

FM + EXCEL PROJECT
GARGI TENDULKAR
SECTION B
ROLL NO.77

Q1

Universal swap is a crypto exchange which uses decentralized network protocol estimated to be 4th largest crypto exchange overall by daily trading volume.

It majorly operates through liquidity pool which is a market maker in crypto space. It buys the coins users want to sell and sells the coins user wants to buy using AMM Algorithm.

To grow further, Universal swap has planned to create a new liquidity pool "The Alternium" with new crypto coins.

1. R & d Expenses

Already spent 150mn on research. Money can't comeback if project cancelled. i.e., if the project gets cancelled, then the company will lose its 150 Mn but if it does not get cancelled, then there are many more cashflows to come.

2. Introductory cost

If project not cancelled, it will have to spend 1bn now and the price will decrease to 200mn by the 10th yr.

3. Market Potential and Shares

2020, Universal Swap had 45 million US & Russia participants and 30 million international participants

	Without Alternium	With Alternium
US and Russia participants	5% for next 10 years	5% for next years
International	8% for next years	10% for next years

Given that the US and Russia participants increase by 5% for next 10 years if alternium not introduced, I think it means that the no. of participants increase by a fixed rate of (5% of 45mn)=2.25.

While without alternium, the no. of international participants increases by an increased rate of (8% of the previous year).

With alternium, the no. of participants will increase by 5% of previous years in US and Russia and 10% of the previous year in international participants.

This indicates that if the alternium is not launched, the US and the Russia participants seem to be quite reluctant unlike if the alternium is launched.

4. Pricing and Unit Costs:

Each participant now pays \$100/year flat and this cost is expected to grow at the inflation rate for both domestic and international participants, each year for the next 10 years. The cost of servicing each participant currently is \$36/year for US and Russian participant and \$48/year for an international participant

and those costs are as expected to grow at the inflation rate each year.

Since Universal swap is a US based company and all the calculations are done in \$, we are given the inflation rate to be 1.5%.

Assuming that the inflation rate will be constant.

Then, using this inflation rate, we find the price and unit costs per participant.

Further, from this data and the no. of participants, we find the total costs participants pay (inflow for the company) and the total cost of servicing (outflow for the company).

So, now, (Cashflow due to Cost and Pricing of units = costs participants pay - cost of servicing)

5. New participants on Alternium:

If the new pool is floated, Universal Swap expects to offer a new plan which will be priced at half of the regular price. This service will be offered only to international participants and it is anticipated that it will attract 5 million participants in year 1, growing at 8% a year for the following 9 years. The cost of servicing each such participant will be 60% of the cost of servicing an international participant.

6. Server Facilities and Costs:

If the capacity limit is reached (which will happen in 10th year), Universal Swap will have to invest a substantial amount to create a new server of equivalent capacity. The current estimate of the cost of buying a new server is \$600 million, but this cost will grow at the inflation rate.

7. G&A expenses:

Universal Swap's accountants will allocate 10% of its existing general and administrative costs to the new pool. These costs total \$ 400 million for the entire firm in the most recent year and are expected to grow 5% a year for the next 10 years, with or without the new pool. It is expected that Universal Swap will cause an increase of \$ 40 million in general and administrative costs next year when the Alternium is operational, and this amount will grow at 10% a year for the next ten years. The latter cost is directly related to the new pool investment.

8. Advertising Expenses:

Universal Swap spent \$ 500 million on advertising in the most recent year. If it does not invest in the new pool, it expects this cost to increase 5% a year for the next 10 years. If the new pool is built, the total advertising expenses each year, from years 1 to 10, are expected to be 15% higher than they would have been without it

9. Working Capital:

The new studio will create working capital needs, which you have estimated as follows:

- Since the fees charged are taken in crypto coins and then converted to USD periodically, the new pool will create accounts receivable amounting to 5% of revenues each year.
- Inventory (of coins) will be approximately 10% of revenues each year.
- Accounts payable will be 6% of the revenues each year. (ex. Electricity costs, server charges, etc)

All of these working capital investments will have to be made at the beginning of each year in which services are offered. Thus, the working capital investment for the first year will have to be made at the beginning of the first year.

10. Side benefits:

That cost savings in current pool is expected to amount to \$30 million (pre-tax) in the first year and increase at 3% a year for the next ten years.

Now calculating the total revenue without receivables, it will be the sum of all cashflows where we have considered inflation rate.

accounts receivables beginning of each year = total revenue without receivables * Accounts Receivable rate (here, 5%).

accounts payable at the beginning of each year = total revenue without receivables * Accounts payable (here, 6%).

Total Revenue = total revenue without receivables - accounts receivables beginning of each year

Total costs excluding debt will be the sum of all negative cashflows.

And Total cost = Total costs excluding debt - Interest on debt (here fixed, 346262086.632951) + cost saving cash flow.

Now, Income = Total Revenue - Total costs.

Then we find the after-tax Income by simply subtracting the 10% tax rate from the Income.

The Present Value of cashflow is nothing but : after-tax Income $(1 - \text{cost of capital; here } 11\%)^{\text{year}}$

Summation of this present value cashflow gives us the net present value.

Considering IRR to be 100%, we do the same calculation as of NPV but in now instead of the cost of capital, we consider the IRR.

Summation of this gives us the Total NPV.

Q3

Since we are to find the cashflow of future years, we will do some assumptions:

- 1] the project will last for at least next 20 years
- 2] since the commencement of technology there has been new age revolutionary technologies being developed every 20 years so in the next 20 years there might be new technology available
- 3] since the machine does not have a lot of life and it will get old and the processing will get slower so it might not run out

Assumptions made in cashflow:

- consumers are expected to grow by the rate 10%
- service price and exchange price are expected to grow at 7%
- Participants of the new pool of alternium is expected to grow at 8%
- cost of servicing new pool of alternium 28.8
- percentage of revenue is 5%
- inflation rate given 1.5%
- Cost of Capital given 11%
- Tax rate given 10%

Now calculating the total revenue without receivables, it will be the sum of all cashflows where we have considered inflation rate.

Accounts Receivable = total revenue without receivables * percentage of revenue i.e. (5%)

The Total Revenue would be the summation of total revenue without receivables and Accounts Receivable.

Total costs will be the sum of all negative cashflows = Inventory Cost + Advertising Cost

Now, Income = Total costs - cost saving cash flow (which is given to be 30000000)

Then we find the after-tax Income by simply subtracting the 10% tax rate from the Income.

The Present Value of cashflow is nothing but : after-tax Income $(1 - \text{cost of capital; here } 11\%)^{\text{year}}$

Summation of this present value cashflow gives us the net present value.

Considering IRR to be 100%, we do the same calculation as of NPV but in now instead of the cost of capital, we consider the IRR.

Summation of this gives us the Total NPV.