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## Financial Analysis (Ch.2)

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# Financial Analysis of Comparative Financial Statements

## Vertical Analysis

Income statement for the period ending 31/12/2020		Vertical Analysis (Base number is revenue or net sales)
Revenue	100000	100%
Sales cost	63500	63.5%
Gross Profit	36,500	36.5%
Marketing expenses	5500	5.5%
Administrative expenses	11000	11%
Net income after tax	20000	20%

## Horizontal Analysis

	Base Year		
	2019	2020	%
Fixed assets			
Machines	164000	150000	▼ 8.5%
Cars	136000	145000	▲ 6.6%
Total Fixed assets	300000	295000	▼ 1.7%
Current assets			
Debtors	72000	70000	▼ 2.8%
Bank	93000	95000	▲ 2.2%
Total current assets	165000	165000	0%
Total assets	465000	460000	▼ 1.8%

## Ratio Analysis

Liquidity Ratio

Profitability Ratio

Efficiency Ratio

Solvency (Debt) Ratio

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# Financial Analysis of Comparative Financial Statements

## Vertical Analysis

## Horizontal Analysis

## Ratio Analysis

- When determining the percentage change (vertical analysis) for items on the income statement, the sales figure is the basis, and all items are compared to it.
- When determining the percentage change (vertical analysis) for balance sheet items:
  - Assets are compared to total assets.
  - Liabilities and equity are compared to total liabilities and equity.

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## Vertical Analysis

### Income statement for the period ending 31/12/2020

### Vertical Analysis (Base number is revenue or net sales)

Revenue	100000	100%
Sales cost	63500	63.5%
<u>Gross Profit</u>	<u>36,500</u>	36.5%
Marketing expenses	5500	5.5%
Administrative expenses	11000	11%
<u>Net income after tax</u>	<u>20000</u>	20%



## Vertical Analysis

Financial position as of 31/12/2020	
Current Assets	
cash	30,000
Debtors	25,000
Inventory	15,000
Total current assets	70,000
Fixed assets	
Lands	90,000
Buildings	11,000
Machines	40,000
Total Fixed assets	180,000
Total assets	250,000
Liabilities	
Suppliers	8,000
Notes payable	22,000
Loans	40,000
Total liabilities	70,000
Owners Equity	
Capital	130,000
Net income	50,000
Liabilities and equity	250,000

## Financial position as of 31/12/2020

Vertical Analysis  
(Base number is Total assets)

Current Assets		
cash	30,000	12%
Debtors	25,000	10%
Inventory	15,000	6%
Total current assets	70,000	28%
Fixed assets		
Lands	90,000	36%
Buildings	11,000	4.4%
Machines	40,000	16%
Total Fixed assets	180,000	72%
Total assets	250,000	100%

## Financial position as of 31/12/2020

Vertical Analysis  
(Base number is Total assets)

Liabilities		
Suppliers	8,000	3.2%
Notes payable	22,000	8.8%
Loans	40,000	16%
Total liabilities	70,000	28%
Owners Equity		
Capital	130,000	52%
Net income	50,000	20%
Liabilities and equity	250,000	100%





## Horizontal Analysis

	Base Year		
	2019	2020	%
Revenue	37500	45000	▲ 20%
- Sales cost	22000	25000	▲ 13.6%
Gross Profit	15500	20000	▲ 29%
+ Other revenues	19500	16800	▼ 13.8%
- Other expenses	15000	13400	▼ 10.7%
Net Income	20000	23400	▲ 17%

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## Horizontal Analysis

	Base Year		
	2019	2020	%
Fixed assets			
Machines	164000	150000	▼ 8.5%
Cars	136000	145000	▲ 6.6%
Total Fixed assets	300000	295000	▼ 1.7%
Current assets			
Debtors	72000	70000	▼ 2.8%
Bank	93000	95000	▲ 2.2%
Total current assets	165000	165000	0%
Total assets	465000	460000	▼ 1.8%



## Example (1)

Using the following data for the comparative budget of Al-Amal Company for the years 2015 and 2016:

Description	2016	2015
Customer accounts	104000	80000
Inventory	168000	120000
Total assets	300000	500000

### Required:

1- Perform horizontal and vertical analysis given that 2015 is base year.

## Second, the vertical analysis for the year 2015

Description	2015	Percentage
Customer accounts	80000	16%
inventory	120000	24%
Total assets	500000	100%

## Vertical Analysis 2016

Description	2016	Percentage
Customer accounts	104000	34.6%
inventory	168000	56%
Total assets	300000	100%



## Example (2)

The following is the income statement and balance sheet for the years 2023 and 2024 for one of the industrial companies in Sadat City:

### 1- Income Statement:

Description	2023	2024
Sales Revenue	37,500	45,000
(-) Cost of Sales	(22,000)	(25,000)
Gross Profit	15,500	20,000
(+) Other Revenues	19,500	16,800
(-) Other Expenses	(15,000)	(13,400)
Net Income (Profit)	20,000	23,400

## 2- Statement of financial position

Description	2023	2024
<b>Assets:</b>		
<b>Fixed Assets:</b>		
Equipment	164,000	150,000
Vehicles	136,000	145,000
<b>Total Fixed Assets</b>	<b>300,000</b>	<b>295,000</b>
<b>Current Assets:</b>		
Receivables	72,000	70,000
Bank	93,000	95,000
<b>Total Current Assets</b>	<b>165,000</b>	<b>165,000</b>
<b>Total Assets</b>	<b>465,000</b>	<b>460,000</b>
<b>Liabilities:</b>		
Accounts Payable	58,000	55,000
Creditors	45,700	48,000
Loans	76,300	88,200
<b>Total Lia.</b>	<b>180,000</b>	<b>191,200</b>
<b>Total Equity</b>	<b>285,000</b>	<b>268,800</b>
<b>Total Liabilities &amp; Equity</b>	<b>465,000</b>	<b>460,000</b>

**Required:** Study and identify the changes that occurred in the items of the financial statements during the year 2024 using the horizontal financial analysis method?

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## 2- Analysis of Income Statement Items

Statement	2023	2024	Amount of Change	% Change
Sales	37500	45000	7500	20%
Cost of Sales	(22000)	(25000)	(3000)	13.6%
Gross Profit	15500	20000	4500	29%
+ Other Revenues	19500	16800	(2700)	(13.8%)
- Other Expenses	(15000)	(13400)	(1600)	(10.7%)
Net Income	20000	23400	3400	17%



## 2- Analysis of the Balance Sheet Items

Statement	2023	2024	Amount of Change	% Change
<b>Assets:</b>				
<b>Fixed Assets:</b>				
Equipment	164,000	150,000	(14,000)	(8.5%)
Vehicles	136,000	145,000	9,000	6.6%
<b>Total Fixed Assets</b>	<b>300,000</b>	<b>295,000</b>	<b>(5,000)</b>	<b>(1.7%)</b>
<b>Current Assets:</b>				
Debtors	72,000	70,000	(2,000)	(2.8%)
Bank	93,000	95,000	2,000	2.2%
<b>Total Current Assets</b>	<b>165,000</b>	<b>165,000</b>	<b>----</b>	<b>----</b>
<b>Total Assets</b>	<b>465,000</b>	<b>460,000</b>	<b>(5,000)</b>	<b>(1.08%)</b>
<b>Liabilities:</b>				
Accounts Payable	58,000	55,000	(3,000)	(5.2%)
Creditors	45,700	48,000	2,300	5.04%
Loans	76,300	88,200	11,900	15.6%
<b>Total Liabilities</b>	<b>180,000</b>	<b>191,200</b>	<b>11,200</b>	<b>6.2%</b>
<b>Equity</b>	<b>285,000</b>	<b>268,800</b>	<b>(16,200)</b>	<b>(5.7%)</b>
<b>Total Liabilities and Equity</b>	<b>465,000</b>	<b>460,000</b>	<b>(5,000)</b>	<b>(1.08%)</b>



## Example (2)

The following data is available regarding the results of Sadat Company's operations in Talla for the period ending on 31/12/2024.

### **Income Statement for the period ending on 31/12/2024**

Statement	Vertical Analysis	
	Value	Percentage (%)
Sales	100,000	100%
(-) Cost of Goods Sold	63,500	63.5%
Gross Profit	36,500	36.5%
(-) Other Expenses:		
- Selling Expenses	5,500	5.5%
- Administrative Expenses	11,000	11%
Net Income after Taxes	20,000	20%



## Example (3)

Assuming the following data is available for "Jody" Trading Establishment as of 31/12/2024 (amount in Egyptian Pounds):

<b>Current Assets:</b>	
Cash	30,000
Receivables	25,000
Inventory	15,000
Total Current Assets	70,000
<b>Long-Term Assets:</b>	
Land	90,000
Buildings	50,000
Equipment	40,000
Total Assets	250,000
<b>Liabilities:</b>	
Creditors	8,000
A/P (Accounts Payable)	22,000
Loans	40,000
Total Liabilities	70,000
<b>Equity:</b>	
Capital	130,000
Retained Earnings (from Income Statement)	50,000
Total Liabilities and Equity	250,000

## Vertical Analysis of Balance Sheet Items

Item	Vertical Analysis	
	Value	Percentage
<b>Current Assets:</b>		
Cash	30,000	12%
Accounts Receivable	25,000	10%
Inventory	15,000	6%
Total Current Assets	70,000	28%
<b>Long Term Assets:</b>		
Lands	90,000	36%
Buildings	50,000	20%
Equipment	40,000	16%
<b>Total Assets</b>	<b>250,000</b>	<b>100%</b>
<b>Liabilities:</b>		
Creditors	8,000	3.2%
Accounts Payable	22,000	8.8%
Loans	40,000	16%
Total Liabilities	70,000	28%
<b>Owner's Equity:</b>		
Capital	130,000	52%
Retained Earnings	50,000	20%
<b>Total Equity</b>	<b>250,000</b>	<b>100%</b>

# Ratio Analysis

$$\text{Ratio} = \frac{\text{\$ \$ \$ \$ \$ \$}}{\text{\$ \$ \$ \$ \$ \$}} = \begin{matrix} \text{\$} \\ \text{\%} \\ \text{Times} \\ \text{Days} \end{matrix}$$

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Ratio = Income Statement  
Balance Sheet

Average = (Beginning + ending) / 2

Ratio = Balance Sheet  
Balance Sheet

Ending Balance



# Ratio Analysis



ADLP  
6678



## Profitability

Ability to generate profits from its sales and assets.

02

## Activity (Efficiency)

How well company utilizes its assets effectively?

03



01

## Liquidity

Ability to cover current Lia. Using current assets.

04

## Debt (Solvency)

Ability to cover Non-current Lia.





## Liquidity Ratios

**Acid-Test Ratio**

**Highly Liquid Assets / Current Lia.**

**Highly liquid: Cash +  
Marketable Sec. + Accounts  
Receivable**

**Current Ratio**

**Current Assets / Current Lia.**

**CA: Cash + Marketable Sec. +  
Accounts Receivable +  
Inventory + Prepayments**

**Cash Ratio**

**Immediate cash assets / CL**

**Immediate cash assets: Cash +  
Marketable Sec.**

**Basic  
Defensive  
Interval**

**Total Defensive Assets / Expected  
daily Operations Expenses**

**Total Defensive Assets= Cash  
+ Marketable Sec. + Accounts  
Receivable**

Cash flow adequacy	Operating cash flows/ (Capital expenditures +dividends+ Long-term debt payments)	
Working capital	Current Assets - Current Lia.	
Cash Turnover Ratio	Net sales / cash-equivalent assets	cash-equivalent assets= Cash + Marketable Sec.

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## Profitability Ratios

**Return on  
Assets (ROA)**

**Net Profit / Average total assets**

**Return on  
equity (ROE)**

**Net Profit / Average equity**

**EPS**

**(Net income – Preferred dividends) /  
W.A Number of Common Shares**

**Market  
return on  
share**

**EPS / Market value per share**

<b>Earning power</b>	<b>Operating profit / Average assets involved in operations</b>	
<b>Gross profit margin</b>	<b>Gross Profit / Net sales</b>	
<b>Operating profit margin</b>	<b>Net Operating Profit / Net sales</b>	
<b>Net profit margin</b>	<b>Net Profit / Net sales</b>	

## Activity Ratios

**Current  
Assets  
Turnover**

**Net Sales / Average Current Assets**

**Fixed Asset  
Turnover**

**Net Sales / Average Fixed Assets**

**Inventory  
Turnover**

**Cost of Goods Sold / Average  
Inventory**

**Average  
inventory  
period**

**365/ Inventory turnover**

**Average days to  
sell inventory**

**Receivables  
Turnover**

**Net Credit Sales / Average  
Receivables**

**Average  
collection  
period  
(Receivables  
Liquidity)**

**364/ Receivables Turnover**

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## Debt Ratios

**Debt to Asset  
ratio  
(leverage  
ratio)**

**Total debt/ Total Assets**

**Debt to  
Equity ratio**

**Total debt/ Total Equity**

**Long-Term  
debt to asset  
ratio**

**Long-Term debt/ Total Assets**

**Interest  
Coverage  
Ratio**

**Net Income before interest and  
taxes / Interest expense**



Fixed Charges coverage ratio	Income available to cover fixed charges / Fixed Assets	
	(Net Profit Before Interest and Taxes + Lease Payments) / (Interest + Lease Payments + [Provision Required for Loan Repayment / (1 - Tax Rate)])	

Equity to total assets ratio	Total equity to total assets	
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## Example (1)

The following data is available regarding certain elements of the balance sheet as of December 31, 2024, for Al-Najah Company in Cairo (values in Egyptian pounds):

Description	Value (EGP)
Cash	80410
Short-term Investments	49470
Accounts Receivable	125450
Inventory	148140
Other Current Assets	55710
Total Current Assets	459180
Total Current Liabilities	406440

**Required:** Determining the following ratios:

- Working capital
- Current ratio
- Quick ratio

**Working  
Capital (WC)**

**Current Assets – Current Liabilities**

$$459180 - 406440 =$$
$$\underline{52,740}$$

**Current Ratio**

**Current Assets / Current Liabilities**

$$459180 / 406440 =$$
$$\underline{1.13}$$

**Quick Ratio**

**(Cash + Short-Term Investments +  
Accounts Receivable) / Current  
Liabilities**

$$255330 / 406440 =$$
$$\underline{.63}$$

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## Example (2)

**The company's net income amounted to 1,644 million EGP, and net revenue was 80 million EGP in 2024. Its assets were 14 million EGP at the beginning of the year and 18 million EGP at the end of the year. Calculate both the Asset Turnover Ratio and Profit Margin.**

Asset Turnover	Net Revenue / Average Assets	80 million / 16 million <u>=5 Times</u>
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To calculate Average Assets:

Average Assets = Beginning Assets + Ending Assets / 2  
= 14 million + 18 million / 2 = 16 million.

Profit Margin	Net Income / Net Revenue	<u>2,055%</u>
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### Example (3)

Below are the following data extracted from the income statement of "Jana" Company (values in Egyptian pounds):

Description	2024	2025
Sales	620,000	640,000
Beginning Inventory	86,000	98,000
Purchases	460,000	430,000
Ending Inventory	98,000	102,000

#### Required:

- ✓ Inventory Turnover Ratio.
- ✓ Average Days to Sell Inventory.

**Inventory  
Turnover**

**COGS / Average Inventory**

**426,000 / 100,000=**  
**4.26**

Where

$COGS = \text{Beginning Inventory} + \text{Purchases} - \text{Ending Inventory}$

$\text{Average inventory} = (\text{Beginning Inventory} + \text{Ending Inventory}) / 2$

For 2025:

$COGS (2025) = 98,000 + 430,000 - 102,000 = 426,000$

$\text{Average Inventory (2025)} = 98,000 + 102,000 / 2 = 100,000$

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**Average Days  
to Sell  
Inventory**

**365 / Inventory Turnover**

**365 / 4.26=**  
**86 days**

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## Solve with me

Here are the selected data for Al-Mahabba Company from the financial statements as of 31/12 for the years 2022 and 2023:

Item	2022	2023
Net Sales	720,000	760,000
Cost of Goods Sold	440,000	480,000
Receivable Interest	5,000	7,000
Net Income	42,000	50,000
Customer Accounts	100,000	120,000
Inventory	75,000	85,000
Total Assets	500,000	580,000
Total Equity of Common Shareholders	35,000	430,000

**Required: (Calculate the following ratios for the year 2023)**

- ✓ **Net profit margin**
- ✓ **Assets Turnover**
- ✓ **Return on Assets (ROA)**
- ✓ **Return on Equity (ROE)**

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**The End**

**Thank you**

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**The End**

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