



Capital Budgeting Practices of Manufacturing Companies in Ethiopia

¹Yesuf Ahmedin Salih ²Dr. Dhiraj Sharma

¹PhD Scholar

Department of Commerce
Punjabi University, Patiala, India

²Assistant Professor

School of Management Studies
Punjabi University, Patiala, India

ABSTRACT

This study examined the capital budgeting appraisal practices of manufacturing companies in Ethiopia. The study used cross-sectional data gathered from employees of thirty manufacturing companies. The researchers used descriptive explanatory research design. The study's findings confirmed that Ethiopian manufacturing companies actively expanded existing products. Most manufacturing companies use net present value and payback period techniques to select profitable investment opportunities. According to the results of a regression analysis, the ROA of Ethiopian manufacturing firms is positively and significantly influenced by the net present value and profitability index. However, the internal rate of return and payback period had statistically significant and negative effects on the ROA of Ethiopian manufacturing companies.

Keywords: Return on assets, appraisal technique, capital budgeting, financial performance

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I. Introduction

Financial managers engage in a variety of activities that collectively comprise what is known as a capital investment practice in order to capitalize on long-term profit opportunities. A manufacturing company's level of financial success is an important component of running a successful business. Manufacturing firms cannot be sustainable if they lack long-term strategies. In other words, a firm's profit margin is one of the most significant elements in determining whether or not it will continue to operate (Ugwuoke, 2008).

Capital budgeting practices encompass long-term investment choices of manufacturing companies, either expansion or acquisition or replacement of engineering machinery (Udoka, Arzizeh&Anyingang, 2012). Long-term investments require huge financial outflow, so they should be wisely appraised and examined in terms of their estimated cash inflows and outflows (Ross, Westerfield& Jordan, 2008). So, manufacturing firms made an investment decision on fixed assets, which required a high level of accuracy. For instance, replacement capital investment decisions should consider sufficient justifications, including cost reduction, trustworthiness and application of the latest technology. Hence, the manufacturing firms are expected to ensure the profitability of new investment by considering the level of profit that will be produced; ROA is another signal for the profitability of investment, and lastly, return on equity also measures how well the shareholders will be benefited from their investments (Finch, 2003).

Manufacturing company financial managers are expected to use appropriate capital budgeting appraisal techniques, such as payback period, discounted payback period, net present value, internal rate of return, profitability index, and accounting rate of return, among other sophisticated and non-sophisticated alternatives. Furthermore, it is expected that these financial managers will do so on time.

According to the financial model, the implementation, internal rate of return, profitability index, and net present value appraisal techniques are the most appropriate measurements for evaluating long-term investments. These techniques can be found in the list of best suitable measures (Dangol, Sthapit&Rajbhandari, 2011). On the other hand, the payback period technique is utilized by a great number of manufacturing companies (Arnold and Hatzopoulos, 2000), and it is also utilized by many other types of businesses

(Garham&Harvey, 2001).The issue that needs examination is whether manufacturing firms implement the appropriate techniques to appraise their capital investments. What types of capital budgeting are frequently implemented by Ethiopian manufacturing companies? And another critical issue is to what extent the implementation of capital budgeting appraisal techniques is interrelated with the ROA of manufacturing companies in Ethiopia. So such essential inquiries need to be solved by conducting survey research. Consequently, this study seeks to scrutinize capital budgeting practices and their impact on the financial performance of Ethiopian manufacturing companies.

2.1. Theoretical review

The real options theory provides financial managers with an improved mechanism for allocating equity and maximizing stockholder value. Likewise, it emphasizes that real options can generate long-term investment value that is greater than the conservative value of discounted fund flowsChance & Peterson (2002). Capital investment frequently entails a significant outflow of funds to acquire noncurrent assets. Furthermore, the purchase of these fixed assets frequently necessitates long-term and recurring financial commitments (Arnold, Nixon, and Shockley, 2003). Manufacturing company financial managers should pay less attention to funding and dividend decisions, which are immaterial, and instead focus on positive net present value capital investment alternatives that can improve the company's financial performance (Modigliani & Miller, 1958). They also determine sophisticated capital investment appraisal techniques used to improve firm performance. In contrast, the theory of finance suggests that it is not warranted for manufacturing companies to implement complex capital budgeting evaluation techniques like net present value in order to improve their financial performance (Hastie, 1974). (Adler, 2006) suggested that discounted cash flow should be eliminated from the field of financial theory because it is becoming less relevant to contemporary business practices.

2.2. Empirical studies

Lazaridis (2004) empirically confirmed that manufacturing firms used sophisticated and simple capital investment analysis methods to replace old equipment. The majority of manufacturing companies did not make use of the conventional methods of capital budgeting analysis.Olawale, Olumuyiwa and George (2010) discovered that implementing advanced capital investment assessment approaches, such as NPV and IRR, has a positive impact on manufacturing firm performance. Mutinda (2013) found that firms used four capital budgeting methods: NPV, PB, ARR, and IRR, and that capital budgeting techniques had no effect on ROA. Maroyi and van der Poll (2012), the NPV method is the most commonly used method to appraise capital investments. Udoka, Ibor, and Arikpo (2014), the NPV method of project appraisal was positively correlated with the ROA. Niyonsaba (2016) discovered that the PI and IRR have no effect on the financial performance of manufacturing firms. Puwanenthiren (2016) discovered that capital budgeting techniques were not significantly related to ROA. Gul (2018) confirmed that the net present value method was used by the majority of manufacturing firms, while thePB and IRR methods were rarely used. Chadha& Sharma (2019) discovered that non-discounting appraisal techniques were more frequently used than discounting appraisal methods. Mansaray-Pearc (2019) confirmed that the implementation of the PB was highly positively correlated with ROA. However, NPV, ARR, and PI have a negligible impact on ROA. According to Kakiya and Bosire (2019), NPV has a statistically significant positive relationship with ROA; however, ARR has an inverse relationship with ROA.

2.3. Research gap

Capital budgeting is the prudent allocation of limited capital, which is an important component of financial management for improving business financial performance. Despite the fact that numerous research studies on investment practices have been conducted in both developed and developing countries, none have been conducted in Ethiopia. Few studies have looked into capital budgeting techniques in developing countries. According to financial theory, sophisticated capital budgeting techniques improve ROA of manufacturing companies. However, only a few empirical studies to test this theory have been conducted. Previous studies that looked at the impact of capital budgeting techniques on the ROA of manufacturing companies found no significant correlation. On the other hand, previous studies have shown that there is a positive and significant correlation between the use of capital budgeting techniques and the financial performance of manufacturing businesses. In addition, the empirical evidence indicated a negative relationship between the techniques of capital budgeting and the ROA of manufacturing companies. Results that are inconsistent call for further investigation to be conducted.

2.4. Objectives of the study

To study capital budgeting practices of manufacturing companies in Ethiopia

2.5. Research hypotheses

Hypothesis-1: NPV appraisal technique has a significant positive impact on the ROA of manufacturing companies.

Hypothesis-2 IRR appraisal technique has a significant positive impact on the ROA of manufacturing companies.

Hypothesis-3: PI appraisal technique positively impacts manufacturing companies' ROA

Hypothesis-4: PB appraisal technique has a significant positive impact on the ROA of manufacturing companies.

Hypothesis-5: ARR appraisal technique has a significant positive impact on the ROA of manufacturing companies.

3. Research methods and materials

Research methods used in this study included both descriptive and explanatory approaches. In this study, the researchers used a descriptive statistic to analyse the types of capital investment made by Ethiopian manufacturing firms and the appraisal methods most frequently used by these firms.

3.1. Source of data

This research relied on the participation of 264 employees from 30 selected manufacturing companies in Ethiopia who filled out both closed- and open-ended questionnaires.

3.2. Method of data analysis

Using a multiple linear regression model, researchers were able to examine the impact of predictor variables on the variable that was the subject of the investigation. The following is an expression of the model using ordinary least squares.

$$ROA = \beta_0 + \beta_1 NPV + \beta_2 IRR + \beta_3 PI + \beta_4 PB + \beta_5 ARR + \epsilon$$

Table 1 Description of variables

Name of Variable	Code	Variable Type
Return on assets	ROA	Dependent
Net present value	NPV	Independent
Internal rate of return	IRR	Independent
Profitability index	PI	Independent
Payback period	PB	Independent
Accounting rate of return	ARR	Independent

Source: (Summary from literature, 2022)

Table 2 Implementations of capital budgeting appraisal techniques

Source: (Own survey, 2022)

S.N	Item	Not at all implemented		Not implemented		Moderately implemented		Implemented		Highly Implemented		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Payback period	19	7.2	35	13.3	77	29.2	97	36.7	36	13.6	264	100
2	Discounted payback period	4	1.5	4	1.5	123	46.6	79	29.9	54	20.5	264	100
3	Net present value	15	5.7	25	9.5	33	12.5	96	36.3	95	36.0	264	100
4	Internal rate of return	86	32.6	144	54.5	20	7.6	14	5.3	0	0	264	100
5	Profitability index	89	33.7	133	50.4	22	8.3	20	7.6	0	0	264	100
6	Accounting rate of return	141	53.4	49	18.6	38	14.4	36	13.6	0	0	264	100

The above table shows that 7.20% of respondents said that the payback period technique is not at all implemented, 13.30% said that it is not implemented, 29.20% said that it is moderately implemented, 36.70% said that it is implemented, and 13.60% said that it is highly implemented. So, nearly half percentage of the manufacturing companies often used simple evaluation methods. The result of the study is also supported by Dangol, Sthapit & Rajbhandari (2011), Lakew & Rao (2015), Nurullah & Kengatharan (2015), Gupta & Pradhan (2017), Kedige (2017) and Kesto & Ravi (2017). In the same way, 1.50% of respondents said discounted payback techniques did not implement, 1.50% said they were not implemented, 46.60% said they were moderately implemented, 29.90% said they were implemented, and 20.50% said they were highly implemented. Thus, most Ethiopian manufacturing companies used discounted payback period capital budgeting when considering other investment options. It contradicted to the discoveries of Nurullah & Kengatharan (2015), Lakew & Rao (2015), and Kesto & Ravi (2017). Regarding the net present value capital budgeting technique, 5.70%, 9.50%, 12.50%, 36.30%, and 36% of respondents said it is not implemented at all, not implemented, moderately implemented, and highly implemented, respectively. As a result, most Ethiopian manufacturing firms have routinely used the net present value capital budgeting technique when evaluating alternative capital

investment prospects. It is consistent with the findings of Dangol, Sthapit&Rajbhandari (2011), Nurullah&Kengatharan (2015), Gupta&Pradhan (2017), Kedige (2017), and Kesto& Ravi (2017). Internal rate of return responses, on the other hand, were 32.60 percent, 54.50 percent, 7.60 percent, and 5.30 percent, with no respondents selecting "not implemented," "not implemented," "moderately implemented," or "highly implemented." Most respondents indicated that Ethiopian manufacturing firms rarely used the internal rate of return method of capital budgeting when assessing potential capital investment options. It is consistent with the findings Kesto& Ravi (2017). This study's findings, however, contradict those of Nurullah and Kengatharan (2015), Dangol, Sthapit, and Rajbhandari (2011), and Kedige (2017). Similarly, 33.70%, 50.40 %, 8.30%, and 7.60% and none of the respondents said that not at all implemented, not implemented, moderately implemented and highly implemented respectively about the practice of profitability index capital budgeting techniques by Ethiopian manufacturing companies. Thus, most manufacturing companies did rarely use the profitability index to appraise the long-term investment alternatives. It is the same result as the findings of Dangol, Sthapit&Rajbhandari (2011), Nurullah&Kengatharan (2015), and Kesto& Ravi (2017).

For the last technique of capital budgeting, 53.40% of respondents said that not at all implemented, 18.60% of respondents said that not implemented, 14.40% of respondents said that moderately implemented, 13.60% of respondents said that implemented and none of respondents said that highly implemented about accounting rate of return, while appraising alternative long-term investment opportunities. Therefore, almost all Ethiopian manufacturing companies did not use accounting rate of return while conducting appraisals of long-term investment alternatives. It is the same result as the findings of Nurullah&Kengatharan (2015) and Kesto& Ravi (2017).

Table 3 Regression result

ROA	Coef	Std Err	t	P> t	[95% lower and upper limit]	
NPV	.2024572	.0837433	2.42	.016*	.0375498	.3673646
IRR	-.2528202	.0790461	-3.20	0.002*	-.4084779	-.0971624
PI	.6922976	.0706853	9.79	0.000*	.5531041	.8314911
PB	-.6436776	.0779263	-8.26	0.000 *	-.7971303	-.490225
ARR	-.0015307	.0438709	-0.03	0.972	-.0879213	.0848599
cons	2.666696	.2994096	8.91	0.000	2.077098	3.256294

Source: SPSS result (2022)

NPV and ROA

As shown in the table above, net present value capital budgeting technique positively significant impact on ROA. The above result is consistent with Olawale, Olumuyiwa, & George (2010), Cha (2011), Niyonsaba(2016) and Yator(2018).

IRR and ROA

The IRR capital budgeting technique has a negative and statistically significant impact on the ROA. The result of this study is similar to Mansaray-Pearce (2019). Thus, an alternative hypothesis is rejected.

PI and ROA

As shown in the table above, the profitability index technique has a positive and statistically significant impact on ROA. This finding is consistent with the findings of Olawale, Olumuyiwa, and George (2010), Cha (2011), Niyonsaba (2016), Yator (2018), and Mansaray-Pearce (2018). (2019). As a result, it is unable to reject the alternative hypothesis.

PB and ROA

The payback period technique has a negative and statistically significant impact on ROA. This is due to the fact that the PB approach ignores any cash flows that may be positive after the payback period has passed. Because of this, manufacturing firms often reject profitable capital investments without giving thought to cash flows beyond simply covering the cost of the initial investment. Thus, an alternative hypothesis is rejected.

II. Conclusions and recommendations

Ethiopian manufacturing companies were actively engaged in the expansion of existing products. However, a significant percentage of companies invest less frequently in developing new products. Most manufacturing companies use net present value and payback period appraisal techniques to select profitable investment opportunities. However, most manufacturing companies infrequently use IRR and ARR. Furthermore, almost all Ethiopian manufacturing companies were not implemented an ARR. As the regression result indicated, NPV and PI had a positive and statistically significant impact on the ROA of Ethiopian manufacturing companies. However, the IRR and PB had a negative and statistically significant impact on the ROA of manufacturing companies. Finally, the researchers recommended that, Ethiopian manufacturing companies should implement sophisticated capital investment appraisal techniques.

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