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The Role of Actuarial Accounting in Achieving Financial Sustainability for the State Employees' Retirement Fund in Iraq

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Abstract

This research aims to demonstrate the role of actuarial accounting in achieving financial sustainability for the pension fund. The weaknesses in the State Employees Retirement Fund's administrative structure and financial system, along with the increase in the number of employees, negatively affected the ability to meet retirees' dues. To achieve the research objectives, a questionnaire was designed and distributed to the study community, comprising professors of accounting and financial sciences from educational institutions of various specializations and specialized employees of the pension fund. The research yielded the following results: the application of actuarial accounting in the State Employees Retirement Fund in Iraq helps sustain the fund's resources to meet retirees' financial dues. Based on the results, the research recommended adhering to accounting principles to achieve financial sustainability for the pension fund.

Keywords: *Actuarial accounting, financial sustainability, retirement fund*

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The first axis is research methodology

First: The research problem

The large and continuous increase in the number of employees referred to retirement. The weaknesses in the State Employees Retirement Fund's administrative structure and financial system will affect its financial position. Thus, it will not be able to meet its financial obligations at present or in the future, which may require financing the deficit through the state's general budget. The following question represents the research problem:

(Will adopting actuarial accounting be reflected in achieving financial sustainability for the State Employees Retirement Fund in Iraq?)

Second: Research objectives

The study aims to demonstrate the role of actuarial accounting in achieving financial sustainability for the State Employees Retirement Fund in Iraq.

Third: The importance of the research

The importance of the research stems from the importance of the State Employees Retirement Fund in Iraq and the financial resources provided to a large segment of society, and how to maintain the continuity and sustainability of providing these funds, through developing and diversifying funding sources to meet current and future challenges, by predicting the financial status of the fund by relying on actuarial accounting.

Fourth: Research hypothesis

The research is based on the hypothesis that adopting actuarial accounting will lead to financial sustainability for the State Employees Retirement Fund in Iraq.

Fifth: Research Methodology

In formulating the research problem and objectives, the researcher relied on the deductive approach by reviewing previous research on the research vocabulary, and on the inductive approach by shedding light on the State Employees Retirement Fund in Iraq.

Sixth: Research community and sample

The research community is represented by the State Employees Retirement Fund in Iraq, while the State Employees Retirement Fund, Wasit Branch, represents the research sample.

The second axis is the theoretical aspect.

First: The role of actuarial accounting in pension funds

Actuarial accounting is very important because it helps reduce financial losses and limit their impact. This profession has helped develop many insurance companies, pension funds and other sectors and preserve their investments and reduce their financial losses through the predictions made by actuaries that contribute to knowing the size of expected losses and trying to reduce them, In general, it is based on predicting the future to avoid risks, which is why many universities around the world have become interested in this profession (1). Actuarial studies are built on a scientific basis, grounded in precise mathematical theories that incorporate financial, economic, and social information to estimate future risks. These studies contribute to measuring the degree of risk and its impact on institutions' financial positions, and to developing alternative plans to address these risks and prevent financial distress that may expose institutions to bankruptcy (2). Actuarial financial reports can increase the attractiveness of investment and enhance the effectiveness of business valuation management, as their content reflects the institution's economic prospects and the division between operational and financial activities. Through actuarial financial reports, the investor sees an immediate change in economic value, the immediate evaluation process is greatly facilitated, and the real investor sees the potential benefits of investing financial resources and the prospects of long-term returns on investment.

In other words, preparing actuarial management reports is useful for implementing the institution's strategic objectives and for enhancing the effective management of investment project evaluation. The actuary is represented by the financial engineer and the social mathematics engineer, as he applies mathematics, statistics, and financial affairs to design and implement appropriate pension systems and to analyze data. He works on applying statistical and mathematical principles to prepare probability tables related to risks, accidents, diseases, disability, unemployment, and retirement, in addition to analyzing investment returns and

general expenses of institutions and working to achieve a balance between assets and liabilities, as well as assisting institutions in financial and accounting tasks (3). (Ahmed & Wathik) believe that the goal of actuarial accounting in pension funds is to determine the amount of funding that pension funds need to pay their expected future obligations, such as pension salaries that pension funds failed to finance in their plans. Actuarial accounting is the set of methods used by insurance companies and pension funds to provide sufficient funds to meet their future obligations, such as annual premiums. It is defined as being based on the study and analysis of risks, combining several sciences such as (mathematics - probability - statistics - finance - economics - accounting - investment - risk management - insurance - computers) by taking advantage of the appropriate theories, models and equations from these sciences to build actuarial hypotheses to come up with expectations close to the truth of what may happen in the future of financial losses and risks associated with shareholders, retirees and assets, and determining the value of appropriate financing for future benefits (4).

The duties of the actuary can be stated as follows (5):

1- Providing accurate information, reports, and actuarial data on the current and future financial status of the institution.
2- Auditing the financial position of economic units and assessing the ability of those units to meet their future obligations.
3- Reviewing the institution's investment plans and policies and making recommendations.
4- Providing a professional and objective opinion on all actuarial work, free from ambiguity and interpretation, in accordance with the concepts and principles commonly known in the profession.
5- Commitment to maintaining the confidentiality of information related to the financial and technical status of the institution and not to provide incorrect information about the institution to external parties.
6- Analysis of investment returns for institutions.
7- Working to achieve a balance between the institution's assets and liabilities.
8- Contribute to the legislation of regulations and risk analysis.

Second: Principles of actuarial sciences

Actuarial science evaluates financial risks in insurance and finance using mathematical and statistical methods. Actuarial science has become an official mathematical discipline as demand for long-term insurance, such as life insurance and annuities, has increased. There are principles of actuarial sciences, including the following (6):

1- The principle of financial protection / The existence of multiple risks that threaten various activities necessitates the establishment of financial protection systems to address these risks or reduce their losses. The actuary, with his scientific and professional experience, understands and analyzes the topics and finds appropriate solutions to protect them financially. Retirement funds, in themselves, provide financial protection against many risks, including illness, disability, and occupational accidents.
2- The principle of dealing with random variables / The actuary is based on the principle of dealing with random variables by studying and analyzing economic phenomena and predicting future situations to reduce uncertainty and find financial solutions for retirement funds by employing statistical sciences and probabilities.

3- The principle of the time value of money / Actuaries are interested in this principle to find the present value because institutions are affected by financial aspects and the inflation factor over time, and determining the financial equivalent at a specific time.

4- 4- The principle of conservatism / Actuaries are interested in the principle of conservatism by working on hypotheses that are consistent with events and their development in the future, and working to provide possible modifications based on experience and professionalism to reduce the percentage of uncertainty. The work of actuaries is characterized by conservatism in their estimates and calculations, and by the adoption of conservative hypotheses regarding population growth, investment rates, and interest rates. The principles of actuarial science can be illustrated in Figure No. (1):

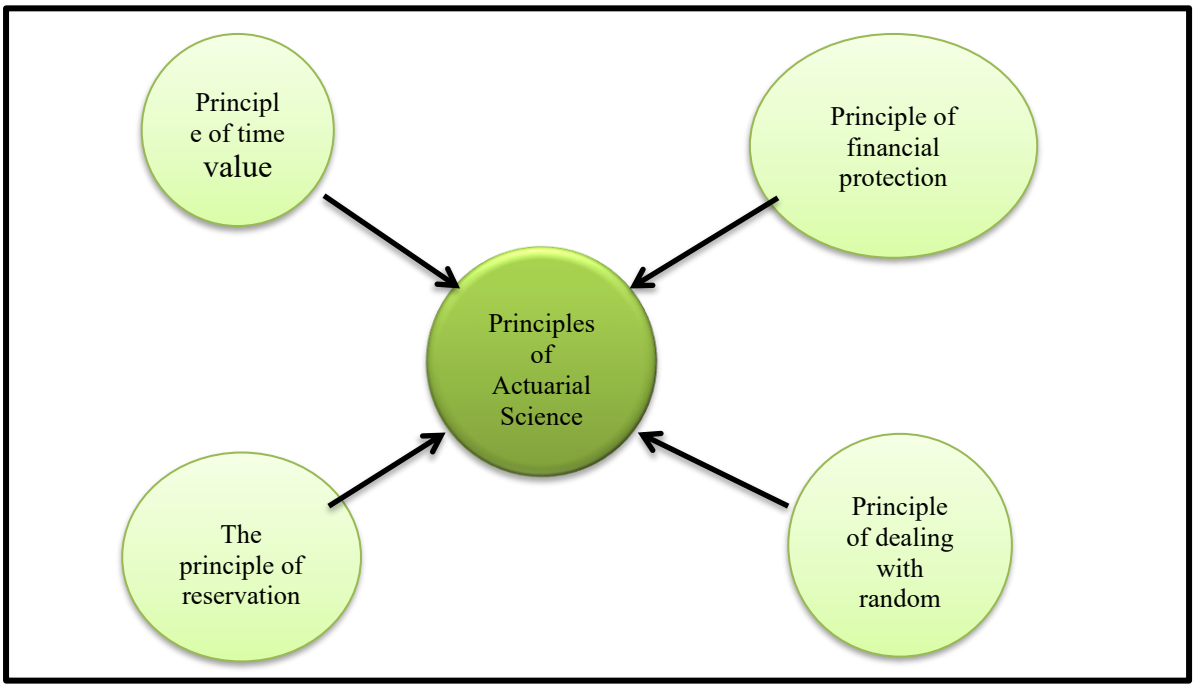

Figure 1: shows the principles of actuarial sciences

Third: The concept of pension funds

Pension funds are viewed as open systems because they collect and accumulate contributions from employees (members) and their sponsors (employers who set up the pension fund), invest the contributions, and retain the proceeds and oversight for the benefit of members upon retirement, Terzier sees pension funds as a group of financial assets managed by financial institutions in order to meet their future pension obligations, which are obtained and collected from the pension contributions of participants in pension plans, In the same context, (Kieso &) sees that the retirement fund in any country is an institution or a legal and accounting entity that maintains a set of accounting books and prepares its own financial statements starting from receiving the money (contributions) that are paid by the employee members or the government and investing the surplus thereof until paying it again as salaries and retirement bonuses, as retirement funds are a system whereby the government or employers pay salaries and bonuses to retired employees in exchange for the services they provided during their years of work, as

amounts are deducted from the employees as contributions to the fund, and the government and employers also contribute by paying a sum of money to the fund (7).

Fourth: Retirement fund requirements

The investment aspect after retirement is an important area for the sustainability of pension funds. There is a set of requirements that must be met by the funds, including the following (8):

1- Efficiency – Efficiency relates to the costs and returns of investment and the labour market impact of pension fund design. Providing pensions and focusing on disclosure to ensure members get the best results. Good governance is very important to ensure members get the best possible returns.
2- Sustainability – Sustainability is about financing the promises of the public or private database and the ability to afford the contributions made by employers and employees. Political sustainability should also be a key focus, as pension systems must be maintained across multiple election cycles. This places a premium on using pension committees to build consensus.
3- Coverage – Coverage of what proportion of the population in question contributes to and receives pensions, with informal workers covered.
4- Security – This concerns the security of assets and the reliability of the promised pensions, and the central role of the regulator and supervisor. This is crucial for all private pensions, but the NDC system must also be subject to an external audit. It is essential to establish and maintain public confidence for the robustness of the payout formula, and to ensure the accuracy of inputs (such as changes in mortality rates or wages)

Fifth: Theories of retirement

1- **Stakeholder Theory:** This theory was founded by Edward Freeman in 1984, and it states that stakeholders are groups and individuals who benefit from or are harmed by the decisions and actions of economic units; they include shareholders and other business financiers, suppliers, creditors, employees, consumers, and stakeholders. The main idea of stakeholder theory is that an organization should be viewed as a group of stakeholders for the purpose of managing needs and interests. In the case of a pension fund, the main stakeholders are pensioners and contributors to retirement savings accounts. (9).
2- **The box theory:** Economist William Joseph first established the theory of fund accounting in 1947 in his book "The Fund Theory of Accounting and Its Implications for Financial Reporting." According to the Dictionary of Accounting Terms, the fund theory is a system applied to governmental organizations and non-profit entities, such as charitable organizations and hospitals. A fund comprises a group of assets that are restricted for specific purposes. Each fund has assets restricted for specific purposes and liabilities that determine the restrictions on those assets. The agents who screen and monitor on behalf of savers are not financial intermediaries but active counterparties who themselves offer a specific product that individual investors cannot offer savers, namely, risk coverage (10).

3- **The theory of financial intermediation:** The theory of financial intermediation was first traced in the 1960s to the work of a financial intermediary, an entity that acts as an intermediary between two parties in a financial transaction. It is important to examine the role of pension funds as intermediaries and how they enhance capital markets. Proponents of the current mediation theory have argued that although pension funds may not make commitments, they play a fundamental role by influencing the structure of stock markets and, in turn, enhancing the efficiency of financial systems. The current theory of financial intermediation holds that intermediaries reduce transaction costs (11).
4- **The theory of immunization**: The term "immunization" is used to describe the investment of assets in such a way that the current company is immune to a general change in interest rates. Proponents of this theory believe that a pension fund should have sufficient assets to cover liabilities, so that the factors that affect the value of liabilities also affect assets in a similar way. According to this approach, financial resources must be “immunized” against loss. This means that liabilities are backed up in a way that protects the fund in the event of a loss (12).
5- **Resource dependence theory:** This theory focuses on the relationship between pension fund managers and the fund’s external environment to contribute to providing and securing the fund’s basic resources. The efficiency and experience of fund managers are of great importance in managing and investing the fund’s money. There is a need for actuarial experts to assess the fund’s financial position, as fund management seeks to rely on its own resources and control access to scarce resources by developing fund management strategies rather than relying on other institutions to obtain resources (13).

Sixth: The basic principles that must be taken into account when investing retirement fund funds

Investing money means exploiting it in the best possible way to increase the rate of return on investment. The aim is to raise income levels and improve the standard of living. About investing pension fund money, there are basic principles that must be taken into account and followed in the investment process of pension fund money, including the following (14):

1- **The need to invest in reliable means:** Investing pension fund reserves is essential in directing the investment of pension fund funds within channels that preserve the invested capital and its purchasing power without any decrease, away from economic and political fluctuations, speculation, or risks.
2- **The principle of state guarantee for investment:** As pension funds represent one of the basic functions of the state, it is the one that sets its laws and sponsors it, and through it, participation rates are deducted, whether from workers or employers, and it, in turn, provides benefits to its beneficiaries. Hence, the importance of the state’s intervention as a guarantor of its investments, thereby providing stability to them. This is done by representing the state (government) through the boards of directors of retirement institutions, which set investment approaches and policies.
3- **Achieving the highest rate of investment of financial surplus:** This is done through a careful study of the investment plan to ensure that the financial surplus is not lost in whole or in part, by anticipating risks and avoiding as much as possible the dangers and risks, and taking the necessary precautions against economic crises.

4- **Investment diversification:** Investment plays an important role in the continued ability of economic units to meet their financial obligations towards their subscribers. Investment benefits are a major source of income in addition to monthly contributions from employees and employers. This requires allocating investments according to a strategy designed to achieve long-term investment returns.
5- **Orientation towards responsible investment:** This means that environmental, social, and governance factors must be studied to make the appropriate decision about which investment sectors the funds' investments should be directed to comply with the standards of responsible investment (financial sustainability).
6- **Geographically diverse assets:** This means that there should be diversity in investments in terms of the size of investment inside or outside the country. This is determined by controls approved by the Board of Directors of the pension fund in each country, and this diversity is reflected in several matters, including profitability and risk reduction.
7- **Clarity of objectives:** Clarity of objectives is one of the important principles and considerations that must be taken into account when talking about pension fund investments. Therefore, we must first know the purpose of these investments. Funds are primarily invested to develop and increase them, and to obtain benefits and returns that help pay the obligations these funds are required to fulfill towards the beneficiaries.
8- **Independence from political intervention:** To invest effectively and successfully, decisions regarding pension fund investments must remain consistent with the set objectives, be sound, and be free from political interference. The administrations of these funds must enjoy complete independence in their work and decisions from governments, and this is achieved by increasing the representation of employers' representatives, labor unions, and insured persons on the boards of directors of the funds.

Seventh: Factors affecting the sustainability of pension systems

These factors can be explained through the following (15):

1- **The demographic factor:** The demographic factor is one of the factors affecting the sustainability of retirement systems, as this factor includes many indicators, such as changes in fertility and mortality rates, and increasing rates of life expectancy upon retiring. The demographic factor is the backbone of reforming retirement systems in various countries, to maintain their financial sustainability, given its contribution, along with economic and financial crises, to creating imbalances in these systems.
2- **The economic factor:** The economic factor shows the various changes that occur in wage growth rates such as (the general price level and employment levels) in addition to showing the changes in the rates of return obtained from the financial markets during the employment period of the workers, as the decline in the returns of the values acquired through contributions or savings may lead to the inability of the retirement system to provide benefits during a period of declining returns on its employment.
3- **The political factor:** The political factor is one of the most important factors in achieving financial sustainability for pension systems, due to the difficulty of decision-making and excessive financial promises to society. Its impact on the sustainability of the pension system can also be seen in the system's design or in insufficient funding to address economic and social changes. It is noteworthy that the political factor in

Sweden in 1994 contributed significantly to saving the retirement system and maintaining its sustainability, as 80% of members of parliament voted to retain the previous system, which had proven economically and financially ineffective.

Eighth: The role of financial sustainability in retirement funds

Retirement system sustainability is defined as the ability of plan boards and managers to be responsible investors, active stewards, and allocate capital to economic activities with desirable social outcomes. Half of OECD countries have taken measures to improve the financial sustainability of their pension systems over the past few years. Sustainable pension development is of fundamental importance to social and economic development, as it closely relates to stimulating local economies and government income at the national level. One of the main determinants of providing a secure and reliable pension for retirees is the financial sustainability and performance of the pension fund, as these are the criteria that translate into income assessment and measure its performance. However, there has been little understanding of this variable's importance because the concept assumes different dimensions when viewed from both short- and long-term perspectives. Therefore, Financial sustainability and pension fund performance are important preconditions for providing adequate and effective pension provisions in the future. However, to ensure the future of retirees, assessing the pension fund's financial sustainability and performance is paramount, as it will secure their lives after retirement. Therefore, if it is possible to secure future retirees, to ensure the fair value of the real situation of their financial sustainability and performance, and specifically pension funds can contribute to sustainable development by investing and directing financial savings from investors towards business projects related to sustainable development such as (business sector, agriculture, health care, infrastructure and technology sectors), as diversifying pension funds investments will reduce risks (16).

There is a set of mechanisms to achieve financial sustainability for the pension fund, including the following (17):

1- Diversifying funding sources: This stipulates adding additional funding sources other than subscriptions, to establish the principle of supplementary funding for pension funds, which works to increase their capabilities in improving the quality of interest.
2- Rationalization of expenses: Expenses are rationalized by improving administrative control within the framework of combating multiple violations and fraud in the field of retirement pensions.
3- Developing methods for collecting contributions and subscriptions: This is done through legal and technical tools. The collection system must also be improved and developed by activating control systems and implementing an effective, efficient information system.
4- Accounting and control aspects of the fund's funds: Designing and establishing appropriate control mechanisms and adhering to accounting aspects to determine the financial status of the retirement fund are very important to ensure that fictitious compensation is not paid to fictitious subscribers.
5- Investing pension fund money: This is done by drawing up effective and efficient investment policies for pension fund money that achieve social and economic benefits.

Ninth: Challenges of pension funds

There are several challenges facing pension funds, which include the following challenges (18):

1- Full coverage of IMF expenditures: This challenge is growing and increasing in middle- and low-income countries, where the vast majority of the world's population still lacks full coverage of IMF expenditures due to the increasing prevalence of informal labour in many countries.
2- Funding Challenge: Pension funds face a critical challenge in achieving financial sustainability and keeping fund assets invested more efficiently. Investment decisions are a key component of beneficiary benefit funding programs.
3- Administrative Challenge: Fund management is one of the challenges facing pension funds, as effective management can create different social systems and allocate resources more effectively.
4- Early retirement: loss of human resources and competencies. It represents a financial burden on pension funds by requiring them to pay salaries to new retirees.
5- Increased likelihood of individuals leaving the labour market, and thus claiming retirement benefits, especially in the private sector.
6- Pension Fund Governance.
7- The decline in the value of the fund's assets had a negative impact on the pension fund's budget.
8- Providing security and optimal returns by monitoring the work of fund managers.
9- Focus on simplicity in system design to achieve complete transparency in contributions and returns.

The third axis: the applied aspect

First: Tests of validity and reliability of the questionnaire

The validity test shows the accuracy and efficiency of the questionnaire items for the research topic **(the role of actuarial accounting in achieving financial sustainability for the State Employees Retirement Fund in Iraq).** The researcher used the content validity method by comparing peripheral evidence. The research used the reliability coefficient method to prove the reliability of the data obtained from the research sample's answers to the questionnaire items. The greater the value of the stability coefficient is (0.700), the higher the stability, and the test results are as follows:

1- Content validity test by peripheral comparison of the role of actuarial accounting in achieving financial sustainability of the State Employees Retirement Fund:
The researcher used the method of content validity by peripheral comparison to assess the extent to which the questionnaire paragraphs accurately reflect the research content. This is done by using the (T-test) method to compare the two mediators. After arranging the data in ascending or descending order and withdrawing a percentage (27%) from the top and bottom of the data, the condition of validity in the questionnaire data will be achieved when the calculated (T) value is significant. The method of content validity by one-way comparison is used to confirm that the five items of the independent variable (actuarial accounting) are the best representation, the ten paragraphs related to the dependent variable (financial sustainability of the pension fund) are the best representation, and the results can be observed through Table 1.

Table 1: Oceanic comparison of the role of actuarial accounting in achieving sustainability

Search variables	T-test	probability value	Comment
Independent variable (x)	15.023	0.00	Content validity requirement
Dependent variable (y)	13.284	0.00	Content validity requirement
All questionnaire items	15.725	0.000	Achieving the condition of content validity in all questionnaire paragraphs

Source: Prepared by the researcher based on the results of the SPSS-V23 program.

2- Descriptive analysis of the sample's answers to the paragraphs of the actuarial accounting questionnaire and its role in achieving financial sustainability for state employees' pension funds using the arithmetic mean to show the extent of the sample's answers to the questionnaire paragraphs Using the relative importance scale to indicate the percentage of agreement on the content of the paragraph and the intensity of the sample's answers on the content of the questionnaire's paragraph. The hypothetical mean of (3) was used to determine the direction of the answers to the paragraphs. Finally, the researcher used the answer strength matrix that shows the level of response of the sample individuals to the questionnaire paragraphs as follows:

A- If the arithmetic mean falls within the category between (1.8 - 1), then the strength of the answer is in the direction of (complete disagreement) and at a (low) level.

B- If the arithmetic mean falls within the range between (1.8-2.6), then the strength of the answer is in the direction of (disagreement) and at a (low) level.

C- If the arithmetic mean falls within the category between (2.6-3.4), then the strength of the answer is towards (neutrality) and at a (moderate) level.

D- If the arithmetic mean falls within the category between (3.4-4.2), then the strength of the answer is in the direction of (agree) and at a (high) level.

E- If the arithmetic mean falls within the category between (4.2-5), then the strength of the answer is in the direction of (completely agree) and at a level of (very high).

3- Descriptive analysis of the level of sample responses to the actuarial accounting paragraphs:

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Table 2: Levels of answers of the research sample on the independent variable questionnaire: actuarial accounting

	Paragraph text	Standards					Statistical indicators		
		Totally agree	I agree	neutral	I do not agree	I totally disagree	Arithmetic mean	standard deviation	Application level
1	Actuarial accounting contributes effectively to achieving financial sustainability for the State Employees' Retirement Fund	86	12	1	0	1	5.686	0.724	very high
2	Actuarial accounting determines a fair basis for distributing the income of the pension fund for state employees.	74.5	21.6	3.9	0	0	5.421	0.809	very high
3	Actuarial accounting is used to measure future risks.	62.9	27.3	8.7	1.1	0	5.511	0.822	very high
4	Actuarial accounting enables its users to face future risks to the employees' pension fund.	62	30.5	1.6	3.9	2	5.335	0.983	very high
5	Actuarial accounting contributes significantly to the development of the work of the State Employees' Retirement Fund.	50.2	38.2	3.7	7.9	0	5.117	0.911	very high

6	Actuarial accounting provides accurate information and reports on the current and future financial position of a state employee pension fund.	74.5	21.6	2.9	0	1	4.686	0.629	very high
7	Actuarial accounting helps assess the State Employees Retirement Fund's ability to meet its future obligations.	40.2	38.2	14.7	6.9	0	4.227	0.906	High
8	Actuarial accounting helps create financial protection systems to address risks or reduce losses facing the State Employees' Retirement Fund.	52	25.5	17.6	2.9	2	4.225	0.973	very high
						Actuarial accounting	4.099	0.985	High

Source: Research preparation based on sample answers based on SPSS-V23 program outputs.

We note from Table 2 that the value of the arithmetic mean for actuarial accounting is (4.099), which is greater than the value of the hypothetical arithmetic mean (3). If the arithmetic mean value within the category fluctuated between (4, 3, 2, 4) in the sample individuals' response strength matrix, this indicates that the sample members' answers agree on a high level of application of the questionnaire items. The standard deviation was (0.985) to show the degree of homogeneity and consistency of the answers to the actuarial accounting paragraphs.

Table 2 also shows that the highest level of application of the answers within the actuarial accounting paragraphs was achieved in paragraph 1, with an arithmetic mean of -5.686 and a standard deviation of -0.724. This means that most of the research sample members agree that actuarial accounting contributes effectively to achieving financial sustainability for the State Employees Retirement Fund in Iraq.

Table 2 also showed that paragraph 8 recorded the lowest level of application of the answer with an arithmetic mean of -4.225 and a standard deviation of -0.973. This shows us that the sample members agree that actuarial accounting contributes significantly to achieving financial sustainability for the State Employees Retirement Fund in Iraq.

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4- Descriptive analysis of the level of sample responses to the paragraphs on the financial sustainability of the State Employees Retirement Fund:

Table 3: Levels of answers of the research sample to the questionnaire of the dependent variable: financial sustainability of the pension fund

Paragraph text		Standards					Statistical indicators		
		Totally agree	I agree	neutral	I do not agree	I totally disagree	Arithmetic mean	standard deviation	Application level
1	Financial sustainability can be achieved by diversifying funding sources to increase the pension fund's capacity and improve the quality of its interest income.	76.5	20.5	2	1	0	4.796	07.09	very high
2	Rationalizing expenses and improving administrative control of the pension fund to combat any violations and fraud that may occur.	60.8	37.2	2	0	0	4.678	0.634	very high
3	Developing methods for collecting subscriptions and contributions helps achieve the State Employees Retirement Fund's financial sustainability.	64.7	27.4	4.9	2.9	0	4.629	0.827	very high
4	The financial sustainability of a pension fund is achieved by establishing appropriate control mechanisms and adhering to accounting standards to ensure the rationalization and proper disbursement of employee compensation.	70.6	25.5	2	2	0	4.737	0.725	very high

5	The financial sustainability of the pension fund is achieved through the development of effective, efficient investment policies for the State Employees' Pension Fund.	55	37.1	5.9	2	0	4.551	0.865	very high
6	Good management in establishing different social systems and allocating resources more effectively achieves financial sustainability for a pension fund for state employees.	54.9	41.1	2	2	0	4.470	0.740	very high
7	The financial sustainability of the State Employees Retirement Fund is achieved by setting clear goals for developing and increasing funds, and by obtaining benefits and returns that help pay the obligations the Fund must fulfill.	47.1	43.1	6.8	3	0	4.715	0.595	very high
8	Achieving financial sustainability for the employees' pension fund by analyzing economic phenomena and predicting future situations to reduce uncertainty and find financial solutions for the fund.	72.5	25.5	2	0	0	4.715	0.595	very high
Financial sustainability of the pension fund							4.647	0.699	very high

Source: Research preparation based on sample answers based on SPSS-V23 program outputs.

We note from Table 3 that the value of the arithmetic mean of the financial sustainability of the pension fund reached -5.647-, which is greater than the value of the hypothetical arithmetic mean (3). If the value of the arithmetic mean of the financial sustainability of the pension fund is limited to the category between (5.2-6) in the matrix of the strength of the response of the sample individuals, this indicates that the sample members' answers are in complete agreement and at a very high level of response. The standard deviation for the financial sustainability of the pension fund was -0.699, indicating that the responses to the paragraphs on the State

Employees' Pension Fund's financial sustainability were homogeneous. This analysis supports the State Employees Retirement Fund's interest in Iraq in the actuarial accounting strategy and its role and efficiency in enhancing the financial sustainability of its resources.

Table (3) also shows us that the highest level of application of the answers within the paragraphs of the financial sustainability of the State Employees Retirement Fund was achieved in paragraph (4.796), and a standard deviation of -0.699. This means that most of the sample members completely agree that the greater the interest in actuarial accounting, the greater the financial sustainability of the State Employees Retirement Fund. It was noted that paragraph (6) in Table (3) recorded the lowest level of application of the answer with an arithmetic mean of (4.470) and a standard deviation of -0.740. This shows that the sample members agree that stability is based on the actuarial accounting strategy.

5- Testing the research hypothesis:

A- The relationship between actuarial accounting and achieving financial sustainability for the pension fund for state employees in Iraq.

Table 4: Results of the research hypothesis test

Variables		**Correlation coefficient between variables**	**Z test**		**Interpretation**
Independent	**The follower**		Calculated Z-value	probability value	
Actuarial accounting	Financial sustainability of the pension fund	0.481	4.843	0.00	Accepting the hypothesis that there is a link between actuarial accounting and achieving financial sustainability for the State Employees Retirement Fund in Iraq.

Source: Prepared by the researcher based on the outputs of the SPSS-V23 program.

By conducting the Z-test to test the hypothesis of the association between actuarial accounting and achieving financial sustainability for the State Employees Retirement Fund in Iraq, the hypothesis is accepted if the calculated Z is (greater than or equal to) the probability Z value at a significance level of -0.05.

As Table 4 shows, the Siberman correlation coefficient indicates the strength and direction of the relationship between actuarial accounting and achieving financial sustainability for the State Employees Retirement Fund in Iraq.

Based on the results of Table 4, we accept the hypothesis of a correlation between actuarial accounting and achieving financial sustainability for the State Employees Retirement Fund in Iraq. The calculated Z value (4.843) is significantly greater than the probability Z value. In contrast, the correlation coefficient between the variables was 0.481, indicating a direct relationship between actuarial accounting and achieving financial sustainability for the State Employees Retirement Fund in Iraq.

Conclusion

1- The application of actuarial accounting provides appropriate tools to achieve financial sustainability for the State Employees Retirement Fund in Iraq to meet future financial obligations.
2- The use of actuarial accounting enhances the management and auditing of the accounts of the state employees' pension fund.
3- Harmonization in the use of actuarial accounting principles helps in the financial sustainability of the State Employees' Pension Fund resources.
4- The State Employees Retirement Fund did not focus or pay attention to the accountant or actuarial expert within the organizational and administrative structure.
5- Adopting actuarial accounting will contribute to enhancing accountability for the entities responsible for managing public funds and help reduce corruption and extravagance, which will be reflected in achieving financial sustainability.

Recommendations

1- Interest in applying actuarial accounting because of its important and effective role in achieving financial sustainability for the State Employees Retirement Fund.
2- Adherence to actuarial accounting principles in providing information that helps achieve the financial sustainability of the Fund's resources.
3- Creating an investment committee or division linked to the Board of Directors that works to develop a policy and strategy for investing the pension fund's money to achieve financial sustainability.
4- Interest in the accountant or actuarial expert to achieve strategic and investment goals to enhance financial resources and the ability of the State Employees Retirement Fund to meet its current and future obligations.

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