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Optimized Investment Through Capital Budgeting

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Abstract
Optimized decision is required for planning, controlling and strategic allocation of resources. It aims to maximize the value and to enhance profitability, sustain competitiveness and to reach objective in pharmaceutical company through capital budgeting techniques. In this study Capital budgeting facilitates the allocation of resources towards projects or investments that generate the highest returns and to identify the rate of risk and return. The objective of the study is to conduct feasibility study and market analysis. It analyses cost estimates, revenue projections, and risk assessments for each investment opportunity, it also financial feasibility of the proposal and long-term viability of company. To assess the feasibility of new financial projects through present value techniques of Net Present Value and Profitability Index methods and statistical tool of standard deviation. The study based on the performance of Cash flows through discounted cash flow technique and suggests the measure for implement to the company.
Keywords: *Capital Budgeting; Competitiveness Sustainability; Profitability Enhancement; Resource Allocation; Value Maximization*

1. Introduction
A key component of financial management for companies and organizations in a variety of industries is capital budgeting, which allows for optimized investment. The process of assessing possible long-term investment opportunities to ascertain which projects will generate the best returns and most effectively aid in accomplishing the company's strategic goals is known as capital budgeting. This procedure entails evaluating each investment proposal's risks,rewards,andfinancial sustainability [1]. In the current dynamic and competitive company landscape, growing shareholder wealth and securing sustainable growth require wise investment decisions. Therefore, in order to effectively allocate their limited financial resources, organizations need to use strong capital budgeting strategies. Capital budgeting allows businesses to prioritize projects with the highest potential returns while taking risk, scheduling, and resource constraints into account [2]. The primary objective of capital budgeting is to assess the viability and financial feasibility of investment opportunities, considering factors such as expected cash flows, risks, time value of money, and strategic alignment with organizational goals. By carefully analyzing and prioritizing investment projects, businesses can make informed decisions about resource allocation, optimize their capital structure, and enhance shareholder value. Capital budgeting techniques such as net present value (NPV) and profitability index are commonly used to evaluate investment proposals and compare alternative projects [3]. These methods help in assessing the potential profitability, risk-adjusted returns, and economic value added by each investment option, enabling management to make rational and value-maximizing investment decisions. Net Present Value (NPV) is a financial metric used in capital budgeting to evaluate the profitability of an investment project. It measures the difference between the present value of cash inflows and outflows associated with a project. The Internal Rate of Return (IRR) is another important financial metric used in capital budgeting to evaluate the profitability of an investment project. It represents the discount rate at which the present value of a project's cash inflows equals the present value of its cash outflows. The Profitability Index (PI), also known as the Profit Investment Ratio (PIR) or Benefit-Cost Ratio (BCR), is a financial metric used in capital budgeting to evaluate the

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attractiveness of an investment project [4]. It measures the relationship between the present value of cash inflows and the initial investment required for the project. One cannot stress the significance of capital budgeting since it has a direct bearing on a company's long-term existence and financial stability. Inadequate investment choices can result in lost opportunities, resource waste, and even financial hardship [5]. Effective capital budgeting techniques, on the other hand, can improve a company's profitability, competitiveness, and general performance.

1.1.Problem Statement

To examine the role of capital budgeting techniques in investment decisions at firmus laboratory and also analyse the impact of capital budgeting practices on firm's financial health and sustainability [6].

1.2.Objectives of the Study

- To study current financial position of Firmus Laboratory Pvt Ltd
- To assess the performance through capital budgeting techniques.
- To analyse risk investment decisions through statistical technique of standard deviation.
- To provide suggestions for optimum effective decision in Firmus Laboratoriespvt ltd

2. Method

The study is based on secondary data which was collected through magazines, journals, websites and newspapers. In this study discounted cash flow techniques were used such as NPV, IRR and Profitability Index and also risk analysis tool of statistical technique of standard deviation for analysis last five years data were collected from 2019 to 2023.

3. Results And Discussion

3.1.Results

Table 1 Calculation of Present Value of Cash in-Flow

YEARS	CASH IN FLOW (in lakhs Rs.)	PV@7.5%	PV OF CASH IN FLOW @7.5% (in lakhs Rs.)
1	1908.75	0.93	1775.138
2	1966.01	0.865	1700.599
3	2067.81	0.805	1664.587
4	2087.39	0.749	1563.455
5	2101.39	0.697	1464.669
6	2109.02	0.648	1366.645
7	2116.66	0.603	1276.346
8	2123.03	0.561	1191.02
9	2128.12	0.522	1110.879
10	2147.21	0.485	1041.397
11	2151.03	0.451	970.1145
12	2179.03	0.42	915.1926
13	2205.76	0.391	862.4522
14	2208.30	0.363	801.6129
15	2222.30	0.338	751.1374

Source note: Analysis from Financial Statements

Total Present value of cash in-flows is Rs. 18,455.24

Interpretation: The provided data includes the cash inflows, present value factors at a discount rate of 7.5%, and the present value of cash inflows for each year of a project over a 15-year period. The present value of cash inflows decreases over time, as future cash inflows are discounted at a higher rate each year. This means that cash inflows received in later years are less in today's terms compared to those received earlier in Table 1.

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3.2.Calculation of Net Present Value (NPV)

Net present value = Present value of cash in-flows – Present value of cash out-flows
Present value of cash in-flows = Rs. 18,455.24
Present value of cash out-flows = Rs.7,017.96
Net present value = Rs.18,455.24 – Rs. 7,017.96
NPV = Rs.11,437.28

Interpretation: The Net Present Value (NPV) of an investment represents the difference between the present value of cash inflows and the present value of cash outflows. In this case, the present value of cash inflows is calculated as Rs.18,455.24 lakhs, and the present value of cash outflows is Rs.7017.96 lakhs. A positive NPV of Rs. 11,437.28 lakhs indicates that the present value of cash inflows exceeds the present value of cash outflows, suggesting that the investment is expected to be profitable. Based on the discount rate @7.5% used in the calculation, the project is expected to generate positive returns and is therefore considered financially viable in Table 2.

3.3.Calculation of Standard Deviation of Cash Flows

Table 2 Calculation of PV @27% Rate of Return

Cash In Flow	Rate of Return @27%	Pv @27% Rate of Return
1908.75	0.787	1502.18625
1966.01	0.62	1218.9262
2067.81	0.488	1009.09128
2087.39	0.3844	802.392716
2101.39	0.302	634.61978
2109.02	0.238	501.94676
2116.66	0.187	395.81542
2123.03	0.147	312.08541
2128.12	0.116	246.86192
2147.21	0.091	195.39611
2151.03	0.072	154.87416
2179.03	0.056	122.02568
2205.76	0.044	97.05344
2208.3	0.035	77.2905
2222.3	0.027	60.0021

Source Note: Analysis from Financial Statements

Table 3 Calculation Standard Deviation

PV@27%	$\bar{X}$	$(X-\bar{X})$	$(X-\bar{X})^2$
1502.18	488.7	1013.48	1027141.71
1218.92	488.7	730.22	533221.24
1009.09	488.7	520.39	270805.75
802.39	488.7	313.69	98401.41
634.61	488.7	145.91	21289.72
501.94	488.7	13.24	175.29
395.81	488.7	-92.89	8628.55
312.08	488.7	-176.62	31194.62
246.86	488.7	-241.84	58486.58
195.39	488.7	-293.31	86030.75
154.87	488.7	-333.83	111442.46
122.02	488.7	-366.68	134454.22
97.05	488.7	-391.65	153389.72
77.29	488.7	-411.41	169258.18
60	488.7	-428.7	183783.69

Source Note: Analysis from Financial Statements

Sum of Square of Deviation $(x-\bar{x})^2 = 2887703.963$
n (number of years) = 15

$$\text{Standard deviation } \sigma = \sqrt{(x-\bar{x})^2/n-1}$$
$$\sigma = \sqrt{2887703.963/15-1}$$
$$\sigma = \sqrt{2887703.963/14}$$
$$\sigma = \sqrt{206264.56}$$
$$\sigma = 454.16$$

Interpretation: A standard deviation of Rs.454.16 lakhs indicate the average amount by which each cash inflow deviates from the mean of Rs. 488.7 lakhs. This indicates that there is a degree of uncertainty or variability in the expected cash flows, which could impact the overall profitability or riskiness of the investment in Table 3.

3.4.Discussion

- The company's financial position exhibits fluctuations in cash outflows over a five-year period, indicating changing financial requirements with notable decreases in investment or expenses in years 3 and 5
- This study reveals that unit cost has increased over 15 years, suggesting that it may be facing rising production or operational expenses, which could impact its growth unless offset by increased efficiency or revenue.

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- The company's consistently increasing cash inflows over the 15years period indicate strong revenue growth, reflecting a positive financial position with sustainable profitability and long-term success potential.
- The declining present value of cash inflows over the 15-year period indicates that the project's future earnings are being discounted more heavily, potentially impacting the company's overall financial position and investment attractiveness.
- The positive Net Present Value (NPV) indicates that the project is expected to generate profitable returns, reflecting a strong financial position for the company with viable investment prospects.
- The high profitability index indicates that the project is highly attractive, promising substantial returns relative to the initial investment, which bodes well for the company's financial position and potential for significant profitability.
- The relatively high standard deviation in relation to the mean indicates that the project's revenue projections are high risky, reflecting aunfavourable and unsecure financial position for the company.

Conclusion

Based on the objectives outlined for the project at Firmus Laboratory Pvt Ltd, the study has successfully analysed the company's financial position, assessed its performance through capital budgeting techniques. The conclusions drawn from these analyses provide valuable insights into the company's financial health and investment decisions. These metrics suggest that the company's investment decisions are likely to be profitable and that the projects under consideration have the potential to generate significant returns. The study concludes that Firmus Laboratory Pvt Ltd is in a normal financial position and is making better investment decisions

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