COMPANY ANALYSIS

Establishing the Value Benchmark

OUTLINE

- **Study of Financials**

- **Going Beyond the Numbers**

- **Estimation of Intrinsic Value**

- **Tools for Judging Undervaluation or Overvaluation**

- **Obstacles in the Way of an Analyst**

- **Equity Research in India**

STUDY OF FINANCIALS

- THE KEY QUESTIONS TO BE ADDRESSED IN APPLYING THE EARNINGS MULTIPLIER APPROACH, THE MOST POPULAR METHOD IN PRACTICE, ARE:

  - WHAT IS THE EXPECTED EPS FOR THE FORTHCOMING YEAR?

  - WHAT IS A REASONABLE PE RATIO?

- TO ANSWER THESE QUESTIONS, INVESTMENT ANALYSTS START WITH A HISTORICAL ANALYSIS OF EARNINGS (AND DIVIDENDS), GROWTH, RISK, AND VALUATION AND USE THIS AS A FOUNDATION FOR DEVELOPING THE FORECASTS REQUIRED FOR ESTIMATING THE INTRINSIC VALUE.

EARNINGS AND DIVIDEND LEVEL

TO ASSESS THE EARNINGS AND DIVIDEND LEVEL, INVESTMENT ANALYSTS LOOK AT METRICS LIKE THE RETURN ON EQUITY, BOOK VALUE PER SHARE, EPS, DIVIDEND PAYOUT RATIO, AND DIVIDEND PER SHARE.

FINANCIALS OF HORIZON LTD

	20X1	20X2	20X3	20X4	20X5	20X6	20X7
Net Sales	475	542	605	623	701	771	840
Cost of goods sold	352	380	444	475	552	580	638
Gross profit	123	162	161	148	149	191	202
Operating expenses	35	41	44	49	60	60	74
Operating profit	88	121	117	99	89	131	128
Non-operating surplus/deficit	4	7	9	6	–	-7	2
Profit before interest and tax (PBIT)	92	128	126	105	89	124	130
Interest	20	21	25	22	21	24	25
Profit before tax	72	107	101	83	68	100	105
Tax	30	44	42	41	34	40	35
Profit after tax	42	63	59	42	34	60	70
Dividend	20	23	23	27	28	30	30
Retained earnings	22	40	36	15	6	30	40
Equity share capital	100	100	150	150	150	150	150
Reserves and surplus	65	105	91	106	112	142	182
Shareholders' funds	165	205	241	256	262	292	332
Loan funds	150	161	157	156	212	228	221
Capital employed	315	366	398	412	474	520	553
Net fixed assets	252	283	304	322	330	390	408
Investments	18	17	16	15	15	20	25
Net current assets	45	66	78	75	129	110	120
Total assets	315	366	398	412	474	520	553
Earnings per share					2.27	4.00	4.67
Market price per share (End of the year)				21.00	26.50	29.10	31.5

ROE : 3 FACTORS

$$\text{ROE} = \underbrace{\frac{\text{PAT}}{\text{SALES}}}_{\text{NET PROFIT MARGIN}} \times \underbrace{\frac{\text{SALES}}{\text{ASSETS}}}_{\text{ASSET TURNOVER}} \times \underbrace{\frac{\text{ASSETS}}{\text{EQUITY}}}_{\text{LEVERAGE}}$$
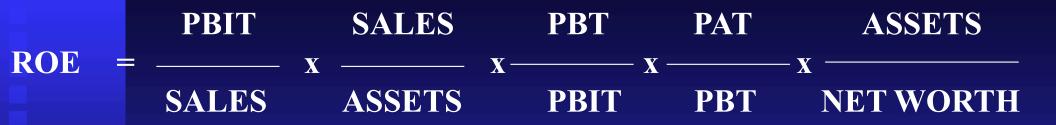
THE BREAK-UP OF THE RETURN ON EQUITY IN TERMS OF ITS DETERMINANTS FOR THE PERIOD 20X5 – 20X7 FOR HORIZON LIMITED IS GIVEN BELOW:

	Return on equity	=	Net profit margin	x	Asset turnover	x	Leverage multiplier
20X5	13.0 %	=	4.85%	x	1.48	x	1.81
20X6	20.5%	=	7.78%	x	1.48	x	1.78
20X7	21.1%	=	8.33%	x	1.52	x	1.67

INVESTMENT ANALYSTS USE ONE MORE FORMULATION OF THE ROE WHEREIN IT IS ANALYSED IN TERMS OF FIVE FACTORS :

$$\text{ROE} = \frac{\text{PBIT}}{\text{SALES}} \times \frac{\text{SALES}}{\text{ASSETS}} \times \frac{\text{PROFIT BEFORE TAX}}{\text{PBIT}} \times \frac{\text{PROFIT AFTER TAX}}{\text{PROFIT BEFORE TAX}} \times \frac{\text{ASSETS}}{\text{NETWORTH}}$$

ROE : 5 FACTORS

$$ROE = \frac{PBIT}{SALES} \times \frac{SALES}{ASSETS} \times \frac{PBT}{PBIT} \times \frac{PAT}{PBT} \times \frac{ASSETS}{NET\ WORTH}$$

ROE = PBIT EFFICIENCY X ASSET TURNOVER X INTEREST BURDEN X TAX BURDEN X LEVERAGE

THE ROE BREAK-UP FOR OMEGA COMPANY IS GIVEN BELOW :

	ROE	=	PBIT efficiency	x	Asset turnover	x	Interest burden	x	Tax burden	x	Leverage
20X5	13.0%	=	12.70%	x	1.48	x	0.764	x	0.50	x	1.81
20X6	20.5%	=	16.08%	x	1.48	x	0.81	x	0.60	x	1.78
20X7	21.1%	=	15.48%	x	1.52	x	0.81	x	0.67	x	1.67

BOOK VALUE PER SHARE AND EARNINGS PER SHARE

Book Value Per Share (BVPS)

$$\frac{\text{Paid-up equity capital + Reserves and surplus}}{\text{Number of equity shares}}$$

	20 x 5	20 x 6	20 x 7
BVPS	262/15 = 17.47	292/15 = 19.47	332/15 = 22.13

Earnings Per Share (EPS)

$$\frac{\text{Equity earnings}}{\text{Number of equity shares}}$$

	20 x 5	20 x 6	20 x 7
EPS	34/15 = 2.27	60/15 = 4.00	70/15 = 4.67

DIVIDEND PAYOUT RATIO
AND DIVIDEND PER SHARE

Dividend Payout Ratio

$$\frac{\text{Equity dividends}}{\text{Equity earnings}}$$

	20 x 5	20 x 6	20 x 7
Dividend Payout ratio	28/34 = 0.82	30/60 = 0.50	30/70 = 0.43

Dividend Per Share (DPS)

	20 x 5	20 x 6	20 x 7
DPS	Rs 1.87	2.00	2.00

GROWTH PERFORMANCE

- **To measure the historical growth, the compound annual growth rate (CAGR) in variables like sales, net profit, earnings per share and dividend per share is calculated.**

- **To get a handle over the kind of growth that can be maintained, the sustainable growth rate is calculated.**

COMPOUND ANNUAL GROWTH RATE (CAGR)

The compound annual growth rate (CAGR) of sales, earnings per share, and dividend per share for a period of five years 20x2 – 20x7 for Horizon Limited is calculated below:

$$\text{CAGR of Sales}: \left(\frac{\text{Sales of 20 x 7}}{\text{Sales for 20 x 2}}\right)^{1/5} - 1 = \left(\frac{840}{542}\right)^{1/5} - 1 = 9.2\%$$

$$\text{CAGR of earnings per share (EPS)}: \left(\frac{\text{EPS for 20 x 7}}{\text{EPS for 20 x 2}}\right)^{1/5} - 1 = \left(\frac{7.00}{6.30}\right)^{1/5} - 1 = 2.1\%$$

$$\text{CAGR of dividend per share (DPS)}: \left(\frac{\text{DPS for 20 x 7}}{\text{DPS for 20 x 2}}\right)^{1/5} - 1 = \left(\frac{3.00}{2.30}\right)^{1/5} - 1 = 5.5\%$$

SUSTAINABLE GROWTH RATE

The sustainable growth rate is defined as :

Sustainable growth rate = Retention ratio x Return on equity

Based on the average retention ratio and the average return on equity of the three year period (20x5 – 20x7) the sustainable growth rate of Horizon Limited is:

Sustainable growth rate = 0.417 x 18.2% = 7.58%

RISK EXPOSURE

Beta

Beta represents volatility relative to the market

Volatility of Return on equity

$$\frac{\text{Range of return on Equity over } n \text{ years}}{\text{Average return on equity over } n \text{ years}}$$

FAVOURABLE & UNFAVOURABLE FACTORS

	FAVOURABLE FACTORS	UNFAVOURABLE FACTORS
EARNINGS LEVEL	• HIGH BOOK VALUE PER SHARE	• LOW BOOK VALUE PER SHARE
GROWTH LEVEL	• HIGH RETURN ON EQUITY • HIGH CAGR IN SALES AND EPS • HIGH SUSTAINABLE GROWTH RATE	• LOW RETURN ON EQUITY • LOW CAGR IN SALES AND EPS • LOW SUSTAINABLE GROWTH RATE
RISK EXPOSURE	• LOW VOLATILITY OF RETURN ON EQUITY • LOW BETA	• HIGH VOLATILITY OF RETURN ON EQUITY • HIGH BETA

VALUATION MULTIPLES

The most commonly used valuation multiples are :

- Price to earnings (PE) ratio
- Price to book value (PBV) ratio

PE Ratio (Prospective)

$$\frac{\text{Price per share at the beginning of year } n}{\text{Earnings per share for year } n}$$

	20 x 5	20 x 6	20 x 7
PE ratio	9.25	6.63	6.23

PBV Ratio (Retrospective)

$$\frac{\text{Price per share at the end of year } n}{\text{Book value per share at the end of year } n}$$

	20 x 5	20 x 6	20 x 7
PBV ratio	1.52	1.49	1.42

GOING BEYOND THE NUMBERS

- SIZING UP THE PRESENT SITUATION AND PROSPECTS
  - Availability and Cost of Inputs
  - Order Position
  - Regulatory Framework
  - Technological and Production Capabilities
  - Marketing and Distribution
  - Finance and Accounting
  - Human Resources and Personnel

- EVALUATION OF MANAGEMENT
  - Strategy
  - Calibre, Integrity, Dynamism
  - Organisational Structure
  - Execution Capability
  - Investor - friendliness

ESTIMATION OF

INTRINSIC VALUE

- **ESTIMATE THE EXPECTED EPS**

- **ESTABLISH A P / E RATIO**

- **DEVELOP A VALUE ANCHOR AND A VALUE**

  RANGE

EPS FORECAST

	20 x 7 (ACTUAL)	20 x 8 (PROJECTED)	ASSUMPTION
• NET SALES	840	924	INCREASE BY 10 PERCENT
• COST OF GOODS SOLD	638	708	INCREASE BY 11 PERCENT
• GROSS PROFIT	202	216	
• OPERATING EXPNS	74	81	INCREASE BY 9.5 PERCENT
• DEPRECIATION	30	34	
• SELLIN & GEN. ADMN. EXPNS	44	47	
• OPERATING PROFIT	128	135	
• NON-OPERATING SURPLUS/DEFICIT	2	2	NO CHANGE
• PROFIT BEFORE INT. & TAX (PBIT)	130	137	
• INTEREST	25	24	DECREASE BY 4 PERCENT
• PROFIT BEFORE TAX	105	113	
• TAX	35	38	INCREASE BY 8.57 PERCENT
• PROFIT AFTER TAX	70	75	
• NUMBER OF EQUIITY SHARES	15 MLN	15	
• EARNINGS PER SHARE	RS 4.67	RS 5.00	

P / E RATIO

CONSTANT GROWTH DIVIDEND MODEL

$$\text{P / E RATIO} = \frac{\text{DIVIDEND PAYOUT RATIO}}{\text{REQUIRED RETURN ON EQUITY} - \text{EXPECTED GROWTH RATE IN DIVIDENDS}}$$

CROSS SECTION ANALYSIS

$$\text{P / E} = a_1 + a_2 \text{ GROWTH RATE IN EARNINGS} + a_3 \text{ DIVIDEND PAYOUT RATIO}$$
$$+ a_3 \text{ VARIABILITY IN EARNINGS}$$
$$+ a_4 \text{ COMPANY SIZE}$$

HISTORICAL ANALYSIS

WEIGHTED P /E RATIO

RATIO

HISTORICAL ANALYSIS

	20 x 5	20 x 6	20 x 7
PE ratio	9.25	6.63	6.23

The average PE ratio is :

$$\frac{9.25 + 6.63 + 6.23}{3} = 7.37$$

WEIGHTED PE RATIO

PE ratio based on the constant
growth dividend discount model   : 6.36

PE ratio based on historical analysis : 7.37

$$\frac{6.36 + 7.37}{2} = 6.87$$

VALUE ANCHOR AND VALUE RANGE

Value Anchor

Projected EPS x Appropriate PE ratio

5.00 x 6.87 = Rs. 34.35

Value Range

Rs.30   —   Rs.38

Market Price	Decision
< Rs.30	Buy
Rs.30 – Rs.38	Hold
> Rs.38	Sell

PBV-ROE Matrix

	LOW ROE	HIGH ROE
HIGH PBV	**Overvalued** Low ROE High PBV	High ROE High PBV
LOW PBV	Low ROE Low PBV	**Undervalued** High ROE Low PBV

PBV Ratio

HIGH

LOW

LOW   *HIGH*

ROE

GROWTH-DURATION MATRIX

	Low	**High**
High	**Undervalued**	**Promises of growth**
Low	**Dividend cows**	**Overvalued**

Expected 5-Yr EPS Growth

Duration (1/Dividend Yield)

EXPECTATIONS RISK INDEX (ERI)

Developed by Al Rappaport, the ERI reflects the risk in realising the expectations embedded in the current market price

ERI = | **Proportion of stock price depending on expected future growth** | **X** | **Ratio of expected future growth to recent growth (Acceleration ratio)**

ERI ILLUSTRATION

- **Omega's price per share** = Rs.150

- **Omega's operating cash flow (before growth investment)** = Rs.10 per share

- **Omega's cost of equity** = 15 percent

- **Growth rate in after-tax "cash" operating earnings over the past three years** = 20 percent

- **Market expectation of the growth in after-tax "cash" operating earnings over the next three years** = 50 percent

ERI ILLUSTRATION

- Omega's base line value = $\dfrac{Rs.10}{0.15}$ = Rs.66.7

- Proportion of the stock price coming from investors' expectations of future growth opportunities $= \dfrac{150 - 66.7}{150}$ = 0.56

- Acceleration ratio = $\dfrac{1.50}{1.20}$ = 1.25

  ERI = 0.56 x 1.25 = 0.70

In general, the lower (higher) the ERI, the greater (smaller) the chance of achieving expectations and the higher (lower) the expected return for investors.

OBSTACLES IN THE WAY OF AN ANALYST

- **Inadequacies or incorrectness of data**

- **Future uncertainties**

- **Irrational market behaviour**

SUMMING UP

- In practice, the earnings multiplier method is the most popular method. The key questions to be addressed in this method are: what is the expected EPS for the forthcoming year? What is a reasonable PE ratio given the growth prospects, risk exposure, and other characteristics? Historical financial analysis serves as a foundation for answering these questions.

- The ROE, perhaps the most important metric of financial performance, is decomposed in two ways for analytical purposes.
  ROE = Net profit margin x Asset turnover x Leverage
  ROE = PBIT efficiency x Asset turnover x Interest burden
      x Tax burden x Leverage

- To measure the historical growth, the CAGR in variables like sales, net profit, EPS and DPS is calculated.

- To get a handle over the kind of growth that can be maintained, the sustainable growth rate is calculated.

- Beta and volatility of ROE may be used as risk measures.

- An estimate of EPS is an educated guess about the future profitability of the company.

- The PE ratio may be derived from the constant growth dividend model, or cross-section analysis, or historical analysis.

- The value anchor is :
  Projected EPS x Appropriate PE ratio

- PBV-ROE matrix, growth-duration matrix, and expectation risk index are some of the tools to judge undervaluation or overvaluation.