

Time Value of Money (TVM) and Investment Decision-Making for FutureVest Investments

Introduction:

As a financial analyst at FutureVest Investments, our objective is to assist clients in making the most profitable investment decisions by applying Time Value of Money (TVM) principles. This report examines two investment options: a fixed deposit account and a business project, assessing their future value (FV), present value (PV), and net present value (NPV).

Fixed Deposit Account:

A fixed deposit account provides a guaranteed return based on an annual interest rate of 6%, compounded annually over five years. The future value of an investment represents the amount it will grow to after a specific period, considering compound interest. The formula used is:

$$FV = PV(1 + r)^t$$

For a PV = \$10,000 (Initial Investment), r = 6% (Annual Interest Rate), and t = 5 years (Investment Duration):

$$\begin{aligned} FV &= 10,000 (1 + 0.06)^5 \\ &= 13,382.26 \text{ (2dp)} \end{aligned}$$

Thus, the future value of the fixed deposit investment after five years is \$13,382.26, providing a return of \$3,382.26.

Investment in a Business Project:

Unlike the fixed deposit account, a business project involves cash inflows over several years, which must be evaluated using discounted cash flow (DCF) analysis to determine its present value (PV). Present value represents the worth of future cash flows in today's terms, considering a discount rate. The formula applied is:

$$PV = \sum_{i=1}^t \frac{CF_i}{(1 + r)^i}$$

For CF_i = Cash Inflows in year i, r = 7% (Discount Rate), and t = Number of years (5):

$$\begin{aligned} PV &= \frac{2,500}{(1 + 0.07)^1} + \frac{3,000}{(1 + 0.07)^1} + \frac{3,500}{(1 + 0.07)^1} + \frac{4,000}{(1 + 0.07)^1} + \frac{4,500}{(1 + 0.07)^1} \\ &= 2,336.45 + 2,620.32 + 2,857.04 + 3,051.58 + 3,208.44 \\ &= 14,073.83 \text{ (2dp)} \end{aligned}$$

Thus, the total present value of the business project investment after five years is \$14,073.83.

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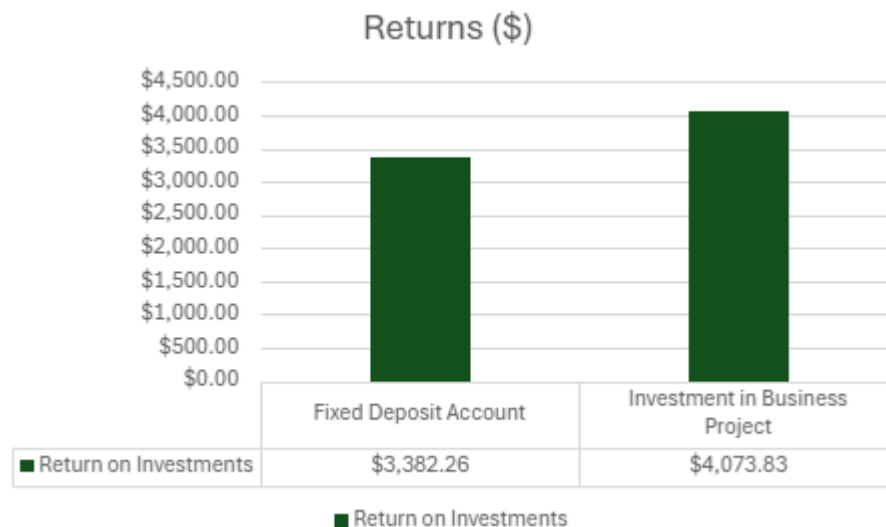
Net Present Value (NPV) Calculation:

Net present value (NPV) helps assess whether an investment is profitable by comparing the total present value of expected returns to the initial investment cost. The formula used is:

$$\begin{aligned} NPV &= Total\ PV - Initial\ Investment \\ &= 14,073.83 - 10,000 \\ &= 4,073.83 \end{aligned}$$

Thus, this investment provides a return of \$4,073.83, indicating a favourable financial outlook.

Comparison and Decision Making:



The business project provides a higher return compared to the fixed deposit, with a total value of \$14,073.83 versus \$13,382.26. This suggests that the business investment has greater potential for financial gains over time. Additionally, its positive net present value (NPV) of \$4,073.83 demonstrates profitability, confirming that the expected cash inflows exceed the initial investment, making it a financially viable option.

The Time Value of Money (TVM) principle plays a crucial role in evaluating these investments, allowing investors to compare future cash flows based on interest rates and risk factors. While the fixed deposit account guarantees returns and financial stability, the business project offers the possibility of higher earnings but involves greater uncertainty. Investors must carefully assess their risk tolerance and financial objectives before selecting the most suitable investment strategy.

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Summary:

This report evaluates two investment options using Time Value of Money (TVM) principles: a fixed deposit account and a business project. The fixed deposit account offers a guaranteed return with a future value of \$13,382.26 after five years, based on an annual interest rate of 6% compounded annually. In contrast, the business project generates expected cash inflows over five years, with a total present value of \$14,073.83 when discounted at a rate of 7%, resulting in a positive net present value (NPV) of \$4,073.83. This indicates that the business project is financially viable and offers higher potential returns. However, while the fixed deposit provides certainty and stability, the business project carries inherent risks. Investors should consider their financial goals and risk tolerance when determining the most suitable investment strategy.