-earnings (P-E) ratio	Market price <u>per share of stock</u> Earnings per share	Measures the ratio of the market price per share to earnings per share.
11. Payout ratio	Cash dividends Net income	Measures percentage of earnings distributed in the form of cash dividends.
Solvency Ratios		
12. Debt to total assets ratio	Total debt Total assets	Measures the percentage of total assets provided by creditors.
13. Times interest earned	Income before income taxes and interest expense Interest expense	Measures ability to meet interest payments as they come due.

9.4. DuPont Analysis

DuPont analysis investigates the interplay of three aspects of corporate performance:

- 1. Profitability: Is the company selling its products for more than it costs to provide them
- 2. Assets Use Efficiency: Is the company making productive use of its assets
- 3. Leverage: To what extent does the firm rely on bondholders and the bank?

If we dive deeper into ROE and ROA, we can see that:



A company always wants **high turnover** and **high margin** \rightarrow unattainable. Companies always (have to) go for one of the two. E.g. Volkswagen (high turnover) vs. Porsche (high margin).

Equity multiplier = leverage

Let's look at asset use efficiency, the major assets accounts are (some formulas in slides, important?):

- Receivable turnover
- Inventory turnover
- Fixed asset turnover

Example case:

- All three companies have the same ROE.
- Company A's ROE is driven by its net profit margin (10% versus 4.7% average for the three companies).
- Company B's ROE is driven by its leverage (2×versus 1.5×average for the three companies). Its turnover is below average, and its profit margin is very slightly above average.

Co. A	Co. B	Co. C	Average
2,000	4,000	6,675	4,225
200	200	200	200
1,000	2,000	1,500	1,500
1,000	1,000	1,000	1,000
0	1,000	500	500
20.0%	20.0%	20.0%	20.0%
10.0%	5.0%	3.0%	4.7%
2	2	4.45	2.82
1	2	1.5	1.50
	Co. A 2,000 200 1,000 1,000 0 20.0% 10.0% 2 1	Co. A Co. B 2,000 4,000 200 200 1,000 2,000 1,000 1,000 0 1,000 20.0% 20.0% 10.0% 5.0% 2 2 1 2	Co. A Co. B Co. C 2,000 4,000 6,675 200 200 200 1,000 2,000 1,500 1,000 1,000 1,000 0 1,000 500 20.0% 20.0% 3.0% 10.0% 5.0% 3.445 1 2 1.5

• Company C's ROE is driven by its turnover (4.45×versus 2.82×average).

These methods are widely used, but face some problems:

- The balance sheet under IFRS/GAAP mixes up the different activities of the firm:
 - Operating
 - Investing
 - Financing
- → Financing activities should not generate value (only operating and investing create value for shareholders)
- While computing ROA we have following mismatches:
 - \circ $\;$ In the numerator we have net income (money after paying debt holders and taxes)
 - \circ $\;$ In the denominator we have total assets, also debtholder assets
 - Assets include operating and investment assets
 - o Net income includes operating and investments income, but they often generate different rates

9.4.1. Reformulating the Statements

Because the operating and investing activities add value, but financing activities do not, we can reformulate the financial statements to align them with the **value-creating business activities**:

- Operating asset (OA)
- Operating liability (OL)
- Investment asset (IA)
- Financial obligation (FO)
- Equity (EQ) (same as before)

Reformulation A, example:

			LIABILITIES AND EQUITY		
			-		
DLOHA CORPORATION			Current liabilities		
	2009		Accounts payable	2.091	OL
ASSETS			Accrued expenses	935	OL
			Short-term borrowings	35,1	FO
Current assets			Current portion of long term debt	17,1	FO
Cash and cash equivalents	2.340	IA	Current portion of capital leases	53,1	FO
Short term investments	1.8	IA	Current income taxes payable	218,7	OL
Total cash and short term investments	2.342		Unearned revenue, current	85,5	OL
Accounts receivable	303.3	04	Other current liabilities	247,5	OL
Other receivables	341.1	00	Total current habilities	5.085	
Notes receivables	50.2	04	T and tame dallet	2 1 1 2	50
Total maximula and	704.7	UA	Comital lassas	2.115	FO
Total receivables, net	/04,/	-	Uncomed records non-correct	980	FU
inventories, net	1.198	ŬA	Difference and other past ratio	52	UL
Prepaid expenses	0	OA	henefits	116	01
Other current assets	430	OA	Def tay helpity non current	150	01
Total current assets	4.675		Other non -current liabilities	844	01
Property, plant and equipment, net	5.244	OA	Total liabilities	7.034	01
	0		Total matines	0	
Long-term investments (are hereOA because they are part of "Other Assets")	1.008	OA	Stockholders' equity	0	
Goodwill	336	OA	Common stock	322	EO
Other intangibles	350	OA	Additional paid-in capital	8.924	EQ
Accounts receivable long term	0	OA	Retained earnings	-3.524	EQ
Loans receivable long-term	29	OA	Treasury Stock	0	EQ
Deferred tax assets long term	369	OA	Comprehensive inc. and other	-403	EQ
Deferred Charges long term	0	OA	Total common equity	5.319	
Other long term assets	1 242	0.4	Minority interest	0	EQ
Other accests not	2 224	UA	Total stockholders' equity	5.319	
טוופו מספרס, וופנ	5.554			0	
	0		Total liabilities and stockholders'		
Lotal assets	13.253		equity	13.253	

We can compute the totals:

ASSETS		LIABILITIES+EQUIT	ſΥ
OA	10.911	OL	4.729
IA	2.342	FO	3.205
		EQ	5.319
Total Assets	13.253	Total Capital	13.253

We now simplify things by determining the Net Operating Assets (NOA)

$$NOA = OA - / - OL$$

Reformulation B, example:

ASSETS		LIABILITIES+EQUITY	
NOA	6.182	FO	3.205
IA	2.342	EQ	5.319
Business Assets	8.524	Net Capital	8.524

Be aware of the new terms Business Assets and Net Capital.

Now that we have reformulated the balance sheet to reflect the assets related to operations assets, investments assets and financial obligations, we can also reformulate the income statement.

- <u>Operating</u>: net operating profit after tax (NOPAT)
 - \circ NOPAT = (operating revenue $-/-operating expense)^*(1 tax rate)$
- <u>Investment</u>: net investment profit after tax (**NIPAT**)
 - $NIPAT = (investment income + interest income)^*(1 tax rate)$
- <u>Financing</u>: interest expense after tax (**IEAT**)
 - \circ *IEAT* = *interest expense* * (1 *tax rate*)

So, we get in our example:

	DLOHA CORPORATION			
		2009		
	Total revenues	29.530		
	Cost of goods sold	21 610		
	Selling estience	5 714		
	Gross profit	2 206		
	Cross prom	2.200		
	General and administrative expense total	816		
OD	o	1 200	0.0	
UP	Operating income	1.590	Or =	operating income items. <u>positive</u> values are operating revenues and
FO	Interest expense	288		ingauve values are the operating expenses
INV	Interest and importment income	18		
1111	Net interest expense	-270		
	The increase apende	-270	NOPAT =	(Total Operating Profit)*(1, Tay Rate)
OP	Income/(loss) from affiliates	57	or	(Total Operating Trom) (T-Tax Fate)
OP	Currancy exchange gain (loss)	3	NOPAT =	(Operating Revenues
OP	Other non-operating income (expense)	8	Norm	(Operaulig revenues ->- Operaulig Expenses) (1-Tax rate)
01	Faming hefore taxes avel unusual items	1 1 9 9		
	Lannings before taxes excit units an items	1.100	Tay Pata =	Tay Fyn/(Tay Fyn + Nat Income)
OP	Restructuring charges	-24	Tax Paric	Tax Eq.(Tax Eq. (Tech Lone)
OP	Accet unitedoum	-30		
OP	I egal settlements	-50		
OP	Other 10015113 items	ŏ		
01	Famings before taxes including unusual items	1 134	1 - Tax Rate	0.76
	Landy sciole and including and an action	1.124	Tay Rate	0.24
TAY	Income tay avalance	271	Tax Pane	0,24
Inn	Famings from continuing operations	863	+ NOPAT	1057.90
	Lannings from continuing operations	005	+ NIPAT	13.66
OP	Famings of discontinued operations	-10	TEAT	218.56
~	Net income to company	853		210,50
	The means to company	655	= NI	853.00
OP	Minority interest in earnings	0	-12	655,00
	Net income	853	Net Income = N	OPAT + NIPAT _/_ IFAT
	THE BRONK	000	Net meome - Iv	

 \rightarrow We have now separately identified assets related to operations, assets related to investments and financial obligations \rightarrow advanced ratio analysis.

9.4.2. Advanced Ratio Analysis

Operations: we can compute the return on operating assets (RNOA)

$$RNOA = \frac{NOPAT}{NOA}$$

Investments: we can compute the return on investments assets (ROIA)

$$ROIA = \frac{NIPAT}{IA}$$

With *IA* = *investment assets*. In our example we get:

NOA	6.182	NOPAT	1058
IA	2.342	NIPAT	14
RNOA =	1058/ 6182 =	17%	
ROIA =	14/2342 =	1%	

Combining these, we can compute the return on business assets (ROBA)

$$ROBA = \frac{NOPAT + NIPAT}{BA}$$

With BA = business assets = NOA + IA. In our example we get:

$$ROBA = \frac{1058 + 14}{6182 + 2342} = 13\%$$

 \rightarrow DLOHA company has large cash holdings (investment assets) (RNOA >> ROA)

If a company is **only financed by equity:** ROE = ROBA!

If not:

ROE = ROBA + Spread * Financial leverage $Spread = ROBA - \frac{IEAT}{Financial obligations}$ $Financial leverage = \frac{Financial obligation}{Equity}$

⇒ Additional example in slides!

Ahold vs Tesco case!

10. Control Responsibilities, Corporate Governance and Organizational Misconduct

Exposure = the potential effect of an event multiplied by its probability of occurrence.

 \rightarrow Controls are needed to reduce exposure \rightarrow they do not affect the causes of exposure!

Common exposures:

- Deficient revenues
- Loss of assets
- Statutory sanctions
- Competitive disadvantages
- Fraud and embezzlement
- Inaccurate accounting
- Business interruption
- Excessive costs

10.1. Internal Control

Internal control = a process effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting and compliance.

 \rightarrow Management has a fundamental responsibility to develop and maintain effective internal control.

Key characteristics:

- Operations
 - o Effectiveness
 - Efficiency
 - Safeguarding assets
- Reporting
 - o Reliability
 - o Timeliness
 - o Transparency
- **Compliance** with regulatory environment
- Continuous
 - o Built into operations
 - o Not one single event
 - o Dynamic
- Effected by people
- Able to provide reasonable assurance, not absolute assurance
- Adaptable to the entire entity or to a particular division, business process, etc.

Risks of weak internal control:

- Financial misstatements
- Business loss
- Loss of funds or materials
- Incorrect or untimely management information
- Fraud or collusion
- Tarnished reputation with the public
- Missed goals

Common basic internal control principles:

- Establish Responsibility: Assign each task to only one person
- Segregate Duties: Don't make one employee responsible for all parts of a process
- **Restrict Access**: Don't provide access to systems, information, assets, etc. unless needed to complete assigned responsibilities
- Document Procedures and Transactions: Prepare documents to show that activities have occurred
- Independently verify: Check others' work

10.1.1. COSO Framework for Internal Control

The 'Committee of Sponsoring Organizations of the Treadway Commission' is a joint initiative to combat corporate fraud. They made the COSO framework for internal control:

- Control environment
 - Set of standards, processes, and structures that provides the basis for carrying out internal control across the organization
 - Includes the tone at the top regarding importance of:
 - Internal control
 - Expected standards of conduct
- Risk assessment
 - Process for identifying and assessing risks that may affect organizations from achieving objectives
- Control activities
 - Actions established by policies and procedures
 - Help ensure that management's directives regarding internal control are carried out

• Information and communication

- Information from internal and external sources
- Communication is the process of providing, sharing, and obtaining necessary information

The COSO "cube" 5 integrated components



Demonstrates commitment to integrity and ethical values 2. Exercises oversight responsibility 3. Establishes structure, authority and responsibility 4. Demonstrates commitment to competence 5. Enforces accountability 6. Specifies suitable objectives Identifies and analyzes risk Identifies and analyzes significant change 10. Selects and develops control activities 11. Selects and develops general controls over technology 12. Deploys through policies and procedures 13. Uses relevant information 14. Communicates internally 15. Communicates externally 16. Conducts ongoing and/or separate evaluations 17. Evaluates and communicates deficiencies

Monitoring

o Helps determine whether the controls are present and continuing to function effectively

10.2. Auditing

Auditing = the accumulation and evaluation of evidence about information to determine and report on the degree of correspondence between the information and established criteria.

 \rightarrow Auditing should be done by a competent and independent person/firm.

To do an audit, there must be information in a **verifiable form** and some standards (**criteria**) by which the auditor can evaluate the information.

Evidence = any information used by the auditor to determine whether the information being audited is stated in accordance with the established criteria.

The auditor must be qualified to understand the criteria used and must be competent to know the types and amount of evidence to accumulate to reach the proper conclusion after the evidence has been examined.

The competence of the individual performing the audit is of little value if (s)he is biased in the accumulation and evaluation of evidence.

→ Final stage: audit report.

Information risk = the possibility that the information upon which the business risk decision was made was inaccurate.

 \rightarrow Auditing can have a significant effect on information risk.

Cause of information risk:

- Remoteness of information
- Biases and motives of the provider
- Voluminous data and (or) Complex Transactions

10.2.1. Internal Audit

Internal auditing = an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.

→ Head of internal audit will have direct reporting line to top in the organization/board level (audit committee).	Internal Control	Internal Audit
	Part of line function (part of function of every employee)	Staff function (separate function)
Example in slides if needed.		
	Within hierarchy	Independent (except top and audit committee)
	Responsible for activities & their execution	Only responsible for reporting
	No formal standards	Generally accepted standards (IIA)

10.2.2. Audit of Financial Statements



Difference between accounting and audit of financial statements:

- **Accounting** = the recording, classifying, and summarizing of economic events for the purpose of providing financial information used in decision making.
- **Financial Statement Auditing** = determining whether disclosed financial reports properly reflects the economic events that occurred during the accounting period.



Internal audit	Financial Statements Audit
Employee of organization	External contractor
Independent through a) position within organizational chart and b) audit charter	Strictly independent of the organization
Works on behalf of the organization	Works for a third party: shareholders

Not regulated	Regulated
Quality label: Certified Internal Auditor	Quality label: Certified Public Accountant
Broad scope: opinion on adequacy and effectiveness of systems of risk management and internal control (incl.	More narrow scope: opinion on true and fair view of accounts
prevention of fraud)	(fraud detection is not an objective)
Focus on operational audit	Focus on financial audit
Continuous	Periodic (annual)
Future-oriented	Past period

10.3. Senior Management and Board of Directors

Senior management is responsible for day-to-day management, financial reporting, risk management...

The CEO and CFO must **personally** certify to the:

- Accuracy of financial statements
- Adequacy & effectiveness of disclosure controls and procedures
- Adequacy & effectiveness of internal controls over financial reporting
- **Completeness of all disclosures** that materially impact the financial statements or relate to frauds involving management with a significant role in internal controls over financial reporting

The Board of Directors must:

- **Reviewing and guiding** corporate strategy, major plans of action, risk policy, annual budgets and business plans, setting performance objectives; monitoring implementation and corporate performance; and overseeing major capital expenditures, acquisitions and divestitures.
- Monitoring the effectiveness of the company's governance practices and changing them as required.
- Selecting, compensating, monitoring and replacing key executives and overseeing succession planning.
- Aligning key executive and Board remuneration with the **longer-term interests** of the company.
- Ensuring a formal and transparent Board nomination and election process.
- Monitoring and **managing potential conflicts of interest** of management, Board members and shareholders, including misuse of corporate assets and abuse in related party transactions.
- Ensuring the **integrity** of the corporation's accounting and financial reporting systems.
- Overseeing the process of **disclosure and communications**.

10.4. Corporate Governance

Corporate governance = the combination of processes and structures implemented by the board to inform, direct, manage and monitor the activities of the organization towards the achievement of its activities.

The **objectives** of corporate governance should be to ensure that:

- the directors act in the best interests of the shareholders (and not in their own self-interest)
- the board provides suitable strategic leadership
- there is proper **accountability** of the directors to the shareholders, and a constructive relationship between the directors and shareholders

Problems:

- Most issues seen in large public companies, where the separation of ownership and control is a major problem
- History of corporate failures due largely or entirely too bad corporate governance + Misleading financial reporting
- Particular problem has been the domination of companies by an all-powerful CEO/chairman e.g. Maxwell and the Daily Mirror

\rightarrow Scandals in the past \rightarrow corporate governance codes \rightarrow One of the most influential guidelines has been the OECD Principles of Corporate Governance (1999)

Benefits:

- Higher quality financial reporting
- Better stakeholder relations
- Enhanced reputation
- Good communication
- Better risk management
- Market confidence from positive messages
- More investor support when 'non-compliant' or when problems arise

Examples of unsuccessful corporate governance:

- CFO with aggressive M&A strategy
- Poor strategic choices
- Aggressive targets and earnings management
- Misaligned incentives
- Poor ethical standards at the top
- Poor execution
- Failure to respond quickly to change
- Too dominant/charismatic CEO
- Weak internal controls
- Weak board of directors (too cozy with CEO)

10.5. Three Lines of Defense

We can summarize the lines of defense in one figure, based on what has been set previously. If needed, more information can be found in the slides.



10.5.1. Swiss Cheese Model

In the Swiss cheese model, an organization's defenses against failure are modeled as a series of barriers, represented as slices of cheese. The holes in the slices represent weaknesses in individual parts of the system and are continually varying in size and position across the slices. The system produces failures when a hole in each slice momentarily aligns, permitting a trajectory of accident opportunity, so that a hazard passes through holes in all of the slices, leading to a failure.



10.6. Organizational Misconduct

Organizational misconduct = a knowing misrepresentation of the truth or concealment of a material fact to induce another to act to his or her detriment.

10.6.1. Reasons of Misconduct

There are a few reasons that lead to misconduct (some examples are omitted):

Pressure

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- Superiors or co-workers
- o Time
 - Incentive to cut corners, ignore red flags
- Market/shareholder
 - Big financial firms engaged in risky behaviors to earn quick profits prior to the latest recession
- Foot in the door
 - First somebody gets you to agree to a small **favor**, then they ask for a bigger one.
 - If you agree to commit a small ethical infraction, you are much more likely to commit a larger one next time you are asked.
 - Escalation of commitment is a similar concept. More and more misconduct is required to meet performance targets and cover up the previous misconduct.
- The greater good
 - This occurs when an employee commits misconduct not to **benefit** him or herself but to help **the firm**.
 - Organizational misconduct is more likely to come from employees trying to reach performance goals or benefit the organization rather than personal greed.
- <u>Rationalization</u>
 - o Coming up with reasons to reduce cognitive dissonance in a misconduct situation
 - When faced with an unethical decision, the employee faces a dilemma because the action conflicts with his or her values and knowledge of what constitutes ethical conduct.
 - Rationalizations are excuses used to reduce this uncomfortable feeling by attempting to provide a valid reason for the misconduct.
 - "Everyone was doing it", "I deserve it", "It's only one time."

- Employee theft and employee sabotage are likely to make use of rationalization to justify their behavior "I'm not getting treated the way I deserve, so this is a way to make it even."
- Groupthink
 - Occurs when an employee goes along with the crowd even when he or she believes the decision or action is wrong.
 - Asch experiments: To test whether a participant would give an obviously wrong answer because everyone else did so; 75% of participants gave an incorrect answer to at least one question.
 - Best way to avoid trap of groupthink: Be willing to stand out from the crowd.
- <u>Authority</u>
 - Individuals commit acts that conflict with their ethical beliefs because somebody in authority tells them to do so.
 - **The Milgram experiments**: Although the participants were uncomfortable, many were willing to continue administering electric shocks if the "authority figure" agreed to take responsibility.
 - 65% of participants administered the maximum 450-volt shock, even though doing it caused them severe distress.
 - One of the strongest sources of power is **legitimate power**, which occurs when a person is perceived to be in charge.
 - Being willing to ask questions and assume personal responsibility no matter what the authority figure says appear to be good ways to avoid this trap.
- <u>No way out</u>
 - When an individual feels **trapped by** his or her **circumstances**
 - \circ $\;$ In business ethics, this might include:
 - Continuing in misconduct because to do otherwise would expose it and lead to **punishment**
 - Allowing misconduct to go unchecked due to fears of punishment
- <u>Self-serving bias</u>
 - Self-serving bias refers to our tendency to view ourselves as more ethical than the average person.
 - **The Blind Spot**: When asked how they compared "ethically" to other people on a scale of 1 to 100, the average score was 75. People tend to believe they are more ethical than those around them.
 - It is believed that the reason why many accountants perform bad audits is not so much due to fraud, but due to **unconscious bias**.
 - There is often a gap between our ethical intentions and our behavior; those that believe they are more ethical than the general population are more likely to turn a "blind eye" toward this gap and not recognize problematic situations.
- Greed and narcissism
 - o Greed: "an intense and selfish desire for something, especially wealth, power, and food."
 - Narcissism: Thinking you are above the law
 - The need to win
 - Closely related is the need to win; many fraudsters claim they couldn't bear the thought of failing



10.6.2. Organizational Misconduct Diamond

Many of these are **not mutually exclusive**! For instance, misconduct will often start with rationalizations, escalate in severity, and result in the person feeling that he or she has no way out but to continue the misconduct.

What can we learn from this?

- Companies should regularly reinforce shared values and emphasize that everyone whether lower level employees or high levels manager must abide by them.
- Mechanisms should be put in place that allow employees to report misconduct, including anonymous mechanisms such as hotlines.
- Realize that misconduct is misconduct, no matter how much it is perceived to be "small." Rationalizations do nothing to change this fact.
- Recognize that most misconduct starts off small but then snowballs into greater misconduct.

11. Cases

11.1. Kanthal

You should be able to perform this analysis based on the viewed material, especially **chapter 5**! If you want the answers to the question, please refer to the slides.

Note on writing arguments:

- What are you **claiming**?
- What reasons do you have for believing your claim?
- What evidence do you base those reasons on?
- What principle connects or makes your reasons relevant to your claims? (warrant)
- What about potential disagreements or difficulties your audience might have with your claim? (acknowledgment and response)

11.2. Ahold vs. Tesco

You should be able to perform this analysis based on the viewed material, especially **chapter 9**! If you want the answers to the question, please refer to the slides.

11.3. WorldCom

Risk exposure tool:

- Growth
 - Pressure for performance
 - Aggressive stretched goals set by top with no input from lower levels?
 - Performance-variable pay large percentage of total compensation?
 - High expectations from capital markets/traders?
 - \circ Rate of expansion
 - Are operations expanding faster than our capacity to invest in more people and technology?
 - High levels of acquisitions?
 - Inexperience of key employees
 - Percentage of jobs filled with newcomers (< 1 year experience with company)?</p>
 - Alarm bells: increased number of customer complaints + too many stupid mistakes by employees
- Culture
 - Reward for entrepreneurial risk taking
 - What % of products/services have been developed by creative, risk taking employees?
 - Increasing frequency of failed new products/services?
 - Executive resistance to bad news
 - How much "bad" news do I actually hear?
 - Have I surrounded myself with "yes men"?
 - o Level of internal competition
 - Do we manage and motivate with horse races?



- Are employees ranked and compared with one another? Or are they evaluated on their own merits?
- Do we have an "up or out" environment?
- Information management
 - Transaction complexity and velocity
 - Do we truly understand the complex and sometimes arcane language of deal making experts in our company?
 - What were the complexity, volume and velocity of information a year ago? Have they risen? How much?
 - o Gap in diagnostic performance measurement
 - Is it hard to get the right data on the right time?
 - Frustration to get the right information (phone calls, visits, etc. instead of computer system)?
 - Do you hardly look at performance measurement data?
 - Degree of decentralized decision making
 - High level of autonomy to make decisions?

Accounting Fraud occurred in two main forms:

- 1. **Understatement of operating expenses** through improper accruals and through improper capitalization of operating expenses.
- 2. **Overstatement of revenues** of \$1B.

(1) What are the pressures that lead executives and managers to "cook the books"?

- Pressure to maintain historic growth
 - Historic growth by **acquisitions**
 - No more growth via acquisitions anymore
 - Regulatory authorities
 - Growth needed through existing assets
 - Rapidly evolving telecommunication industry
- Dot.com and telecom bubble: Demand decrease, over capacity, high competition

(3a) Why were the actions taken by WorldCom managers not detected earlier?

- Fragmented company because of rapid growth through acquisitions
- Senior **executives did not know each other well** + some senior staff (e.g. legal, HR) far away from corporate headquarters
- Employees with few comparable alternatives
- CEO was an autocratic leader, dismissive of values, focusing on short term stock returns
- Culture of obeying orders and not questioning superiors
- "Good soldiers" that increased the stock return received **extra bonuses** outside the normal compensation system
- Created a culture where managers take whatever actions to prop up a deteriorating stock price
- Each department had its own rules and management style
- No written policies ("colossal waste of time")
- No good IT security: seniors could alter figures

(3b) What processes or systems should be in place to prevent or detect these type of actions?

Internal controls

- Ability of senior accounting managers to gain access and adjust figures / general ledger of business units to make high level adjustments
- Absence of an employee hotline to report suspicious, unethical or illegal behavior clear need for a "whistle blowing" mechanism
- Internal audit
 - **Reported directly to the CFO** and not to the audit committee of the Board
 - CFO set strict boundaries on the scope of the internal audit
- External audit
 - Was not independent of its client ("crown jewel")
 - Analytical reviews
 - CFO and senior financial managers placed strong restrictions on auditors' access to information and key personnel (**restricted scope**)
 - \circ No private meetings between audit committee (board) and external auditor
- Board of directors
 - Board members were **not truly independent** (most of them became rich by selling their company to WorldCom)
 - Were **passive** and submissive with respect to the CEO's leadership
 - Chairman did not really chair board meeting nor set the agenda
 - Spent little time on its governance and oversight activities
- (4b) What are your suggestions for the BoD?
- → A possibility is **levers of control**

11.3.1. Levers of Controls

Suggested by Robert **Simons**. Figure sums it up, more information in the slides.

Belief Systems inspire and direct the search for new opportunities.	 Did the BoD communicate core values? Did the BoD encourage the CEO to think in terms of the organization's best interests
Boundary Systems set limits on opportunity-seeking behavior.	 Did the BoD monitor risks to be avoided ? Did the BoD limit the myopic tendencies of the CEO?
Interactive Control Systems stimulate search and learning	 Did the BoD and CEO collaborate well with eachother? Did the BoD encourage debate. Did the managers encourage debate? Did the managers allow employees to question?
Diagnostics Control Systems motivate, monitor and reward	 How did the BoD set and monitor critical performance variables? Did it ensure that the CEO is held accountable to the BoD?

Solution:

- Greater board independence
- Rotate auditors
- Tone at the top
- Integrity and ethics



• Correct incentive scheme

(5) Betty Vinson: victim or villain? How should employees react when ordered by their employer to do something they do not believe/feel uncomfortable doing?

- Placed in a compromised position: she needed the job and health benefits
- There have to be consequences for illegal acts, even if there are extenuating circumstances

Key take-aways:

- History repeats itself.
- Be aware of your environment.
- If it seems too good to be true, it probably is.
- No job is worth breaking the law or committing unethical acts for.
- Trust, but Verify
- Your **personal integrity** is your most important asset you own it and control it.

12. Background Information Regarding Cash

Accountants divide the economic life of a business into artificial time periods (**Periodicity Assumption**) \rightarrow months, quarter, year \rightarrow there is a difference in **fiscal year** and **calendar year**.

Revenue Recognition Principle = Companies recognize revenue in the accounting period in which it is earned.

 \rightarrow In a service enterprise, revenue is considered to be earned at the time the service is performed.

Expense Recognition Principle = Expenses matched with revenues in the period when efforts are expended to generate revenues.

\rightarrow Let the expenses follow revenues



12.1. Accrual versus Cash Basis of Accounting

Accrual-Basis Accounting	Cash-Basis Accounting
Transactions recorded in the periods in which the events occur.	Revenues are recognized only when cash is received.
Revenues are recognized when earned, even if cash was not received.	Expenses are recognized only when cash is paid.
Expenses are recognized when incurred, even if cash was not paid.	Prohibited under generally accepted accounting principles (GAAP).
Illustration in slides.	

More on **cashflows** in slides, but not for the exam, so omitted here.