



# A CONCEPTUAL VALUATION ANALYSIS OF CAPITAL BUDGETING

#1 **S. VENKAT REDDY**, *Assistant professor*,

[Venkatreddy9753@gmail.com](mailto:Venkatreddy9753@gmail.com),

Department of Business Administration (JBIET),

JB INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS), HYDERABAD

#2 **KOUKUNTLA SHIVA KUMAR**, *MBA Student*,

Department of Business Administration (JBIET),

JB INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS), HYDERABAD

#3 **Dr.P. SUBRAHMANYAM**, *Associate Professor*,

[Subramanyampudukodu@gmail.com](mailto:Subramanyampudukodu@gmail.com),

Department of Business Administration (JBIET),

JB INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS), HYDERABAD

**Corresponding Author: S. VENKAT REDDY**

**ABSTRACT:** Capital budgeting is critical to effective financial management. Capital budgeting projects are evaluated using the Payment Period (PP), Net Present Value (NPV), and Internal Rate of Return (IRR). According to Graham and Harvey (2002), financial managers value IRR and non-discounted Payback Period (PP). According to the poll, the most popular strategy is PP, followed by NPV. Large corporations prefer complicated methods. The evaluation process's fundamental flaw is that around 70% of firms under examination assess risk using cost of capital. Thinking about capital budgeting guidelines or standards, or evaluating investment projects? This study warns of typical pitfalls that could lead to better decision-making. This preliminary study will help guide future research.

**Keywords:** *capital budgeting; NPV; net present value; IRR; internal rate of return; payback period; WACC.*

## 1. INTRODUCTION

Management accountants must conduct in-depth analyses and recommendations on critical topics (Weetman, 1999). However, investment decisions are influenced by production and marketing managers, engineers, and the board of directors (Northcott, 1998). The capital budget is used in the financial management of certain firms. The funds are used to investigate and discover long-term investments that match with the company's goals of increasing shareholder value (Gitman, 2008). To make this decision, businesses must determine how to connect decision criteria with a corporate plan. It entails comprehending how a firm may maximize its resources and how managers can use their resources, particularly financial resources, to make sound decisions (Brijlal & Llorente Quesada, 2008).

In today's competitive environment, timely information collection is critical for making decisions. Capital budgeting, which entails selecting best long-term investments, has an impact on business performance over time. The decision could mean the difference between success and failure. Managers must understand investment valuation methods in order to perform their duties. Long-term investment proposals are referred to as "capital budgets" during the evaluation process. Accepting or rejecting requests for funding typically necessitates accountability and flexibility. Flexibility is frequently referred to as the true option. These possibilities are valuable in terms of evaluation because they allow decision-makers to adjust to both positive and negative circumstances by changing their capital outflow decisions. Unfortunately, traditional



methodologies for long-term investment plans, such as the discounted cash flow model (DCF), do not take into account fair value possibilities.

## 2. LITERATURE REVIEW

Numerous studies (Arya, 1998; Swain & Haka, 2000; Brijlal & Llorente Quesada, 2008) show that capital budget decisions affect corporate success. Equity investment is essential for firm competitiveness. Kwak (1996) says capital budgeting is hard. To compete with competitors and take advantage of capital investment opportunities, a successful firm must operate in a dynamic and uncertain environment (Lazaridis, 2004).

Many global studies have evaluated capital budgeting systems. These studies include Jog and Srivastava (1995), Pike (1996), Drury and Tayles (1996), Block (1997), Kester et al. (1999), Graham and Harvey (2001), Sandahl and Sjögren (2003), Benunna (2010), and Andor (2012). The global study examines international organizations' capital adequacy strategies. Rossi (2014) says little is known about small and medium-sized firms. Leaders simplify capital investment in several ways. Capital budgets vary by sector and country. The hypothesis appears to be overlooked in managerial decision-making.

Important capital budgeting study Drury and Tayles (1996), Maccarrone (1996), Kester (1999), Sandahl and Sjogren (2003), Lazaridis (2004), Hermes (2007), and Rossi (2014) studied the issue. This study includes Italy, Cyprus, the Netherlands, China, Singapore, and other Asian countries, as well as Sweden, Canada, the US, and the UK. CEOs' analytical skills have improved, polls reveal. However, capital-related literary library operations are scattered. The most popular capital project analysis methods are discounted cash flow (DCF) methods like NPV and IRR, according to Kester (1999).

Rossi (2014) states that investment projects are evaluated using the payback period (PP) and net present value (NPV) methods. It is crucial to realize that large and small organizations use these methods differently. Complex procedures are typical of larger firms. To evaluate Hatfield's success, capital investment is crucial (Hatfield, 1998). This study examined how capital investment methods like PP, ARR, IRR, and NPV affect business performance and value.

Hatfield et al. (1998) found that questioned businesses had more stock products in each experiment. Research shows that NPV does not optimize corporate value. According to the study, organizations should analyze projects using two or three capital budgeting models.

Block (1997) studied small business capital budgeting in his core work. Total 232 small company samples were evaluated. Researchers found that 42.7% of organizations still view the most desirable approach of making a return as such. Financial institutions lend to small enterprises longer than huge corporations.

The 2001 research of 392 Chief Financial Officers by Gaham and Harvey examined capital expenses, generation, and structure. Graham and Harvey (2001) say larger organizations employ valuation and capital asset pricing models, while smaller enterprises use return criteria. The authors say IRR and NPV are the most common capital planning methods. Some businesses employ unusual methods like repayment durations.

Brounen (2004) examined 313 UK, Dutch, German, and French CFOs. The survey covered capital budgeting, expenditure, structure, and corporate governance. Larger firms examine investment potential using capital market rate models, according to Brounen et al. (2004). CFOs of smaller companies prefer return. Recent development is significant. Truong (2008) extensively studied Australia's budgetary theory of capital. A selected survey analysis examined 356 Australian-listed firms' capital budget procedures. NPV, IRR, and ROI are the most prominent metrics in these operations, research shows.

Bennouna (2010) examined Canadian companies' capital budget valuation methods. The vote comprised 88 major Canadian companies. The study found that sophisticated procedures are preferred. Significant



corporations employ discounted cash flow (DCF) models at 17%. The majority of consumers favored non-DCF, NPV, and IRR financial analyses.

Harrwig (2012) surveyed a Swedish corporation concerning capital budgeting and cost estimating. The organization is evaluated and the best plan chosen. Swedish scholars conducted longitudinal and cross-national studies. Statistics show that larger companies use capital budgeting more. Swedish companies rarely employ capital budgeting, unlike US and European firms.

Andor (2012) extensively studied European capital budgeting. Indonesia selected 10 executives from 400 to answer surveys. Bulgaria, Croatia, the Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia were questioned. Knowledge, Knowledge, and Experience (KKE), multinational organizational culture, corporate objectives, ethical standards, and, to a lesser extent, ownership structure affect the capital budget the most, according to studies. Calculate capital budget based on project count and goal leverage ratio.

Last noteworthy 71 Italian company study. According to Rossi (2014), firms use PP most, followed by NPV. Large and small businesses utilize different strategies. This study found that larger companies use more elaborate methods. The evaluation approach's biggest drawback is capital cost estimation. The majority of organizations investing in tangible assets employ non-quantitative risk assessment methods.

In this article, Rossi (2014) and Brounen et al. (2004) discuss Italian, French, and Spanish capital budgeting. The absence of empirical research on European capital budgeting methods compared to the US, UK, Canada, China, and Singapore sparked this study. This study seeks Southern European capital budgeting empirical data.

Scientists classify DCF as conventional or modern. Managers can choose these methods. Time-value-of-money-based discounted cash flow (DCF) methods are recommended by budget theory. Managers outflow capital to enhance shareholder wealth (Brealey, 2011). If so, the company will prioritize high-net-present-value projects. Several big studies support this.

Graham and Harvey (2001) and other experts explain why discounted cash flow (DCF) methodologies are widely employed to evaluate capital expenditure decisions in larger, more organized businesses. Graham and Harvey (2001) and Rossi (2014) say insufficient managerial competencies lead to simpler capital investment decision-making strategies like return methodologies. This poll complements Rossi's 2014 findings by include discounted and unwanted capital injection.

### **3. THEORETICAL FRAME WORK**

This study illuminates capital investment decisions across enterprises. State, firm size, capital investment process, individual characteristics, and capital investment are all considered in capital adequacy analysis. Findings don't always confirm our premise. Despite its flaws, the return technique is still popular. An international survey shows little firm inequalities. The French corporation delivers different results, but the two countries are similar. This study has highlighted the complexity of capital outflow decision-making and the tendency to undervalue SMEs. These businesses' capital outflows are solely the owners' responsibility. In sample firms, untrained individuals make most capital investment decisions (Rossi et al., 2012).

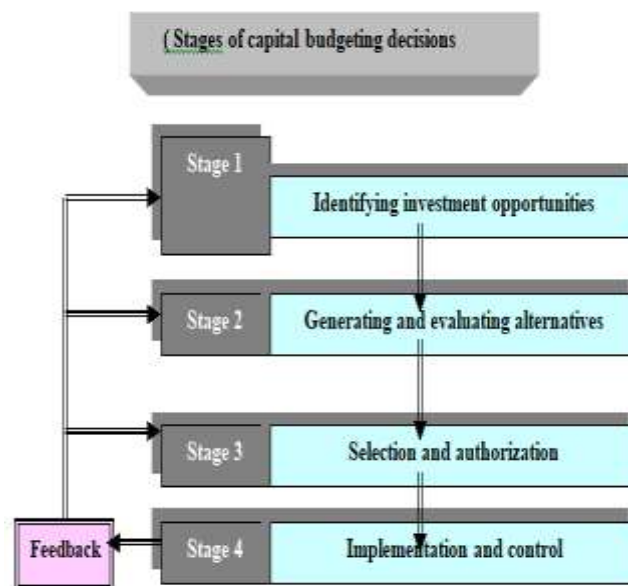
Graham and Harvey (2001), Brounen (2004), and the study emphasize the differences in corporate finance procedures between large and small enterprises. The study found a favorable correlation between business size and project appraisal using net present value (NPV) criteria. Larger firms utilize more advanced methods to analyze high-risk projects. Data reveals that prominent companies utilize more intricate and speculative discount rates than average corporate capital pricing. Asset pricing literature widely reports anomalies that deviate from projected trends. Several new findings can help us understand these aberrations. Corporate finance procedures show dimension variable inconsistencies. This study's conceptual limits form

its framework. Therefore, empirical research is needed to validate and evaluate the conceptual framework and robust developmental assumptions. There are numerous important constraints:

- Only the number of employees determines the organization's size. Website visitors and finances are overlooked.
- This study does not analyze how different capital write-down calculation methods affect capital expenditure budget financing and income.

#### 4. STAGES OF CAPITAL BUDGET DECISIONS

Information restrictions and prejudices affect managers' cognition. Before making any decisions, people must evaluate the many quality attributes, analyze the facts, verify the underlying assumptions, and examine the proposed "solutions" while considering the micropolitical effects of barrier implementation. Decision-making often involves subtle and confusing situations, thus predicted value and numerical approximations are insufficient. Therefore, investing decisions are not just based on financial statistics. Diverse talents and competences lead to different perspectives on complex problems and solutions. Thus, empirical research often uses bounded rationality, intuition, micro-level concerns, and power dynamics in its pursuit and evaluation. This claim is not always illogical. Decision-makers who appreciate current information can leverage past data to create unified reports or cross-checks. Leaders pick projects when the expected benefits outweigh the costs by a lot.



##### Stage 1- Identifying organisational Objectives

Establishing an organizational goal that outlines the company's investment initiative is advised. Many firms aim to boost income to improve their finances. Economic theories say this is the main purpose. However, many organizations create mission statements, corporate objectives, strategies, comprehensive plans, and budgets because these aims lack practical details. Corporate objectives determine the risk tolerance, profit margin, growth targets, and market presence firms seek to satisfy shareholders, employees, consumers, and other stakeholders.

Strategizing describes how to achieve goals. Businesses can grow profits by focusing on new products, consumers, or markets or paying more to improve production and efficiency. In general, executives from marketing, customer service, production, and finance collaborate to create strategies that the forum's management oversees and approves.



### **Stage2- General and evaluation alternatives**

The organization's goals align with fresh investment opportunity identification methods. Expanding into new markets or investing in new technology requires extensive data collection, which might take time. Environmental study can reveal market size, industry competitiveness, supplier negotiating strength, customer dynamics, and new market entry and replacements (Louderback, 2000). After an initial assessment, prospective capital investments can be fully studied to evaluate their pros and disadvantages and their expected quantitative and qualitative effects. Principal duties often fall to the management accountant.

### **Stage3- Selection and authorisation**

Theory dictates that companies that efficiently maximize asset usage receive investments above the cost of capital. However, the corporation's limited financial resources preclude them from contemplating or being aware of any possibility, making it impossible. Some alternatives may conflict with the company's goals. Businesses typically evaluate a few options, allowing for a more rigorous preliminary assessment with fewer studies. Managers lack cognitive capability, temporal availability, and resource allocation, restricting their responsibilities. Formal analysis emphasizes financial measurement of projected outcomes. Executives may ignore the financial study's findings owing to quality and non-financial issues. Managers employ good intuition and regular financial studies.

Capital agreement requests must be granted for project progress. The size, type, and financial implications of the project may vary once the request is confirmed. Decision-makers often limit investment expenditures using accrual accounting due to limited investment capacities. Approval requires a higher hierarchical level and greater number.

### **Stage4- Implementation and control**

After investing capital, companies must evaluate their meeting approach. The capital and operating budgets will include investment project spending after approval to better track expected and actual expenditures. Post-decision monitoring and control includes post-investment controls that compare actual results to anticipated project options. Researchers say this doesn't happen often because leaders think delaying irreversible decisions is a waste of time. It enhances accountability by validating the manager's forecasting precision, limiting bias, and improving subsequent evaluations to gain more insights about deviation amount and distribution.

## **5. CAPITAL INVESTMENT APPRAISAL TECHNIQUES**

The four main methods of financial asset appraisal are NPV, IRR, PB, and ARR. This study assumes that cash flow is always known and that there is enough resources for every venture, without considering taxes and inflation.

### **Net present value**

NPV requires an adequate interest rate to determine the present value equivalent of future cash flows. Investment opportunity cost is "this level". Financial theory views investment risk as a positive because it increases return. Thus, increased investment risk equals higher expected return. Opportunity costs in investing are the benefits or returns lost by choosing one investment over another. Risk-averse investors may invest in fixed securities and virtual assets, which guarantee full returns. They can also invest in volatile assets like public common stocks. Annual yields and stock prices may change depending on corporate performance and future expectations. Many investors avoid risky ventures. If government assets yield 10%, investors can only buy shares with a 15% yield. Positive correlation between risk and predicted outcome.

Financial markets define "return on investment" as the cost of an investment opportunity or project that cannot be invested in elsewhere. Firms must choose projects with a return on investment, often known as the minimal rate of return, discount rate, and barriers.

Capital investment results should be compared to those of comparable-risk assets traded on financial markets. This is done through discounted cash flow. The opposite of discounting is compound interest. Discounting calculates future cash flows' present value. Compounding projects an investment's value over time. Rearranging equation (1) for compounding produces the current value formula.

$$\text{(Present value)} \quad V_0 = \frac{FV_n}{(1 + K)^n}$$

The Net Present Value (NPV) indicator determines if a project will earn more than a publicly traded investment. All predicted future cash flows must be discounted using the appropriate return on investment to estimate a project's net financial gain or loss. Based on risk, the needed yields determine which investments a corporation may take. The following examples explain Net Present Value.

$$NPV = \frac{FV_1}{(1+K)} + \frac{FV_2}{(1+K)^2} + \frac{FV_3}{(1+K)^3} + \dots + \frac{FV_n}{(1+K)^n} - I_0$$

FV denotes future values earned during years 1 to n, while  $I_0$  represents the initial investment cost. The return on securities in similar hazardous financial markets is K. Only businesses having a positive net present value (NPV), where profits surpass the cost of capital (i.e., alternative enterprises' return on investment), are allowed. Decision-makers choose projects with larger net present values when all other factors are equal. Any positive net present value proposal must be welcomed by an organization that wants to enhance owner wealth. Projects that surpass capital expenses will always have cash if financial markets work. Project B's net present value is highest among the options. Note that Project A and Project B have positive NPVs, suggesting they should be allowed.

### **Internal rate of return (IRR)**

Proportion of return can characterize the reaction, but internal rate of return (time-adjusted rate of return) accounts for time value of money. Equating the present value of project investment with the present value of cash outflow yields the Internal Rate of Return (IRR), which discounts a project's Net Present Values (NPVs) to zero. Many professions today use preconfigured computers or calculators to calculate internal rates of return. Trial and error approach to solution discovery.

The two main methods for discounted cash flow (DCF) analysis are NPV and IRR. They calculate the project's financial inflows and outflows and compare them at a certain time. Because they account for investment opportunity cost and temporal value of money, discounted cash flow (DCF) methodologies should beat competitors. The DCF model values cash flow over operating profit and asset value.

### **Payback period(PP)**

Investment appraisal is easiest and most common using the payback technique. Determining the first net investment recovery time. Divide the aggregate initial cash flow by the expected cash flow. In this case, project A returns its initial investment in three years and project B in four. Project A is prioritized by return rate. The formula ignores post-repayment cash flow and goal time, which could result in an unfavorable net present value (NPV). Project C pays back in three years. Despite a negative net present value (NPV) and driving time limits, this scenario is acceptable. Project B has a positive NPV, but project C has a negative return.

### **Accounting rate of return**

Accounting rate of return (ARR) is the same as ROI and ROCE. For accrual-based revenue, use "ARR". Projects that exceed minimum acceptable rates of return (ARRs) may be beneficial. Leaders prioritize initiatives with a greater ARR while treating all others equally. Because it doesn't use cash flow revenue,



investment returns are calculated differently. Depreciation and fixed asset sales gains/losses are non-cash changes that do not affect investor holdings. The accrual accounting framework of financial accounting affects revenues and cash flows.

When cash flow equivalent to the accounting rate of return (ARR) is evaluated, revenue from assets with varied useful lifespans exceeds yields, assuming depreciation is the only non-cash expense. The above method ranks project B higher than projects A and C due to its high long-term revenues. Even though projects A and C have identical returns, the accounting rate of return (ARR) statistic favors project A, which is more profitable.

The more advanced discounted cash flow (DCF) methods like net present value (NPV) and internal rate of return (IRR) are extensively employed. Despite the theoretical framework's limitations, returns are often used, especially when a corporation confronts a liquidity crisis and must engage in risky endeavors in a turbulent market, such as abrupt product design changes or uncertain cash flow. Temporal risk: Failure rises with time. Thus, yield is a rudimentary risk indicator. As an alternative, managers may create projects that respond quickly to their own benefits. In a performance review, managers may choose activities with immediate returns to enhance short-term net income, especially if the evaluation criteria emphasize short-term factors over net income.

The payback technique, coupled with an NPV or IRR analysis, shows the project's ability to quickly recoup its initial investment. The refund should be calculated alongside the discounted cash flow rebate and net present value.

ARR is also widely utilized, maybe because business unit managers are evaluated and paid annually. Therefore, managers worry about how supplemental investments affect the Accounting Rate of Return (ARR) (Drury, 2003).

## **6. CONCLUSIONS, MANAGERIAL IMPLICATION AND RESEARCH LIMITATIONS**

This study revealed how corporations make capital investment decisions. State interaction, corporate size, capital investment procedure, individual traits, and capital investment itself are considered when establishing capital sufficiency. Findings don't always confirm our premise. Despite its drawbacks, the technique of return is still popular. An international survey shows little firm inequalities. Despite no variation between the two countries, the French corporation has different results. This study shows the complexity of capital outflow decision-making and the tendency to undervalue SMEs. These businesses' capital outflows are solely the owners' responsibility. In sample firms, untrained individuals make most capital investment decisions (Rossi et al., 2012).

Graham and Harvey (2001), Brounen (2004), and the aforementioned study emphasize the importance of distinguishing large and small enterprises in corporate finance analyses. The findings show that Net Present Value (NPV) criteria are positively correlated with company size. Larger organizations utilize more advanced methods to evaluate risky projects. Significant enterprises utilize more advanced and higher-risk discount rates than conventional corporate capital expenditures. Important asset pricing insights can help explain widely noticed anomalies. The ongoing dimension variable disparities in corporate finance operations are the focus of these studies. This study's limits are conceptual and based on known foundations. Therefore, empirical research is needed to validate and evaluate the conceptual framework and robust developmental assumptions. These major restrictions apply:

Firm size is solely determined by employee count. This study ignores commercial measures like traffic and monetary resources and does not evaluate the revenue impact of different capital write-down computation methods on capital expenditure budget financing.



## References

1. Arya, A., Fellingham, J.C. and Glover, J.C. (1998) 'Capital budgeting: some exceptions to the netpresent rule', *Issues in Accounting Education*, Vol. 13, No. 3, pp.499–508.
2. Bennouna, K., Meredith, G.G. and Marchant, T. (2010) 'Improved capital budgeting decision making: evidence from Canada', *Management Decision*, Vol. 48, No. 2, pp.225–247.
3. Brijlal, P. and Llorente Quesada, L. (2008) 'The use of capital budgeting techniques in businesses: a perspective from the Western Cape', 21st Australasian Finance and Banking Conference, Sydney, 16–18 December 2008.
4. Brounen, D., De Jong, A. and Koedijk, K. (2004) 'Corporate finance in Europe: confronting theory with practice', *Financial Management*, Vol. 33, pp.71–101.
5. Brennan, M. J. and Trigeorgis, L, 2000. *Project Flexibility, Agency and Competition*, Oxford University Press, Oxford and New York.
6. Dempsey, M. J., 2003. *A Multidisciplinary Perspective on The Evaluation of Corporate Investment Decision-Making, Accounting, Accountability & Performance*, 9, 1, 1-33.
7. Dixit, A. K., and Pindyck, R. S., 1995. *The Options Approach to Capital Investment*, *Harvard Business Review*, 105-115.
8. Graham, J. and Harvey, C. (2001) 'The theory and practice of corporate finance: evidence from the field', *Journal of Financial Economics*, Vol. 60, pp.187–243.
9. Hatfield, P., Hill, D. and Horvath, P. (1998) 'Industrial buying and divergence of capital budgeting theory and practice: an exploration', *The Journal of Applied Business Research*, Vol. 15, No. 1, pp.37–46.
10. Horngren, C.T., Bhimani, A., Datar, S.M, and Foster, G., 2002. *Management and Cost Accounting*, 2<sup>nd</sup> edition, Hemel Hempstead: Prentice Hall.
11. Hartwig, F. (2012) 'The use of capital budgeting and cost of capital estimation methods in Swedish-listed companies', *The Journal of Applied Business Research*, Vol. 28, No. 6, pp.1451–1476.
12. Hermes, N., Smid, P. and Yao, L. (2007) 'Capital budgeting practices: a comparative study of the Netherlands and China', *International Business Review*, Vol. 16, pp.630–654.
13. Jog, V.M. and Srivastava, A.K. (1995) 'Capital budgeting practices in corporate Canada', *Financial Practice & Education*, Fall/Winter, pp.37–42.
14. Kester, W. and Chong, T.R. (2001) 'Capital budgeting practices of listed businesses in Singapore', *Singapore Management Review*, pp.9–23.
15. Kester, W., Chong, T.R., Echanis, E.S., Haikal, S., Isa, M., Sckully, M.T., Tsui, K.C. and Wang, C.J. (1999) 'Capital budgeting practices in the Asia-Pacific region: Australia, Hong Kong, Indonesia, Malaysia, Philippines, and Singapore', *Financial Practice and Education*, Spring/Summer, pp.25–33.