BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT: ECONOMICS

PROGRAMME: MASTER OF SCIENCE DEGREE IN ECONOMICS

COURSE CODE MEC523 (1): CORPORATE FINANCE

DURATION: 3 HOURS TOTAL MARKS: 100

INSTRUCTIONS TO CANDIDATES

NOV 2023

1. This paper carries six questions
2. Answer any four (4) questions.
3. All questions carry 25 marks.
4. Cellphones are not allowed in the examination room.

QUESTION 1

a. Zegala Inc. is an all-equity funded company that operates in two businesses and derives all of its revenues in the United States.

	Estimated Value (in $ millions)	Unlevered Beta
Hotels	$500.00	0.90
Travel Services	$1,000.00	1.20
Company	**$1,500.00**	**1.10**

The firm is considering borrowing $1.5 billion and expanding its hotel business into Mexico. The US 10-year T.bond rate is 3%, the Mexican government 10-year peso rate is 8%k the equity risk premium for the US is 5% and the equity risk premium for Mexico is 7.5%. Estimate the cost of equity in US $ terms for the company, after the expansion. (The marginal tax rate is 25%). **(13 marks)**

b. You have been asked to estimate the cost of capital for Lemur Enterprises, a company with a significant debt load, and a depressed stock price. You have the following information:

- The company has a book value of equity of $1 billion. There are 150 million shares, trading at $4/share. The unlevered beta of other companies in the same business is 1.20.
- The company has bank loans outstanding of $1 billion, with 5 years left to maturity and interest expenses of $40 million a year. The company currently has a CCC bond rating and has a default spread of 7% over the risk free rate.
- The firm reported a net loss of -$15 million, but its operating income is expected to be $32 million next year.

The risk free rate is 3%, the equity risk premium is 5% and the marginal tax rate for all companies is 25%. Estimate the cost of capital for the company, for next year. **(12 marks)**

QUESTION 2

a. You have been hired by a movie company and asked whether they should invest in a streaming service, and have collected the following information:
   - The company will have to spend $2 billion in acquiring a proprietary streaming product. This investment will be depreciated straight line over five years to a salvage value of zero.
   - You expect to have 25 million subscribers, paying $100/year, for the next five years and the operating expenses (not including depreciation) of servicing these subscribers to be 60% of revenues.
   - The cost of capital is 8% and the marginal tax rate is 25%.
   - To provide exclusive content on its streaming, the company will have to pull movies that it now shows on Netflix and forfeit $500 million in licensing fees (pre tax) that it would have received every year for the next five years.

Estimate the net present value of the streaming service, assuming that it will be wound up in five years. **(10 marks)**

b. You work for a Genome Drugs, small biotechnology company that has a 10-year patent for a drug that it plans to license to a larger pharmaceutical company and it has two offers:
   - Biogen has offered to pay $100 million today and $50 million a year, each year for the next 5 years.
   - Merck has offered to pay $50 million today and share 15% of net income, expected to be $400 million annually, each year for the next 10 years.

The following table lists financing costs of Pfizer and Merck:

	After-tax cost of debt	Pre-tax cost of debt	Cost of equity	Cost of capital
Biogen	3.75%	5.00%	12.00%	10.00%
Merck	3.00%	4.00%	9.00%	7.50%

Which offer would create more value for you? **(8 marks)**

c. Marley Inc. is a small, publicly traded music producer, with 20 million shares trading at $15/share and no debt. The company announces that it will borrow money to move to a debt to capital ratio of 20% and lower its cost of capital to 7.5%. If the stock price jumps to $15.90 on the announcement, investors are rational and there is no growth in the financing cost savings over time, estimate the beta for the company after the borrowing. The risk free rate is 3%, the equity risk premium is 5% and the marginal tax rate is 25%. **(7 marks)**

QUESTION 3

Minster Inc. is examining its dividend policy and has provided you with the following information:

	1	2	3
Revenues	$1,200.00	$1,400.00	$1,600.00
Net Income	$30.00	$70.00	$160.00
Total Non-cash WC as % of revenues	12.00%	9.00%	6.00%
Dividend Payout	0.00%	10.00%	20.00%

- The non-cash working capital currently is $150 million and the company has a cash balance right now of $50 million.
- In the most recent year, depreciation amounted to $75 million and capital expenditures were $125 million. You expect depreciation to grow 10% a year and capital expenditures to increase 8% a year, each year for the next 3 years.

Assuming that the company would like to double its cash balance by the end of year 3 and do a stock buyback in year 3, estimate how much cash the company will have available for its buyback. (25 marks)

QUESTION 4

Justin Enterprises, a company with a 9% cost of capital, reported the following numbers in its financial statements for the most recent year:

Income Statement	
Revenues	$500.00
EBITDA	$150.00
DA	$50.00
EBIT	$100.00
Interest Expense	$20.00
EBT	$80.00
Taxes	$20.00
Net Income	$60.00

Balance Sheet			
Fixed Assets	500	Debt	200
Non-cash Working Capital	125	Equity	550
Cash	125		
Total	750	Total	750

In the most recent year, the company also reported capital expenditures of $90 million and an increase in working capital of $ 10 million. Justin will continue to reinvest at the same rate as it did in the most recent year and generate the same return on invested capital it earned in the most recent year, for the next three years. If after year 3, it becomes a mature firm, growing 3% a year in perpetuity (while maintaining its current return on capital), estimate the value of the equity today. **(25 marks)**

QUESTION 5

You are trying to value Hollow Inc. and have estimated the following cash flows for the firm for its high growth period:

	Last year	1	2	3
Expected Growth Rate		7.5%	7.5%	7.5%
EBIT (1-t)	$100.00	$107.50	$115.56	$124.23
+ Depreciation	$20.00	$21.50	$23.22	$25.08
- Cap Ex	$80.00	$86.00	$92.88	$100.31
FCFF	$40.00	$43.00	$45.90	$49.00
Cost of capital		10%	10%	10%

After year 3, Hollow Inc. is expected to be a mature firm, growing 2.5% a year in perpetuity with a cost of capital of 8%. If the company will earn the same return on capital (as it is expected to earn in years 1-3) in perpetuity, estimate the terminal value of the firm, i.e.., the value of the firm at the end of year 3. **(18 marks)**

b. Supra Inc, a US company in the travel services and hotel businesses, has asked you to compute a cost of capital to use in assessing a joint venture to build new hotels along the US- Mexico border, with 20% of the revenues coming from the US and 80% from Mexico. You are given the following additional information:

i. The beta for Supra is given below, with a business breakdown:

	D/E Ratio	Levered Beta
Supra Travel Services	20%	1.008
Supra Hotels	50%	1.430
Supra Overall	*30%*	*1.062*

ii. The equity risk premium for the US is 6% and the equity risk premium for Mexico is 9%.

iii. The US treasury bond rate is 2.5% and the inflation rate in US $ is 2%. The expected inflation rate in Mexico (in pesos) is 4.5%.

iv. Supra's pre-tax cost of debt is 4% (in US$) and the tax rate is 40%.

If Supra plans to fund this joint venture entirely with equity, and wants to do the analysis in Mexican pesos, estimate the cost of capital for the project. (7 marks)

QUESTION 6

a. You run a restaurant that is expected to generate $100,000 in EBITDA each year for the next five years (after which your lease terminates). If you invest $250,000 in renovating the restaurant today (depreciable straight line over five years to a salvage value of zero), you expect to increase your EBITDA **to** $175,000 a year for the next five years. If you face a tax rate of 40% and a cost of capital of 12%, would you invest in the renovation? **(7 marks)**

b. You own a movie theater and have to replace all the seats in the theater. You have two choices.
Option 1: You can spend $250,000 on cheaper seats that will cost $10,000 to clean each year and last four years.
Option 2: You can spend $400,000 on better quality seats that will cost only $5000 to clean each year and last seven years.
Ignoring taxes and depreciation, which option would you pick, if your cost of capital is 8%? **(12 marks)**

c. You are planning to make an investment of $10 million in new servers for your business and expect to be able to depreciate that investment, straight line over five years down to a

salvage value of zero. If your tax rate is 40% and you were able to expense the investment today instead, what effect will that have on your NPV (assuming a cost of capital of 12%)?
(6 marks)

End of Paper