Subject: Pay Back Period

What is Payback Method

- The payback method is quite a simple concept. The majority of business projects (or even entire business plans for an organization) will require capital.
- When investing capital into a project, it will take a certain amount of time before the profits from the endeavor offset the capital requirements.
- Of course, if the project will never make enough profit to cover the start up costs, it is not an investment to pursue. In the simplest sense, the project with the shortest payback period is most likely the best of possible investments (lowest risk at any rate).

Example of

- Time is a commodity with cost from a financial point of view.
- For example, a project that costs $100,000 and pays back within 6 years is not as valuable as a project that costs $100,000 which pays back in 5years.
- Having the money sooner means more potential investment (and thus less opportunity cost). The shorter time scale project also would appear to have a higher profit rate in this situation, making it better for that reason as well.

Discounted Payback

Discounted Payback

One way to do this is to discount projected cash flows into present dollars based upon the cost of capital. So a simple example of a payback period without time value of money (without discounted payback) would be as follows:

A project costs $10,000. It will return $2,000 each year in profit (after all expenses and taxes). This means that it'll take a total of 5 years without a time value of money discount being applied. However, applying time value of money is a fairly simple process, and can be accomplished utilizing the discounted cash flow analysis equation:

DCF=CF1(1+r)1+CF2(1+r)2+⋯+CFn(1+r)nDCF=CF1(1+r)1+CF2(1+r)2+⋯+CFn(1+r)n

For the sake of simplicity, let's assume the cost of capital is 10% (as your one and only investor can turn 10% on this money elsewhere and it is their required rate of return). If this is the case, each cash flow would have to be $2,638 to break even within 5 years. At your expected $2,000 each year, it will take over 7 years for full pay back.

As you can see, discounting the payback period can have enormous impacts on profitability. Understanding and accounting for the time value of money is an important aspect of strategic thinking.

Features of Payback period

- Payback period is the time required to recover the initial cost of an investment. It is the number of years it would take to get back the initial investment made for a project. Therefore, as a technique of capital budgeting, the payback period will be used to compare projects and derive the number of years it takes to get back the initial investment. The project with Payback period is a simple calculation of time for the initial investment to return.

It ignores the time value of money. All other techniques of capital budgeting consider the concept of time value of money. Time value of money means that a rupee today is more valuable than a rupee tomorrow. So other techniques discount the future inflows and arrive at discounted flows.

It is used in combination with other techniques of capital budgeting. Owing to its simplicity the payback period cannot be the only technique used for deciding the project to be selected.

- h the least number of years usually is selected.

Let us understand the payback period method with a few illustrations.

Apple Limited has two project options. The initial investment in both the projects is Rs. 10,00,000.

Project A has even inflow of Rs. 1,00,000 every year. PBP=10

Project B has uneven cash flows as follows:

Year 1 – Rs. 2,00,000

Year 2 – Rs. 3,00,000

Year 3 – Rs. 4,00,000

Year 4 – Rs. 2,00,000 PBP=3.YEARS 6MNTH

Now let us apply the payback period method to both the projects.

The formula for computing payback period with even cashflows is:

Pay back period =

$$\frac{\text{Total outflows}}{\text{Inflow every year}} \quad \text{or} \quad \frac{\text{Initial investment}}{\text{Net annual cash inflows}}$$

Solution

- ***Project A***
- If we use the formula, **Initial investment / Net annual cash inflows** then:
- 10,00,000/ 1,00,000 = 10 years
- ***Project B***
- Total inflows = 10,00,000 (2,00,000+ 3,00,000+ 4,00,000+ 1,00,000)
- Total outflows = 10,00,000
- Project B takes four years to get back the initial investment.
- Now, let us modify the cash flows of project B and see how to get the payback period:
- Say, cash inflows are –
- Year 1 – Rs. 2,00,000
- Year 2 – Rs. 3,00,000
- Year 3 – Rs. 7,00,000
- Year 4 – Rs. 1,50,000

How to Calculate ?

- **Step 1:** We must pick the year in which the outflows have become positive. In other words, the year with the last negative outflow has to be selected. So, in this case, it will be year two.
- **Step 2:** Divide the total cumulative flow in the year in which the cash flows became positive by the total flow of the consecutive year.

  So that is: 5/7 = 0.71
- **Step 3**: Step 1 + Step 2 = The payback period is 2.71 years.

Therefore, between Project A and B, solely on the payback method, Project B (in both the examples) will be selected.

The example stated above is a very simple presentation. In an actual scenario, an investment might not generate returns for the first few years. Gradually over time, it might generate returns. That too will play a major role in determining the payback period.

Shortcomings of the method

- This method does not take into account the time value of money and treats all flows at par. For example, Rs.1,00,000 invested yearly to make an investment of Rs.10,00,000 over a period of 10 years may seem profitable today but the same 1,00,000 will not hold the same value ten years later. Also, the method does not take into account the cash flows post the return of investment. Some projects may generate higher cash flows in the later life of the project.

- Despite its drawbacks, payback method is the simplest method to analyze different project/investments. It is based on the principle of liquidity. The project that provides a faster return of investment is chosen. More liquidity means more availability of funds to invest in more projects. It is used by the management to get a quick analysis of the project. Payback method is used by individuals also to analyze investment decisions. It is based on a very simple need to get back at least how much has been spent. In fact, even as individuals when we invest in shares, mutual funds our first question is always about the time period within which we will get back our invested money. So, it is simple and very easy to understand.

Thank You…