

Integrating Activity-Based Costing (ABC) for the Effective Evaluation of Financial Performance

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Abstract - Activity-Based Costing (ABC) has emerged as a vital tool for accurately assigning costs to products, services, and processes, thereby enhancing financial performance evaluation. Traditional cost accounting methods often lead to cost distortions due to arbitrary overhead allocation. In contrast, ABC allocates costs based on activities and resource consumption, offering better cost control and decision-making capabilities. This study explores how ABC can improve financial performance assessment by providing precise cost information, optimizing resource utilization, and profitability analysis. enhancing The findings demonstrate that firms adopting ABC achieve greater cost efficiency, improved financial reporting accuracy, and enhanced strategic decision-making.

Keywords: Activity-Based Costing, Financial Performance, Cost Allocation, Profitability, Decision-Making

I. INTRODUCTION

Financial performance evaluation is crucial for businesses to measure profitability, cost efficiency, and overall economic health. Traditional cost accounting systems, particularly volume-based costing, often lead to inaccuracies in cost allocation, affecting decision-making processes. Activity-Based Costing (ABC) provides a more refined approach by assigning costs based on actual resource usage and activities performed.

This study aims to examine the effectiveness of ABC in financial performance evaluation. By analyzing its impact on cost structure, financial reporting, and decision-making, this research highlights how ABC can serve as a strategic tool for companies seeking improved financial performance.

Activity-Based Costing (ABC)

Activity-Based Costing (ABC) is a modern cost accounting method that assigns costs to activities based on actual resource consumption, offering more accurate product or service costing than traditional methods. Unlike volume-based systems, ABC links overhead costs to specific activities and their drivers, improving cost transparency and efficiency.

By identifying cost-generating activities, ABC enables better decision-making, highlights inefficiencies, and supports strategic resource allocation. It helps identify non-valueadding processes, reduce waste, and enhance profitability. ABC also strengthens pricing strategies by reflecting the true cost of operations.

Key Steps in ABC:

- Identify core activities
- Assign resource costs to activities
- Determine cost drivers
- Allocate activity costs to outputs based on usage



II. BACKGROUND, MOTIVATION, AND OBJECTIVES

The increasing need for cost transparency and strategic financial management has driven organizations to adopt Activity-Based Costing (ABC) as a more effective alternative to traditional cost allocation methods. Manufacturing firms, in particular, face challenges in accurately assigning costs due to



high indirect expenses, complex production processes, and diverse cost drivers. ABC addresses these issues by allocating costs based on actual resource consumption, enabling firms to improve cost control, optimize pricing strategies, and enhance financial performance.

With companies striving for greater profitability and operational efficiency, ABC has gained prominence as a decision-making tool that enhances resource allocation and cost management. Prior research has demonstrated that ABC implementation leads to improved cost efficiency, higher profit margins, and better financial planning. However, limited studies have analyzed the financial impact of ABC adoption before and after implementation in manufacturing firms, making it essential to evaluate how ABC influences cost structures, pricing decisions, and overall financial performance in this sector.

OBJECTIVES

1. To identify and analyze the operational factors (activities, cost drivers, and resource management) that significantly impact financial performance

2.. To examine the overall effect of ABC on the financial performance, profitability of a manufacturing company.

3. To analyze the interrelationships between activity identification, cost driver allocation, and resource management.

4. To explore the contribution of ABC to strategic decisionmaking in cost control and pricing

III. LITERATURE REVIEW

The role of Activity-Based Costing (ABC) in financial performance evaluation has been extensively studied, with research highlighting its impact on cost control, profitability analysis, and strategic decision-making. Traditional cost allocation methods often lead to inaccurate financial assessments, whereas ABC provides more precise cost attribution, enhancing managerial decision-making (1).

Activity-Based Costing and Cost Allocation Efficiency

Cost allocation is a critical component of financial management, as it directly influences profitability analysis and pricing strategies. Kaplan & Cooper (1988) introduced ABC as a more refined approach to cost assignment, linking costs to specific activities rather than broad cost pools (2). Similarly, Turney (2005) emphasized that ABC reduces cost distortions and provides a clearer picture of resource consumption patterns (3). Drury (2018) further demonstrated that firms implementing ABC experience enhanced cost transparency and better control over indirect expenses (4).

Financial Performance Before and After ABC Implementation

Several studies have examined the financial impact of ABC adoption. Anderson & Young (2001) conducted a comparative study on firms before and after implementing ABC and found a significant improvement in cost efficiency and profit margins (5). Shields & McEwen (2006) further explored ABC's role in financial reporting, concluding that firms utilizing ABC report higher accuracy in financial statements and better profitability indicators (6). Rajan et al. (2015) analyzed case studies across different industries and identified that companies adopting ABC achieve higher return on investment (ROI) and lower operational costs (7).

ABC and Decision-Making in Cost Management

ABC provides detailed insights into cost behavior, which enhances managerial decision-making. Horngren, Datar, & Rajan (2012) found that businesses using ABC were able to optimize pricing strategies and eliminate unprofitable product lines, leading to improved financial outcomes (8). Additionally, Briers & Chua (2016) examined the role of ABC in budgeting and cost forecasting, revealing that it aids in better resource allocation and financial planning (9).

ABC as a Strategic Tool for Profitability Optimization

Beyond cost control, ABC serves as a strategic tool for profitability improvement. Kaplan & Norton (2004) suggested that ABC enables organizations to align cost structures with business objectives, improving long-term financial sustainability (10). Banker et al. (2014) highlighted that firms adopting ABC experience better market positioning and competitive advantage due to improved cost efficiency

Adoption and Diffusion of ABC Across Organizations

ABC adoption is influenced by organizational, financial, and competitive factors that impact its long-term success. Maelah & Ibrahim (2007) found that while ABC improves cost accuracy and resource allocation, challenges like high implementation costs and resistance to change require strong managerial support (11). Innes & Mitchell (1995) highlighted that firms with complex production processes and high indirect costs benefit most from ABC due to better cost transparency and financial reporting (12). Baird et al. (2004) emphasized that organizational culture, management support, and industry type influence ABC's effectiveness, with firms experiencing higher profitability and improved budgeting (13). Malmi (1999) suggested that highly competitive industries are more likely to adopt ABC as a strategic cost management tool, whereas firms that fail to integrate it with broader financial strategies struggle to sustain its benefits (14). Cagwin and Bouwman (2002) investigated the relationship between ABC adoption and financial performance. They found that ABC leads to better decisionmaking and improved performance only when integrated with

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strategic initiatives, such as total quality management (TQM) or balanced scorecards. This emphasizes the importance of aligning ABC with broader organizational goals to maximize its impact (15) Krumwiede (1998) analyzed the stages of ABC implementation across U.S. manufacturing firms and identified that successful adoption depends on top management commitment, employee training, and process standardization. His study showed that firms that progressed implementation beyond initial stages saw greater improvements in profitability and operational efficiency (16).

IV. METODOLOGY

1. Research Design

This study adopts a quantitative research design to evaluate the impact of Activity-Based Costing (ABC) on financial performance and strategic decision-making within a manufacturing company. The research incorporates correlation analysis, factor analysis, regression modeling, and paired t-tests to examine the relationships between cost structures, operational efficiency, and profitability.

2. Data Collection

Type of Data: Secondary Data

Source: Financial records and operational reports of a manufacturing company

Period Covered: 2019-2023

Variables Analyzed: Revenue, cost of production, operating expenditure, net profit, cost drivers, and activity-based cost metrics

DATA SOURCED:

1. Financial Performance Overview (2019-2022)

Year	Revenue (f)	Cest of Production (C)	Operating Expenditure (Ĉ)	Net Prufit (T)	Grass Profit Margin (%)	Net Profit Margin (%)	ROA (%)	ROE (%)
2019	6,141,164,000	5,935,882.58	5,208,648,000	926,580,100	99.90	15.09	18.85	30.18
2020	4,434,035,000	3.801.834.16	3,932,094,000	498,138,800	99.91	11.23	14.04	22.47
2021	9,618,065,000	6,009,339.18	8,250,000,000	1,362,056,000	99,94	14.16	17.70	28.32
2622	7,765,797,000	7,953,525.08	6,580,000,000	1,077,843,000	99.89	13.55	17.35	27.76

Revenue Trends: The highest revenue was recorded in 2021 (₹9.61 billion), while 2020 saw the lowest revenue due to economic downturns.

Cost of Production: Increased over time, with 2022 having the highest production costs (₹7.95 million), indicating potential inefficiencies.

Operating Expenditure: Followed a fluctuating trend, with the highest expenditure in 2021.

Net Profit: Peaked in 2021 at ₹1.36 billion, showing strong profitability post-ABC implementation.

Profit Margins: The gross profit margin remained stable (99.9%), while net profit margin fluctuated between 11.2% and 15.1%.

Return on Assets (ROA) and Return on Equity (ROE): ROA ranged from 14.04% to 18.86%, indicating efficient asset utilization. ROE showed positive returns, peaking at 30.18% in 2019.

2. ABC Implementation and Cost Drivers Impact

Cost Driver	Before ABC (₹)	After ABC (₹)	% Change
Direct Labor Cost	2,725,000	2,304,000	-15.5%
Material Cost	2,304,000	2,100,000	-8.9%
Energy Cost	638,000	574,000	-10.0%
Inventory Cost	912,000	825,000	-9.5%
Overhead Cost	5,500,000	4,800,000	-12.7%

- > The implementation of Activity-Based Costing resulted in noticeable cost reductions across all categories.
- ▶ Direct labor and material costs dropped by 15.5% and 8.9% respectively, indicating more efficient allocation and process improvements.
- ▶ Energy and inventory costs decreased by 10.0% and 9.5%, reflecting improved resource efficiency and reduced waste. Overhead costs were also reduced by 12.7%, demonstrating enhanced cost control through accurate activity-based allocation.
- \geq Overall, the ABC approach led to better cost visibility and operational optimization, supporting improved financial performance

V RESULTS AND ANALYSIS

Impact of ABC on Financial Performance and **Profitability**

Correlation Analysis

This method assesses the relationship between financial performance indicators and ABC implementation.



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Variables	Net Profit	ROA	Gross Profit Margin	Cost of Production
Net Profit	1	0.639* (0.037)	0.983* (0.017)	0.571* (0.043)
Return on Assets	0.639* (0.037)	1	0.683* (0.032)	0.521* (0.045)
Gross Profit Margin	0.983* (0.017)	0.683* (0.032)	1	0.439 (0.051)
Cost of Production	0.571* (0.043)	0.521* (0.045)	0.439 (0.051)	1

The correlation matrix reveals significant positive relationships among key financial variables.

Net Profit shows a strong positive correlation with **Gross Profit Margin** (r = 0.983, p = 0.017) and a moderate correlation with both **Return on Assets (ROA)** (r = 0.639, p = 0.037) and **Cost of Production** (r = 0.571, p = 0.043), suggesting that profitability improves with higher margins and efficient cost control.

ROA also has a significant positive relationship with **Gross Profit Margin** (r = 0.683, p = 0.032) and **Cost of Production** (r = 0.521, p = 0.045), indicating that better asset utilization is linked to controlled production costs.

Although **Cost of Production** has a weaker correlation with other variables, its consistent significance highlights its influence on overall financial performance.

These findings underscore the importance of managing production costs and profit margins to drive profitability and returns.

Key Operational Factors Affecting Financial Performance

Factor Analysis

Factor analysis is used to identify operational factors influencing financial performance.

Variable	Initial Value	Extracted Component
Activity Time (mins)	1	0.982
Machine Utilization	1	0.958
Overhead Cost	1	0.974
Inventory Cost	1	0.97

Resource Allocation	1	0.963
Revenue Growth	1	0.979

The factor analysis highlights that efficient activity management (0.982), optimal machine utilization (0.958), and effective resource allocation (0.963) play a crucial role in enhancing financial performance. Controlling overhead costs (0.974) and inventory costs (0.970) ensures better cash flow and profitability, reducing unnecessary expenses. Strategic resource allocation (0.963) and improved revenue growth (0.979) indicate that well-managed cost drivers contribute directly to increased profitability. The results indicate these operational factors strengthens financial stability and long-term business success.

Interrelationships Among Activities, Cost Drivers, and Resource Management

Regression Analysis - A regression model was developed to understand the impact of ABC on resource allocation and cost drivers.

Regression Variable Summary

Predictor Variable	B (Unstd.)	Std. Error	Beta (Std.)	t	Sig.
(Constant)	16.012	6.638	_	2.412	0.052
Resource Optimization & Allocation	0.029	0.008	0.334	3.407	0.014
Cost Driver Allocation	-0.322	0.097	-0.230	- 3.306	0.016
Activity Performance	-0.052	0.091	-0.088	- 0.569	0.590
Inventory & Cost Control	0.035	0.096	0.052	0.370	0.023
Financial Profitability	0.106	0.128	0.142	0.833	0.034
Cost Reduction	0.396	0.070	0.514	5.637	0.001

Model Summary:

F-value	R Square	Adjusted R Square
78.34	0.682	0.641

The regression analysis reveals key predictors significantly influencing financial performance. Among them, **Cost Reduction Strategies** emerged as the strongest predictor ($\beta = 0.514$, p = 0.001), highlighting its critical role in enhancing profitability. **Resource Optimization & Allocation** ($\beta =$



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initial and later stages, reinforcing its role as a sustainable cost management strategy.

PRACTICAL IMPLICATIONS

The findings of this study highlight the significant impact of Activity-Based Costing (ABC) on financial performance, cost efficiency, and strategic decision-making. The empirical analysis confirms that ABC implementation leads to substantial cost reductions and improved resource allocation, directly influencing profitability and operational efficiency. The following implications can be drawn:

A. ABC for Strategic Cost Control

The study reveals that ABC implementation reduces costs significantly, as evidenced by the paired t-test results, which show a consistent decline in operational expenses over multiple years. Implication: Organizations should adopt ABC-based cost control mechanisms to identify cost inefficiencies, optimize spending, and enhance profitability through accurate cost allocation.

B. Improved Resource Allocation for Financial Efficiency

The analysis confirms that efficient resource allocation under ABC contributes to long-term cost savings and financial stability. By linking activities with cost drivers, firms can eliminate waste and optimize resource utilization.

Implication: Companies should leverage ABC insights to allocate resources more effectively, ensuring that expenditures align with value-generating activities.

C. ABC's Role in Pricing Strategy and Profitability

The study demonstrates that ABC helps businesses determine accurate product pricing by assigning costs based on real activity consumption rather than broad averages.

Implication: Organizations should integrate ABC-based pricing models to enhance competitiveness, improve profit margins, and offer more strategic pricing decisions in dynamic markets.

D. Long-Term Financial Sustainability through ABC

The cost reduction trend observed post-ABC implementation suggests that its benefits extend beyond short-term savings, contributing to financial sustainability and operational resilience.

Implication: Firms should view ABC as a long-term investment in sustainable cost management and continuous financial improvement, rather than a one-time accounting change.

E. Competitive Advantage through Cost Transparency

0.334, p = 0.014) and Cost Driver Allocation (β = -0.230, p = 0.016) also showed significant influence, with the former positively contributing and the latter negatively impacting financial outcomes, suggesting that poor cost driver alignment may reduce performance.

Variables like **Financial Profitability** ($\beta = 0.142$, p = 0.034) and Inventory & Cost Control ($\beta = 0.052$, p = 0.023) also contributed positively, though to a lesser extent. However, Activity Performance did not have a statistically significant effect (p = 0.590), indicating its limited role in this model.

The model itself is highly robust, with an F-value of 78.34, R² of 0.682, and an Adjusted R² of 0.641, meaning that approximately 64% of the variance in financial performance is explained by the predictors. These results underscore the importance of strategic cost control and resource management in driving financial success in manufacturing firms.

ABC's Role in Strategic Cost Control and Pricing Decisions

Paired Sample t-Test

A paired t-test was conducted to analyze cost reduction before and after ABC implementation.

Pair	Years Compared	Mean Diff. (8)	Std. Dev.	Std. Error	1	đť	Sig. (p)
1	2021 - 2019	-6,875,000	11,250,000	2,810,500	-2.446	15	0.026
2	2021 - 2020	-4,375,000	8,750,000	2,015,000	-2.172	15	0.047
3	2021-2022	1,250,000	6,500,000	1,740,500	0.718	15	0.485
4	2021 - 2023	5,250,000	10,500,000	2,720,000	1.93	15	0.072
3	2021 - 2024	8,125,000	14,750,000	3,620,500	2.245	15	0.039

The paired sample t-test was conducted to assess the impact of Activity-Based Costing (ABC) on cost reduction across different years, using 2021 as the reference point. The results indicate a significant reduction in costs between 2021 and **2019** (mean difference = \mathbf{E} -6.88 million, p = 0.026) and **2021** and 2020 (mean difference = \mathbb{E} -4.38 million, p = 0.047), confirming that ABC implementation led to notable cost savings in the immediate years preceding its adoption.

Comparisons between 2021 and 2024 (mean difference = ₹8.13 million, p = 0.039) also showed a statistically significant increase in cost savings over the longer term, suggesting the lasting effectiveness of ABC. However, the differences between 2021 and 2022 (p = 0.485) and 2021 and **2023** (p = 0.072) were not statistically significant, indicating cost fluctuations during the intermediate years.

Overall, the results confirm that ABC implementation contributed to significant cost reduction, particularly in the

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ABC improves cost transparency and decision-making, enabling companies to identify non-value-adding activities and streamline operations for enhanced market positioning.

Implication: Organizations should adopt ABC-driven financial reporting to improve cost visibility, gain a competitive edge, and attract investors focused on financial efficiency.

VI. CONCLUSION

This study examines the impact of Activity-Based Costing (ABC) on financial performance, cost control, and strategic decision-making in a manufacturing company. The findings demonstrate that ABC implementation significantly reduces operational costs while improving resource allocation and pricing accuracy. The paired t-test results confirm that post-ABC implementation, costs declined consistently, reinforcing its effectiveness in long-term financial sustainability.

The study highlights that accurate cost allocation and strategic resource management play a crucial role in enhancing profitability and operational efficiency. Furthermore, ABC-based pricing models help organizations determine product costs more precisely, leading to better pricing strategies and improved profit margins. The regression and correlation analyses suggest that firms adopting ABC-driven financial models experience continuous cost savings and competitive advantages in the manufacturing sector.

These findings reinforce the importance of ABC as a strategic tool for financial optimization and decision-making. Organizations should focus on implementing ABC frameworks, improving cost transparency, and leveraging data-driven cost control strategies to achieve long-term profitability and financial stability. Future research can explore industry-specific ABC applications, assess its impact on different cost structures, and analyze how external market factors influence ABC-driven financial performance.

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