"The Role of the Responsibility Accounting System in Achieving Competitive Advantage for Yemeni Food Industrial Companies: A Field Study"

Abdul Rahim Mohammed Saif Abdo[1], Dr. Sultan Hassan Mohammed ALhalemi[2]

[1]MA, Accounting Department, Faculty of Administrative and Humanity Sciences, Saba University, Sana'a, Yemen.

[2]Associate Professor, Accounting Department, Faculty of Administrative and Computer Sciences (Rada), Albaydha University, Albaydha, Yemen

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ABSTRACT

This study aims to examine the role of the responsibility accounting system-specifically its dimensions of cost centers, profit centers, and investment centers-in achieving competitive advantage in Yemeni food industrial companies. A descriptive analytical approach was adopted, and a questionnaire was used to collect data from employees in 13 food industrial companies. The sample included financial managers, accounting managers, accountants, audit managers and auditors, cost managers, cost accountants, production managers, and sales managers, totaling 122 respondents.

The findings revealed that the responsibility accounting system is implemented to a very high degree in the companies under study. However, the level of attention varies across its dimensions, with cost centers ranking first in terms of application, followed by profit centers and then investment centers. Statistical analysis confirmed a significant positive impact of the responsibility accounting system on achieving competitive advantage in Yemeni food industrial companies.

Keywords: Responsibility Accounting System, Cost Center, Profitability Center, Investment Center, Competitive Advantage, Yemeni Food Industrial Companies.

INTRODUCTION

In light of the rapid developments that have taken place in the industrial sector since the late twentieth century, fundamental transformations have emerged, accompanied by accelerated technological advancements. These developments have led to the emergence of modern production, administrative, and accounting systems, which have become essential for providing data and information that support managerial decision-making, enhance performance efficiency, and strengthen competitiveness in a complex and dynamic business environment (Sharafi, 2019).

These transformations have intensified competition among industrial companies, making it necessary to adopt modern accounting systems that go beyond traditional approaches by providing accurate and timely information. Such systems support performance monitoring, reinforce accountability, and guide managerial decisions. In this context, the responsibility accounting system has gained increasing attention as an important management accounting approach.

The responsibility accounting system is based on an organizational philosophy that links objectives with responsibilities by dividing the organization into clearly defined responsibility centers, including cost, profit, and investment centers. This approach facilitates the delegation of authority, enhances managerial accountability, and motivates managers to improve performance and achieve higher levels of efficiency and effectiveness.

This system also contributes to measuring performance according to clear standards and holding each center accountable for the results achieved, thereby enhancing institutional performance and supporting the attainment of competitive advantage.

Competitive advantage is embodied in the ability of companies to optimally utilize their diverse resources, integrate their responsibility centers, and efficiently employ their human, material, and knowledge capabilities. This is reflected in cost reduction, improved product quality, timely responses to customer demands at appropriate prices, and achieving profit levels that enhance the company's competitive position in local and international markets (Al-Tair, Al-Nihwi, Azouza, 2021: 117) .

Based on the above, this study aims to analyze the role of the responsibility accounting system in its various dimensions in achieving competitive advantage, through a field study on a sample of Yemeni industrial companies in the governorates of (Taiz, Al Hudaydah, Sana'a), with a focus on industrial companies operating in the food industries.

LITERATURE REVIEW

The study by Rosy Idah & Transaminase (2025) aimed to examine the role of responsibility accounting in cost control across selected sectors in Indonesia, with particular emphasis on cost centers. The study employed a literature review methodology, encompassing a wide range of empirical studies addressing the application of responsibility accounting in both the public and private sectors. The findings indicated that effective implementation of a responsibility accounting system enhances operational efficiency and reduces budget variances. However, the study also identified ongoing challenges, including the difficulty of distinguishing controllable costs from non-controllable costs, as well as limitations arising from restricted organizational structures in certain companies.

The study by Heddam (2024), titled “The Role of Responsibility Accounting in Achieving Competitive Advantage in Iraq,” sought to assess the importance of applying responsibility accounting and its contribution to achieving competitive advantage. The study focused on dividing economic units into responsibility centers and allocating authority to ensure workflows proceed according to plan. A descriptive-analytical methodology was employed, and the study was applied to Al-Ameen Factory (the General Company for Food Products). Results indicated that the Profitability center performed negatively, as variable costs exceeded revenues, leading to a negative contribution margin due to ineffective marketing and production strategies.

The study by Al-Makhlafi (2022) investigated the role of responsibility accounting in enhancing financial performance in private Yemeni universities. The study utilized a descriptive approach, targeting private universities in Sana’a, Yemen, with 80 questionnaires distributed as the study instrument. Findings revealed that the examined universities implement responsibility accounting at a high level, and all major components of responsibility accounting are highly available. Furthermore, the study demonstrated a significant improvement in financial performance, with a statistically meaningful relationship between the application of responsibility accounting and financial performance enhancement.

The study by Abdul Qader & Miloud (2021) aimed to explore the supervisory role of responsibility accounting in cost control within economic institutions. This was achieved by dividing the institution into responsibility centers and ensuring that activities in each center proceeded according to plan. The study emphasized the importance of responsibility accounting across all institutions, irrespective of their activity. A descriptive and applied case study methodology was employed, relying on observations and personal interviews, with the institution “Ecoms” selected as the case study. The study concluded that accurately assigning responsibility for deviations within the cost center was not feasible due to insufficient information for in-depth analysis. Nevertheless, responsibility accounting serves as an effective control tool, allowing institutions to identify deviations between actual and estimated costs and hold the responsible parties accountable, whether the deviations are favorable or unfavorable.

The study by Saran (2019**)** aimed to assess the availability of components necessary for implementing a responsibility accounting system in the Public Telecommunications Corporation and to propose

recommendations for its implementation. The study employed a descriptive-analytical methodology, using questionnaires as the research instrument, with 60 questionnaires analyzed. Findings indicated that the availability of responsibility accounting components was moderate, the accounting information system was moderately available, and the organizational structure and budget planning system were also at a moderate level.

The study by Al-Muraisi (2019**)** focused on examining the role of responsibility accounting in evaluating financial and accounting performance in Islamic banks, as well as its contribution to monitoring the efficiency and effectiveness of various responsibility centers and supporting performance evaluation. The study concluded that dividing banks into effective responsibility centers and optimizing the use of available resources facilitates the achievement of both short-term and long-term objectives. This structure enables responsibility centers to operate efficiently, manage internal conflicts effectively, and maximize profits. Moreover, performance reports provide a comprehensive overview of the responsibility centers, enabling accurate performance assessment and identification of deviations.

The study by Al-Saadani (2018) examined the role of the responsibility accounting system in achieving performance control at the Yemeni Company for the Manufacturing and Trading of Medicines "Yedco." The study relied on the descriptive-analytical method and concluded that the cost center plays a role in performance control. This is attributed to the availability of foundations for measuring the cost of operational cost elements, completed production, and sales, which reflects progress in the cost center accounts, qualifying it to prepare accurate budgets for drug production. The study also concluded that the Profitability center is not linked to the responsibility centers, attributed to the incomplete connection between sales centers and cost centers in light of the company incurring accumulated losses and high accrued interest, as well as the accumulation of debts from customers. It was also concluded that there is a clear role for investment centers, attributed to the utilization of available funds in primary and secondary investments based on the subsequent control of the performance of responsibility centers.

The study by Abbas (2016) aimed to determine the extent to which the components for implementing the responsibility accounting system are available in Yemeni oil production companies. A questionnaire was distributed to all registered Yemeni oil production companies, totaling three companies. The questionnaire was distributed to a sample of the study, which included general managers, financial managers, department heads, and accountants, totaling 50 individuals. The study concluded that the components for implementing responsibility accounting are available in Yemeni oil production companies to a moderate degree. A sound administrative organization is available to a large extent, a planning budgets and standard costs system is available to a moderate degree, a performance measurement system is available to a moderate degree, a performance reporting system is available to a moderate degree, and an effective incentive system is available to a moderate degree in Yemeni oil production companies.

As for the study by Al-Khodi (2015), it aimed to determine the extent to which the components for implementing the responsibility accounting system are available at the University of Science and Technology in Yemen. The descriptive analytical method was used in conducting the study. The sample consisted of 80 employees, including academics and administrators. The study concluded that the university has a sound organizational structure, as well as an accounting information system and a control reporting system linked to responsibility centers. However, a standard system based on standard costs and planning budgets is available to a moderate degree, while a sound and fair system for material and moral incentives, which is considered one of the most important components for implementing responsibility accounting, is not available

Study Problem

Industrial companies, whether local, regional, or global, have witnessed significant development in recent years, which has created a clear competitive gap between some local companies and their advanced counterparts, making many local industrial companies face major challenges in keeping up with the rapid pace of development. This necessitates the optimal utilization of various available resources, whether human, material, or informational, and the continuous improvement of production processes and other operational activities, in addition to seeking advanced accounting systems that contribute to supporting management in exercising control

and oversight over operations and various activity centers, as well as providing accurate and relevant information that aids in making sound managerial decisions in a timely manner.

The success of industrial companies largely depends on their ability to keep pace with scientific and practical developments, as well as their capacity to adapt to the rapid and ongoing changes in the surrounding environment. To ensure continuity and survival in the market, it is necessary to enhance companies' ability to adapt and be flexible, enabling them to improve their competitive position and increase their competitiveness in the markets (Al-Maqbali, 2024). This rapid development in various fields has compelled industrial companies to continuously seek modern methods in management accounting and its applications, which contributes to maintaining their competitive positions in the market. Achieving this requires tightening control over all operations, which helps in reducing costs, improving product quality, offering them at competitive prices, and increasing market share, positively reflecting on profitability levels.

Yemeni industrial companies operate in an environment characterized by instability and complexity, amid the increasing challenges posed by competition with other industrial firms, particularly regarding the flooding of markets with low-priced goods of acceptable quality. This compels Yemeni industrial companies to adopt effective accounting systems, foremost among them being the responsibility accounting system, which contributes to cost control, increased profitability, maintaining quality levels, and addressing these competitive challenges by employing the responsibility accounting system to achieve competitive advantage (Al-Maqbali, 2024: 2) .

Based on the above, the research problem can be formulated in the following main question: What is the role of the responsibility accounting system in achieving competitive advantage in Yemeni food manufacturing companies?

This main question branches out into the following sub-questions:

What is the role of responsibility accounting for cost centers in achieving competitive advantage in Yemeni food industrial companies?

1- What is the role of responsibility accounting for cost centers in achieving competitive advantage in Yemeni food industrial companies?

2 .What is the role of responsibility accounting for Profitability centers in achieving competitive advantage in Yemeni food industrial companies? What is the role of responsibility accounting for Profitability centers in achieving competitive advantage in Yemeni food industrial companies?

3. What is the role of responsibility accounting for investment centers in achieving competitive advantage in Yemeni food industrial companies?

Study Objectives

This study aims to achieve the main objective of understanding the role of the responsibility accounting system in achieving competitive advantage in Yemeni food industrial companies, thru the following sub-objectives:

1. Clarifying the role of responsibility accounting for cost centers in achieving competitive advantage in Yemeni food industrial companies. Clarifying the role of responsibility accounting for cost centers in achieving competitive advantage in Yemeni food industrial companies.
2. Statement of the role of responsibility accounting for Profitability centers in achieving competitive advantage in Yemeni food industrial companies. Statement on the role of responsibility accounting for Profitability centers in achieving competitive advantage in Yemeni food industrial companies.
3. Statement of the role of responsibility accounting for the investment center in achieving competitive advantage in Yemeni food industrial companies. Statement on the Role of Responsibility Accounting for Investment Centers in Achieving Competitive Advantage in Yemeni Food Industrial Companies.

The Importance of the Study:

This study is one of the important research works needed by business owners and researchers, and its significance is evident in the following:

The scientific importance of this study is as follows:

1. It represents a scientific contribution that enriches the Yemeni scientific library, benefiting researchers and helping them connect its results to other variables.
2. It is considered one of the first Yemeni studies—according to the researcher's knowledge—that examines the role of implementing a responsibility accounting system in achieving competitive advantage.
3. It opens new horizons for graduate students' research in the Yemeni environment.
4. It provides a comprehensive theoretical framework for both the responsibility accounting system and competitive advantage, clarifying the nature of the relationship between them and the role of responsibility center accounting in achieving competitive advantage for industrial companies.

Practical importance:

The practical importance of this study arises from the following:

1. It is an analysis of the current situation in Yemeni food industrial companies in terms of the extent of applying the responsibility accounting system and its role in achieving competitive advantage.
2. It contributes to raising awareness among Yemeni food industrial companies about the importance of implementing a responsibility accounting system in supporting competitive advantage. It contributes to raising awareness among Yemeni food manufacturing companies about the importance of implementing a responsibility accounting system to support competitive advantage. Various industrial companies of all types can benefit from it.
3. It offers practical suggestions for business owners that help them improve oversight of operations, ensure tasks are executed efficiently and effectively, in line with the companies' goals, and enhance their competitive ability. Practical proposals are presented to business owners to help them improve oversight of operations, ensure tasks are executed efficiently and effectively, in line with the companies' goals, and enhance their competitive capacity.

Study Hypotheses:

Based on the study's problem, objectives, conceptual model, and previous literature, the following hypotheses were tested:

First Main Hypothesis: There is no statistically significant role of responsibility accounting (cost center, Profitability center, investment center) in achieving competitive advantage in Yemeni food industrial companies.

First Sub-Hypothesis: There is no statistically significant role for cost center responsibility accounting in achieving competitive advantage in Yemeni food industrial companies.

Second Sub-Hypothesis: There is no statistically significant role for Profitability center responsibility accounting in achieving competitive advantage in Yemeni food industrial companies.

Third Sub-Hypothesis: There is no statistically significant role for investment center responsibility accounting in achieving competitive advantage in Yemeni food industrial companies.

CONCEPTUAL FRAMEWORK

Responsibility Accounting System: The concept of a responsibility accounting system: Many authors and researchers have addressed the fundamental concepts of the responsibility. Accounting system, and both Higgins (1952) and Tran & Nguyen (2020) have defined the responsibility accounting system as follows:

"A system implemented within the economic unit to collect and report expenses for each managerial level within the unit, where each manager must be responsible for controlling their allocated expenses" (p. 611).

Basil, Saleh (2022) defined responsibility accounting as: a control accounting system based on the following principles:

Its connection to decentralization: Responsibility accounting is a natural outcome of an organization adopting a "decentralization" system, where the organization is divided into "responsibility centers" entrusted to individuals to perform specific tasks and delegated the authority to make decisions.

A tool for evaluating the agent's performance: It serves as a mechanism for coordinating the activities of different departments and as a design for a system to evaluate and reward managers' performance to ensure the efficient and effective achievement of senior management's goals.

Controllability (Principle of Controllability): The traditional concept of controllability requires distinguishing in accounting reports between performance elements that the manager "can" control and those that "cannot" be controlled.

Basis of accountability: The system requires that the manager be held accountable and evaluated based only on the factors that fall under their direct supervision and discretionary authority.

Incentive system: This system requires the provision of an effective material and moral incentive plan to stimulate the motivation of heads of responsibility centers toward achieving the goals. Responsibility Accounting System: "It is a supervisory accounting system whose primary mission is to serve management in evaluating the performance of responsibilities at all administrative levels, in terms of their commitment to achieving goals and plans, thru periodic reports" (Saad, Ahmed, 2024, 72).

(Lomark, et al (2017 believe that the responsibility accounting system: is the individual's freedom in the delegation granted to them, to link the individual's responsibility to the outcomes of their decisions, for which they were given the freedom to make and are responsible for the results.

Types of Responsibility Centers

Responsibility centers are categorized as follows (Jaber, 2013, p. 53):

Cost Center: Focuses on measuring resource use efficiency and controlling cost elements under management oversight by analyzing variances between actual and standard costs (Drury, 2021). These centers are the smallest responsibility units, such as departments or sections.

Profitability center: A unit whose manager is responsible for both revenues and costs, accountable for performance as if the center were an independent entity (Khurana, 2020).

Investment Center: Responsible for revenues, costs, and asset investment, with managers accountable not only for profit performance but also for achieving a satisfactory return on investment (Pajrok, 2014, p. 56).

Competitive Advantage

Michael Porter (1993) defined competitive advantage as arising when a company discovers or innovates more effective methods than competitors or introduces an innovation in its broadest sense (p. 48). Haider (2002, p. 8) described it as the ability to formulate and implement strategies that place the company in a superior position relative to competitors. Muhiuddin and Al-Amri (2023, p. 487) defined it as a set of material and human characteristics, including technological quality, cost reduction, timely service delivery, and employee creativity and flexibility

Field Study:

Study population and sample: The study population consists of employees in food industrial companies, totaling (23) Yemeni industrial companies specialized in food production. The field study was limited to companies operating in the Capital Secretariat, Taiz Governorate, and Al Hudaydah Governorate, as they represent the

original study population. They are represented by: (financial managers, account managers, accountants, audit managers and auditors, cost managers, cost accountants, production managers, and sales managers). Their number reached (200) individuals. They were distributed (200) questionnaires at a rate of (100%), of which (122) questionnaires were retrieved at a rate of (61%), all of which were valid for analysis, and the data were analyzed using the Statistical Package for the Social Sciences (SPSS) software.

Study Reliability:

Reliability was assessed using Cronbach's Alpha coefficient. Table (1) presents the reliability coefficients for each dimension and the overall instrument.

Table No. (1) Cronbach's alpha reliability coefficient for the study axes and the tool as a whole

No.	Variable	Alpha Coefficient Value	Sig.
1	Cost Center	0.91	0.000
2	Profitability Center	0.92	0.000
3	Investment Center	0.96	0.000
4	Competitive Advantage	0.91	0.000
Total		**0.98**	**0.000**

The Cronbach's alpha values were very high, with the overall coefficient reaching 0.98, indicating strong internal consistency and suitability for field application.

Normality Test

The Kolmogorov-Smirnov and Shapiro-Wilk tests were used to assess data distribution. As shown in Table (2), the significance values for both independent and dependent variables were less than 0.05, indicating non-normal distribution. Therefore, non-parametric tests were used for hypothesis testing.

Table (2): Normality Test Results

Variables	Kolmogorov-Smirnov Test			Shapiro-wilk Test		
	Sig.	df	Statistic	Sig.	df	Statistic
Responsibility Accounting)	0.000	122	0.941	0.008	122	0.096
Competitive Advantage)	0.000	122	0.909	0.000	122	0.143

It is clear from the data in Table (2) that the result of the Kolmogorov-Smirnov test showed that the Sig value for the independent and dependent variables was less than the common significance level (0.05).

Statistical conclusion: The null hypothesis (H0) is rejected, and thus the normal distribution hypothesis, which states that "the data follows a normal distribution," is rejected. The alternative hypothesis, which states that the data does not follow a normal distribution and that the data is non-parametric, is accepted. The appropriate tests for testing the study hypotheses are non-parametric tests.

Descriptive Statistics Results

Analysis of the descriptive statistics of the study variables:

Analysis and discussion of the descriptive statistics results for the dimensions of the independent variable (Responsibility Accounting System) in achieving competitive advantage in Yemeni food industrial companies.

Table (3) means and standard deviations for the cost center dimension items.

No.	Paragraph	Mean	S.D	Rank
1	The costs of each cost center are measured separately.	4.45	0.63	2
2	The company prepares a budget estimate for each cost center separately	4.43	0.74	6

3	There is control over cost centers in the company	4.41	0.71	5
4	There is a definition of duties and responsibilities for each job in the cost center	4.38	0.70	1
5	The actual performance costs are determined with the standard costs, and deviations for each cost center are studied, analyzed, and addressed each period	4.34	0.74	8
6	Classification of cost elements according to managerial levels	4.29	0.79	4
7	Each cost center works on reducing costs in the company	4.25	0.71	3
8	The budget (planning) is monitored periodically based on cost centers	4.25	0.87	7
9	The officials responsible for cost centers possess scientific and practical competence	4.25	0.83	10
10	The officials are held accountable for areas of deficiency based on the divisions of cost centers	4.12	0.93	9
	Total	**4.32**	**0.58**	

It is clear from Table (3) that the overall mean for the cost center dimension reached (4.32) with a degree of agreement (very high), reflecting a high awareness among the sample members of the importance of cost center accounting and its role in achieving competitive advantage.

The arithmetic means for the items of this dimension ranged between (4.12 – 4.45), all of which were at a degree of application (very high), indicating agreement and consistency in the responses of the sample members. And also The overall standard deviation equals 0.58, which is less than one, indicating that the responses of the sample members were more focused around the items.

The highest averages were found in item number 2, which states, “Kept but standardized punctuation and clarity,” with a mean of 4.45 and a standard deviation of 0.63. This indicates that the sample members agreed with the content of the item, and the responses were consistent and not scattered. Additionally, it highlights the importance of measuring the costs for each cost center, which facilitates the process of monitoring them. Next is paragraph number 6, which states: “The company prepares a budget estimate for each cost center separately.” It ranked second in the axis with a mean of 4.43 and a standard deviation of 0.74. This indicates that the sample members agreed with the content of the paragraph, and the responses were consistent and not scattered. Additionally, it highlights the importance of preparing the company’s planning budgets and monitoring any deviations between the actual and estimated, which enhances the role of the responsibility accounting system.

The lowest of those averages was item number (9), which states: “Officials are held accountable for shortcomings based on cost center divisions.” It ranked tenth among the items with an average of (0.93) and a standard deviation of (4.12). This highlights holding officials accountable for shortcomings based on cost center divisions, ensuring direct responsibility falls on each manager or official, thereby enhancing the role of the responsibility accounting system. It indicates the concentration of the responses from the sample members.

Analysis and discussion of the descriptive statistics results on the role of accounting for the Profitability center in achieving competitive advantage.

Table No. (4) Means and Standard Deviations for the Profitability center Dimension:

No.	Paragraph	Mean	S.D	Rank
1	The profitability of each Profitability center is monitored and compared individually with other centers.	4.29	0.74	1
2	The profitability of each Profitability center is determined individually within the company.	4.28	0.84	6
3	The performance of each Profitability center is evaluated periodically.	4.25	0.84	2
4	There is a clear tab for each Profitability center.	4.22	0.78	8
5	The actual performance is compared with the planned performance for each Profitability center, and deviations are identified.	4.20	0.81	4
6	Corrective or preventive actions are determined to ensure deviations do not recur for each Profitability center.	4.20	0.78	7
7	Reports are prepared for each Profitability center and submitted promptly.	4.16	0.88	3

8	The company grants incentives to managers when actual performance meets planned performance.	4.06	1.01	5
	Total	**4.21**	**0.68**	

It is noted from Table (4) that the overall arithmetic mean for the cost center dimension reached (4.21) with a degree of agreement (very high), reflecting a high level of awareness among the sample members of the importance of cost center accounting and its role in achieving competitive advantage.

The arithmetic means of the items in this dimension ranged between (4.06 – 4.29), all of which were rated as (very high), indicating the agreement and consistency of the sample members' responses.

The highest averages were found in item number (1) which states: "The profitability of each Profitability center is monitored and compared individually with other centers." It ranked first in the axis with the highest value, an arithmetic mean of (4.29), and a standard deviation of (0.74). This indicates that the sample members agreed with the content of the item, and their responses were consistent and not scattered. Additionally, it is important to monitor and compare the profitability of each Profitability center individually and compare it with other centers to know the performance and correct any shortcomings resulting from this center without delay. Next is item number (6), which states: "The profitability of each Profitability center in the company is determined separately." It ranked second in the axis with a mean of (4.28) and a standard deviation of (0.84). This indicates that the sample members agreed with the content of the item, and the responses were consistent and not scattered. Additionally, it is important to determine the profitability of each center separately in the company to identify the strongest and weakest centers, enhance the strengths, and address any shortcomings.

The lowest of those averages was paragraph number (5), which states: "The company grants incentives to managers in Profitability centers in case actual performance meets the planned performance." It ranked eighth in the axis with a mean of (4.06) and a standard deviation of (1.01). This indicates the sample members' agreement with the content of the paragraph, the consistency of the responses, and their lack of dispersion. The researcher attributes this to the importance of granting incentives to managers in Profitability centers when actual performance meets the planned performance.

The result of analyzing and discussing the descriptive statistics regarding the role of accounting for the investment center in achieving competitive advantage in Yemeni food industrial companies.

Table No. (5) Means and Standard Deviations for the Investment Center Dimension:

No.	Paragraph	Mean	S.D	Rank
1	The company operates according to clear standards when evaluating investment centers.	4.29	0.74	10
2	The investment center provides financial consultations to management regarding investments, financial planning, and asset management.	4.28	0.84	4
3	Officials provide periodic reports on the investment center performance to management.	4.25	0.84	11
4	The investment center contributes to formulating investment strategies for long-term financial goals.	4.22	0.78	3
5	Actual performance is compared with planned performance, and deviations are identified.	4.20	0.81	5
6	Individuals responsible for investment centers possess scientific and practical competence.	4.20	0.78	8
7	The performance of investment centers is evaluated using financial ratios.	4.16	0.88	6
8	There is coordination between investment centers and other responsibility centers.	4.06	1.01	9
9	Available investment opportunities are analyzed based on the investment center.	4.21	0.68	1
10	Senior management makes investment decisions based on investment centers.	4.29	0.74	2
11	Investment decisions refer to data provided by investment centers.	4.28	0.84	7
	Total	**4.25**	**0.84**	

It is noted from Table (5) that the overall mean for the investment center dimension reached (4.12) with a degree of agreement (very high), reflecting a high awareness among the sample individuals of the importance of accounting for investment centers and its role in achieving competitive advantage.

The arithmetic means for the items in this dimension ranged between (4.06 – 4.18), all of which were rated at a level of application (very high), indicating agreement among the sample members and consistency in their responses.

It is evident from the data in Table (3-12) that the highest averages were found in item number 10, which states: "The company operates according to clear standards when evaluating investment positions." This item ranked first in the axis with the highest value, having a mean of (4.18) and a standard deviation of (0.76). This indicates the presence of clarity and specific criteria in evaluating investment positions, which enhances the efficiency of investment decisions and limits random actions.

Following that, paragraph number 4 ranked second, stating: "The investment center provides financial consultations to the company's management regarding investments, financial planning, and asset management." It achieved the second position in the axis with a mean value of (4.16) and a standard deviation of (0.78). This indicates the agreement of the sample individuals with the content of the paragraph and the consistency of their responses without dispersion. The researcher attributes this to the effective role of the investment center in supporting senior management with financial information, which positively reflects on the quality of strategic planning.

The lowest of those averages was item number 7, which states: "When making certain investment decisions, reference is made to the data provided by investment centers." It ranked eleventh in the axis with a mean of (4.06) and a standard deviation of (0.93). This indicates the agreement of the sample members with the content of the item, as well as the consistency of the responses and their lack of dispersion. The researcher attributes this to the commitment to refer to the data provided by investment centers when making certain investment decisions, which enables management to make sound decisions based on the outputs of the responsibility accounting system.

In light of the previous results, it can be said that the investment center is largely implemented in the industrial companies under study and plays an important role in improving the efficiency of investment decisions, enhancing control and performance evaluation, and supporting financial planning, which contributes to achieving competitive advantage thru the optimal use of resources.

Analysis and discussion of the results of the descriptive statistics for the dependent variable competitive advantage.

Table No. (6) Means and Standard Deviations for the Items of the Dependent Variable Competitive Advantage.

No.	Paragraph	Mean	S.D	Rank
1	The company can improve overall product quality to meet customer needs by relying on data from responsibility centers, thereby achieving a competitive advantage.	4.48	0.66	3
2	The company can ensure continuity in an environment characterized by economic changes, technological advancements, and fluctuations, maintaining its competitive position based on responsibility center data.	4.34	0.73	7
3	The company can achieve the planned performance level by relying on responsibility centers, thereby gaining a competitive advantage.	4.33	0.67	4
4	The company can make quick decisions that achieve a competitive advantage based on data from responsibility centers.	4.31	0.77	1
5	The company can plan costs based on responsibility centers, leading to achieving a competitive advantage.	4.31	0.74	5
6	The company can optimally utilize available material, organizational, and informational resources to achieve a competitive advantage based on responsibility center data.	4.30	0.76	6

7	The company can produce high-quality products at lower costs, competitive prices, and appropriate timing, considering responsibility center costs.	4.25	0.76	2
	Total	**4.33**	**0.59**	

It is clear from the data in Table (6) that the overall arithmetic mean of the level of achieving competitive advantage in Yemeni food industrial companies reached (4.33) at a very high level, with an approval rate of 86% from the perspective of the study sample members. It is also evident that the arithmetic means of the items of the dependent variable dimensions, competitive advantage, ranged between (4.25 – 4.48), indicating the effectiveness of responsibility centers in supporting competitive advantage.

It is also evident that item number 3 ranked first in the axis with a mean of (4.48) and a standard deviation of (0.66), which states: "The company can improve the overall product quality to meet customer needs by relying on responsibility center data, achieving a competitive advantage." This indicates that the sample members agree with the content of the item, and the responses are consistent and not scattered. The researcher attributes this to the company's efficient use of responsibility center data to improve quality in line with customer needs, thereby enhancing its competitive position.

The next item was number 7, which states: "The company can ensure continuity in an environment characterized by economic changes and technological fluctuations, enabling it to maintain its competitive position effectively and efficiently based on the data provided by responsibility centers." It ranked second in the axis with a mean of (4.34) and a standard deviation of (0.73). This indicates that the sample members agreed with the content of the item, and the responses were consistent and not scattered. The researcher attributes this to the company's ability to maintain its competitive position amid economic changes and technological advancements using data from responsibility centers.

The lowest of those averages was paragraph number 2, which states: "The company can produce products with high-quality specifications that exceed competing products at the lowest costs, prices, and appropriate times, taking into account the costs of responsibility centers." It ranked seventh in the axis with an average of (4.25) and a standard deviation of (0.76). This indicates the sample members' agreement with the content of the paragraph, the consistency of the responses, and the lack of dispersion. The researcher attributes this to the importance of the company producing products with high-quality specifications that exceed competing products at the lowest costs, prices, and appropriate times, taking into account the costs of responsibility centers, thereby achieving a competitive advantage.

Results of The Study Hypothesis Tests:

Result of The First Main Hypothesis Test:

"There is no statistically significant role of responsibility accounting (cost center, Profitability center, investment center) in achieving competitive advantage in Yemeni food industrial companies."

The first hypothesis was tested using the correlation coefficient, the coefficient of determination, and simple linear regression as shown in the table below:

Table No. (7) Correlation Coefficient, Coefficient of Determination, and Simple Linear Regression.

Test Type	Statistic	Value
T-test	Sig. (T)	0.000
	T value	15.03
	Beta (B)	0.808
ANOVA	Sig. (F)	0.000
	F value	226.042
Model	R^2	0.65
	R	0.80

It is evident from the data in Table (7) that the correlation coefficient reached (0.80), This indicates that there is a very high and statistically significant positive correlation between the application of responsibility accounting and achieving competitive advantage in Yemeni food industrial companies. And the increase in the application of responsibility accounting is associated with an increase in the level of the company's competitive advantage. It is also evident that the value of the coefficient of determination reached (0.65), meaning that the application of responsibility accounting affects the achievement of competitive advantage in Yemeni food industrial companies by (65%). The remaining 35% of the impact is attributed to other factors such as: (innovation and development, the efficiency of management leadership, market conditions, or the organizational environment).

It is evident from the use of one-way ANOVA that the F value was statistically significant at the 0.05 level, indicating that there is a statistically significant effect, and it is possible to predict in the future the impact of responsibility accounting on achieving competitive advantage in Yemeni food industrial companies. This confirms the rejection of the null hypothesis and the acceptance of the alternative hypothesis, which states: "There is a statistically significant effect of responsibility accounting on achieving competitive advantage in Yemeni food industrial companies."

It is evident that the value of the regression coefficient for the independent variable reached (0.789), and the value of the regression constant was (1.10), and the value was statistically significant at a significance level of 0.05, which proves that the regression coefficient is statistically significant. It can be predicted in the future to achieve competitive advantage in Yemeni food industrial companies according to the following regression equation: Competitive advantage in Yemeni food industrial companies = 0.789 (responsibility accounting) + 1.10.

Testing the first sub-hypothesis: Null hypothesis (H1):

"There is no statistically significant role of responsibility accounting for cost centers in achieving competitive advantage in Yemeni food industrial companies."

Table No. (8) Correlation Coefficient, Coefficient of Determination, and Simple Linear Regression.

Test Type	Statistic	Value
T-test	Sig. (T)	0.000
	T value	13.161
	Beta (B)	0.791
ANOVA	Sig. (F)	0.000
	F value	173.233
Model	R^2	0.59
	R	0.77

It is evident from Table (8) that the correlation coefficient reached (0.77), indicating a high positive and statistically significant direct relationship between the cost center and achieving competitive advantage in Yemeni food industrial companies. It is also clear that the coefficient of determination value reached (0.59), meaning that the application of the cost center affects achieving competitive advantage in Yemeni food industrial companies by (59%), and the remaining impact is attributed to other factors. Furthermore, it is evident from the use of one-way ANOVA that the (F) value was statistically significant at the (0.05) significance level, indicating a statistically significant effect. It is possible to predict the future impact of the cost center on achieving competitive advantage in Yemeni food industrial companies. This confirms the rejection of the null hypothesis and the acceptance of the alternative hypothesis, which states: "There is a statistically significant effect of the cost center on achieving competitive advantage in Yemeni food industrial companies."

It is evident from Table (9) that the correlation coefficient reached (0.77), and as shown in the table, the value of the regression coefficient for the independent variable was (0.791), while the value of the regression constant was (0.917). The value was statistically significant at a significance level of (0.05), which confirms that the regression coefficient is statistically significant and can be predicted in the future for achieving competitive advantage in Yemeni food industrial companies according to the following regression equation: Achieving competitive advantage in Yemeni food industrial companies = 0.791(cost center) + 0.917.

Testing the second sub-hypothesis: Null hypothesis (H1):

"There is no statistically significant role of accountability for profitability center in achieving competitive advantage in Yemeni food industrial companies."

Table No. (9) Correlation Coefficient, Coefficient of Determination, and Simple Linear Regression.

Test Type	Statistic	Value
T-test	Sig. (T)	0.000
	T value	10.789
	Beta (B)	0.615
ANOVA	Sig. (F)	0.000
	F value	116.379
Model	R^2	0.49
	R	0.70

It is evident from the data in Table (9) that the correlation coefficient reached (0.70), indicating a strong and statistically significant positive relationship between profitability centers and achieving competitive advantage in Yemeni food industrial companies. It is also evident that the value of the coefficient of determination reached 0.49, meaning that the application of the profitability center affects the achievement of competitive advantage in Yemeni food industrial companies by 49%, while the remaining impact is attributed to other factors. It is evident from the use of one-way ANOVA that the value of (F) is statistically significant at the 0.05 level, meaning that there is a statistically significant effect, and it is possible to predict in the future the impact of the profitability center on achieving competitive advantage in Yemeni food industrial companies. This confirms the rejection of the null hypothesis and the acceptance of the alternative hypothesis, which states: "There is a statistically significant effect of profitability center on achieving competitive advantage in Yemeni food industrial companies."

As shown in the table, the value of the regression coefficient for the independent variable was (0.615), and the value of the regression constant was (1.745), with the t-value being statistically significant at the significance level of (0.05). This proves that the regression coefficient is statistically significant. It can be predicted in the future for achieving competitive advantage in Yemeni food industrial companies according to the following regression equation: Achieving competitive advantage in Yemeni food industrial companies = (0.615) (Profitability center) + (1.745).

Testing the third sub-hypothesis: Null hypothesis (H1):

"There is no statistically significant role for accountability regarding the investment center in achieving competitive advantage in Yemeni food industrial companies."

Table No. (10) Correlation Coefficient, Coefficient of Determination, and Simple Linear Regression:

Test Type	Statistic	Value
T-test	Sig. (T)	0.000
	T value	14.168
	Beta (B)	0.679
ANOVA	Sig. (F)	0.000
	F value	200.741
Model	R^2	0.63
	R	0.79

It is evident from Table (10) that the correlation coefficient reached (0.79), which indicates that there is a strong, positive, and statistically significant relationship between the investment center and achieving competitive advantage in Yemeni food industrial companies. It is also evident that the value of the coefficient of determination reached (0.63), meaning that the application of the investment center affects the achievement of

competitive advantage in Yemeni food industrial companies by (63%), while the remaining impact is attributed to other factors. It is evident from the use of one-way ANOVA that the F value is statistically significant at the 0.05 level, meaning there is a statistically significant effect, and it is possible to predict in the future the impact of the investment center on achieving competitive advantage in Yemeni food industrial companies. This confirms the rejection of the null hypothesis and the acceptance of the alternative hypothesis, which states: "There is a statistically significant effect of the investment center on achieving competitive advantage in Yemeni food industrial companies."

As shown in the table, the value of the regression coefficient for the independent variable was (0.679), and the value of the regression constant was (1.537). The t-value was statistically significant at the significance level of (0.05). This proves that the regression coefficient is statistically significant. It can be predicted in the future for achieving competitive advantage in Yemeni food industrial companies according to the following regression equation: Achieving competitive advantage in Yemeni food industrial companies = 0.679(Investment Center) + 1.537.

RESULTS

1) Level of Responsibility Accounting Implementation: The study results showed a high level of implementation of the responsibility accounting system in the companies under study, with a response rate classified as "very high." The overall mean score reached (4.21), corresponding to (84.2%), indicating that the companies are keen on applying responsibility centers and relying on them in managing their operations.

2) The relative ranking of the dimensions of responsibility accounting: The study results showed a variation in the level of interest in the dimensions of responsibility accounting. Where "cost center" ranked first in terms of actual application, followed by Profitability center, and then investment center. This ranking indicates that companies primarily focus on operational and regulatory aspects and cost control, compared to long-term investment trends.

3) Level of Competitive Advantage: The results indicated that the level of competitive advantage in the companies under study was rated as (high), which demonstrates these companies' ability to implement cost-reduction strategies, improve quality standards, and respond quickly to market demands (delivery speed), in addition to their high flexibility in facing changes.

4) Relationship between variables: The results of the correlation coefficient test demonstrated a strong and statistically significant positive correlation between the implementation of responsibility accounting and the achievement of competitive advantage. Statistically, this result means that any improvement in the efficiency of applying the responsibility accounting system is necessarily followed by a tangible enhancement in the company's competitive capabilities.

5) The impact of responsibility accounting on competitive advantage: The results of the simple linear regression analysis confirmed a significant positive effect of responsibility accounting on achieving competitive advantage. The value of the coefficient of determination was (0.65), indicating that the responsibility accounting system explains 65% of the changes occurring in the competitive advantage of companies, while the remaining percentage is attributed to other factors outside the scope of the current model.

RECOMMENDATIONS

Based on the study's problem, objectives, results, and hypothesis testing, the study recommends the following:

1. Enhance the application of responsibility accounting in an integrated manner, achieving a greater balance between cost centers, profitability, and investment, ensuring optimal resource utilization and supporting sustainable competitive advantage. Enhancing the application of responsibility accounting in a comprehensive manner, while achieving a greater balance between cost centers, profitability, and investment, to ensure optimal resource utilization and support sustainable competitive advantage.

2. To enhance the focus on the investment center to a greater extent, given its relatively low level f application compared to other centers, by improving the efficiency of managing this center and maximizing its role in supporting the overall performance of the company. Enhancing the focus on the investment center to a greater extent, given its relatively low level of implementation compared to other centers, by improving the efficiency of its management and maximizing its role in supporting the overall performance of the company.

3. Linking the outputs of responsibility accounting to the strategic goals of the company, which contributes to supporting managerial decision-making and achieving competitive advantage. Linking the outputs of responsibility accounting to the strategic objectives of the company, which contributes to supporting managerial decision-making and achieving competitive advantage.

4. Developing accounting information systems and utilizing modern technologies, which contributes to providing accurate and timely information to support all responsibility centers and enhance their ability to contribute to competitive performance. The development of accounting information systems and the employment of modern technologies, which contribute to providing accurate and timely information to support all centers of responsibility and enhance their ability to contribute to competitive performance.

5. Promoting a culture of accountability and transparency in the companies under study, and encouraging employees to take responsibility and improve performance, as this has a direct impact on enhancing competitive advantage. Promoting a culture of accountability and transparency in the companies under study, and encouraging employees to take responsibility and improve performance, as this has a direct impact on enhancing competitive advantage.

6. Specialized training and qualification for personnel working in the accounting and administrative fields, thru training programs that enhance their understanding of the concepts of responsibility accounting and its importance in achieving competitive advantage. Specialized training and qualification for personnel working in the accounting and administrative fields, thru training programs that enhance their understanding of the concepts of responsibility accounting and its importance in achieving competitive advantage.

7. Conduct future studies that address other variables that may affect competitive advantage, such as modern cost systems, governance, digital transformation, and their applications in various industrial and commercial sectors, to enhance scientific knowledge and provide additional practical recommendations. Conduct future studies that address other variables that may affect competitive advantage, such as modern cost systems, governance, digital transformation, and their applications in various industrial and commercial sectors, to enhance scientific knowledge and provide additional practical recommendations.

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