

## IM2220 Group Assignment

### General Information

- This assignment accounts for **15% of your final grade**.
- The assignment is to be completed in groups of 2 to 5 students.
- The assignment is due on the 10<sup>th</sup> week on the **[10<sup>th</sup> January 2023] no later than 11:59 P.M.**
- The word limit is 2000 words excluding references and appendices. Please note that this is an upper limit and not a lower limit.
- Students should adhere to the professional report format for Sections A to C.
- Part D entails a presentation which must be recorded and submitted with the final report.
- Paragraphs should be double spaced with clearly numbered headings and subheadings.
- Each group must submit ONE report in MS Word or PDF format as a single document.
- Students are expected to use MS Excel in this assignment. Therefore, please submit your Excel workings as a separate MS Excel.
- The PowerPoint slides and the Zoom video must be submitted for Part D.
- Your submission link will be provided closer to the due date.
- There will be no instructions provided on Excel modelling during the lecture. However, there will be some online resources uploaded to Moodle, which you can use to understand Excel Modelling in a Corporate Finance context.
- The assignment will be marked out of 50 and scaled down to 15.

### Intended Learning Objectives

1. *Identify relevant and irrelevant cashflow items.*
2. *Estimate incremental cash flows.*
3. *Evaluate capital budgeting projects, taking qualitative and quantitative factors in to account.*
4. *Analyze the impact of various factors on the final outcome of projects.*
5. *Estimate the weighted average cost using available information.*
6. *Defend the acceptance/rejection decision in an oral presentation.*

### Section A: Incremental Cashflow Analysis [20 marks]

#### Heritage Tea (Pvt) Ltd

Heritage Tea (Pvt) Ltd is a medium sized tea exporter, who has been in existence for more than 30 years. The company purchases tea from tea estates, process knotted tea bags, pack and export. The company's capital structure currently has 60 percent equity, and 40 percent debt. The company's long-term interest-bearing debt stands at Rs. 200 million, of which Rs. 100 million consists of 13.00% Fixed rate loans which matures in 30<sup>th</sup> December 2024. The remaining Rs. 100 million consists of AWPLR+2% Variable rate loans which will mature in 30<sup>th</sup> December 2026. The company had an Earnings Per Share (EPS) of Rs. 100 for the first quarter of 2022, and the dividend payout ratio was 20 percent. An analyst at Tip Top Securities says that the tea industry will grow

at a rate of 3.1 percent (CAGR 2022-2025), whereas another at ABC securities states that the industry will grow at 5 percent (CAGR 2022-2025). The current share value was estimated as Rs. 300 per share, by an equity analyst who estimated the value, when a new large-scale investor invested in the company.

Traditionally, Heritage Tea Ltd has been mainly dealing with the United Kingdom. However, the Australian and European markets have become a popular destination in recent times. The US market consists of a smaller segment, preferring more coffee over tea.

**Table 1: Export Destinations of Heritage Tea Ltd**

<b>Export Destination</b>	<b>Percentage of Sales Volume (%)</b>
United Kingdom	40
Australia	30
European Union (region)	20
United States of America	10

## **The Project**

You are working for the treasury department of this company. The head of treasury (Mrs. Fernando) has requested you to analyze the following replacement decision.

The company currently uses a machine which was bought 10 years earlier to produce knotted tea bags, when the processed tea leaves arrive in the assembly line. You have gathered below details from the purchasing and accounting departments.

**Table 2: Existing Machine (Automatic Tea Leaf Filler)**

<b>Make and model</b>	<b>Yangzu Machines LC-450</b>
Original cost	\$US 20,000
Purchase date	12 <sup>th</sup> of October 2012
Useful life	10 years
Depreciation method	Straight Line (depreciated till zero)
Estimated salvage value in current market	Rs. 1600,000

Maintenance cost	Rs. 2000,000 p.a.
(Outsourced to Timely Solutions)	

The existing machine is expected to be replaced with a more advanced and efficient machine. The details are provided below;

**Table 3: New Machine**

<b>Make and model</b>	<b>Yangzu Machines XP-5000</b>
Estimated purchase price	\$US 15,000
Useful life	10 years
Depreciation method	Reducing Balance (depreciated till zero)
Estimated salvage value after 10 years	Rs. 1000,000
Maintenance cost	Rs. 3000,000 p.a.
(Outsourced to Timely Solutions)	

Mr. Jeevan who is the operations manager informs you that, the operation of the new machine will be completely new to the current staff members. Therefore, a training must be provided initially to operate the machine. A training consultant is available for an on-the-job training spanning 2 weeks, at a cost of Rs. 1000,000. Timely solutions Ltd have agreed to provide the maintenance free of charge for 5 years to the company, if the new machine is purchased, due to an agreement they have with the local dealer of the new machine.

The new machine is more efficient at packing tea bags. The new machine will produce 50 tea bags a minute, which is higher compared to the 25 tea bags produced a minute by the old machine.

The factory when operating in full capacity run for 8 working hours a day. Staff is afforded a lunch break of half an hour, and 15-minute tea breaks in the morning and evening. The factory does not work over time, due to work life balance concerns of the staff. The factory is closed during public holidays. The total variable cost of producing one tea bag was estimated at Rs. 250 (using the old machine) after recent increases in costs (i.e.: electricity, labour, fuel and raw material). The new machine will bring this cost down to Rs. 180 due to improved efficiency.

Mr. Roshan the marketing manager states demand for the product is very high in all markets. Therefore, the higher production can be easily sold in the respective markets.

Mr. Roshan further states that the following recommended retail prices (RRP) are set in the respective countries for this product;

**Table 4: Recommended Retail Prices in different destinations**

Country	RRP (30 pack)
United Kingdom	GBP 10
Australia	AUD 20
European Union	EUR 10
United States of America	USD 12

There is likely to be an increase in inventory of Rs. 5000,000 due to the purchase of the new machine. A consultant from an engineering services company was hired to conduct analysis on the machines at a cost of Rs. 300,000.

The project life is assumed to be 10 years. Mrs. Fernando has stated for the analysis of the project, the foreign exchange rates, variable costs, capital costs are assumed to be the same for the next 20 years.

A tax rate of 14 percent was paid on profits in previous years, due to the lower corporate tax rate on exporters. However, this is proposed to be increased to 30 percent in the government budget of 2023. The rates will be effective from December 2022.

**Required: Estimate the incremental cashflows of the replacement decision (from the old machine to the new machine) for the duration of the project (Clearly state any assumptions when limited information is provided).**

#### **Section B: Investing Decision [10 marks]**

Using the cashflows estimates in Section A (Heritage (Pvt) Ltd);

- I. Calculate the relevant capital budgeting metrics required for decision making. [4 Marks]

- II. Write a statement to Mrs. Fernando (Treasurer) clearly stating whether the machine should be accepted or not accepted, based on your calculations. Incorporate any qualitative factors and limitations of your decision. [6 Marks]

**Section C: Risk Analysis [10 marks]**

Perform a sensitivity analysis and scenario analysis for different assumptions/scenarios, graphically showing the effect of changes in assumptions on the net present value. Critically evaluate your results and state whether the decision reached in Section B will be affected (i.e: Variables such as variable cost, production volume, capital costs, exchange rates, tax rates should be considered).

**Section D: Group presentation video [10 marks]**

Mrs. Fernando is impressed with your analysis, and she wants you and your team to present the analysis to the directors' board. The presentation will take place virtually.

A group presentation should be prepared with power point slides to justify your decision. You must record the video using Zoom (or other suitable) platform and upload the video to Moodle along with your report. All members must present a part of the presentation. The time limit is 10 minutes.

The marks for the section are allocated as follows;

**Table 5: Criteria for Presentation**

<b>Criteria</b>	<b>Marks</b>
Design	2
Structure	2
Content	2
Professionalism	2
Clarity of voice	2

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**End of Assignment**

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