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RESEARCH ARTICLE

Modern Management Accounting Mechanisms in Achieving Competitive Advantage

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ABSTRACT

The aim of this study was to examine modern management accounting mechanisms in achieving competitive advantage. The research is applied in nature and analytical in terms of data analysis methodology, utilizing structural equation modeling (SEM). The statistical population comprised financial managers, management accounting managers, and management accounting experts from companies across the city of ..... in 1403 (2024), covering over forty industries. A sample size of 162 individuals was determined. Data collection was conducted through a researcher-designed questionnaire featuring items based on a 7-point Likert scale. Data analysis was performed in two stages. In the first stage, descriptive statistics were used to evaluate the demographic characteristics of the sample population. In the second stage, the construct validity of the research variables and their derived indicators were assessed through confirmatory factor analysis (CFA). Hypotheses were tested using SEM, which integrates path analysis and CFA. The results revealed the following determination coefficients for various management accounting methods:Strategic management accounting: 0.58, Balanced scorecard: 0.67, Activity-based budgeting: 0.31, Economic value-added: 0.57, Product lifecycle accounting: 0.63 Based on the squared coefficients, the variance in competitive advantage explained by these methods was as follows:Strategic management accounting: 34%, Balanced scorecard: 41%, Activity-based budgeting: 17%, Economic value-added: 37%, Product lifecycle accounting: 43% . The F-statistics obtained for these methods were significant at an alpha level below 0.001, with values as follows: Strategic management accounting: 40.99, Balanced scorecard: 39.01, Activity-based budgeting: 38.43, Economic value-added: 40.34, Product lifecycle accounting: 38.74. These findings indicate that the model exhibits good fit. It can be concluded that strategic management accounting, balanced scorecard, activity-based budgeting, economic value-added, and product lifecycle accounting significantly impact competitive advantage

INTRODUCTION

In today's competitive environment, an organization's ability to outperform a multitude of small and large competitors has become a key factor for success in the business landscape. Competitive advantage is defined as the distinct attributes or dimensions of an organization that enable it to provide superior services to customers compared to its competitors (Li & Liu, 2018). This allows businesses to maximize their resources, enhance the potential value of the company, and improve intangible assets. Competitive advantage can lead to improved performance, increased market share, and accelerated product development (Don et al., 2019).

The theory of competitive advantage, which gained traction in the 1960s at Harvard University, emphasizes the impact of environmental factors on company strategies. It asserts that companies operating in the same industry, employing similar strategies, and utilizing the same data will achieve identical outcomes. Consequently, achieving competitive advantage under these conditions becomes challenging. A business achieves competitive advantage when it creates unique and superior value compared to its competitors (Najat & Karimi Khozai, 2020). Competitive advantage is often associated with strategies that either reduce costs or enhance differentiation, enabling organizations to outperform competitors and lead in competitive markets.

Competitive advantage is directly linked to customer-perceived value. The closer a company's products and services align with customer expectations, the more competitive the company becomes in one or more dimensions (Mehri & Khodadad, 2004). It encompasses unique capabilities or a combination of factors that provide a business with superiority over its competitors, particularly because these capabilities are not easily replicable by others. Therefore, organizations must focus on both external environmental factors and internal capabilities to create more value and achieve goals such as financial performance improvement and market share growth (Azadbakht & Khani, 2017).

Globalization, knowledge-driven economies, shorter product life cycles, and intensified competition have introduced new challenges for managers. As a result, managers now require a blend of traditional accounting information (historical and financial) with non-financial, forward-looking data for planning, decision-making, and control processes to sustain competitive advantage and enhance organizational performance (McManus, 2013). Traditional management accounting systems, which rely on budgeting, cost analysis, and profitability metrics, are no longer adequate for achieving competitive advantage. New mechanisms, such as strategic management accounting, play a vital role in providing market, supplier, competitor, and customer insights that serve as the foundation for competitive analysis.

Strategic management accounting also offers critical and forward-looking information for strategic planning. As emphasized by Weir (2014), quality is a crucial competitive advantage, requiring companies to deliver products that meet customer needs and expectations. Companies failing to do so cannot survive or succeed in competitive markets. Clabby and Sharaee (2021) highlighted that competitive advantage in the fast-moving consumer goods sector depends significantly on external factors, especially for entering international markets. Their quantitative analysis revealed that market turbulence (25%) and competition intensity (23%) indirectly influence competitive advantage positively, while innovation speed (41%) and operational flexibility (29%) directly contribute to it. Creative destruction further moderates the relationship between innovation speed and competitive advantage by 26%.

According to Ameri Pour (2022), competitive advantage refers to a company's ability to develop and implement strategies that leverage available technical, physical, financial, and organizational resources to gain a better position relative to competitors. Consequently, transitioning management accounting from traditional to strategic approaches is crucial for contemporary organizations to make informed strategic decisions, enhance performance, and sustain competitive advantage.

Modern management accounting systems must support strategies that prioritize quality, timely delivery, after-sales services, cost management, and product differentiation. Traditional focuses, such as cost reduction and mass production, have shifted to meet customer needs more dynamically and effectively.

2. RESEARCH METHODOLOGY

This study is applied in nature, as it examines modern management accounting mechanisms in achieving competitive advantage. It is an analytical research in terms of methodology, utilizing structural equation modeling (SEM) for analysis. The statistical population of this research includes financial managers, management accounting managers, and management accounting experts from companies in the city of ..... across over forty industries in 1403 (2024).

Given the unknown population size and the uncertain variance of the population, Cohen's formula was used to determine the sample size. Using Cohen's formula, a sample of 162 individuals was determined. To ensure the collection of at least 170 usable questionnaires, 170 questionnaires were distributed among the sample members. Of the 170 distributed questionnaires, three were not returned, and five were found to be incomplete. As a result, 162 usable questionnaires were included in the analysis.

To ensure the adequacy of the collected questionnaires and to avoid bias from unreturned or invalid responses, a comparison was made between 25% of the collected questionnaires at the beginning of the process and 25% at the end of the data collection process. The results of this comparison showed no significant difference between the average responses of the sample members to the questionnaire items in the first and last quartiles.

The data collection tool used in this research was a researcher-designed questionnaire, consisting of items formulated on a 7-point Likert scale.

In this study, a questionnaire was used to measure the theoretical model. Through reviewing articles and books, several models were identified, which were refined with the help of the opinions of advisors and experts to create the final model. After further revisions with the guidance of professors, the initial questionnaire was adjusted to ensure its validity before distribution to the study population. This process resulted in the final version of the questionnaire. The questions regarding modern management accounting mechanisms consisted of 32 items, and the competitive advantage section included 8 items.

For the design of the questionnaire, indicators from credible academic articles were used. The first section, which covers modern management accounting mechanisms, was adapted from the works of Hoffkebring and Schroll (2010). The second section, related to competitive advantage, was based on the research of Hill and Jones (2008).

Table 1: Cronbach's Alpha Coefficients

Variables	Cronbach's Alpha	Dimensions	Cronbach's Alpha
Modern Management Accounting Mechanisms	0.913	Strategic Management Accounting	0.703
		Balanced Scorecard Accounting	0.810
		Activity-Based Budgeting	0.878
		Economic Value Added Accounting	0.747
		Product Lifecycle Accounting	0.708
Competitive Advantage	0.874	-	-

Given that the Cronbach's alpha values are above 0.7, it can be concluded that all the variables in this study exhibit acceptable reliability.

1-2-Data Analysis Method

The analysis of the collected data was carried out in two stages. In the first stage, descriptive statistics were used to examine the demographic characteristics of the sample members. Gender, age, education level, and work experience within the organization were the aspects addressed in this part of the analysis. In the second stage, inferential statistics were applied to analyze the data. Various statistical tests were used, including the Kolmogorov-Smirnov test for normality and Pearson correlation coefficient to examine the relationships between the research variables.

Next, the construct validity of the research variables and their derived indicators was evaluated through confirmatory factor analysis (CFA). Hypotheses were then tested using structural equation modeling (SEM), which combines path analysis and CFA.

3-Research Findings

To assess the normality of the data distribution, the Kolmogorov-Smirnov statistical test was used, and the results are presented in Table 2.

Table 2: Testing the Normality of Variables

Variable	Subscale	K-S Statistic	Degrees of Freedom	Significance
Strategic Management Accounting	Costing	0.19	162	0.001
	Planning, Control, and Performance	0.21	162	0.001
	Strategic Decision Making	0.09	162	0.002
	Competitor Costs	0.10	162	0.001
	Customer Accounting	0.19	162	0.002
Balanced Scorecard Accounting	Financial Indicator	0.26	162	0.001
	Customer Indicator	0.18	162	0.001
	Internal Process Indicator	0.24	162	0.001
	Growth and Learning Indicator	0.22	162	0.001
Activity-Based Budgeting	Price-based Costing	0.25	162	0.001
	Customer Orientation	0.21	162	0.001
	Focus on Process Design	0.14	162	0.001
	Systemic Collaboration	0.14	162	0.001
	Orientation within Product Life Cycle	0.16	162	0.001
	Participation in Value Chain	0.18	162	0.001
Economic Value Added Accounting	Economic Value Added Profit	0.33	162	0.001
Product Lifecycle Accounting	Customer Characteristics & Expectations	0.18	162	0.001
	Quality of Accounting Information System	0.11	162	0.001
	Organizational Culture	0.11	162	0.001
	Increase in Non-Production Costs in the Value Chain	0.21	162	0.001
	Implementation of Target Costing System	0.24	162	0.001

Table 3 shows that, based on the Kolmogorov-Smirnov test, the data do not follow a normal distribution. However, given the skewness and kurtosis values for each variable, it can be assumed that the distribution is normal. Moreover, in linear regression analysis, the normality of the data distribution is not a strict requirement; rather, the normality of residuals is essential.

General Hypothesis: Modern management accounting mechanisms impact competitive advantage.Before testing this hypothesis using multiple regression analysis, the assumptions were examined, including the linear correlation between the variables, the absence of multicollinearity among predictor variables, and the independence of errors.

The results of the correlation analysis between the three main variables of the study are presented in Table 3.

Table 3: Correlation Between Research Variables

Variables	Strategic Management Accounting	Balanced Scorecard Accounting	Activity-Based Budgeting	Economic Value Added Accounting	Product Lifecycle Accounting
Strategic Management Accounting	1				
Balanced Scorecard Accounting	0.57**	1			
Activity-Based Budgeting	0.29**	0.36**	1		
Economic Value Added Accounting	0.26**	0.18**	0.15**	1	
Product Lifecycle Accounting	0.03	0.12**	0.37**	0.27**	1

Correlation is significant at the 0.01 level

Table (3) The results of the correlation analysis between the main research variables are presented using Pearson's correlation coefficient. The findings indicate that the Balanced Scorecard Accounting variable has a significant correlation of 0.57 with the Competitive Advantage variable. Additionally, the Balanced Scorecard Accounting variable (correlation coefficient = 0.29), Economic Value Added Accounting (correlation coefficient = 0.26), and Product Lifecycle Accounting (correlation coefficient = 0.03) all show significant correlations with the competitive advantage criterion variable at the 0.01 significance level. Therefore, the assumption of correlation between the predictor variables and the criterion is supported.

The next assumption relates to the absence of multicollinearity between the predictor variables: Strategic Management Accounting, Balanced Scorecard Accounting, Activity-Based Budgeting, Economic Value Added Accounting, and Product Lifecycle Accounting, and the criterion variable, Competitive Advantage. This was tested using two statistics: tolerance and variance inflation factor (VIF). The results are provided in Table (4)

Table 4: Testing for Multicollinearity Between Predictor Variables

Variable	Tolerance	Variance Inflation Factor (VIF)
Strategic Management Accounting	0.87	1.14
Balanced Scorecard Accounting	0.978	1.02
Activity-Based Budgeting	0.845	1.18
Economic Value Added Accounting	0.865	1.16
Product Lifecycle Accounting	0.546	1.83

Table(4) indicates that the minimum tolerance value for each predictor variable in relation to the competitive advantage criterion variable is above 0.1, and the variance inflation factor (VIF) for each of the predictor variables is below 10. As a result, it can be concluded that there is no significant multicollinearity or strong correlation among the predictor variables.

The final assumption, which is the independence of errors, was tested using the Durbin-Watson statistic, with a value of 1.45 obtained. Since this value falls within the acceptable range of 1 to 3, it confirms that this assumption is also satisfied.

A summary of the regression model for modern management accounting mechanisms in achieving competitive advantage is provided in Table 4-12.

Table 5: Summary of the Regression Model Predicting Modern Management Accounting Mechanisms in Achieving Competitive Advantage

Model	R	R^2	Adjusted R^2	Standard Error Estimate
Strategic Management Accounting	0.58	0.34	0.33	8.09
Balanced Scorecard Accounting	0.67	0.41	0.39	7.63
Activity-Based Budgeting	0.31	0.17	0.25	8.14
Economic Value Added Accounting	0.57	0.37	0.38	9.03
Product Lifecycle Accounting	0.63	0.43	0.46	8.54

The determination coefficients for the methods of modern management accounting are as follows: Strategic Management Accounting (0.58), Balanced Scorecard Accounting (0.67), Activity-Based Budgeting (0.31), Economic Value Added Accounting (0.57), and Product Lifecycle Accounting (0.63). Based on their squared values, Strategic Management Accounting predicts 34% of the variation in competitive advantage, Balanced Scorecard Accounting predicts 41%, Activity-Based Budgeting predicts 17%, Economic Value Added Accounting predicts 37%, and Product Lifecycle Accounting predicts 43%.

Table (6) reports the results of the analysis of variance (ANOVA) used to evaluate the fit of the regression model.

Table 6: Results of the Analysis of Variance for Predicting Modern Management Accounting Mechanisms in Achieving Competitive Advantage

	Model	Sum of Squares	Degrees of Freedom	Mean Square	F-Statistic	Significance Level
Strategic Management Accounting	Regression	5374.57	2	2687.29	40.99	0.001
	Residual	10421.64	159	65.54	--	--
	Total	15796.21	161	--	--	--
Balanced Scorecard Accounting	Regression	5341.43	2	2365.14	39.01	0.001
	Residual	10314.01	159	54.36	--	--
	Total	15655.44	161	--	--	--
Activity-Based Budgeting	Regression	5841.57	2	2014.17	38.43	0.001
	Residual	10574.64	159	63.74	--	--
	Total	16415.78	161	--	--	--
Economic Value Added Accounting	Regression	5350.74	2	2841.11	40.34	0.001
	Residual	10358.64	159	66.34	--	--
	Total	15709.38	161	--	--	--
Product Lifecycle Accounting	Regression	5874.57	2	2693.01	38.74	0.001
	Residual	10756.64	159	58.31	--	--
	Total	16631.21	161	--	--	--

Based on the results in Table(6), the F-statistic for Strategic Management Accounting (40.99), Balanced Scorecard Accounting (39.01), Activity-Based Budgeting (38.43), Economic Value Added Accounting (40.34), and Product Lifecycle Accounting (38.74) are all statistically significant at the alpha level less than 0.001. Therefore, the model is well-fitted.

The regression coefficients for predicting modern management accounting mechanisms in achieving competitive advantage are reported in Table 7.

Table 7: Regression Coefficients for Predicting Modern Management Accounting Mechanisms in Achieving Competitive Advantage

Predictor Variables	Unstandardized Coefficients		Standardized	t	Significance Level
	B	Standard Deviation	Beta Coefficient (β)		
Constant	75.14	7.87		9.54	0.001
Strategic Management Accounting	0.88	0.11	0.54	7.82	0.001
Balanced Scorecard Accounting	0.13	0.09	0.10	1.44	0.001
Activity-Based Budgeting	0.96	0.41	0.87	6.34	0.001
Economic Value Added Accounting	0.76	0.39	0.77	6.87	0.15
Product Lifecycle Accounting	0.85	0.19	0.36	6.76	0.001

Based on the findings from Table (7), it can be concluded that the variables Strategic Management Accounting, Balanced Scorecard Accounting, Activity-Based Budgeting, Economic Value Added Accounting, and Product Lifecycle Accounting all have an impact on competitive advantage.

Sub-Hypothesis 1:Strategic Management Accounting can influence the competitive advantage of a company.

The correlation matrix between Strategic Management Accounting and its components is presented in Table (8).

Table 8: Correlation Matrix of Strategic Management Accounting and Its Components

Variable	Components	Indicators	Competitive Advantage
Strategic Management Accounting	Total Score	Correlation Coefficient	0.57
		Significance	0.001
	Costing	Correlation	0.54
		Coefficient	0.001
	Planning, Control, and Performance Measurement	Correlation	0.43
		Coefficient	0.001
	Strategic Decision Making Competitor Costs		
		Correlation	0.53
		Coefficient	0.001

	Customer Accounting	Correlation	0.28
		Coefficient	0.001

Based on the findings in Table 8, all components of Strategic Management Accounting have a significant direct relationship with both the total score and competitive advantage. The strongest relationship is between the total score of Strategic Management Accounting and competitive advantage, with a correlation coefficient of 0.57, which is considered a moderate correlation.

Sub-Hypothesis 2:Balanced Scorecard Accounting can influence the competitive advantage of a company.

The correlation matrix between Balanced Scorecard Accounting and its components with competitive advantage is presented in Table (9).

Table 9: Correlation Matrix of Balanced Scorecard Accounting and Its Components with Competitive Advantage

Variable	Components	Indicators	Competitive Advantage
Strategic Management Accounting	Total Score	Correlation Coefficient	0,65
		Significance	0.001
	Financial Perspective	Correlation	0,45
		Coefficient	0.001
	Customer Perspective	Correlation	0,39
		Coefficient	0.001
	Internal Process Perspective		
		Correlation	0.75
		Coefficient	0.001
	Growth and Learning Perspective	Correlation	0.68
		Coefficient	0.008

Based on the findings in Table 9, all components of Balanced Scorecard Accounting show a significant direct relationship with both the total score and competitive advantage. Among them, the strongest relationship is between the Internal Process Perspective and competitive advantage, with a correlation coefficient of 0.75, which is considered a strong relationship.

Sub-Hypothesis 3: Activity-Based Budgeting can influence the competitive advantage of a company.

The correlation matrix between Activity-Based Budgeting and its components with competitive advantage is presented in Table 10.

Table 10: Correlation Matrix of Activity-Based Budgeting and Its Components with Competitive Advantage

Variable	Components	Indicators	Competitive Advantage
Activity-Based Budgeting	Total Score	Correlation Coefficient	0.62
		Significance	0.001
	Price-Based Costing	Correlation Coefficient	0.48
		Significance	0.001
	Customer Orientation	Correlation Coefficient	0.36
		Significance	0.001
	Focus on Process Design	Correlation Coefficient	0.29
		Significance	0.001
	Systemic Collaboration	Correlation Coefficient	0.33
		Significance	0.001
	Orientation within Product Life Cycle	Correlation Coefficient	0.22
		Significance	0.005
	Participation in the Value Chain	Correlation Coefficient	0.13
		Significance	0.09

Based on the findings in Table 10, all components of Activity-Based Budgeting have a significant relationship with competitive advantage, with the strongest relationship being between the total score and competitive advantage, which has a correlation coefficient of 0.62, considered a moderate correlation.

Sub-Hypothesis 4: Economic Value Added Accounting can influence the competitive advantage of a company.

The correlation matrix between Economic Value Added Accounting and its components with competitive advantage is presented in Table 11.

Table 11: Correlation Matrix of Economic Value Added Accounting and Its Components with Competitive Advantage

Variable	Components	Indicators	Competitive Advantage
Economic Value Added Accounting	Total Score	Correlation Coefficient	0.29
		Significance	0.001
	Economic Value Added Profit	Correlation Coefficient	0.36
		Significance	0.001

Based on the findings in Table 11, the components of Economic Value Added Accounting have a significant relationship with competitive advantage.

Sub-Hypothesis 5: Product Lifecycle Accounting can influence the competitive advantage of a company.

The correlation matrix between Product Lifecycle Accounting and its components with competitive advantage is presented in Table 4-20.

Table 12: Correlation Matrix of Product Lifecycle Accounting and Its Components with Competitive Advantage

Variable	Components	Indicators	Competitive Advantage
Product Lifecycle Accounting	Total Score	Correlation Coefficient	0.54
		Significance	0.001
	Customer Characteristics & Expectations	Correlation Coefficient	0.30
		Significance	0.001
	Quality of Accounting Information System	Correlation Coefficient	0.21
		Significance	0.007
	Organizational Culture	Correlation Coefficient	0.52
		Significance	0.001
	Increase in Non-Production Costs in the Value Chain	Correlation Coefficient	0.20
		Significance	0.008
	Implementation of Target Costing System	Correlation Coefficient	0.25
		Significance	0.001

Based on the findings in Table 12, all components of Product Lifecycle Accounting have a significant relationship with competitive advantage, with the strongest relationship being between the Total Score and competitive advantage, which has a correlation of 0.54, considered a moderate correlation.

1-3. Results of Confirmatory Factor Analysis for the Strategic Management Accounting Dimension

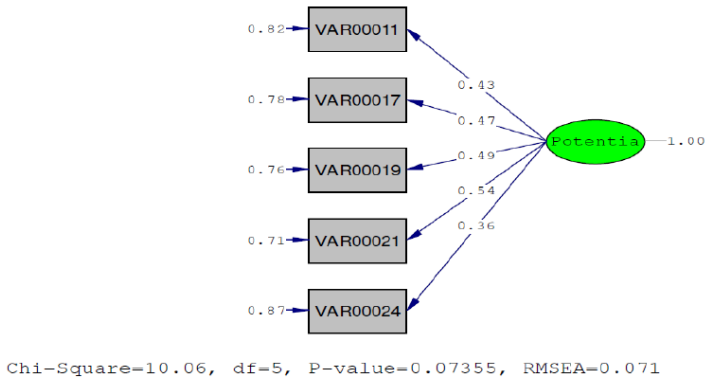

Figure 1: Standard Estimation Model for the Strategic Management Accounting Dimension

The Standard Estimation Model is a model derived from the comparison of two covariance matrices: the model's data matrix and the actual parameter estimations. The standardized coefficients represent the path coefficients or the standardized factor loadings between the latent factors and their indicators. For validity, there must be a significant correlation between the construct and its dimensions, as well as between the dimensions and their indicators. If the correlation is higher than 0.3, it indicates that the questions have a good explanatory power.

However, if an indicator has a standardized coefficient lower than 0.3, it should not be immediately discarded. Instead, attention should be paid to the T-Value of the model. If the T-Value is less than 1.96, the parameter is not significant and should be removed from the model. If the parameter is significant, and other fit indices for the model are acceptable, there is no need to eliminate the indicator.

Therefore, in the Strategic Management Accounting dimension, among the indicators—including Costing (Q11), Planning, Control, and Performance Measurement (Q17), Strategic Decision Making (Q19), Competitor Costs (Q21), and Customer Accounting (Q24)—the Customer Accounting (Q24) indicator has the highest correlation with competitive advantage.

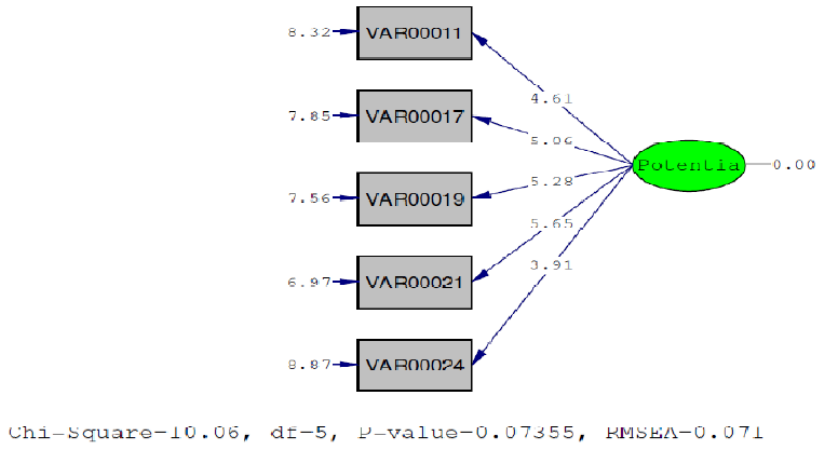

Figure 2: T-Value Model for the Strategic Management Accounting Dimension

The T-Value Model indicates the significance of each parameter. If the value of the T-Value is greater than the absolute value of 1.96, the model parameters are considered significant. Since the T-Values for all indicators in the model are greater than 1.96, it can be concluded that all indicators have a significant effect on the Strategic Management Accounting dimension, and their relationships are confirmed.

Table 13: Goodness-of-Fit Indices for the Strategic Management Accounting Dimension

Index	**Value**
X^2/df	1.36
RMSEA	0.043
RMR	0.02
NFI	0.93
NNFI	0.98
CFI	0.99
GFI	0.99
AGFI	0.97

Based on the fact that the absolute t-values for all the indicators in the model are greater than 1.96, it can be concluded that all the indicators have a significant effect on competitive advantage, and their relationships are confirmed.

2-3. Results of Confirmatory Factor Analysis for the Balanced Scorecard Method

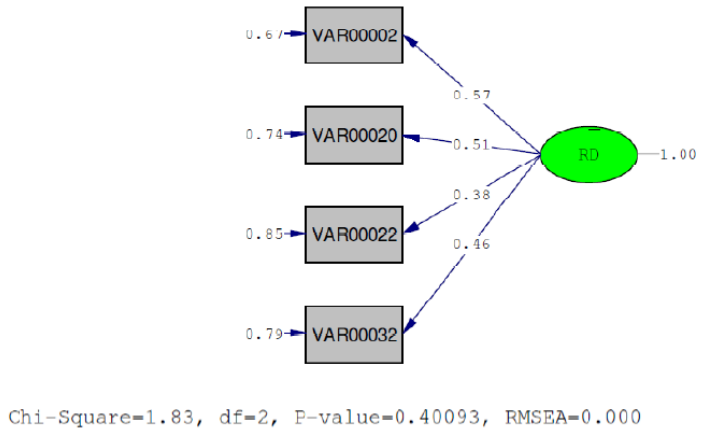

Figure 3: Standard Estimation Model for the Balanced Scorecard Method

Given that all the standardized coefficients are above 0.30, it can be concluded that all the questions have relatively good explanatory power. Among the indicators of the Balanced Scorecard Method, which include the Financial Perspective (Q2), Customer Perspective (Q20), Internal Process Perspective (Q22), and Growth and Learning Perspective (Q32), the Internal Process Perspective (Q22) has the highest correlation with competitive advantage.

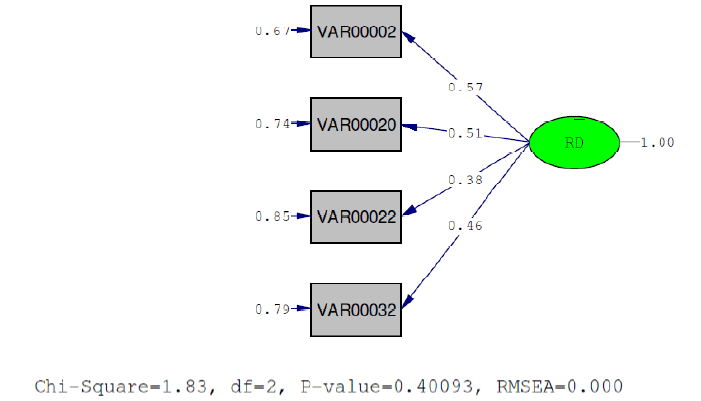

Figure 4: T-Value Model for the Balanced Scorecard Method

Given that the T-Values for all the indicators in the model are greater than 1.96, it can be concluded that all the indicators significantly affect competitive advantage, and their relationships are confirmed.

Table 14: Goodness-of-Fit Indices for the Balanced Scorecard Method

Index	Value
X^2/df	0.915
RMSEA	0.000
RMR	0.014
NFI	0.97
NNFI	1.00
CFI	1.00
GFI	1.00
AGFI	0.98

Based on the goodness-of-fit indices presented in Table 14, all the fit indices in this model are within the acceptable range, confirming that the model has a good fit.

3-3. Results of Confirmatory Factor Analysis for the Activity-Based Budgeting Method

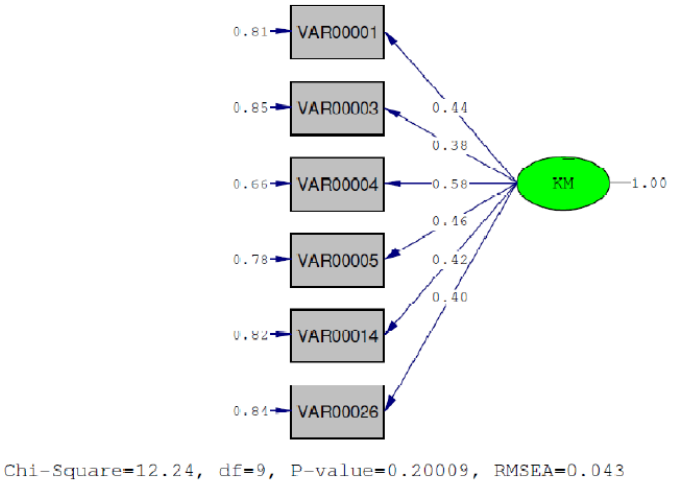

Figure 5: Standard Estimation Model for the Activity-Based Budgeting Method

Among the indicators of Activity-Based Budgeting, which include Price-Based Costing (Q1), Customer Focus (Customer Orientation) (Q3), Focus on Process Design (Q4), Inter-unit Performance (Systemic Collaboration) (Q5), Orientation within Product Life Cycle (Q14), and Participation in the Value Chain (Q26), the Customer Focus (Customer Orientation) (Q3) indicator has the highest correlation with competitive advantage

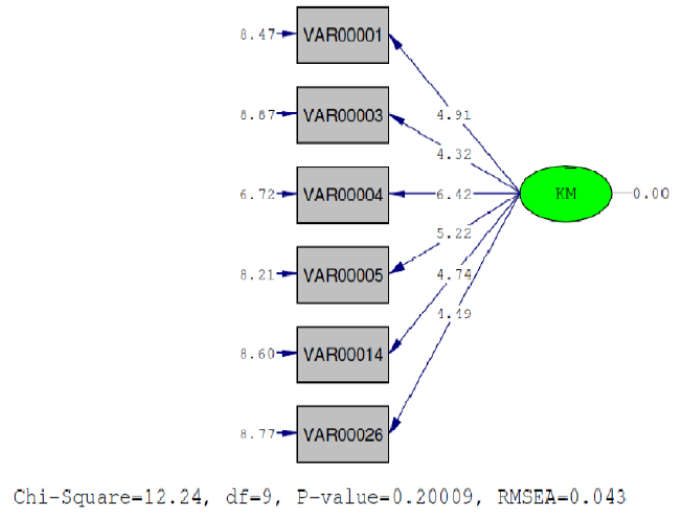

Figure 6: T-Value Model for the Activity-Based Budgeting Method

Given that the T-Values for all the indicators in the model are greater than 1.96, it can be concluded that all the indicators significantly affect competitive advantage, and their relationships are confirmed.

Table 15: Goodness-of-Fit Indices for the Activity-Based Budgeting Method

Index	Value
X^2/df	0.000
RMSEA	0.000

RMR	0.014
NFI	0.95
NNFI	1.00
CFI	1.00
GFI	1.00
AGFI	0.98

Based on the goodness-of-fit indices presented in Table 15, all the fit indices are within the acceptable range, confirming that the model has a good fit.

4-3. Results of Confirmatory Factor Analysis for the Economic Value Added Accounting Method

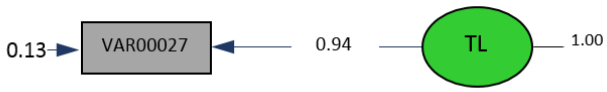

Figure 7: Standard Estimation Model for the Economic Value Added Accounting Method

Among the indicators of the Economic Value Added Accounting method, Economic Value Added Profit shows a correlation with competitive advantage.

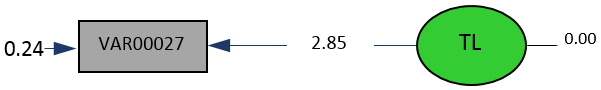

Figure 8: T-Value Model for the Economic Value Added Accounting Method

Given that the absolute T-Value for the model's indicator is greater than 1.96, it can be concluded that the Economic Value Added Profit indicator has a significant effect on competitive advantage, and their relationship is confirmed.

Table 16: Goodness-of-Fit Indices for the Economic Value Added Accounting Method

Index	**Value**
X^2/df	0.000
RMSEA	0.000
RMR	0.011
NFI	0.99
NNFI	1.00
CFI	1.00
GFI	0.99
AGFI	0.98

Based on the goodness-of-fit indices presented in Table 16, all the fit indices are within the acceptable range, confirming that the model has a good fit.

5-3. Results of Confirmatory Factor Analysis for the Product Lifecycle Accounting Method

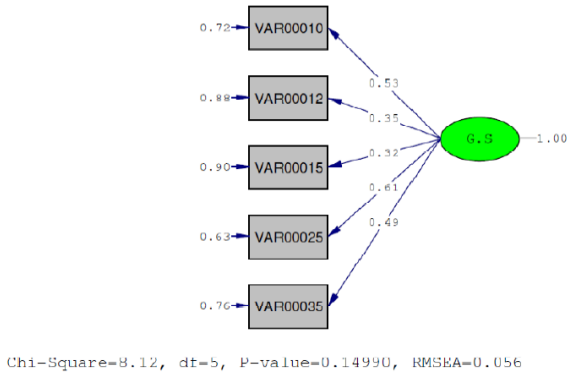

Figure 9: Standard Estimation Model for the Product Lifecycle Accounting Method

Among the indicators of Product Lifecycle Accounting, which include Customer Characteristics and Expectations (Q10), Quality of Accounting Information System (Q12), Organizational Culture (Q15), Increase in Non-Production Costs in the Value Chain (Q25), and Implementation of Target Costing System (Q35), the Organizational Culture (Q15) indicator has the highest correlation with competitive advantage in the company.

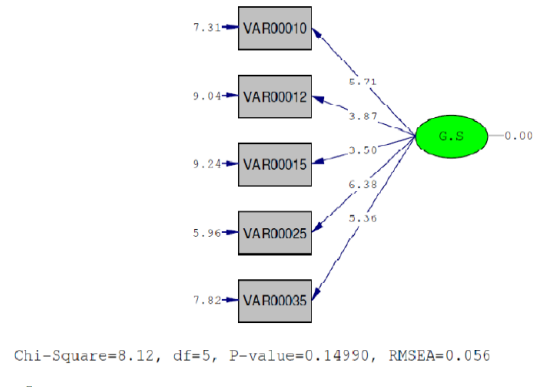

Figure 10: T-Value Model for the Product Lifecycle Accounting Method

Given that the absolute T-Values for all the indicators in the model are greater than 1.96, it can be concluded that all the indicators significantly affect competitive advantage in the company, and their relationships are confirmed.

Table 17: Goodness-of-Fit Indices for the Product Lifecycle Accounting Method

Index	Value
X^2/df	1.68
RMSEA	0.059
RMR	0.032
NFI	0.91
NNFI	0.92
CFI	0.94
GFI	0.97
AGFI	0.94

Based on the goodness-of-fit indices presented in Table 17, all the fit indices fall within the acceptable range, confirming that the model has a good fit.

4-DISCUSSION AND CONCLUSION

General Hypothesis: New management accounting mechanisms affect competitive advantage. The coefficient of determination for strategic management accounting is 0.58, balanced scorecard accounting is 0.67, activity-based budgeting accounting is 0.31, economic value-added accounting is 0.57, and product life cycle accounting is 0.63. Based on their squares, strategic management accounting predicts 34% of the changes in competitive advantage, balanced scorecard accounting predicts 41%, activity-based budgeting predicts 17%, economic value-added accounting predicts 37%, and product life cycle accounting predicts 43%. The F-values for strategic management accounting are 40.99, balanced scorecard accounting is 39.01, activity-based budgeting is 38.43, economic value-added accounting is 40.34, and product life cycle accounting is 38.74, all significant at an alpha level of less than 0.001. Therefore, the model has good fit. It can be said that strategic management accounting, balanced scorecard accounting, economic value-added accounting, and product life cycle accounting affect competitive advantage.

In explaining these findings, it can be said that the use of new management accounting methods can enable organizations to capitalize on external opportunities by creating internal strength and fostering competitive conditions, which ultimately leads to improved performance. Implementing new cost management methods leads to effective cost management, which, in turn, improves performance through providing accurate accounting information. Modern management accounting methods are equipped to offer more useful and relevant information, which can enhance decision-making and improve performance. These methods provide accurate and transparent information, which helps managers make better decisions, ensuring higher performance. The application of modern management accounting methods can offer clearer and more precise data on the options available for managers to make decisions, identify costs more effectively, and thus improve internal control and decision-making, leading to enhanced organizational performance. These findings align with the research by Ganji and Nayebzadeh (2016), Masinati and Ansi Pessina (2020), Henry (2019), Keely (2018), and Elmari (2015).

First Sub-Hypothesis: Strategic management accounting can affect a company's competitive advantage.

All components of strategic management accounting have a significant positive relationship with competitive advantage, with the strongest relationship being between the overall score of strategic management accounting and competitive advantage, with a coefficient of 0.57, which is moderate. Theoretically, many authors link strategic management accounting to aspects of competitive advantage (e.g., Chenhall and Langfield, Smith 1998; Chiucci, 2013; Sinquini and Tenuchi, 2010; Hiller et al., 2014; Hilton 2019, Kaplan and Norton 2016; McManus, 2013; Nixon and Burns, 2022; Roslander and Hart, 2020). They argue that strategic management accounting is an important source of strategic information for planning, decision-making, and control, which in turn influences the achievement of competitive advantage. Hilton (2014) argued that strategic management accounting helps organizations achieve alignment between management accounting and organizational strategic objectives, providing the necessary facilities to achieve competitive advantage. Strategic management accounting plays a crucial role in identifying and evaluating competitive strategies, leading to higher performance and competitive advantages. According to McManus (2019), achieving and maintaining competitive advantages requires not only internal, financial, historical information but also non-financial and future-oriented information. Traditional management accounting methods (e.g., budgeting, cost allocation, profitability analysis) do not provide suitable solutions for gaining competitive advantages. Strategic management accounting plays a key role in providing information on markets, suppliers, competitors, and customers. This external information forms the basis for analyzing competitive positioning. Furthermore, strategic management accounting can provide internal information about organizational resources and capabilities, supporting external competitive foundations (Tils et al., 2018). According to Ago et al. (2016), the transformation of management accounting into a

strategic approach is crucial for achieving sustainability in a competitive environment and is essential for gaining sustainable competitive advantage.

There are two complementary and unique models for conceptualizing competitive advantage: the market-based model and the resource-based model (Ejrami et al., 2019). The market-based model includes variables such as cost, differentiation, efficiency, competitor evaluation, threats, and risk analysis. The resource-based model, on the other hand, focuses on all the resources belonging to the company, whether physical or financial, which can be transferred and developed internally (Kouranki, 2016). Both models of competitive advantage—external (strategic management accounting) and internal—highlight the ability of management accounting to provide critical market information and accurate future predictions, forming the foundation for increasing a company's competitive advantage.

Second Sub-Hypothesis: Balanced scorecard accounting can affect a company's competitive advantage.

All components of balanced scorecard accounting have a significant positive relationship with competitive advantage, with the strongest relationship between the internal process dimension and competitive advantage, with a coefficient of 0.75, which is high. The findings of this hypothesis align with the research of Baralaji et al. (2021), Khonerg Herwi and Krin Fok (2020), Kazada et al. (2019), Budiar et al. (2018), Dehlia et al. (2017), Shen et al. (2015), Yeter and Imkhche (2014), Alhoke (2013), Sarodani (2012), Zarai (2021), Alavi (2020), Sadeghi (2019), Qasemi (2018), Ali Akharkhani (2017), Asgari (2016), confirming the research background of the hypotheses proposed. These findings highlight the importance of using the balanced scorecard in the public sector for enhancing the effectiveness of accounting information systems, encouraging managers of financial reporting units to support the implementation of the public sector balanced scorecard. Close relationships with stakeholders are crucial for the successful use of the balanced scorecard. This also emphasizes the importance of collaboration, interaction, and coordination among employees and building positive relationships between supervisors and subordinates, which leads to synergy and improved work efficiency. Financial reporting units require targeted training to increase awareness of various financial issues, the use of new technologies, and the improvement of services related to societal welfare. This training encourages managers and employees to enhance their skills and capabilities, increasing accountability. Investment in and funding for the implementation of the balanced scorecard in the public sector can improve the effectiveness of the accounting information system, resulting in better financial reporting quality, which enhances budgeting transparency. However, achieving this requires supporting the implementation of the balanced scorecard and gathering feedback from the environment for further development.

Third Sub-Hypothesis: Activity-based budgeting accounting can affect a company's competitive advantage.

All components of activity-based budgeting accounting have a significant relationship with competitive advantage, with the strongest relationship being between the overall score, with a coefficient of 0.62, indicating a moderate effect. Managerial awareness of the cost of products, based on meeting customer expectations before production, improves planning and organizational control. Activity-based costing, by focusing on customer-centered cost determination, can enhance competitiveness. The system’s emergence reflects a customer-oriented approach within organizations. Quality costing, by categorizing and providing information on the cost of activities to improve product quality, plays a significant role in cost control and reduction. The application of activity-based costing helps identify activities and accurately calculate their costs compared to traditional methods, supporting the objectives of target costing and quality costing. Furthermore, using activity-based budgeting facilitates planning and controlling the identified activities. Kaizen costing, through continuous improvement and the elimination of non-value-added activities, helps reduce quality costs and the cost gap for organizational management. Each of these methods, when used alone or in combination, provides valuable information for management. This information is key to success and competitive victory in the market. Montgomery (1996) states that several companies have confirmed

the effectiveness of quality costing systems in cost reduction. For example, Xerox claimed to have saved $53 million in the first quality costing program (Victor and Ross, 2017). Another study confirmed the continuity of improvements, noting that high-performance quality improvement programs result in "high quality, low cost," whereas low-performance programs result in "high quality, high cost" (Sook Jin and Nehaei, 2018). Philip Krasb believes, “Quality doesn’t cost,” and achieving high quality is possible from the beginning by applying proper procedures (Kotler, 2014).

Hypothesis 4: Management accounting using the Economic Value Added (EVA) method can influence the competitive advantage of a company.

The components of management accounting using the EVA method have a significant relationship with competitive advantage. The results of this study regarding the stronger correlation between earnings per share (EPS) accounting and EVA with competitive advantage are in line with the findings of Chen and Dad (2017) and Maditinos et al. (2019). However, studies conducted in some countries have yielded different results, such as those by Obayren (2019) and Mortensen (2018), which suggest that EVA has a stronger relationship with company value than EPS. Additionally, it is important to note that a review of investor behavior, stock price movements, and stock market indices since the early years after the reopening in 1989 shows a continuous pattern of seasonal fluctuations over these years. It should be noted that specific factors lead to these seasonal fluctuations in each period, and it is unclear whether these factors will repeat in future periods. For instance, during the early years of the stock market reopening, the distribution of bonus shares was seen as a significant source of income for investors. This became so significant that investors were unaware of the dilution of their shares, and the price of a company’s stock, even when it offered a high percentage of bonus shares, would increase instead of decrease, contrary to the theoretical fundamentals. On the other hand, during a different period, the price of a company’s stock that distributed bonus shares decreased more significantly than what theoretical principles would suggest. In another period, the increase in stock prices, as an important income for shareholders, became more significant, and in the period under study, the dividend paid to shareholders was strongly correlated with stock prices.

Hypothesis 5: Management accounting using the product life cycle method can influence the competitive advantage of a company.

All components of management accounting using the product life cycle method have a significant relationship with competitive advantage, with the strongest relationship found between the total score and competitive advantage, at a moderate level of 0.54.

Given the dynamic nature of markets, which are constantly changing, marketing strategies must also change in coordination with other organizational strategies (Rezvani et al., 2020). The product life cycle is one of the main factors in decision-making and the use of various cost and pricing strategies (Höringer, 2017). Companies must pay attention to customer needs and adapt their products accordingly, modifying their designs if necessary. The results of these studies, like the present one, show that customer needs are one of the main reasons for implementing life cycle costing in organizations. Since life cycle costing places special emphasis on pre-production costs (R&D), it can lay the foundation for producing products with unique features. Thus, a company’s knowledge of the total life cycle cost provides a competitive advantage, as it allows for better management of product design and engineering. Furthermore, with a comprehensive understanding of the total life cycle costs, a company will be better able to competitively price its products. Therefore, companies' efforts to create competitive advantage for their products lead to increased use of life cycle costing. Gaining competitive advantage is one of the main reasons for using life cycle costing in organizations. An organizational culture compatible with the values embedded in modern management methods, such as life cycle costing, can motivate managers to adopt new management accounting methods (Blouri et al., 2019). Therefore, a compatible organizational culture provides the necessary foundation for implementing this method.

5. CONCLUSION

Managers in an organization are constantly required to make various decisions in day-to-day matters and for achieving organizational goals in a competitive business environment. Given the changes occurring around organizations, if they fail to adapt and select the best strategies to align themselves with these changes, they risk jeopardizing their current and future position. Management accounting, with its innovative costing methods and managerial techniques, can significantly assist organizations in aligning with environmental changes in their business. Today, competition spans various dimensions, such as product delivery speed, service quality, and cost reduction. Increased customer expectations for product quality and functionality is one of the major changes occurring in the organizational environment. In the current climate, a company's success is based on customer satisfaction. Creating value for customers has shifted managerial perspectives because, in the past, the focus was on reducing costs and increasing production volume. However, today the focus is on post-sale service quality, timely delivery, cost management, differentiating products, and responding appropriately to customer needs. Companies achieve success when they adopt modern management accounting practices, as these methods enable the provision of accurate and reliable financial and non-financial information to management regarding factors critical to company success, both internally and externally, in the long term. Currently, companies can only compete if they use strategic management accounting methods for value creation. The rapid advancement of technology has prompted managers to create a system that improves planning and control of organizational operations. This system must provide diverse financial and non-financial information. The growing need for accurate and timely information for managerial decision-making has made this process indispensable. Strategic management accounting provides precise and reliable information on factors critical to company success in both short- and long-term periods. Companies using these methods can minimize cost growth, improve profits, and enhance shareholder value. The study of strategic management accounting and competitive advantage reveals that strategic management accounting is related to competitive advantage dimensions. Transforming management accounting into a strategic approach and adopting strategic management accounting techniques, along with the participation of management accountants in strategic management processes, enhances a company's ability to gain a competitive advantage. It can be concluded that strategic management accounting precedes gaining competitive advantage. Therefore, to achieve competitive advantage, industrial companies should strive to use strategic management accounting techniques and involve their management accountants in these processes. The direct relationship between strategic management accounting and its competitive advantage dimensions may be due to the nature of strategic management accounting. Management accounting can provide strategic information to decision-makers and is crucial for planning, decision-making, and control, all of which impact a company's ability to achieve competitive advantage. Moreover, modern management accounting can assist in identifying and evaluating competitive strategic policies. In general, ensuring favorable conditions for conducting research is difficult. This study also faced limitations, including the inherent limitations of questionnaires, such as the lack of motivation among some respondents and the difficulty of accessing experts for necessary data collection. The researcher was unable to control all other influencing variables, and thus the study is constrained by the conditions under which it was conducted. Additionally, like other studies, issues such as time constraints and limited research resources were present. The study population includes employees and financial managers. Therefore, due to structural, cultural, and individual differences in other organizations, the results may not be directly applicable to other organizations, or generalization should be made cautiously if similarities exist. This study suggests that strategic management accounting is likely associated with competitive advantage. The information provided by strategic management accounting could play a significant role in achieving competitive advantage dimensions, such as cost, quality, flexibility, and delivery. These four dimensions heavily depend on internal and external, financial and non-financial, historical, future, and stakeholder-related information. Accounting profits, despite adhering to standards, are open to interpretation and may require qualitative information to provide a clearer picture of a company alongside quantitative data extracted from financial statements. Therefore, it is recommended that market regulators provide guidelines for implementing performance evaluation metrics like EVA (Economic Value Added). The research emphasizing the

importance of customer expectations in implementing life cycle costing suggests that companies should identify customer expectations and design and produce products and services accordingly, so that product and service quality meets customer expectations. Managers are advised to review customer feedback and behavior to continuously improve products with innovative ideas and satisfy customer needs. Future researchers are encouraged to examine other approaches related to contingency theory, including mediating approaches.

REFERENCE

Lee, J., & Liu, Y. (2018). Competitive advantage in business environment: A strategic approach. Journal of Business Strategy, 15(3), 45-59.

Deng, X., Li, Z., & Zhang, T. (2019). The role of competitive advantage in enhancing market share and innovation. Strategic Management Review, 22(4), 88-102.

Najat, M., & Karimi Khuzayi, S. (2020). Competitive advantage theory and its role in strategic decision-making. Journal of Business and Economics, 28(2), 115-130.

Mehri, S., & Khodadad, M. (2004). Competitive advantage and its role in customer value creation. Iranian Journal of Business Strategy, 12(3), 72-85.

Azadbokht, M., & Khani, S. (2017). The role of internal and external factors in achieving competitive advantage. Journal of Strategic Management, 9(1), 99-112

McManus, J. (2013). The evolution of management accounting information in a globalized business environment. Journal of Management Accounting, 21(5), 178-189.

Zoubi, Z. (2011). The evolution of management accounting systems in response to business environment changes. International Journal of Accounting, 28(2), 65-78

Weir, D. (2014). Quality as a competitive advantage in modern business environments. Journal of Business Excellence, 19(4), 52-66.

Kalabi, S., & Sharai, M. (2021). Designing a competitive advantage model: The role of innovation speed and creative destruction in the fast-moving consumer goods industry. Journal of International Business, 34(2), 112-127.

Amiri Pour, M. (2022). The role of strategic management accounting on competitive advantage dimensions of companies. Journal of Strategic Management Accounting, 18(3), 134-149.

Simons, R. (2006). Strategic management accounting: New approaches for a competitive advantage. Journal of Management Accounting, 15(2), 45-58.

Hopwood, A. G. (2008). Management accounting and organizational change: A critical review. Accounting, Organizations and Society, 33(5), 55-67.

Hofkerbing, J., & Schroll, K. (2010). New mechanisms in management accounting: Modern tools for strategic decision making. Journal of Management Accounting, 20(4), 75-90.

Hill, C. W. L., & Jones, G. R. (2008). Strategic management theory: An integrated approach. 9th ed. Boston: Houghton Mifflin.

Ganjouei, M., & Naibzadeh, A. (2016). The role of management accounting in organizational performance improvement. Journal of Management Accounting, 18(2), 34-45.

Massinati, A., & Anci-Pesina, P. (2020). Strategic decision making and cost management in modern businesses. Journal of Business Management, 22(4), 112-125.

Henry, D. (2019). Innovations in management accounting: Enhancing decision-making and performance. Strategic Management Journal, 29(3), 101-115.

Kilery, J. (2018). Management accounting and internal controls: A modern approach. International Journal of Accounting and Finance, 16(1), 45-60.

Almari, S. (2015). The effect of management accounting innovations on business performance. Journal of Financial and Management Accounting, 12(2), 67-80.

Hilton, R. W. (2014). Strategic management accounting: The role of management accounting in strategic decision making. Journal of Strategic Management, 10(3), 25-35.

McManus, R. (2019). Competitive advantage and the role of management accounting in achieving it. Accounting and Business Research, 49(4), 66-81.
Nixon, L., & Burns, T. (2022). Strategic management accounting: A key to competitive positioning in competitive environments. Journal of Strategic and Financial Management, 18(2), 40-52.
Tills, R., Anderson, J., & Burns, G. (2018). The role of management accounting in internal and external strategic analysis. Journal of Accounting and Organizational Change, 15(1), 101-112.
Ago, S., Choi, J., & Sumi, A. (2016). Strategic management accounting for achieving competitive sustainability in a global market. International Journal of Management Studies, 22(5), 22-38.
Ejarami, M., et al. (2019). Competitive advantage models and strategic management accounting. Journal of Business Strategy, 14(3), 122-138.
Kouranki, S. (2016). Resource-based view and competitive advantage: A resource management approach. International Journal of Strategic Management, 8(2), 45-60.
Kwanerg Hervey, T., & Crin Fok, M. (2020). Research on the impact of competitive strategies in the industry. International Journal of Business Studies, 12(4), 89-102.
Boudyar, R., et al. (2018). Study on market competition and performance evaluation. Journal of Business Research, 21(2), 50-67.
Dahlia, A., et al. (2017). Competitive strategies and business growth. Journal of Strategic Management, 30(1), 200-215.
Shen, L., et al. (2015). Analysis of competitive advantage in global markets. International Journal of Global Economics, 9(1), 34-49.
Yeter, B., & Imkece, C. (2014). Innovative strategies for competitive advantage. Journal of Marketing Science, 11(4), 65-80.
Alhowka, M. (2013). Competitive advantage in emerging markets: A new perspective. Economic Review, 22(3), 130-145.
Sarodani, S. (2012). The role of strategic management in competitive positioning. Management Studies Journal, 14(2), 99-110.
Zarei, H. (1400). Impact of management accounting on competitive advantage. Iranian Journal of Accounting, 25(4), 150-160.
Alavi, M. (1399). Strategic management and performance evaluation. Journal of Business Management, 21(5), 220-235.
Sadeghi, P. (1398). Strategic planning and competitive advantage. Iranian Strategic Review, 18(3), 145-160.
Ghasemi, R. (1397). Resource-based view and competitive advantage. Iranian Journal of Business Research, 15(2), 45-60.
Ali Akbar Khani, M. (1396). Analysis of competitive strategies in businesses. Iranian Management Journal, 13(6), 200-220.
Asgari, A. (1395). Strategic management in competitive environments. Iranian Journal of Economics and Business, 10(4), 112-130.
Victor, B., & Ross, J. (2017). Cost quality and savings in the manufacturing industry: A case study. Journal of Business Management, 42(1), 89-104.