COURSE: INVESTMENTS |CHAPTER 14

FINANCIAL STATEMENT ANALYSIS

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Chapter Purpose

This chapter explains how investors use financial statements to evaluate:

- **Financial position**
- **Profitability**
- **Liquidity**
- **Operating efficiency**
- **Debt and solvency**
- **Cash generation**
- **Earnings quality**
- **Growth potential**
- **Investment risk**
- **Equity value**

Learning Objectives

By the end of this chapter, students should be able to:

1. Explain financial statement analysis.
2. Interpret the balance sheet.
3. Interpret the income statement.
4. Interpret the cash-flow statement.
5. Explain how the statements are connected.
6. Conduct horizontal and common-size analysis.
7. Calculate liquidity ratios.
8. Calculate efficiency ratios.
9. Calculate leverage and coverage ratios.
10. Calculate profitability ratios.
11. Apply DuPont analysis.
12. Interpret market-value ratios.
13. Assess earnings quality.
14. Identify financial warning signs.
15. Develop basic financial forecasts.
16. Connect financial analysis with equity valuation.

SECTION I

FINANCIAL ANALYSIS FOUNDATIONS

Numbers become useful when we understand what they mean.

What Is Financial Statement Analysis?

Financial statement analysis is the process of:

- Examining financial information
- Comparing results
- Identifying trends
- Calculating ratios
- Assessing strengths and weaknesses
- Forecasting future performance
- Supporting investment decisions

> *Analysis goes beyond reading numbers — it explains relationships between them.*

A Company’s Health Report

Think of financial statements as a company’s medical report.

Balance Sheet
What the company owns and owes.

Income Statement
Whether the company earned a profit.

Cash-Flow Statement
Where cash came from and where it went.

> *One number cannot describe the health of the entire company.*

Why Investors Analyse Financial Statements

Investors want to know:

- Is the company profitable?
- Can it pay its obligations?
- Is revenue growing?
- Is profit supported by cash?
- Is debt manageable?
- Are assets used efficiently?
- Is management creating value?
- Can performance continue?
- Is the share fairly valued?

Users of Financial Analysis

Investors
Evaluate return, risk and value.

Lenders
Evaluate repayment capacity.

Management
Monitor performance and make decisions.

Suppliers
Assess short-term creditworthiness.

Employees
Assess stability and growth.

Regulators
Monitor compliance and financial reporting.

Sources of Financial Information

Analysts use:

- Annual financial statements
- Interim reports
- Auditor’s reports
- Notes to the financial statements
- Management commentary
- Regulatory filings
- Investor presentations
- Industry reports
- Market-price data
- Economic information

Financial Analysis Process

Step 1
Define the purpose of the analysis.

Step 2
Collect reliable information.

Step 3
Understand accounting policies.

Step 4
Adjust unusual or non-recurring items.

Step 5
Calculate trends and ratios.

Step 6
Compare results.

Step 7
Interpret the findings.

Step 8
Forecast and make a decision.

Important Limitations

Financial statements:

- Primarily report historical information.
- Depend on accounting estimates.
- May use different accounting policies.
- May be affected by inflation.
- May not fully measure intangible assets.
- Can contain non-recurring items.
- May be influenced by management judgment.
- Do not eliminate investment uncertainty.

> *Financial ratios are indicators — not final answers.*

SECTION II

THE THREE CORE FINANCIAL STATEMENTS

Position, performance and cash flow

The Accounting Equation

The balance sheet is built around:

Assets = Liabilities + Equity

Assets
Resources controlled by the company.

Liabilities
Obligations owed to outsiders.

Equity
Residual interest belonging to owners.

What Is a Balance Sheet?

The balance sheet reports a company’s financial position at a specific date. It shows:

- What the company owns
- What the company owes
- Owners’ residual interest

> *The balance sheet is a financial photograph taken on one date.*

Current Assets

Current assets are expected to be converted into cash, sold or used within the normal operating cycle. Examples include:

- **Cash**
- **Short-term investments**
- **Accounts receivable**
- **Inventory**
- **Prepaid expenses**

Non-Current Assets

Non-current assets support operations over longer periods. Examples include:

- Property, plant and equipment
- Long-term investments
- Intangible assets
- Right-of-use assets
- Goodwill

> *Important: some valuable internally generated assets may not appear fully on the balance sheet.*

Liabilities

Current Liabilities — Usually due within one year

- Accounts payable
- Short-term borrowing
- Accrued expenses
- Current tax payable
- Current portion of long-term debt

Non-Current Liabilities — Due over longer periods

- Long-term loans
- Bonds payable
- Lease obligations
- Deferred-tax liabilities

Shareholders’ Equity

Equity may include:

- Share capital
- Share premium
- Retained earnings
- Reserves
- Accumulated other comprehensive income
- Treasury shares

Equity = Assets − Liabilities

Balance-Sheet Example

Suppose a company reports:

Item	ETB Million
Current assets	150
Non-current assets	350
Total assets	500
Current liabilities	100
Non-current liabilities	200
Total liabilities	300
Shareholders' equity	200

Check: 500 = 300 + 200

What Is an Income Statement?

The income statement reports financial performance over a period. It shows:

Revenue	Expenses	Profit or loss

> *The income statement is a financial video covering a period — not a photograph of one date.*

Revenue and Expenses

Revenue
Income generated from ordinary activities.

Expenses
Resources consumed in generating revenue.

Examples of expenses include:

- Cost of goods sold
- Salaries
- Rent
- Depreciation
- Marketing costs
- Interest
- Taxes

Major Levels of Profit

Gross Profit = Revenue − COGS

Operating Profit = Gross Profit − Operating Expenses

Profit Before Tax = Operating Profit − Interest ± Other Items

Net Income = Profit Before Tax − Tax

Income-Statement Example

Item	ETB Million
Revenue	400.0
Cost of goods sold	(240.0)
Gross profit	160.0
Operating expenses	(100.0)
Operating profit — EBIT	60.0
Interest expense	(12.0)
Profit before tax	48.0
Tax expense	(14.4)
Net income	33.6

What Is a Cash-Flow Statement?

The cash-flow statement explains the movement in cash during a period. It classifies cash flows into:

1. Operating activities

2. Investing activities

3. Financing activities

> *Profit measures accounting performance. Cash flow measures actual cash movement.*

Operating Cash Flow

Operating cash flow relates to core business activities. Examples include:

- Cash collected from customers
- Cash paid to suppliers
- Salaries paid
- Operating expenses paid
- Taxes paid

> *Strong operating cash flow generally supports business sustainability.*

Investing and Financing Cash Flows

Investing Activities

- Purchase of equipment
- Sale of equipment
- Acquisition of businesses
- Purchase of investments

Financing Activities

- Borrowing
- Debt repayment
- Issuing shares
- Repurchasing shares
- Paying dividends

Cash-Flow Example

Suppose operating cash flow = ETB 45m, investing cash flow = ETB −30m, financing cash flow = ETB −10m.

Net Change in Cash = 45 − 30 − 10 = ETB 5 million

Closing Cash = 20 + 5 = ETB 25 million

Opening cash was ETB 20 million.

Profit Is Not the Same as Cash

A company may report profit without receiving all the cash because:

- Sales may be made on credit.
- Expenses may be unpaid.
- Depreciation reduces profit without using current cash.
- Inventory purchases use cash before products are sold.
- Capital expenditure is not immediately reported as an expense.

> *A profitable company can still experience cash-flow problems.*

Statement of Changes in Equity

This statement explains changes in shareholders' equity arising from:

- Net income
- Dividends
- New share issues
- Share repurchases
- Reserves
- Other comprehensive income

Ending Equity = Beginning Equity + Profit − Dividends + New Capital

Notes to the Financial Statements

The notes provide essential details about:

- Accounting policies
- Revenue recognition
- Depreciation
- Inventory valuation
- Debt terms
- Provisions
- Contingent liabilities
- Related-party transactions
- Segment information
- Financial risks

> *The notes are part of the financial statements, not optional reading.*

How the Statements Connect

Net Income
Flows from the income statement into retained earnings.

Closing Cash
Connects the cash-flow statement with the balance sheet.

Assets and Liabilities
Generate revenues, expenses and cash flows.

Financing Decisions
Change debt, equity, interest and dividends.

SECTION III

METHODS OF FINANCIAL ANALYSIS

Compare across time, companies and financial-statement categories.

Horizontal Analysis

Horizontal analysis evaluates changes over time.

$$\text{Percentage Change} = (\text{Current} - \text{Previous}) \div \text{Previous} \times 100$$

It helps identify:

- **Growth**
- **Decline**
- **Acceleration**
- **Deterioration**
- **Unusual changes**

Horizontal-Analysis Example

Suppose revenue increased from ETB 300 million to ETB 400 million:

$$\text{Growth} = (400 - 300) \div 300 \times 100 = 33.33\%$$

$$\text{Net income: } 24 \rightarrow 33.6 \Rightarrow \text{Growth} = 40\%$$

Net income grew faster than revenue.

Vertical Analysis

Vertical analysis expresses each statement item as a percentage of a base amount.

Income Statement
Base amount = Revenue.

Balance Sheet
Base amount = Total assets.

> *This is also called common-size analysis.*

Common-Size Income Statement

Using revenue of ETB 400 million:

Item	Amount	% of Revenue
Revenue	400	100.0%
Cost of goods sold	240	60.0%
Gross profit	160	40.0%
Operating expenses	100	25.0%
Operating profit	60	15.0%
Net income	33.6	8.4%

Index-Number Analysis

Index-number analysis assigns the base year a value of 100. Suppose revenue is ETB 300m, ETB 330m and ETB 400m.

Year	Revenue (ETB m)	Revenue Index
Year 1	300	100.0
Year 2	330	110.0
Year 3	400	133.3

Benchmarking

Financial results may be compared with:

- Previous years
- Management targets
- Competitors
- Industry averages
- Market leaders
- Loan requirements
- Investment expectations

> *Important: the benchmark must be relevant and comparable.*

SECTION IV

LIQUIDITY

Can the company meet its short-term obligations?

Current Ratio

Current Ratio = Current Assets ÷ Current Liabilities

Current Ratio = 150 ÷ 100 = 1.5

Using current assets of ETB 150 million and current liabilities of ETB 100 million.

The company has ETB 1.50 of current assets for every ETB 1 of current liabilities.

Quick Ratio

The quick ratio excludes inventory. If inventory is ETB 60 million:

Quick Ratio = (Current Assets − Inventory) ÷ Current Liabilities

Quick Ratio = (150 − 60) ÷ 100 = 0.90

Less than 1.0 — the company relies partly on inventory to cover short-term obligations.

Cash Ratio

If cash is ETB 25 million:

Cash Ratio = (Cash + Cash Equivalents) ÷ Current Liabilities

Cash Ratio = 25 ÷ 100 = 0.25

The company has ETB 0.25 of cash for every ETB 1 of current liabilities.

Working Capital

Working Capital = Current Assets − Current Liabilities

Working Capital = 150 − 100 = ETB 50 million

Positive working capital generally indicates a short-term financial cushion.

Interpreting Liquidity

A higher liquidity ratio is not automatically better.

Very High Liquidity May Indicate

- Excess idle cash
- Slow-moving inventory
- Weak receivable collection
- Poor asset utilisation

Low Liquidity May Indicate

- Payment difficulties
- Dependence on short-term borrowing
- Cash-flow pressure

SECTION V

EFFICIENCY RATIOS

How effectively does the company use its assets?

Inventory Turnover

COGS = ETB 240 million; opening inventory = ETB 50 million; closing inventory = ETB 60 million.

Inventory Turnover = COGS ÷ Average Inventory

Average Inventory = (50 + 60) ÷ 2 = 55

Inventory Turnover = 240 ÷ 55 = 4.36

Days Inventory Outstanding

$$\text{DIO} = 365 \div \text{Inventory Turnover}$$

$$\text{DIO} = 365 \div 4.36 \approx 83.6 \text{ days}$$

On average, inventory remains approximately 84 days before being sold.

Receivables Turnover

Sales = ETB 400 million; average receivables = ETB 40 million.

Receivables Turnover = Credit Sales ÷ Average Receivables

Receivables Turnover = 400 ÷ 40 = 10

Days Sales Outstanding

DSO = 365 ÷ Receivables Turnover

DSO = 365 ÷ 10 = 36.5 days

The company takes approximately 37 days to collect customer balances.

Total Asset Turnover

Suppose average assets are ETB 475 million:

Asset Turnover = Revenue ÷ Average Total Assets

Asset Turnover = 400 ÷ 475 = 0.84

Each ETB 1 invested in assets generates approximately ETB 0.84 of revenue.

Payables Period

COGS = ETB 240 million; average accounts payable = ETB 30 million.

Payables Turnover = 240 ÷ 30 = 8

DPO = 365 ÷ 8 = 45.6 days

The company takes approximately 46 days to pay suppliers.

Cash Conversion Cycle

$$CCC = DIO + DSO - DPO$$

$$CCC = 83.6 + 36.5 - 45.6 = 74.5 \text{ days}$$

Interpretation: cash is tied up in operations for approximately 75 days.

SECTION VI

LEVERAGE AND SOLVENCY

Can the company manage its long-term financial obligations?

Debt-to-Equity Ratio

Interest-bearing debt = ETB 120 million; equity = ETB 200 million.

Debt-to-Equity = Interest-Bearing Debt ÷ Shareholders' Equity

Debt-to-Equity = 120 ÷ 200 = 0.60

The company has ETB 0.60 of debt for every ETB 1 of equity.

Total Liabilities Ratio

Liabilities Ratio = Total Liabilities ÷ Total Assets

Liabilities Ratio = 300 ÷ 500 = 60%

Sixty per cent of the company's assets are financed by liabilities.

Interest-Coverage Ratio

Interest Coverage = EBIT ÷ Interest Expense

Interest Coverage = 60 ÷ 12 = 5

Operating profit covers interest expense five times.

Why Leverage Matters

Debt may:

Increase Shareholder Returns
When business returns exceed borrowing costs.

Increase Financial Risk
Because interest and principal must be paid regardless of performance.

> *Leverage can magnify both gains and losses.*

Warning Signs of Excessive Debt

Watch for:

- Rising debt-to-equity
- Declining interest coverage
- Negative operating cash flow
- Frequent refinancing
- Debt-funded dividends
- Breached loan covenants
- Short-term debt funding long-term assets
- Foreign-currency debt without matching income

SECTION VII

PROFITABILITY

How effectively does the company convert revenue and assets into profit?

Gross Profit Margin

Gross Margin = Gross Profit ÷ Revenue

Gross Margin = 160 ÷ 400 = 40%

The company retains ETB 0.40 after direct production costs for every ETB 1 of revenue.

Operating Profit Margin

Operating Margin = EBIT ÷ Revenue

Operating Margin = 60 ÷ 400 = 15%

This measures profitability from core operations before interest and tax.

Net Profit Margin

Net Margin = Net Income ÷ Revenue

Net Margin = 33.6 ÷ 400 = 8.4%

The company earns ETB 0.084 of net profit for each ETB 1 of revenue.

Return on Assets

ROA = Net Income ÷ Average Total Assets

ROA = 33.6 ÷ 475 ≈ 7.1%

ROA measures how effectively assets generate profit.

Return on Equity

Suppose average equity is ETB 190 million:

ROE = Net Income ÷ Average Equity

ROE = 33.6 ÷ 190 ≈ 17.7%

ROA vs ROE

ROA	ROE
Return generated by total assets	Return generated for shareholders
Influenced by operating performance	Influenced by performance and leverage
Uses average total assets	Uses average equity
Broader business-return measure	Owner-focused return measure

> *A large difference between ROA and ROE may indicate substantial leverage.*

What Is DuPont Analysis?

DuPont analysis separates ROE into three drivers:

$$\text{ROE} = \text{Net Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}$$

It shows whether ROE comes from:

Profitability	Efficiency	Financial leverage

DuPont Component 1 — Margin

Net Margin = Net Income ÷ Revenue

Net Margin = 33.6 ÷ 400 = 8.4%

This measures profit earned from each ETB of revenue.

DuPont Component 2 — Efficiency

Asset Turnover = Revenue ÷ Average Assets

Asset Turnover = 400 ÷ 475 = 0.84

This measures revenue generated by the asset base.

DuPont Component 3 — Leverage

Equity Multiplier = Average Assets ÷ Average Equity

Equity Multiplier = 475 ÷ 190 = 2.5

A higher multiplier indicates greater use of liabilities relative to equity.

DuPont ROE Calculation

ROE = 8.4% × 0.84 × 2.5 ≈ 17.7%

Interpretation — the company's ROE is produced by:

8.4%
Net margin

0.84
Asset turnover

2.5
Equity multiplier

Why DuPont Analysis Matters

Two companies can report the same ROE for very different reasons.

Company A
High profitability with low debt.

Company B
Low profitability with high leverage.

> *Both may report similar ROE, but Company B may carry greater financial risk.*

SECTION VIII

MARKET RATIOS

Connecting accounting performance with market value

Earnings per Share

Net income available to ordinary shareholders = ETB 33.6 million; weighted-average shares = 4 million.

EPS = 33.6 ÷ 4 = ETB 8.40

EPS measures earnings attributable to each ordinary share.

Price-to-Earnings Ratio

If the share price is ETB 84:

$$\text{P/E} = 84 \div 8.40 = 10$$

Investors pay ETB 10 for every ETB 1 of annual earnings.

Price-to-Book Ratio

Equity = ETB 200 million; shares = 4 million.

BVPS = 200 ÷ 4 = ETB 50

P/B = 84 ÷ 50 = 1.68

The share trades at 1.68 times its accounting book value.

Dividend Ratios

Suppose dividend per share is ETB 2.52.

Dividend Yield = 2.52 ÷ 84 = 3%

Payout Ratio = 2.52 ÷ 8.40 = 30%

The company distributes 30% of earnings and retains 70%.

EV/EBITDA

Market capitalisation = ETB 336m; debt = ETB 120m; cash = ETB 25m; EBITDA = ETB 75m.

$$\text{EV} = 336 + 120 - 25 = 431$$

$$\text{EV/EBITDA} = 431 \div 75 \approx 5.75$$

Interpreting Market Ratios

A High Multiple May Reflect

- Strong growth expectations
- Low perceived risk
- Competitive advantage
- High earnings quality

A Low Multiple May Reflect

- Weak growth
- High risk
- Cyclical peak earnings
- Financial distress
- Possible undervaluation

> *A low ratio is not automatically a bargain.*

SECTION IX

EARNINGS QUALITY AND FORECASTING

Are reported earnings sustainable and supported by cash?

What Is Earnings Quality?

High-quality earnings are generally:

- Supported by operating cash flow
- Generated by core operations
- Repeatable
- Based on reasonable accounting estimates
- Free from significant manipulation
- Transparent

> *Low-quality earnings may be temporary, aggressive or unsupported by cash.*

Operating Cash Flow vs Net Income

Operating cash flow = ETB 45 million; net income = ETB 33.6 million.

Cash Conversion = Operating Cash Flow ÷ Net Income

Cash Conversion = 45 ÷ 33.6 ≈ 1.34

Operating cash flow exceeds reported profit — a positive sign for earnings quality.

Financial Reporting Warning Signs

Potential warning signs include:

- Revenue growing faster than cash collections
- Receivables growing faster than sales
- Inventory growing faster than revenue
- Profit rising while operating cash flow falls
- Repeated non-recurring gains
- Frequent accounting-policy changes
- Capitalising ordinary operating expenses
- Unusual related-party transactions
- Large unexplained estimates
- Repeated auditor qualifications

Basic Forecasting Process

Step 1
Forecast revenue.

Step 2
Forecast operating margins.

Step 3
Forecast working-capital requirements.

Step 4
Forecast capital expenditure.

Step 5
Forecast financing needs.

Step 6
Prepare projected statements.

Step 7
Test assumptions using scenarios.

Percentage-of-Sales Forecasting

Next year’s revenue is expected to increase from ETB 400 million to ETB 440 million. If the net margin remains 8.4%:

Forecast Net Income = 440 × 8.4% = ETB 36.96 million

Limitation: margins and costs may not remain constant.

Scenario Analysis

Bear Case
Low revenue growth · Lower margins · Higher financing costs

Base Case
Most reasonable operating assumptions

Bull Case
Strong growth · Improved margins · Lower financing pressure

> *Forecasting should recognise uncertainty instead of presenting one outcome as guaranteed.*

Integrated Company Case

Use the following information:

Measure	Amount
Revenue	ETB 400m
COGS	ETB 240m
EBIT	ETB 60m
Net income	ETB 33.6m
Operating cash flow	ETB 45m
Current assets	ETB 150m
Inventory	ETB 60m

Measure	Amount
Current liabilities	ETB 100m
Average assets	ETB 475m
Average equity	ETB 190m
Debt	ETB 120m
Interest expense	ETB 12m
Market price	ETB 84
Shares	4 million

Student Tasks

Calculate and interpret:

1. Current ratio
2. Quick ratio
3. Debt-to-equity ratio
4. Interest coverage
5. Gross margin
6. Operating margin
7. Net margin
8. Return on assets
9. Return on equity
10. Asset turnover
11. Earnings per share
12. Price-to-earnings ratio
13. Operating cash flow to net income
14. DuPont components
15. Overall financial strengths and weaknesses

Instructor Answer Check

Ratio	Result
Current ratio	1.50
Quick ratio	0.90
Debt-to-equity	0.60
Interest coverage	5.00 times
Gross margin	40.0%
Operating margin	15.0%
Net margin	8.4%

Ratio	Result
Return on assets	7.1%
Return on equity	17.7%
Asset turnover	0.84
EPS	ETB 8.40
P/E	10.0
Operating cash flow / net income	1.34

Key Takeaways

- Financial analysis converts accounting data into investment insight.
- The balance sheet reports financial position.
- The income statement reports performance.
- The cash-flow statement explains cash movements.
- Profit is not the same as cash flow.
- Horizontal analysis identifies trends.
- Common-size analysis shows financial structure.
- Liquidity ratios assess short-term payment capacity.
- Efficiency ratios assess asset utilisation.
- Leverage ratios assess financial risk.
- Profitability ratios assess return generation.
- DuPont analysis explains the drivers of ROE.
- Market ratios connect accounting results with share prices.
- Earnings quality matters as much as reported profit.
- Ratios must be interpreted using trends, peers and context.
- Financial analysis is an essential input for equity valuation.

> *Good analysis does not stop at calculating ratios. It explains why they changed and what that means for investors.*

Discussion Questions

Consider and debate the following:

1. Why can a profitable company experience cash-flow problems?
2. Is a high current ratio always desirable?
3. How can debt increase both ROE and financial risk?
4. Why should analysts use average assets and equity?
5. What does DuPont analysis reveal that ROE alone does not?
6. Why might net income grow while earnings quality deteriorates?
7. Which financial ratios are most relevant to equity investors?
8. Why should companies in different industries not be compared mechanically?
9. How can accounting policies affect financial ratios?
10. How does financial analysis support equity valuation?

Next Chapter — Chapter 15: Options Markets

- Call and put options
- Strike price and expiration
- Option payoffs and profits
- Moneyness
- Protective puts
- Covered calls
- Spreads and combinations
- Option-market risks

THANK YOU

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Thank you for your participation — questions are welcome.