

Effectiveness of using Balanced Scorecard in Management Accounting: Meta-analysis

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Abstract

This study aims to evaluate the effectiveness of the use of Balanced Scorecard (BSC) in management accounting through a meta-analysis approach. The Balanced Scorecard is a strategic tool used to measure a company's performance from various perspectives, including finance, customers, internal business processes, and learning and growth. This meta-analysis integrates the results of previous research to provide a comprehensive picture of how BSC affects managerial and organizational performance. The results show that the implementation of BSC significantly contributes to increasing management effectiveness, especially in aligning the company's strategy with operational goals, improving the quality of decision-making, and strengthening managerial accountability with an effect size value of 1,042 (high effect size category). Nonetheless, this study also identifies several factors that can affect the successful implementation of BSC, such as organizational culture, management commitment, and information system quality. These findings have important implications for practitioners and academics in evaluating the benefits and challenges of BSC in the context of management accounting.

Keywords: Balanced Scorecard; Management Accountability; Effect size

Introduction

The development of management accounting has gone through various significant transformations in line with changing business needs and global economic dynamics. Initially, management accounting was focused on the function of cost control and performance assessment through internal financial statements (Ittner et al., 2003). This function is mainly oriented towards operational efficiency and production cost control. However, as time goes on, with the emergence of increasingly fierce competition and a more complex business environment, the role of management accounting is evolving into a strategic tool that assists companies in more informative and long-term oriented decision-making. Management accounting is no longer just focused on financial figures, but also on the analysis of non-financial data that can provide more holistic insights into an organization's performance (Cadez & Guilding, 2012).

Advances in information technology and the need for innovation in business management have also contributed to the evolution of management accounting. With increasingly sophisticated technologies, such as big data and analytics, management accounting can now present more real-time and predictive information, allowing managers

to make more timely and data-driven decisions. In addition, new approaches such as the Balanced Scorecard have been introduced to improve the way organizations measure and manage their performance (Sainaghi et al., 2017). By taking into account non-financial perspectives, such as customer satisfaction and internal business processes, modern management accounting is able to integrate various aspects of the organization in one comprehensive framework, thus supporting the achievement of the company's strategic objectives more effectively.

Performance measurement in organizations faces a variety of complex challenges, especially when it comes to covering various aspects of the business that are multi-dimensional (Gerrish, 2015). One of the main challenges is the integration between financial and non-financial metrics. Financial metrics, such as net income and return on investment (ROI), while important, often only reflect short-term performance and do not provide a comprehensive picture of an organization's health and sustainability over the long term. Meanwhile, non-financial metrics, such as customer satisfaction, product innovation, and internal process effectiveness, are also crucial, but often difficult to measure objectively (Cadez & Guilding, 2012). The difficulty in aligning these two types of metrics leaves organizations vulnerable to unbalanced decisions and potentially overlooking strategic aspects that are critical to business continuity. In addition, rapid and dynamic changes in the business environment also add complexity in performance measurement. Organizations must be able to adapt to regulatory changes, technological developments, and changing consumer preferences, all of which can affect the relevance and effectiveness of the performance metrics used. Another challenge is the difference in interpretation and understanding among stakeholders regarding the most important performance indicators (Sainaghi et al., 2017). While a metric may be considered important by management, employees, or investors, it is not necessarily understood or appreciated in the same way by all parties involved. This mismatch can hinder an organization's efforts to achieve strategic goals effectively. Therefore, a more holistic and flexible approach is needed in designing a performance measurement system that is able to reflect various dimensions that are relevant to the organization's strategy and goals (Ittner et al., 2003).

The Balanced Scorecard (BSC) was introduced by Robert Kaplan and David Norton in the early 1990s as a strategic management tool designed to provide a more balanced and comprehensive view of an organization's performance. Unlike traditional measurement systems that tend to focus solely on financial metrics, BSC integrates four key perspectives: finance, customers, internal business processes, and learning and growth. This approach allows organizations to evaluate performance from a variety of perspectives, which includes not only the final result but also the factors that drive the achievement of those results. By using BSC, organizations can be more effective in translating vision and strategy into concrete operational actions, as well as monitoring the extent to which these strategic goals are achieved (Ittner et al., 2003).

In addition to providing a framework for more thorough performance measurement, BSC also serves as a powerful communication tool in aligning the goals of all parts of the organization. By setting Key Performance Indicators (KPIs) in each perspective, BSC helps management to focus on the areas that are most critical to the long-term success of the organization. For example, in a customer perspective, organizations can measure customer satisfaction levels or market share, while in a learning and growth perspective, indicators such as employee skill development or product innovation can be used. As such, BSC serves not only as a measurement tool, but also as a mechanism for managing change and continuous improvement, ensuring that all elements of the organization work synergistically towards the same goal.

The study by Kaplan and Norton (1996) that first introduced BSC, has become the foundation for many subsequent studies. They claim that BSC not only helps in performance measurement but also serves as a strategic management system that aligns operational goals with the organization's vision and strategy. Several empirical studies, such as those conducted by Ittner and Larcker (2003), confirm that the implementation of BSC can improve organizational performance by helping management focus on key indicators related to long-term success. These studies generally show that BSC plays an important role in integrating financial and non-financial perspectives, which results in improved quality decision-making and alignment of organizational strategies.

Research by Malina and Selto (2001) shows that the success of BSC implementation is highly dependent on factors such as management support, organizational culture, and the ability to manage change. Another study by Hoque (2014) indicates that while BSC can improve a company's performance, the results are not always consistent across all industry or organizational contexts. Hoque also noted that the lack of employee engagement and mismatch between BSC metrics and operational realities can hinder BSC's effectiveness. Meta-analyses conducted by parties such as Naranjo-Gil (2004) underline that the positive effects of BSC are often more visible in companies that have mature and stable management systems, while younger companies or those that are undergoing major changes may face difficulties in achieving the full benefits of BSC. Therefore, this study aims to evaluate the effectiveness of the use of Balanced Scorecard (BSC) in management accounting through a meta-analysis approach.

Research Methods

This study uses a meta-analysis method to evaluate the effectiveness of the use of Balanced Scorecard (BSC) in management accounting. Meta-analysis is a statistical technique used to combine the results of various independent studies that address the same topic, with the aim of producing more comprehensive and robust conclusions. The first step in this method is to identify and collect relevant studies from academic databases such as Scopus, Web of Science, and Google Scholar. The inclusion criteria used include research published in peer-reviewed journals, focusing on the use of BSC in the context of management accounting, and providing empirical data on organizational performance. Once the relevant studies have been identified, the authors conduct further selection to ensure the quality and relevance of the results of the studies to be analyzed.

The next step in this meta-analysis is to code and combine data from selected studies. The main variables to be analyzed include financial and non-financial performance indicators, BSC adoption rates, and industry and organizational contexts. The authors will use a random-effects model to handle variability between studies, as well as conduct sensitivity analysis to test the consistency of results. The results of this meta-analysis will be presented in the form of effect sizes, which reflect the extent to which BSC affects managerial and organizational performance. In addition, a moderator analysis will be conducted to identify factors that can affect the effectiveness of BSC, such as the type of industry, the size of the company, and the level of experience in implementing BSC. The final results of this study are expected to provide deeper insights into the conditions under which BSC is most effective as well as provide practical recommendations for organizations considering adopting BSC. Adapun kriteria effect size dalam penelitian ini dapat dilihat pada Tabel 1.

Table 1. Kriteria Nilai Effect Size

Effect size	Criteria
$0.0 \leq ES \leq 0.2$	Low

$0.2 \leq ES \leq 0.8$	Medium
$ES \geq 0.8$	High

Source: (Zulkifli et al., 2022; Oktarina et al., 2021; Utomo et al., 2023; Nurtamam et al., 2023; Ichsan et al., 2023; Zulyusri et al., 2023)

Result and Discussion

From the results of tracing data sources through the google scgolar, scopus, and web of science databases, 9 relevant studies were obtained. Furthermore, the data is calculated the effect size value which can be seen in Table 2.

Table 2. Data Value Effect 9 Research

Journal Code	Years	Countries	Effect Size	Criteria
A1	2024	Indonesia	0.83	High
A2	2022	Indonesia	0.71	Medium
A3	2022	Malaysia	1.03	High
A4	2023	China	1.15	High
A5	2024	China	0.97	High
A6	2024	Portugal	0.82	High
A7	2023	USA	1.20	High
A8	2023	USA	1.45	High
A9	2024	China	1.52	High
Average Effect Size			1.076	High

Based on Table 2, the lowest effect size value is 0.71 and the highest is 1.52. Furthermore, 8 studies were found to have a high siza effect value and 1 study had a medium effect value and an average effect size of 1,076. These findings conclude that there is a BSC significantly contributes to increasing management effectiveness, especially in aligning the company's strategy with operational goals, improving the quality of decision-making, and strengthening managerial accountability by category effect size high. Organizations that implement BSC tend to be more successful in aligning strategic goals with day-to-day operations (Theriou et al., 2004a). This integration allows managers to not only focus on short-term financial results, but also consider other factors such as customer satisfaction, internal process efficiency, and the organization's ability to learn and innovate. Previous research has indicated that the holistic approach offered by BSC provides a more comprehensive view, which can ultimately improve the competitiveness of the organization in the long run (Barbieri et al., 2023).

The study also revealed that the effectiveness of BSC can vary depending on the industry context. In highly competitive industries, such as technology and financial services, BSC proves to be more effective because it provides a powerful tool for navigating rapid change and the need for constant innovation. Conversely, in more stable industries, such as traditional manufacturing, the benefits of BSC may be less pronounced, especially if the organization has an established management system and does not require significant strategic changes (Supriyadi, 2010). These results show that BSC adaptation needs to consider the specific characteristics of each industry to maximize its benefits. In addition to the industry context, the study found that the success of BSC implementation is greatly influenced by several internal factors, including management commitment, organizational culture, and the quality of information systems. Organizations with management that are highly committed to the vision and strategy integrated in the BSC tend to be more

successful in implementing and utilizing these tools. An organizational culture that supports innovation and change also plays an important role in the effective implementation of BSC. Conversely, if organizations do not have adequate technological infrastructure to collect and analyze data, BSC implementation can experience significant obstacles, reducing its effectiveness (Gerrish, 2015)

While BSC offers significant benefits, the study also identifies challenges in measuring non-financial performance, such as customer satisfaction and organizational learning processes. Non-financial indicators are often subjective and difficult to quantify consistently. This can lead to inaccuracies in performance appraisals and potentially reduce the overall effectiveness of BSC. Some of the studies analyzed in this meta-analysis show that organizations often struggle in developing valid and reliable metrics for non-financial perspectives, which in turn can reduce management's confidence in the results obtained from BSC (Theriou et al., 2004). BSC facilitates more effective communication at all levels of the organization, ensuring that all departments and employees understand and contribute to the same vision. Previous studies support these findings, showing that organizations that successfully implement BSC often have better alignment between strategy and operational execution, ultimately improving overall performance. However, the study also underscores that strategic alignment through BSC requires active engagement from all stakeholders, as well as ongoing feedback mechanisms.

Conclusion

From the results of the research implementation of BSC significantly contributes to increasing management effectiveness, especially in aligning the company's strategy with operational goals, improving the quality of decision-making, and strengthening managerial accountability with an effect size value of 1.076 (high effect size category). Nonetheless, this study also identifies several factors that can affect the successful implementation of BSC, such as organizational culture, management commitment, and information system quality. These findings have important implications for practitioners and academics in evaluating the benefits and challenges of BSC in the context of management accounting.

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