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A Systematic Review on Variance Analysis as a Manufacturing Tool for Corporate Decision Making

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Abstract
Variance analysis plays a crucial role in evaluating deviations from expected budgetary outcomes and informing strategic corporate decisions. This study focused on exploring the effectiveness of using variance analysis to enhance strategic decision-making, improve resource distribution, and boost cost management. Grounded in resource-based theory, the research delved into a wide range of academic literature and professional accounting insights. Employing a theoretical survey approach, the study examined an array of secondary data sources, including online databases, journal articles, and other publications. The findings revealed that variance analysis is instrumental for corporate leaders, acting as a navigational aid in the allocation of resources, making operational adjustments, and planning strategically. Utilizing this tool in manufacturing allows companies to increase operational effectiveness and manage costs more efficiently, establishing a strong base for ongoing competitive success. The research concluded that variance analysis is not only a tool for assessing performance but also a critical element in facilitating complex decision-making processes in contemporary manufacturing settings. Recommendations from the study include the integration of variance analysis with business intelligence (BI) and analytics tools to further enhance its effectiveness in corporate settings.

Keywords: *Decision making, variance analysis, resource-based theory*

1. Introduction

The term "Variance" refers to the discrepancy between the actual cost of production and the standard cost of production, or alternatively, the gap between the actual revenue and the projected revenue. Variance analysis is the process of dividing a given variance into its sub-variances. Depending on the differences, a given variance may be interpreted as either unfavourable or advantageous to the organization. However, if the projected profit is less than the actual profit or the standard cost of production is greater than the actual cost of production, the variation will be viewed as being advantageous to the organization (Ali-Momoh et al., 2022).

In the fast-paced retail sector, companies face the continual challenge of managing costs, optimizing prices, and efficiently allocating resources to remain competitive and profitable. Effective decision-making in these areas can significantly influence a company's financial health and market position. Variance analysis, a component of managerial accounting and budgetary control, is critical in assessing performance deviations from planned budgets and guiding strategic decisions. Invariably, cost plays a prominent decision-making role in the life

of an individual and a business or non-business organisation. It is the central focus of daily financial activities because of its significant role (Allioui & Mourdi, 2023).

The results of comparing the standard costs with actual performances rarely agree irrespective of the practicability of the standard costs in place. There are always differences referred to as variances. However, when the variance occurs, it should not be a base for criticising the performance of the manager or operator controlling the costs, rather it is a notice to the management that an exception to the standard or budget has occurred and may require investigation and possibly explanation to adjust subsequent costs for control purpose (Bier, 2020). In line with Caputo et al. (2019), to minimise the size of the cost variance and improve the performance, operators are expected to be actively involved in providing information and setting the standard instead of management alone. Besides, involving the operators and other personnel directly involved in setting standards could create the desirable motivation, and commitment that could trigger them to be efficient to achieve the standards developed by them. In practice, the approach may differ and be difficult as management alone and possibly with few others may dominate or take over the responsibility of these technical managers. Once this freedom of providing information and participation in the standard setting is denied, it may give rise to generation of undue variance. The study of associated costs will then become complex. The expected outcome can create generous or slack standard costs that would not reflect efficient standards. This therefore could form the basis for disagreement with what is attainable or realistic. This is clear because managers or operators cannot be expected to implement a plan unless they are aware and are part of what is involved (Gozman et al., 2018).

In the dynamic environment of the corporate world, financial performance and decision-making processes are crucial determinants of a company's success and sustainability. Variance analysis is a fundamental management accounting tool used to assess deviations between actual outcomes and budgeted expectations, providing essential insights into operational, financial, and strategic management. Despite its critical importance, many companies face significant challenges in effectively implementing and leveraging variance analysis to aid corporate decision-making (Hock-Doepgen et al., 2021).

Lescrauwaet et al. (2022) noted that the effectiveness of variance analysis heavily depends on the accuracy and reliability of the data used. In many instances, discrepancies in data collection, processing, or interpretation can lead to misleading variance reports, which in turn can cause faulty decision-making. Often, there is disconnect between the financial insights provided by variance analysis and the decision-making processes at various levels of management. This disconnection can result in underutilization of valuable financial insights in strategic planning and operational adjustments. Marttunen et al. (2017) asserted that there is frequently a skills gap among personnel, with a lack of understanding of how to perform, interpret, and utilize variance analysis effectively within the decision-making framework. This lack of expertise can prevent companies from fully realizing the benefits of variance analysis. Inadequate technological support can impede the effective implementation of variance analysis. Modern businesses require sophisticated, real-time analytical tools to monitor variances and react promptly. Many companies, especially in the retail sector, may not have access to or may not fully utilize these technologies. Organizational culture and structure can also play a significant role in how variance analysis is perceived and used. In some cases, there might be resistance to data-driven decision-making, a lack of communication between departments, or a siloed approach to management information systems (Sugiarto, 2023).

The overarching problem is that despite recognizing the potential benefits of variance analysis, many companies are not able to harness its full potential to enhance decision-making and

improve financial outcomes. This disconnect can result in suboptimal strategic decisions, inefficient resource allocation, and ultimately, impaired financial performance. Addressing these challenges through better implementation practices, enhanced technology use, improved training and integration strategies, and organizational adjustments is critical for companies aiming to thrive in competitive markets (Hung & Shanmugam, 2023). As a result, the primary objective of this study is to explore how variance analysis influences corporate decision-making processes in the retail sector using a systematic literature review approach. Specifically, the study aims to determine how effectively leveraging variance analysis can lead to improved strategic decisions, better resource allocation, and enhanced cost management.

2. Literature Review

Concept of Variance Analysis

Variance analysis is a fundamental concept in management accounting, serving as a critical tool for budget control and overall financial performance assessment. It is employed by organizations to understand the differences between planned financial outcomes and actual results, and to identify the causes of these differences. The primary purpose of variance analysis is to enable proactive decision-making by highlighting specific areas where management can focus its attention to improve performance (Akinola & Efuntade, 2021).

Bernard et al., (2020) viewed variance analysis as the process of analysing variances by subdividing the total variance in such a way that management can assign responsibility for any off-standard performance. Variance analysis is the resolution into constituent parts and the explanation of variances. An important aspect of variance analysis is the need to separate controllable from uncontrollable variances. A detailed analysis of controllable variances will help the management to identify the persons responsible for its occurrence so that corrective action can be taken. views variance as the deviations of actual performance from standard performance. They are indicators of sub-standard performance or super-standard performance. When the costs of actual activity are higher than the standard cost we have adverse variance. on the contrary, when the actual costs are lower than the standard (expected) cost we have favourable variance. Favourable variances point to efficiency while unfavourable or adverse variances point to inefficiency (Bottazzi & Thomas, 2016; Sugiarto, 2023).

As suggested by Bier (2020), variance analysis helps organizations keep a check on their expenditures. By identifying where actual spending has exceeded the budget, finance managers can investigate the reasons—be they inefficiencies, unexpected costs, or pricing fluctuations—and take corrective actions. Similarly, analysis of revenue variances helps in understanding why actual sales differed from expectations. This could be due to changes in market demand, pricing strategies, or execution of sales plans. Analysing variances in gross profit can reveal significant insights into sales volume, pricing strategies, and direct costs. This assists in understanding the efficiency of production processes and the effectiveness of pricing policies. This includes analysing overhead costs and other operational expenditures that impact the bottom line. Variance analysis helps in pinpointing inefficiencies and areas where cost control can be improved (Gozman et al., 2018).

By regularly performing variance analysis, organizations can align their strategies more closely with financial realities. This might involve adjusting marketing strategies, revising production plans, or renegotiating supplier contracts. Understanding which areas over or under-performing are allowing management to allocate resources more effectively, ensuring that investment is directed toward high-performing areas or those in need of support (Hamza, 2023). Variance analysis is more than a mere comparison of numbers. It is a sophisticated tool that, when utilized effectively, can provide deep insights into the financial health and operational

efficiency of an organization. It plays a crucial role in financial planning, strategic management, and organizational control, driving businesses towards better financial performance and more informed decision-making (Schiavone & Simoni, 2019).

Variance analysis is a potent tool that, when used effectively, provides critical insights into organizational performance, enhances decision-making, and promotes strategic financial management. However, its effectiveness largely depends on the quality of the underlying data and the ability of managers to correctly interpret and act on the insights provided. Thus, for variance analysis to be truly beneficial, it should be integrated into a comprehensive framework of performance management and continuous improvement.

Concept of Corporate Decision Making

Corporate decision making refers to the process through which company leaders, managers, and executives make strategic and operational choices that impact the direction and performance of the organization. This process involves selecting the best course of action among alternatives based on the assessment of complex, interconnected business variables and uncertain external conditions. Effective decision making is critical to a company's success, influencing everything from day-to-day operations to long-term strategic goals.

In corporate entities, Abbas and Yahaya (2023) suggested that decision making involves a dynamic and multifaceted process that significantly impacts business operations, customer experience, market competitiveness, and financial outcomes. The retail industry for instance, characterized by rapid shifts in consumer preferences, intense competition, and technological advancements, requires retailers to be particularly adept and agile in their decision-making processes. Corporate decision-making heavily relies on understanding consumer behavior and trends. This involves analyzing data from sales, customer feedback, online behavior, and market research to identify what drives consumer choices and how these preferences are evolving. It comprises deciding what products to stock, in what quantities, and at what time involves complex analysis of supply chain logistics, sales data, and trend forecasting. Inventory decisions must balance the risk of stockouts against the costs of overstocking, both of which can significantly impact profitability (Hamza, 2023).

Retailers must make informed decisions about pricing to stay competitive while ensuring profitability. This includes the use of dynamic pricing models, discount strategies, and loyalty programs, all tailored to maximize sales and customer retention. With the rise of omnichannel retailing, decisions about how to integrate and manage various selling platforms (physical stores, online, mobile, etc.) are crucial. This involves not only technological investments but also strategic choices about service delivery, customer interaction points, and logistics (Ali et al., 2017).

Deciding on marketing strategies and promotional activities is vital to attract and retain customers. This includes determining the right mix of advertising media, promotional offers, and personalized marketing approaches based on detailed customer data analysis. Retailers must decide on their level of investment in technology, which can range from upgrading POS systems and implementing ERP solutions to adopting cutting-edge technologies like AI for personalized shopping experiences or advanced analytics for demand forecasting. Effective workforce management decisions are crucial in retail, which depends heavily on customer service. This includes not only hiring and training but also decisions about staffing levels to match fluctuating demand without inflating costs (Chavran & Thorat, 2017; Fadhil et al., 2022).

Corporate decision making is a fundamental activity in business that requires a systematic approach to ensure effective and efficient outcomes. It blends analytical rigor, strategic thinking, and managerial acumen, and its quality is a critical determinant of organizational

success. As the business environment becomes more complex and dynamic, the demands on corporate decision-making processes increase, emphasizing the need for continuous improvement in decision-making skills and systems (Osho & Akinola, 2018).

Variance Analysis and Corporate Decision-making

Variance analysis is critical for assessing the effectiveness of budgets, which are essential for financial planning and control. By identifying where actual results deviate from expected ones, managers can address inefficiencies, capitalize on unforeseen gains, and refine future budgeting strategies. This iterative learning helps in creating more realistic financial forecasts and strengthens financial stability within organizations (Tabitha & Ogungbade, 2016). Variance analysis plays a crucial role in refining business budgets. By comparing the budgeted figures to actual results, it aids managers in identifying where they overspent or underspent. By pinpointing the areas of overspending, businesses can then implement strategies to curtail costs and ensure they remain on-budget in future periods. Similarly, underspending might signal missed opportunities or inefficiently allocated resources, prompting a re-evaluation of spending priorities (Sil, 2021).

Variance analysis also plays a critical role in financial forecasting. The insight gathered from comparing actual results to budgeted figures can be used to formulate more accurate and realistic projections for future financial periods. It facilitates an understanding of the trends and factors that influence expenditure or income, thereby enabling a business to adjust its predictions and plans accordingly. This enhanced accuracy in forecasting ultimately leads to better performance management and strategic decision-making (Tsai et al., 2020).

Another significant purpose of variance analysis is to enable businesses to improve their operational efficiency. By identifying the variances in different operations, a business can gain a better understanding of the areas where efficiency can be improved. For instance, if labour cost variances are consistently unfavourable, it might imply the need for staff training or process automation. Ultimately, improving operational efficiency can lead to cost reductions, productivity enhancements, and improved profit margins. By refining budgets, aiding in forecasting future financial results, and improving operational efficiency, variance analysis serves as a vital tool in strategic financial management for any business (Al-Shattarat et al., 2021; Tabash et al., 2021).

In procurement, variance analysis assists in understanding the discrepancies between expected and actual costs, informing better future purchasing decisions. By analyzing price and quantity variances, companies can identify inefficiencies, such as overspending on resources or purchasing more than necessary, which can then be corrected to optimize spending. Regular variance analysis enables companies to improve operational efficiency by pinpointing areas needing intervention and helps in strategic adjustments based on tangible data (Wahyuni et al., 2023). It aids in recognizing trends, managing resources more effectively, and aligning operational activities with strategic goals. Variance analysis contributes to a broader financial analysis framework by highlighting over-performance or under-performance in specific areas. This analytical process aids businesses in identifying potential problems early and taking corrective actions, which is crucial for maintaining competitive advantage and financial health (Morelli et al., 2022).

Theoretical Underpinning

Resource Based Theory

The resource-based theory (RBT) is a strategic framework used to evaluate a firm's internal capabilities by analysing its unique blend of assets, skills, capabilities, and intangible assets. This approach considers how these firm-specific resources contribute to its overall

performance. Essentially, RBT positions the firm as an aggregation of resources that, when effectively combined, form organizational capabilities that can generate higher than average profits. The Resource-Based Theory (RBT) of a firm provides a valuable lens through which to examine variance analysis, especially within the context of corporate strategic decision-making (Appelbaum et al., 2017; Mamidu & Akinola, 2019).

By applying RBT to variance analysis, one can explore how internal resources both contribute to and are impacted by the variances between actual and expected performance. Resource-based theory explains variances due to differences in resource utilization efficiencies. For example, if a firm's actual costs are lower than budgeted, it might be due to more efficient use of resources than anticipated. The theory highlights how unique capabilities, like advanced production techniques or proprietary technology, contribute to cost savings or efficiency gains that lead to favorable variances (Bozgulova, 2019).

Applying RBT offers insights into revenue variances driven by competitive advantages. If a company achieves higher-than-expected sales, it may be due to unique resources such as a strong brand or superior customer service. RBT helps in understanding how a firm's resources impact its position in the market and how this positioning affects sales volume and pricing strategies (Bottazzi & Thomas, 2016). Firms can make more strategic decisions about resource allocation. Understanding which resources contribute most to variances can guide future investments in assets or capabilities. Insights from RBT can direct operational adjustments to leverage strengths or address weaknesses revealed through variance analysis (Ali et al., 2017). Variance analysis informed by RBT can provide valuable feedback on the effectiveness of resource development and management strategies, helping firms to refine their approaches to resource acquisition and utilization. Integrating resource-based theory into variance analysis not only provides a deeper understanding of financial outcomes but also aligns financial management practices with strategic management objectives. This holistic approach helps managers not just to explain past performance variances but to actively use these insights to enhance competitive advantage and achieve superior future performance.

3. Review of Prior Studies

Hung et al., (2023) aimed to critically explore and assess the applicability of using standard costing and variance analysis as management accounting tools in today's varied worldwide industries. By compiling the findings from various scholars and researchers, this article primarily examines what standard costing methods and variance analysis are, as well as their advantages, limitations, and usefulness. Moreover, the proposed research framework on the motivation of industries in standard costing technique adoption and recommendations were added for future research purposes in this article. As a result, the article successfully concluded that standard costing techniques and variance analysis were relevant and crucial management accounting tools for industries today.

Ali Momoh et al. (2022) examined the effect of overhead cost variance, labour cost as well as material cost variance on asset return of listed consumer goods firms in Nigeria. The study adopted an ex-post-facto research design and secondary data was gathered to analyze the relationship between the variables. Robust regression model was employed to test the effect of variance analysis. The study revealed that variance analysis has a significant statistical link with the financial performance of listed consumer goods firms in Nigeria. Inference statistics were used to corroborate the presence of a significant impact at a p-value of less than 5%, lending credence to this position.

Al-Shattarat et al. (2021) investigated the impact of the standard costing system on the performance of industrial companies in Jordan. The study population was selected from 47

industrial companies listed in the Amman Financial Market, a sample of 40 companies was selected for this study, and the questionnaire was adopted as a tool for this study. The results showed that there is a positive relationship between the standard costs and the performance of industrial companies in Jordan. The results suggest that the shareholders and management should learn from the current study that they are responsible for determining the level of performance by using modern methods in management accounting and cost accounting, which would achieve greater profitability for the company and thus improve its performance.

Sil (2021) explored how standard costing could be effectively used in even small-scale industries. With the emergence of modern scientific accounting systems, few experts have placed their opinion against standard costing, marking it as obsolete and dysfunctional. But the outcome of this study has shown that the application of standard costing as modern management tools is still very much acceptable and in vogue. The lack of proper knowledge of standard costing is the only perceived hindrances in using and applying the same. Like any evolving field, this must be applied scientifically to fetch the maximum benefit.

Tabitha and Ogungbade (2016) reviewed the literature on cost accounting techniques being practiced by manufacturing and service industry within the last decade. In contrast to the postulations of many academic authors that the traditional techniques have lost relevance and should be discontinued, this review shows that traditional techniques including the heavily criticized Standard Costing, Absorption Costing and Marginal Costing were still used frequently by many companies within the last decade. The modern costing techniques used frequently within last decades include Just in Time principle, Activity Based Costing, Target Costing, Life Cycle Costing, Kaizen Costing and Throughput Accounting.

4. Conclusion and Policy Recommendations

Variance analysis is critical in assessing performance deviations from planned budgets and guiding strategic decisions. Specifically, the paper aimed to determine how effectively leveraging variance analysis can lead to improved strategic decisions, better resource allocation, and enhanced cost management. The study concluded that utilizing variance analysis in manufacturing allows companies to increase operational effectiveness and manage costs more efficiently, establishing a strong base for ongoing competitive success. The research holds that variance analysis is not only a tool for assessing performance but also a critical element in facilitating complex decision-making processes in contemporary manufacturing settings. Based on the above conclusion, the study makes the following recommendations.

Companies should ensure that the data used in variance analysis is accurate, timely, and complete. The effectiveness of variance analysis significantly depends on the quality of data. Implementing robust data collection systems and ensuring data integrity is essential for reliable analysis. In addition, entities are to offer ongoing training and development for staff involved in the budgeting and variance analysis processes. This training should cover not only technical skills on how to perform variance analysis but also analytical skills to interpret the results effectively.

There is need for corporate organizations to integrate variance analysis processes with business intelligence (BI) and analytics tools. These tools can automate data collection and analysis, providing real-time insights and enhancing the decision-making process by presenting data in an easily digestible format. Also, firm should develop a culture of using variance analysis not just for accountability but also for continuous improvement. This will help encourage teams to analyse the root causes of variances and develop strategies to improve processes and performance.

By implementing these recommendations, companies can greatly enhance the effectiveness of their variance analysis and make more informed, strategic decisions that drive business success.

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