Financial Decision Making Essay

Explain the theoretical rationale for the NPV approach to investment appraisal and compare the strengths and weaknesses of the NPV approach to two other commonly used approaches.

Introduction

Net Present Value (NPV) is defined as the different between an investment's market value and its cost. NPV rules states that we will accept the project if it creates a positive NPV, and will reject the project if the NPV < 0. In other words, NPV is a measure of how much value being created today by undertaking investment. Managers need to make investment decisions and calculating NPV can help them to see the likelihood of investment being profitable. There are a variety of ways to estimate net present value, such as the discounted cash flow approach and the discounted payback method etc. However, there is risk, because there is no guarantee that the estimations will turn out to be correct.
The other two commonly used approaches are Internal rate of return (IRR) and profitability index (PI).

Main

An investment is worth undertaking if it creates value for its owners. Under certain situations, using the net present value rule maximises share price and maximises shareholders' wealth. For example, a housing company is considering a proposal to build new block of flat. Required initial investment is £10m. Payoffs are cash flows of £2m in year 1, and £5m each for the next 2 years.

Year	T =0	T =1	T = 2
Cash flow	-10		5

Investors require a 10% return on this type of project. Should we accept this project? One way to calculate the NPV for this project is the Discounted cash flow. Discounted cash flow (DCF) is the process of valuing an investment by discounting in future cash flow. The way to work this out is to find the present value of the future cash flows at the return investors require and subtract the initial outlay.

$$NPV = -10 + \frac{2}{(1.2)} + \frac{5}{(1.2)^2} + \frac{5}{(1.2)^3} = £\ 2.224m$$

As I have mentioned the NPV rule in the introduction, if NPV is positive then accept the investment if it is negative then reject. The NPV for my example is positive, this means we accept the project.

We will now discuss the advantages and disadvantages of the NPV. There are several advantages of using the NPV approach. First of all, we can vary the interest rate, so it can give us the immediate cash value of the project and it is easy to understand and calculate. So we can determine whether we should accept or reject the investment projects. More over, it is easier to use for problems where choices involving ranking or choosing between several projects. For example, we have 3 projects each generates different NPV values, £10m from the first one, £4m from the second one

and –£1m from the last one. So it is clear to see the first project with the £10m NPV is the most profitable project to invest.

On the other hand, the disadvantage of NPV is that there is no indication of interest rate sensitivity. This involves in calculating the expected NPV of a project. For example, the value of a particular variable we will take, if the NPV expected from the project is to be reduced to zero may be ascertain and the difference in value expressed as a percentage of its most likely value. This provides indications of the sensitivity of the project expected NPV to changes in the value of individual variables, and points to this estimates where a small deviations will be critical for this assess of failure of the product. This estimate should be examined carefully before a decision is made on the project. Also the NPV approaches did not take account of the uncertainty of risk. Even though a project that generates positive NPV, however if the project involves a very high risk, this means this project is not worthwhile to undertake. Inflation affects the interest rates and this might as well influence the value of NPV.

Another commonly used approach is the internal rate of return (IRR); this is the discount rate that makes the NPV of an investment zero. Based on the IRR rule, an investment is acceptable if the IRR exceeds the required return. It should be rejected otherwise. For example, if we want to calculate the NPV for our simple investment at a discount rate of r, a 10 % return the NPV is

$$NPV = -£10 + 11/(1+r)$$

The IRR tells us how to calculate the returns on more complicated investments. IRR is closely related to NPV and there are several pros and cons using the IRR. As we can see this is more complex to calculate than NPV. It is more complicated to use between different projects. When cash flows are not conventional, there may be no IRR or there may be more than one. Also IRR sometimes cannot be used to rank mutually exclusive projects and project with the highest IRR is not necessarily the preferred investment. The rate of return concept may confuse the return on capital. The advantage of IRR is that this give implications of robustness to interest rate uncertainty.

Another commonly used approach is the profitability index (PI); the PI is also called the benefit/cost ratio. It is the present value of an investment's future cash flows divided by its initial cost. The rule of IP is to take the project if index exceeds 1. It measures the present value of an investment per dollar invested. It is closely related to NPV but similar to IRR it cannot be used to rank mutually exclusive projects. But, sometimes it is used to rank if the firm has more than one positive NPV investments it can take at present.

Conclusion

The NPV approaches which link directly to the measurement of present value which helps to managing finance decisions in maximising firms' net cash inflows. If a firm makes wrong decisions on NPV analysis, so the firm will make losses. The advantages of NPV are it gives immediate cash values of the project. It is easy to make decisions involve ranking between several projects. However, there are no

implications for interest rate sensitivity. The IRR approach which give the implication of interest rate uncertainty, but this is more complicated to use between projects. The IP cannot be used to rank mutually exclusive project like IRR, but it can be used to rank projects if there are more positive NPV investments.

Bibliography

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