Paper 20 - Strategic Performance Management & Business Valuation

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Full Marks: 100 **Time allowed: 3 hours**

The figures in the margin on the right side indicate full marks.
Working notes should form part of the answer.

Section - A

Answer Question No. 1 which is compulsory and any two from the rest of this section

1. Multiple choice questions: [5×2=10]
[1 mark for right choice and 1 mark for justification]

(i) The risk which is concerned with the general economic climate (such as growth rate of income, characteristics of the labour force, level of foreign debt outstanding etc.) within the country, is termed as:
(A) Country Risk
(B) Political Risk
(C) Economic Risk
(D) Social Risk

(ii) The Average Cost of a firm is given by the function Average Cost = $x^3 + 12x^2 – 11x$, its marginal cost will be:
(A) $4x^3 + 36x^2 – 22x$
(B) $x^4 + 12x^3 – 11x^2$
(C) $x^3 + 12x^2 – 11x$
(D) None of the above.

(iii) Which of the following is not a part of Customer Relationship Management (CRM) application?
(A) Analytical CRM
(B) Operative CRM
(C) Quantitative CRM
(D) Collaborative CRM.

(iv) As per Basel III regulation, which of the following ratio is proposed to measure liquidity standard?
(A) Net stable funding ratio
(B) Acid test ratio
(C) Current ratio
(D) Net asset ratio.

(v) An organization buys its rival's products and tears down to find out the features, performances etc., to compare with its products, is called:
(A) Competitive Benchmarking
(B) Product Benchmarking
(C) Strategic Benchmarking
(D) Process Benchmarking.

Answer:
(i) (C) Economic risk is concerned with the general economic climate within the country. Some of the factors which reflect the economic climate of a country are: the growth rate of income, characteristics of the labour force, level of foreign debt outstanding etc.

(ii) (A) Average Cost = $x^3 + 12x^2 – 11x$

Total Cost (C) = $x^4 + 12x^3 - 11x^2$
Marginal Cost = $dc/dx = 4x^3 + 36x^2 - 22x$.

(iii) (C) Except Quantitative CRM, all others are parts of Customer Relationship Management (CRM) application.

(iv) (A) As per Basel III regulation, two liquidity standards/ ratios are proposed — Liquidity coverage ratio (LCR) which is the ratio of Liquid assets to net cash outflow for short term (30 days) liquidity management and Net stable funding ratio (NSFR) which is the ratio of available stable fund to required stable fund for long term structural liquidity mismatches.

(v) (B) In case of product benchmarking or Reverse Engineering, an organization buys its rival's products and tears down to find out the features, performances etc., to compare with its products.

2.(a) What is Supply Chain Management? Write about the different types of Customer Relationship Management. [4+6=10]
(b) What do you mean by Total Quality Management (TQM)? State the steps which need to be taken in the implementation of TQM? [2+8=10]

Answer:
(a) Supply Chain Management encompasses the planning and management of all activities involved in sourcing, procurement, conversion and logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, Supply chain Management integrates supply and demand management within and across companies.

The Supply Chain Management Program integrates topics from manufacturing operations, purchasing, transportation, and physical distribution into a unified program.

In a typical supply chain, raw materials are procured and items are produced at one or more factories, shipped to warehouses for intermediate storage, and then shipped to retailers or customers. Consequently, to reduce cost and improve service levels, effective supply chain strategies must take into account the interactions at the various levels in the supply chain. The supply chain, which is also referred to as the Logistic Network, consists of suppliers, manufacturing centers, warehouses, distribution centers, and retail outlets, as well as raw material, work –in- process inventory, and finished product that flow between the facilities.

Thus, we can define the Supply Chain Management as follows:
Supply chain management is a set of approaches utilized to efficiently integrate suppliers, manufactures, warehouses and stores, so that merchandise is produce and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system wide costs while satisfying service level requirements.

Types of Customer Relationship Management: There are following three types of Customer Relationship Management (CRM):

(1) Analytical CRM: The purpose of analytical CRM is customer data analysis, its evaluation, modeling and prediction of customer behaviour. In real life situation the analytical CRM can for example gather all the data about customers inquiring a

specific product by using data mining (tool for data gathering), what services they purchased right away and what services they purchased eventually. It can find patterns in their behaviour and propose next steps during up-selling or cross-selling. It can evaluate efficiency of a marketing campaign, propose prices or even develop and propose new products.

(2) Operative CRM: Operative CRM mainly supports the actual contact with customers conducted by front office workers and general automation of business processes including sales of products, services and marketing. All communication with the customer is tracked and stored in the database and if necessary it is effectively provided to users (workers). The advantage of this approach being the possibility to communicate with various employees using various channels but creating the feeling that customer is being taken care of by just one person. It can also minimize the time that the worker has to spend typing the information and administrating (the data is shared). This allows the company to increase the efficiency of their employees work and they are then able to serve more customers.

(3) Collaborative CRM: Collaborative CRM enables all companies along the distribution channel, as well as all departments in a company, to work together and share information about customers, even speaks about partner relationship management (PRM). But sometimes we might see a rivalry between departments that undermines efforts of CRM to share relevant data throughout the whole company (e.g. information from help line can help the marketing department choose a point on which it will focus during the next campaign). The goal of collaborative CRM then is maximum sharing of relevant information acquired by all departments with the focus on increasing the quality of services provided to customers. The ultimate outcome of this process should be an increase in customer's utility and his loyalty.

(b) Total Quality Management (TQM) is an active approach encompassing a company-wide operating philosophy and system for continuous improvement of quality. It demands cooperation from everyone in the company, from the top management down to workers.

TQM seeks to increase customer satisfaction by finding the factors that limit current performance. The TQM approach highlights the need for a customer-oriented approach to management reporting, eliminating some or more of traditional reporting practices.

The various stages/steps to be taken in the implementation of TQM are as follows:
Stage 1: Identification of customers / customer groups:
Through a team approach (a technique called Multi - Voting), the firm should identify major customer groups. This helps in generating priorities in the identification of customers and critical issues in the provision of decision - support information.

Stage 2: Identifying customer expectations: Once the major customer groups are identified, their expectations are listed. The question to be answered is - What does the customer expect from the Firm?

Stage 3: Identifying customer decision-making requirements and product utilities: By identifying the need to stay close to the customers and follow their suggestions, a decision - support system can be developed, incorporating both financial and non-financial information, which seeks to satisfy used requirements.

Stage 4: Identifying perceived problems in decision-making process and product utilities: Using participative processes such as brainstorming and multi-voting, the firm seeks to list out its perception of problem areas and shortcomings in meeting customer requirements. This will list out areas of weakness where the greatest impact could be achieved through the implementation of improvements. The firm identifies the answer to the question - What problem areas do we perceive in the decision-making process?

Stage 5: Comparison with other Firms and benchmarking: Detailed and systematic internal deliberations allow the Firm to develop a clear idea of their own strengths and weaknesses and of the areas of most significant deficiency. Benchmarking exercise allows the Firm to see how other Companies are coping with similar problems and opportunities.

Stage 6: Customer Feedback: Stages 1 to 5 provide a information base developed without reference to the customer. This is rectified at Stage 6 with a survey of representative customers, which embraces their views on perceived problem areas. Interaction with the customers and obtaining their views helps the Firm in correcting its own perceptions and refining its process.

Stage 7: Identification of improvement opportunities: The outcomes of the customer survey, benchmarking and internal analysis, provides the inputs for stages 7 i.e., the identification of improvement opportunities.

Stage 8: Implementation of Quality Improvement Process: Implementation of Quality Improvement Process through –
i) Determination of new strategies,
ii) Elimination of deficiencies, and
iii) Identifying solutions.

3.(a) A manufacturer can sell "X" items (X ≥ 0) at a price of (330 – X) each; the cost of producing 'X' items are ₹ (X^2 + 10X + 12). How many items should he sell to make the maximum profit? Also determine the maximum profit. [7+3=10]

(b) The symptoms of corporate failure are interrelated — Mention the symptoms and describe how these are interrelated. State the purposes of the five selected ratio of Altman's Z-score model. [2+5+3=10]

Answer:

(a) Given price (p) = 330-x

Cost(c) = x^2 +10x + 12

Output = x ≥ 0

Revenue (R) = p x = (330 - x) x = 330 x - x^2

Profit = R - C

= (330x - x^2) - (x^2 +10x +12) = 320X – 2X^2 -12 (say y)

In order to achieve maximum profit

$\frac{dy}{dx}$ = 0 and $\frac{d^2y}{dx^2}$ = positive

$\frac{dy}{dx}$ = 320 – 4x = 0

or, x = 80

$\frac{d^2y}{dx^2}$ = – 4, which is negative. Therefore, profit is maximum at x = 80 units.

Maximum profit = 320 (80) – $2(80)^2$ – 12

=25600 – 12800 – 12

=12788.

(b) There are three classic symptoms of corporate failure. These are namely:

1. Low profitability
2. High gearing
3. Low liquidity

Each of these three symptoms may be indicated by trends in the company's accounts. Symptoms are interrelated. The classic path to corporate failure starts with the company experiencing low profitability. This may be indicated by trends in the ratios for:

- Profit margin
- Return on Capital Expenditure
- Return on Net Assets

A downward trend in profitability will raise the issue of whether and for how long the company can tolerate a return on capital that is below its cost of capital. If profitability problems become preoccupying, the failing of the company may seek additional funds and working capital by increasing its borrowings, whether in the form of short term or long-term debt. This increases the company's gearing, since the higher the proportion of borrowed funds, the higher the gearing within the capital structure. The increased debt burden may then aggravate the situation, particularly if the causes of the decreasing profitability have not been resolved.

The worsening profit situation must be used to finance an increased burden of interest and capital repayments. In the case of a publicly quoted company, this means that fewer and fewer funds will be available to finance dividend payments. It may become impossible to obtain external credit or to raise further equity funds.

Confidence in the company as an investment may wither away leaving the share price to collapse. If the company is sound, for instance, but ineptly managed, the best that can be hoped for is a takeover bid for what may be now a significantly undervalued investment.

At this point, a company may not be really failing but unfortunately, more often rescue attempts are not mounted. This may be because the company's management does not recognize the seriousness of the situation, or is by now too heavily committed or too frightened to admit the truth to its stakeholders, when refinancing is attempted profits fail to cover payments leading to a cash flow crisis.

The purposes of the five selected ratio of Altman's Z-score model: The purposes of these five selected ratios are as follows:

(i) To measure liquidity position of the firms.

(ii) To measure reinvestment of earnings of the firms.

(iii) To measure profitability of the firms.

(iv) To measure financial leverage condition of the firms.

(v) To measure sales-generating ability of firm's Assets.

4.(a) Write short note on: [3+3+4=10]

(i) Economic risk

(ii) Financial risk

(iii) Risk pooling.

(b) "MIS comprises of three elements viz., management, information and system." — describe how these three elements are correlated to each other. [10]

Answer:

(a)(i) Economic Risk: Economic risk is concerned with the general economic climate within the country. Some of the factors which reflect the economic climate of a country are:

1. Level of affluence enjoyed by the country.
2. The growth rate of income.
3. The nation's propensity to save/invest.
4. The stability of prices (inflation).
5. Characteristics of the labour force.
6. Level of sophistication of the financial system.
7. Level of foreign debt outstanding.
8. Major income earners (exports) and their sensitivity to overall global economic changes.
9. Extent of dependence on major export items.
10. Trends in balance of payments.
11. level of imports
12. level of reserve and credit standing, and
13. Fluctuations of exchange rate and controls on foreign exchange.

(ii) Financial Risk: Financial risk is primarily influenced by the level of financial gearing, interest cover, operating leverage, and cash flow adequacy. The financial risk depends on the method of financing adopted by the company. Financial risk is associated with the capital structure of a firm. A firm with no debt financing has no financial risk. The extent of financial risk depends on the leverage of the firm's capital structure. A highly geared firm may face the problems like high cost of equity and debt funds, cash flow problems in servicing off debt obligations, constraints on management control, fall in profits available to equity holders etc. The financial risk will also arise due to short-term liquidity problems, shortage of working capital, inefficiency in collection of receivables, bad debts, funds tied in excess inventories, long operating cycle etc.

(iii) Risk Pooling: One of the forms of risk management mostly practiced by insurance companies is Risk Pool. Under this system, insurance companies come together to form a pool, which can provide protection to insurance companies against catastrophic risks such as floods, earthquakes etc. The term is also used to describe the pooling of similar risks that underlies the concept of insurance. While risk pooling is necessary for insurance to work, not all risks can be effectively pooled. In particular, it is difficult to pool dissimilar risks in a voluntary insurance market, unless there is a subsidy available to encourage participation.

Risk pooling is an important concept in supply chain management. Risk pooling suggests that demand variability is reduced if one aggregates demand across locations because as demand is aggregated across different locations, it becomes more likely that high

demand from one customer will be offset by low demand from another. This reduction in variability allows a decrease in safety stock and therefore reduces average inventory.

The three critical points to risk pooling are:

- Centralized inventory saves safety stock and average inventory in the system.
- When demands from markets are negatively correlated, the higher the coefficient of variation, the greater the benefit obtained from centralized systems i.e., the greater the benefit from risk pooling.

The benefits from risk pooling depend directly on the relative market behaviour. If we compare two markets and when demand from both markets is more or less than the average demand, we say that the demands from the market are positively correlated. Thus the benefits derived from risk pooling decreases as the correlation between demands from the two markets becomes more positive.

(b) MIS is a set of procedures designed to provide managers at different levels in the organization with information for decision making, and for control of those parts of the business for which they are responsible. MIS comprises of three elements viz., management, information and system. The concept of MIS is better understood if each element of the term MIS is defined separately.

Management: A manager may be required to perform following activities in an organisation:

(i) Determination of organisational objectives and developing plans to achieve them.
(ii) Securing and organising human beings and physical resources so as to achieve the laid down objectives.
(iii) Exercising adequate controls over the functions performed at the lower level.
(iv) Monitoring the results to ensure that accomplishments are proceeding according to plans.

Thus, management comprises of the processes or activities that describe what managers do while working in their organisation. They in fact plan, organise, initiate, and control operations. In other words, management refers to a set of functions and processes designed to initiate and co-ordinate group efforts in an organised setting directed towards promotion of certain interests, preserving certain values and pursuing certain goals. It involves mobilisation, combination, allocation and utilisation of physical, human and other needed resources in a judicious manner by employing appropriate skills, approaches and techniques.

Information: Information is data that have been organised into a meaningful and useful context. For example, data regarding sales by various salesmen can be merged to provide information regarding total sales through sales personnel. This information is of vital importance to a marketing manager who is trying to plan for future sales.

Data is the input, information is the output. Data-analysis or information-processing converts data into information. Therefore, quality of data influences quality of information based on which management makes business decisions and translates these into actions through appropriate processes. Today, Information & Communication Technology (ICT) also partakes in various processes with interfacial digital devices and local & global networks. Some of these are stated below:

- Bar Coding & Decoding (used in inventory management).

- Programmable Logic Controller or PLC (used for monitoring work-flow and machine conditions).
- General Pocket Radio system or GPRS (used in LAN for controlling fleet of mobile equipments. Sometimes vehicles are provided with sensors for recording work load, fuel stock, etc).
- Face Recognition System or FRS (used for recording attendance of employees by recognizing faces photographed in the system).
- Computer Aided Designing or CAD and Digital Surveying.
- Computer Aided Manufacturing or CAM.
- E-commerce (used in online bidding, ordering, invoicing, banking, etc), etc.
- Enterprise Resource Planning (ERP): Integrated information has achieved a different dimension with the advent of ERP systems by the end of 20th century. Several data (financial and non-financial) including those downloaded online or offline from the above systems, can be integrated into ERP system. Let us take the following examples –
    1. Online invoicing and inventory records are facilitated by e-Commerce and Bar Coding & Decoding.
    2. Order fulfillment in both Purchasing and Selling can be monitored on integration of purchase orders and sales orders with goods receipts and issues in inventory records for stores and finished goods. Likewise, indents for stores and finished goods can be tracked against respective orders.
    3. FRS can used to migrate attendance data into Pay Roll system for calculation of employee-wise wages & salary including overtime and for updating leave records.
    4. Plenty of data downloaded from PLC and GPR systems can be built-up in integrated information (e.g. work completed, work-in-progress, equipment running hours, power or fuel & lubricant consumptions, vehicle trips, breakdowns, machine conditions in terms of temperature, stress, vibrations, noise level, etc).

System: System may be defined as a composite entity consisting of a number of elements which are interdependent and interacting, operating together for the accomplishment of an objective. One can find many examples of a system. Human body is a system, consisting of various parts such as head, heart, hands, legs and so on. The various body parts are related by means of connecting networks of blood vessels and nerves. This system has a main goal which we may call "living". Thus, a system can be described by specifying its parts, the way in which they are related, and the goals which they are expected to achieve. A business is also a system where economic resources such as people, money, material, machines, etc. are transformed by various organisation processes (such as production, marketing, finance, etc.) into goods and services.

Thus, MIS can be defined as a network of information that supports management decision making. The role of MIS is to recognise information as a resource and then use it for effective and timely achievement of organisational objectives.

Section - B

Answer Question No. 5 which is compulsory and any two from the rest of this section

5. Multiple choice questions: **[5×2=10]**

[1 mark for right choice and 1 mark for justification]

(i) In the context of an acquisition of a firm, which one of the following concepts of value is least relevant?
(A) Market Value
(B) Opportunity Cost
(C) Synergy Value
(D) Value Gap

(ii) Given the growth rate in the dividends is expected to be 8%. The Beta of the Stock is 1.60 and return on the market index is 13%. The required rate of return would be:
(A) 14%
(B) 16%
(C) 18%
(D) 20%.

(iii) If a company has a P/E ratio of 12 and a Market to Book Value Ratio 2.10, then its Return on Equity will be
(A) 14.10%
(B) 17.50%
(C) 25.20%
(D) None of the above.

(iv) Sun Ltd. has announced issue of warrants on 1:1 basis for its equity shareholders. The warrants are convertible at an exercise price of 12. Warrants are detachable and trading at ₹7. What is the minimum price of the warrant if the current price of the stock is ₹16?
(A)₹ 6
(B) ₹ 4
(C)₹ 10
(D)₹ 12.

(v) Which of the following is not a discounted cash flow technique for valuation of common stock?
(A) Present value of Dividends
(B) Price-cash flow ratios
(C) Present value of Free Cash Flow
(D) Present value of Operating Cash Flow.

Answer:

(i) (B) Opportunity Cost. For an acquisition of a firm, the concept of Market Value, Synergy Value and Value Gap are most relevant factors, except opportunity cost.

(ii) (B) 16%
Required Rate of Return = $R_f + \beta (R_m - R_f)$ = 8% + 1.6 (13% - 8%) = 16%.

(iii) (B) Return on Equity will be 17.5% (= 2.10/12).

(iv) (B) ₹4
Minimum Price of warrant of Sun Ltd. = Current stock price - Exercise price of warrant
= ₹ (16-12) = ₹4.

(ii) (B) Price-cash flow ratios is a Relative valuation technique, not a discounted cash flow technique for valuation of common stock.

6.(a)(i) True Value Ltd. (TVL) is planning to raise funds through issue of common stock for the first time. However, the management of the company is not sure about the value of the company and, therefore, they attempted to study similar companies in the same line which are comparable to True value in most of the aspects.

From the following information, you are required to compute the value of TVL using the comparable firms approach.

(₹ in crores)

Company	True value Ltd. (₹)	Jewel-value Ltd. (₹)	Real value Ltd. (₹)	Unique value Ltd. (₹)
Sales	250	190	210	270
Profit after tax	40	30	44	50
Book value	100	96	110	128
Market value		230	290	440

TVL feels that 50% weightage should be given to earnings in the valuation process; sales and book value may be given equal weightages. [8]

(ii) From the following details, calculate Free Cash Flow to Firm (FCFF) for a company: Sales - ₹ 10,00,000; Costs - ₹ 7,50,000; Depreciation - ₹ 2,00,000; Tax - 35%; Change in Net Working Capital - ₹ 10,000; Change in Capital Spending - ₹ 1,00,000. [2]

(b) The following financial share data pertaining to Techno Ltd., an IT company is made available to you: (Amount in ₹ crores)

Year ended March 31st	2023	2022	2021
EBIT (₹)	696.03	325.65	155.86
Non-branded Income (₹)	53.43	35.23	3.46
Inflation compound factor @ 8%	1.000	1.087	1.181
Remuneration of Capital	5% of average capital employed		
Average capital Employed (₹)	1112.00		
Corporate Tax Rate	35%		
Capitalization Factor	16%		

You are required to calculate the Brand Value for Techno Ltd. [10]

Answer:

(a)(i) The valuation multiples of the comparable firms are as follows:

Particular	Jewel-value Ltd.	Real value Ltd.	Unique value Ltd.	Average
Prices/Sales ratio (Working Note)	1.21	1.38	1.63	1.41
Price/Earnings ratio (Working Note)	7.67	6.59	8.80	7.69
Price/Book value ratio	2.40	2.64	3.44	2.83

(Working Note)				

Applying the multiples calculated as above, the value of TVL can be calculated as follows:

Particular	Multiple Average	Parameter (₹ cr.)	Value (₹ cr.)
Prices/Sales	1.41	250	352.50
Price/Earnings	7.69	40	307.60
Price/Book value	2.83	100	283.00

By applying the weightage to the P/S ratio, P/E ratio and P/BV ratio we get:

[(352.50 x 1) + (307.60 x 2) + (283.00 x 1)] / (1+2+1) = 312.675, i.e. ₹ 312.675 crores is the value.

Alternative:
₹ (352.50 × 0.25 + 307.60 × 0.50 + 283.00 × 0.25) crores = ₹ 312.675 crore.

Working Notes:

Price/ Sales Ratio = Market Value/ Sales

Price/ Earnings Ratio = Market Value/ Profit after tax

Price/ Book value ratio = Market Value/ Book Value

(ii) The Free Cash Flow to Firm (FCFF) for the given data can be calculated as follows:

Sales - Costs - Depreciation	₹ 50,000
Less: Tax	₹ 17,500
PAT	₹ 32,500
Add: Depreciation	₹ 2,00,000
Less: Change in Net Working Capital	₹ 10,000
Less: Change in Capital Spending	₹ 1,00,000
Free Cash Flow to Firm (FCFF)	₹ 1,22,500

(b)

Techno Ltd.

Computation of Brand Value

(Amount in ₹ Crores)

Year ended March 31st	2023	2022	2021
EBIT	696.03	325.65	155.86
Less : Non-brand income	53.43	35.23	3.46
Adjusted Profits	642.60	290.42	152.40
Inflation Compound Factor @ 8%	1.000	1.087	1.181
Present Value of Profits for the brand	642.60	315.69	179.98
Weightage Factor	3	2	1
Weightage Profits	1927.80	631.38	179.98

Weight Average Profits $= \frac{1927.80+631.38+179.98}{3+2+1}$	456.53
Remuneration of Capital [5% of Average capital employed] (i.e. 1112×5%)	55.60
Brand Related	400.93
Corporate tax @ 35%	140.33
Brand Earning	260.60
Capitalization Factor	16%

Brand Value: (Return / Capitalization Rate)

₹ 260.60 crores / 0.16 = ₹ 1,628.75 Crores

7.(a) Acquiring company is considering the acquisition of Target Company in a stock- for-stock transaction in which target Company would receive ₹ 90 for each share of its common stock. The Acquiring company does not expect any change in its price/ earnings ratio multiple after the merger and chooses to value the target company conservatively by assuming no earnings growth due to synergy.

Calculate:

(i) The purchase price premium

(ii) The exchange ratio

(iii) The number of new shares issued by the acquiring company.

(iv) Post-merger EPS of the combined firms

(v) Pre-merger EPS of the Acquiring company

(vi) Pre-merger P/E ratio

(vii) Post-merger share price

(viii) Post-merger equity ownership distribution.

The following additional information is available.

Particulars	Acquiring	Target
Earnings	₹ 2,50,000	₹ 72,500
Number of shares	1,10,000	20,000
Market Price per Share	₹ 50	₹ 60

Also, Comment on your results. **[10]**

(b) Reliable Industries Ltd. (RIL) is considering a takeover of Sunflower Industries Ltd. (SIL). The particulars of 2 companies are given below:

Particulars	RIL	SIL
Earnings After Tax (₹)	20,00,000	10,00,000
Equity shares (No.)	10,00,000	10,00,000
EPS (₹)	2	1
P/E ratio (times)	10	5

Required:

i. What is the market value of each company before merger?

ii. Assuming that the management of RIL estimates that the shareholders of SIL will accept an offer of one share of RIL for four shares of SIL. If there are no synergic effects, what is the market value of the post-merger RIL? What is the new price for

share? Are the shareholders of RIL better or worse off than they were before the merger?

iii. Due to synergic effects, the management of RIL estimates that the earnings will increase by 20%. What is the new post-merger EPS and price per share? Will the shareholders be better off or worse off than before the merger? [3+4+3=10]

Answer:

(a)

(i) Purchase price premium = Offer price for Target company stock/Target company Market price per share = 90/60 = 1.5

(ii) Exchange ratio = Price per share offered for Target Company/Market Price per share for the acquiring company = 90/50 = 1.8

Acquiring company issues 1.8 shares of stock for each of Target Company's stock.

(iii) New shares issued by acquiring company = shares of Target Company x Exchange ratio = 20,000 × 1.8 = 36,000.

(iv) Post-merger EPS of the combined companies = Combined earning/ total number of share.

Combined earnings = (2,50,000 + 72,500) = ₹3,22,500

Total shares outstanding of the new entity

= 1,10,000 + 36,000 = 1,46,000

= ₹3,22,500 ÷ 1,46,000 = ₹2.209

(v) Pre-merger EPS of the acquiring company

= earnings / Number of shares

= 2,50,000 / 1,10,000 = ₹2.273

(vi) Pre-merger P/E = Pre-merger market price per share / Pre-merger earnings per share

= 50/2.273 = 22.00

(vii) Post-merger share price = Post-merger EPS x Pre-merger P/E

= 2.209 × 22.00 = ₹48.60 (as compared to ₹50 Pre-merger)

(viii) Post-merger Equity Ownership Distribution

Target Company = Number of new shares / Total number of shares

= 36,000/ 1,46,000 = 0.2466 or 24.66%

Acquiring company = 100 – 24.66 = 75.34%

Comment – The acquisition results in a ₹1.40 reduction in the market price of the acquiring company due to a 0.064 decline in the EPS of the combined companies. Whether the acquisition is a poor decision depends upon what happens to the earnings would have in the absence of the acquisition, the acquisition may contribute to the market value of the acquiring company.

(b)(i) Market value of companies before merger

Particulars	RIL	SIL
EPS (₹)	2	1
P/E ratio	10	5
Market price per share (₹) (EPS × P/E ratio)	20	5
Equity shares (No.)	10,00,000	10,00,000
Total market value (MPS × No. of Eq. Shared)	2,00,00,000	50,00,000

(ii) Post merger effect on RIL

Particulars	₹

Post merger earnings ₹ (20,00,000 + 10,00,000)	30,00,000
Equity shares (10,00,000 + 10,00,000×1/4) As exchange ratio is 1 : 4	12,50,000
EPS :	2.4
P/E ratio	10.00
Market price per share (₹) (EPS × P/E ratio) i.e., 10 × 2.4	24
Total Market Value (MPS × No. of Eq. Shares) i.e., (12,50,000 × 24)	3,00,00,000

Gains from Merger

Particulars	₹
Post Merger Market value of the firm	3,00,00,000
Less : Pre-Merger market value	
RIL ₹ 2,00,00,000	
SIL ₹ 50,00,000	2,50,00,000
	50,00,000

Apportionment of Gains between shareholders

Particulars	RIL	SIL
Post merger market value		
10,00,000 × 24	2,40,00,000	
2,50,000 × 24		60,00,000
Less : Pre merged market value	2,00,00,000	50,00,000
	40,00,000	10,00,000

Thus the shareholders of both the Co. have gained from merger

(iii) Post Merger Earnings

Increase in earnings by 20%

New earnings: ₹ 30,00,000 × 120% = ₹ 36,00,000

No. of equity share = 12,50,000

EPS = ₹ 36,00,000 ÷ 12,50,000 = ₹ 2.88

P/E ratio = 10

Market price per share = ₹ 2.88 × 10 = ₹ 28.80

∴ Hence, shareholders will be better off than before the merger situation.

8.(a) You are given following information about Sandeep Ltd.:

(i) Beta for the year 2022-23 is 1.05

(ii) Risk free rate 12%

(iii) Long Range Market Rate (based on BSE Sensex) 15.14%

(iv) Extracts from the liabilities side of balance sheet as at 31st March, 2023

	₹
Equity	**29,160**
Reserve & Surplus	**43,740**
Shareholder's Fund	**72,900**
Loan Funds	**8,100**
Total Funds (Long term)	**81,000**

(v) Profit after tax ₹ 20,394.16 lakhs

(vi) Interest deducted from profit ₹487.00 lakhs

(vii) Effective tax rate (i.e. Provision for Tax/PBT x 100) 24.45%.

Calculate Economic Value Added of Sandeep Ltd. as on 31st March 2023. [10]

(b) Tridev Ltd. is in the business of making sports equipment. The Company operates from Thailand. To globalise its operations, Tridev Ltd. has identified Try Toys Ltd., an Indian Company, as a potential takeover candidate. After due diligence of Try Toys Ltd, the following information is available:

(A) Cash Flow Forecasts (₹ in Crores)

Year	10	9	8	7	6	5	4	3	2	1
Try Toys Ltd.	24	21	15	16	15	12	10	8	6	3
Tridev Ltd.	108	70	55	60	52	44	32	30	20	16

(B) The Net Worth of Try Toys Ltd (in Lakh ₹) after considering certain adjustments suggested by the due diligence team are as under —

Tangible	750	
Inventories	145	
Receivables	75	970
Less- Creditors	165	
Bank Loans	250	(415)
Represented by Equity Shares @ ₹ 1000 each		555

Talks for the takeover have crystallized on the following –

(i) Tridev Ltd. will not be able to use Machinery worth ₹75 Lakhs which will be disposed of by them subsequent to take over. The expected realization will be ₹50 Lakhs.

(ii) The inventories and receivables are agreed for takeover at values of ₹100 and ₹50 Lakhs respectively, which is the price they will realize on disposal.

(iii) The liabilities of Try Toys Ltd will be discharged in full on takeover along with an employee settlement of ₹90 Lakhs for the employees who are not interested in continuing under the new management.

(iv) Tridev Ltd will invest a sum of ₹150 Lakhs for upgrading the Plant of Try Toys Ltd. on takeover. A further sum of ₹50 Lakhs will also be incurred in the second year to revamp the machine shop floor of Try Toys Ltd.

(v) The anticipated cash flow (in ₹ Crore) post takeover are as follows-

Year	1	2	3	4	5	6	7	8	9	10
Cash Flows	18	24	36	44	60	80	96	100	140	200

You are required to advise the management the maximum price which they can pay per share of Try Toys Ltd., if a discount factor of 15% is considered appropriate. [10]

Answer:

(a) We know that EVA = NOPAT – Cost of Capital Employed
Where, EVA= Economic Value Added
NOPAT = Net Operating Profit after tax

Required calculations are as follows:

NOPAT:

Profit after tax	₹20,394.16 lakhs
Add-Interest Net of Tax[(₹ 487 lakhs (1-0.2445)]	₹ 367.93 lakhs
NOPAT	₹ 20,762.09 lakhs

Cost of Equity:
Cost of Equity = Risk free rate + β [Market rate – Risk free return]
=12%+1.05 x [15.14% - 12.00%] =12% + 3.30% =15.30%.

Cost of Debt:
Cost of Debt = Interest on Loan Funds (1-Tax Rate) /Loan Funds x 100
= 487 x (1-0.2445) / 8100 x 100 = 4.54%.

Weighted Average Cost of Capital:

	Amount in Lakhs (₹)	Weight	Cost	WACC%
Equity	72,900	0.90	15.30	13.77
Debt	8,100	0.10	4.54	0.45
	81,000	1.00		14.22

Cost of capital employed
= ₹ 81,000 x 14.22%
= ₹ 11,518.20 lakhs

EVA = NOPAT – Cost of Capital Employed
= ₹ 20,762.09 lakhs - ₹ 11,518.20 lakhs
= ₹ 9,243.89 lakhs.

(b)(i) Computation of Operational Synergy expected to arise out of merger (₹ Lakhs):

Year	1	2	3	4	5	6	7	8	9	10
Cash flow after merger	1,800	2,400	3,600	4,400	6,000	8,000	9,600	10,000	14,000	20,000
Cash flow without merger	1,600	2,000	3,000	3,200	4,400	5,200	6,000	5,500	7,000	10,800
Synergy Effect	200	400	600	1,200	1,600	2,800	3,600	4,500	7,000	9,200

(ii) Valuation of Try Toys Ltd. (₹ in Lakhs)

		Without Merger		Considering Merger	
Year	Discount Factor	Cash Flows	Discounted Cash Flow	Cash Flow	Discounted Cash Flow
1	0.870	300	261.00	200	174.00
2	0.756	600	453.60	400	302.40
3	0.657	800	525.60	600	394.20
4	0.572	1000	572.00	1200	686.40
5	0.497	1200	596.40	1600	795.20
6	0.432	1500	648.00	2800	1209.60
7	0.376	1600	601.60	3600	1353.60
8	0.327	1500	490.50	4500	1471.50
9	0.284	2100	596.40	7000	1988.00
10	0.247	2400	592.40	9200	2272.40
			5337.90		10,647.30
			5338.00		10,647.00

(iii) Computation of Maximum Value to be quoted

Particulars	₹ in Lakhs	₹ in Lakhs
Value as per discounted Cash flow from Operations		10,647
Add – Cash to be collected immediately by disposal of assets:		
Sundry Fixed Assets	50	
	150	
	165	
	90	
	250	

	150	
	38	693
Maximum Amount to be quoted		10,154
Difference in Valuation had there been no merger = (10,647 – 5,338) = ₹5,309 Lakhs.		