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END SEMESTER EXAMINATION

FAC637 BUSINESS VALUATION

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INSTRUCTION:

1. **ALL QUESTIONS ARE COMPULSORY AND CARRY EQUAL MARKS.**
2. **BE PRECISE AND TO-THE-POINT IN YOUR ANSWERS.**

Caselet 1 (For questions no. 1, 2 and 3)

Shruti Ramakrishnan is an analyst with Transition Fund, a venture capital fund based in Bangalore, India. The fund's investment focus is startups in energy transition sector. Shruti is evaluating a proposal to invest in ChargeZone EV Infra Pvt Ltd (ChargeZone), an Electrical Vehicle (EV) charging infrastructure startup.

ChargeZone has asked for an investment of Rs. 6 Crores for the ongoing series A round of capital raising. Shruti's analysis indicates that ChargeZone will require additional capital of Rs. 24 Crores in two years to finance its growth, which will be the series B for the startup. Based on the valuation that similar startups have been able to attract in China, it is estimated that Transition Fund's investment stake in ChargeZone will be worth Rs. 185 crores in 6 years when Transition foresees its exit from the entire investment in ChargeZone.

Transition's investment policy requires applying a discount rate of 25% and 40% for series B and series A investment respectively.

At present, the paid-up capital of ChargeZone is Rs. 1 Lakh with 10,000 equity shares outstanding.

Questions:

1. What is the proportion of shares that Transition will receive for series A investment in ChargeZone?
2. What will be the price per share for series A investment in ChargeZone?
3. What will be the price per share for series B investment in ChargeZone?

Caselet 2 (for questions no. 4 to 9)

Rocket Singh is an analyst with Matrix Partners, a leading asset manager in Mumbai. His boss, Meera Krishnan, has asked Singh to assist her in analysing MMT, a leading firm in the travel and leisure industry. MMT operates an online travel agency in Asia that provides travel products and services to travellers and travel agents. Krishnan provides Singh with a list of questions to help her finalize her analysis of discount rates as they pertain to the valuation of MMT, compare the firm with its industry and determine intrinsic value estimates for MMT's common stock.

Krishnan first asks Singh to estimate MMT's sustainable growth rate, which he does using the information in Exhibit 1 and 2.

Exhibit 1 **Selected MMT Income Statement Data**		**Exhibit 2** **Selected MMT Balance Sheet Data**		
(INR Millions, except shares outstanding)	2022-23		2022-23 Book Value (INR Millions)	2022-23 Market Value (INR Millions)
Sales	3110.56	Cash	490.00	
Pre-tax Income	551.22	Total Assets	4235.58	
Income Tax	135.48	Total Debt	1051.96	997.00
		Shareholder's Equity	2119.41	
Dividends	103.87	Non-controlling interest	580.00	
Equity Shares Outstanding (Millions)	89.54	Total Equity	2699.41	

The current share price of MMT's common equity is INR 31.30. Krishnan mentions to Singh that historically, the company has had a ratio of enterprise value (EV) to sales of 1.25x. She asks Singh to use the information in Exhibit 1 and 2 along with this metric to determine whether MMT's common shares are appropriately priced.

Krishnan ask Singh to refine his analysis of the dividend growth rate and discount rates to value MMT's equity. Singh looks at MMT in more detail and concludes that its expansion potential will likely follow three distinct stages of growth, provided in Exhibit 3. He also determines the long-term return on equity (RoE) for the stock and its required rate of return, which are also presented in Exhibit 3.

Exhibit 3: Singh's Estimates for MMT		
1. Estimated growth rates for MMT's dividends.		
2023-24 to 2025-26	2026-27 to 2029-30	Beyond 2029-30
19%	10%	5%
2. Other estimates for MMT		
Long-term RoE		15%
Required rate of return on the stock		11%

With these estimates, Singh determines the intrinsic value of MMT common stock using dividend discount model (DDM).

Krishnan next instructs Singh to minimize the uncertainty in making assumptions about MMT's future earnings and long-term dividend growth by using the residual income model. Singh uses the data in Exhibit 1, 2, and 3 to calculate MMT's intrinsic value per common share.

Singh discusses with Krishnan the best reasons for using the residual income model and provides the following explanation:
"The residual income model's strengths include the fact that it uses readily available accounting data and focuses on economic profitability. Weaknesses include the fact that accounting data can be manipulated by management, the cost of debt capital is assumed to be reflected by interest exposure, and terminal values make up a large portion of the value of a firm's equity."

Several firms in the travel and leisure industry in Asia are privately help. Krishnan asks Singh to provide three key differences between valuing private and public companies. He cites the following differences:

- Private firms are generally smaller than public firms. Being smaller, they can have enhanced growth prospects because of easier access to growth capital.
- Agency issues are usually greater at private companies.
- Small companies might decide to remain privately help because higher compliance costs may outweigh any other benefits of being public.

Questions

4. Using the information in Exhibit 1 and 2, what is the estimated sustainable growth rate for MMT?
5. Using the EV-to-sales ratio approach, are common shares of MMT undervalued, fairly valued or over-valued? By how much percentage if either undervalued or over-valued?
6. Based on Singh's growth estimates and the information in Exhibit 1 and 3, what is the amount that the terminal value component of its intrinsic value contributes to MMT's stock price at the end of 2022-23?
7. Using the residual income model and Exhibit 1, 2, and 3, what would be Singh's estimate of MMT's intrinsic value per share?
8. Which of Singh's explanation of the strengths and weaknesses of the residual income model is/are least accurate?
9. Which of the differences cited by Singh about private and public companies is/are most accurate?

Caselet 3 (for questions no. 10 to 15)

Paperboat Drinks Pvt Ltd. (PDPL), a small privately owned company, produces high quality traditional fruit and vegetable drinks in India. After India's signing of free trade agreement with Thailand in 2018, international demand for the country's traditional drinks. Most firms in the industry, including PDPL, have been reporting double-digit sales growth on year-over-year basis.

Shaan Malik, a portfolio strategist at a major Indian investment consulting firm, inherited PDPL from his parents. Ayudhaya Drinks Ltd (ADL), a famous Thai company, which is interested in entering the Indian market, has made a cash offer of INR 900 million for the company's equity (Thai Baht 1 = 2 INR). ADL will assume PDPL's entire outstanding debt, including both current liabilities and long-term debt. If Malik prefers to sell only a non-controlling interest, ADL is willing to purchase a no less than 40% of equity stake, but at an appropriate discount for lack of control.

Malik evaluates the company himself by using the capitalized cash flow method (CCM). He uses the build-up method to estimate the required rate of return on equity and then computes the firm's weighted average cost of capital (WACC). In computations, Malik uses the book values of debt and considers the current weight of total debt in the capital structure to be optimal. Exhibits 1A, 1B, 2, and 3 contain PDPL's financial data and other inputs that Malik used for determining PDPL's value.

Before responding to ADL's offer, however, Malik meets with Alok Goel, his colleague and a senior equity analyst covering the FMCG industry in India. After reviewing the data and Malik's valuation analysis, Goel suggests that 11% would be a more reasonable estimate of PDPL's WACC. He also makes the following two comments:
(1) CCM is most often used for the valuation of large public companies, and it is less valid for valuing private companies, such as PDPL.
(2) The excess earnings method is preferable as it provides an estimate of the value of intangible assets by capitalizing future earnings in excess of the estimated return requirements associated with working capital and fixed assets.

Goel also suggests that the enterprise value (EV) multiple approach should work well for valuing PDPL. Upon searching his database, Goel finds that Sulla Beverages Ltd, a publicly traded company and a close competitor to PDPL, is currently valued at an EV/EBITDA multiple of 7.2. Goel further suggests that PDPL

should command an upward adjustment of 25% in the EV/EBITDA multiple, reflecting its lower risk and higher growth relative to Sulla Beverages. He also recommends using the forward-looking EBITDA for determining PDPL's value.

On a cautionary note, Goel makes two statements regarding the use of the EV/EBITDA approach to valuation.

(1) It is more appropriate than P/E for comparing companies with different financial leverage.
(2) EBITDA underestimates cash flow from operations if working capital is growing.

Finally, Malik recalls ADL's willingness to purchase a non-controlling ownership interest but at a discount for lack of control. Goel responds saying that a control premium of 30% is typically applied for purchase transactions of small, privately owned firms similar to PDPL, and proper adjustment for lack of control should be made if the transaction involves a non-controlling interest. Malik thanks Goel for his help and goes back to his desk to revise his valuations.

Exhibit 1A **Paperboat Drinks Pvt Ltd. (PDPL)** **EBITDA and Other Data** **(All Values in Millions of Indian Rupees)**		
	FY 2022-23 (Actual)	**FY 2023-24 (Projected)**
Revenue	248.5	300.6
Cost of Goods Sold	132.3	172.5
Gross Profit	116.2	128.1
Selling, General & Administrative Expenses	19.2	23.0
EBITDA	97.0	105.1
Other Data		
Capital Expenditure	2.5	4.0
Interest Expense	2.7	3.6
Depreciation & Amortization	5.0	6.4
Change in Working Capital	0.8	1.0
Exhibit 1B		
Additional Information		
Pre-tax Cost of Debt	10.0%	
Weight of Total Debt in Capital Structure	30%	
Tax Rate	25%	

Exhibit 2			
Assets		**Liabilities & Equity**	
Cash & cash equivalent	50	Accounts Payable	10
Receivables & Inventory	40	Notes Payable	8
Net Fixed Assets	50	Long-term Debt	30
Patents and trademarks	20	Common Equity	112
Total Assets	160	Total Liabilities & Equity	160

Exhibit 3 Other Data and Inputs	
Indian government's 10-Year bond yield	3.9%
Beta of the publicly traded firms in the industry	0.75
Equity risk premium	6.0%
Small stock premium	2.5%
Industry risk premium	-1.0%
PDPL's company=specific risk premium	1.5%
Long-term growth rate beyond 2023-24	5%

Questions

10. According to the method used by Malik for computing the cost of equity and the pertinent data in Exhibits 2 and 3, What is PDPL's WACC?
11. According to the method used by Malik and the WACC suggested by Goel, what is the value of PDPL's common equity (in Millions of INR)?
12. Regarding the two comments that Goel made after reviewing Malik's valuation analysis, which one (or both) of his comments are most likely to be correct and why?
13. Using Goel's findings from his search of the database, his suggestions regarding appropriate adjustments, and the EV/EBITDA multiples approach, what is the value of PDPL's common equity (in Millions of INR)?
14. Regarding Goel's two cautionary statements concerning the use of the enterprise value method of valuation, which one (or both) of his statements are most likely to be correct and why?
15. What is the discount for lack of control (percentage) given the typical control premium indicated by Malik?