

FINANCIAL MATHEMATICS

Name: Manav Mandar Shivalkar

Class: B

Roll no.: 72

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Faculty: Mr. Devershi Shah



Q1) Incremental cash flow

Incremental cash flow refers to cash flow that is acquired by a company when it takes on a new project.

$ICF \text{ (incremental cashflow)} = \text{Revenue after tax} - \text{Expenses} - \text{Initial cost}$

$\text{Revenue} = \text{Exchange Charges} + \text{cost of service (domestic)} + \text{cost of service (international)} + \text{cost of service (new participants)}$

$\text{Revenue after Tax} = \text{Revenue} * (1 - \text{Tax})$ (10%)

$\text{Expenses} = \text{Advertisement cost} + \text{Total cost} - \text{Side Benefits}$

$\text{Total Cost} = \text{Cost Decided} + \text{Increased Cost}$

$\text{Initial Cost} = \text{R\&D cost} + \text{Introductory Cost} + \text{New Server Cost} + \text{Total Cost} + \text{Advertisement Cost}$

In Q1. I have compared incremental cashflow (ICF) of with Alternium and without Alternium

Analysing this, we can see that ICF with Alternium has higher value because new number of participants are included in alternium which actually increases the revenue of the company and thereby increases the value of ICF.

Q2) IRR and NPV

The internal rate of return (IRR) is a metric used in financial analysis to estimate the profitability of potential investments. IRR is a [discount rate](#) that makes the net present value (NPV) of all cash flows equal to zero in a discounted cash flow analysis.

Net present value (NPV) is the difference between the present value of cash inflows and the present [value](#) of cash outflows over a period of time. NPV is used in [capital budgeting](#) and investment planning to analyse the profitability of a projected investment or project. NPV is the result of calculations used to find today's value of a future stream of payments.

Formulae Used

I've used 'excel function' for calculating both **IRR** and **NPV**

In Q2 we have Calculated IRR and NPV of given cashflows

By analysing we can see that ICF with Alternium is more profitable than without Alternium.

Which means this a healthy investment for company