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Review Article

The Impact of Using the Analytical Procedure Methods in Preventing the Risks of Statistical Samples in Auditing, A Study According to Auditing Standards (520, 530)

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Abstract: Purpose: The study's aim to highlight how the relationship between the auditing standard Analytical Procedures (520) and reducing audit sample risks, a study according to the standard of auditing (530), and the complementary role between them. The sample chosen for the community matches the financial operations after a thorough assessment using analytical methodologies to gain reasonable certainty that the information presented in the financial statements and management report is reliable, fair, and unbiased. **Theoretical framework:** The theoretical framework of the study included introductory frameworks for analytical procedures in terms of the concept, objectives and methods they contain, as well as introductory frameworks for the concept of audit samples, their risks and the factors influencing their size, as well as the theoretical relationship between the impact of analytical procedures on audit samples. **Design/methodology/methodology**: In order to accomplish the aims of the study, the focus was on the inductive approach by highlighting the impact of the relationship to the standard of auditing for analytical procedures (520) in preventing the risks of audit samples, a study according to the standard of auditing (530), and the complementary role between them, And the impact and then the transition to the general path by generalizing the results that have been reached. Also, the deductive approach was relied on to strengthen definitional frameworks for the independent variable, analytical procedures, and the dependent variable, audit samples, through what is contained in books, theses, and scientific research, identifying the general aspects, and delving into the results of the practical side of the study. **Findings:** The results of the statistical analysis showed the following the existence of a significant relationship between the impact of the methods of analytical procedures in preventing the risks of statistical samples in the audit process. It measures either the significance level (Sig. F) of the model as a whole is (0.000), which is less than (5%) hypothesized by the researcher and should be analytical The analysis accepts the hypothesis of the model that there is a significant effect relationship between the utilization of the analytical procedures approach in the reduction of statistical sampling risk in the audit study based on auditing standards (520, 530).
Practical & Social implication: The audience of financial statement users expects the external auditor to obtain an audit report that includes a correct opinion on the management's report and financial statements and what they contain of honest and fair financial and non-financial information that reflects the actual reality of the economic entity that does not include material Misrepresentations, and since the external auditor does not It is audited throughout the fiscal year, but it is in the form of intermittent financial periods, and therefore it resorts to the statistical sampling method in auditing, and for the objective of obtaining reasonable assurance about whether the sample represents the community of financial operations, so we highlighted the impact of analytical procedures in preventing sampling risks and obtaining reasonable assurance that The sample represents the financial community.
Implications/Originality/Value: The external auditor uses analytical procedures methods from the beginning of planning the audit process until the conclusion or close to the conclusion of the audit process. To see if the conclusions drawn as a result of the statistical audit samples are identical

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to his expectations by proving testing the major hypothesis is that there will be a statistically significant association that demonstrates the effectiveness of analytical procedure methods in eliminating statistical sampling risks in the audit process.

Keywords: Analytical Procedures; Audit Samples; Audit Standards (520,530)

1. Introduction

The external auditor resorts to the sampling method in the audit, because he does not audit during the fiscal year in the institution under audit, but rather his audit. takes place after the end of the fiscal year, [1]. Due to the large number of businesses in the institution being audited, and the time specified for auditing is very limited, therefore, he resorts to the sampling method in auditing, which is ensured by the international auditing standard (530), [2] Also, its final dependence on the sampling method is according to the efficiency of the internal control system of the organization under audited. The auditor does not follow the audit sampling method except after evaluating the internal control system on the base of which the scoping of the audit is determined, if the selected sample is good and the control system is Appropriate and strong. The characteristics of the sample revealed by the test are the same characteristics that characterize the population as a whole. Also, when designing audit samples, the auditor should take into account the analytical procedures, it is an important tool for analyzing relationships between elements in financial statements or between components in both financial and non-financial statements. from the same fiscal period, [3] In addition, analytical procedures enable the comparison of financial information from various periods to identify discrepancies and gather appropriate evidence regarding account balances and transactions, Enhance the auditor's appreciation of the events and the nature of the organization's business activities, and identify paragraphs or items with high audit risks. Given the multiplicity of financial operations In the institution subject to auditing, the external auditor rarely audits all financial transactions, [4] Rather, he uses the sampling method in auditing, as he selects a representative sample from each type of operation and tests it in order to generalize the results reached to the community as a whole through the substantial examination of this sample taken from society according to analytical procedures that include many methods the method of comparing the information of the institution subject to audit with information at the level of the sector in which that institution operates, the method of time series, a comparison of the organization's audited information with the external auditor's predictions, financial analysis using the method of financial ratios, statistical analysis (analysis Regression as an analytical measure) and these methods will be discussed in detail in the theoretical aspect.

2. Literature Review

Analytical Procedures

Definition of Analytical Procedures: The analytical procedures are defined as the estimating of financial information by which relationships between financial statements are determined and each other and between them and the non-financial data are studied and through which the amounts recorded in the books are compared with the auditor's conclusions, [5]. It is also defined as the analysis of important ratios and indicators that are inconsistent with financial and non-financial information and relationships that deviate from the predicted amounts It is also defined as Assessing financial information by studying expected relationships between non-financial financial statements that result in the fluctuations and specific correlations that are inconsistent with the relevant financial processes or deviate from expected amounts. When analytical procedures yield results that reveal variances or relationships inconsistent with the auditor's anticipations [6], The auditor should be discussing any disagreement with management to determine that the management's responses can provide sufficient and appropriate additional audit evidence. Accordingly, the auditor requires to eliminate the risks of using professional judgment in addition to management inquiries, it requires applying additional audit procedures to obtain adequate and appropriate audit evidence, [7].

1. Objectives of Analytical Procedures

- Understanding the activity of the institution subject to audit: The use of analytical procedures provides knowledge of the customer's work and an understanding of the

activity that he practices by comparing the financial and non-financial information that has not yet been audited and that pertains to the current year with the same information that was audited in previous years and identifying changes in it that may represent These changes are specific events or important trends that may affect the selection of audit samples [1].

- Predicting the continuity of the institution under audit: Analytical procedures are recognized as an indication that determines the size of the financial difficulties experienced by the institution under audit, which leads to the financial failure of that institution and its lack of continuity in the future. [2]
- Reducing detailed tests: The analytical procedures are considered an essential guide to measure the comparative importance for items in the financial statements that require extensive detailed testing or otherwise, as well as supporting the analytical procedures for the honesty and fairness of the accounts balance in the financial statements. Evaluate and identify the large unexpected differences with the answers he gets from the economic unit management for the inquiries. If the external auditor is unable to obtain adequate and convincing explanations, he has recourse to the use of detailed tests to determine whether or not the differences are correct, [3].

2. Analytical procedures consist of several methods:

- The method of comparing the information of the institution subject to audit with information at the level of the sector in which that institution operates: This information can be obtained through what financial statements are published on the official websites of the financial markets. As this financial and non-financial information is circulated to all parties related to the institution (investors, the state, researchers, etc....). In which the organization operates, the image and position of the customer can become clearer. For example: the analysis may show that the company has lost part of its market share, [8].
- Time series method: It is intended by using the time series method to use financial information for a number of fiscal years and to extract financial ratios that can show the same financial values or they can appear different. For example, comparing the stock balance of the current year with the previous year's corresponding inventory balance. It includes the vertical financial analysis, which was based on the comparison between the numbers of the amounts of the components of the financial statements for the current fiscal period, such as comparing the net profit for a year with the sales of the same year. The horizontal financial analysis is called the moving analysis, and the main benefit of it is concentrated in knowing the elements of the fiscal data. Through this analysis, the financial volatility of an individual element of a financial statement evaluated over several fiscal years can be tracked [9].
- Comparison of the information of the institution subject to audit with the expectations of the external auditor through the use of financial data compared with non-financial data: The main thing in using non-financial data is the extent of the accuracy of these data spent.
- Financial analysis using the method of financial ratios: the concept of financial ratios revolves around the direction of converting accounting numbers into financial relationships between the financial statement items for the same financial entity, or between corresponding entities in the same sector to carry out Compare beyond the determinants of financial numbers such as size and industry type, and other factors that make Accounting numbers are not valid for comparison, but financial ratios are more suitable for being relative numbers or else percentages, thus helping to reveal Strengths & Weaknesses in the financial statements. This is done by comparing historical data to display the development over time. [10]
- Statistical analysis (regression analysis) as an analytical procedure: The regression method is an analytical procedure that works to clarify the accurate comparison between financial and non-financial data for two or more variables. Based on historical financial statements, [11].

Statistical Samples in The Audit

1. Definition of Audit Samples

means a method utilized when the external auditor will perform audit work for the category of financial transactions or account balances that comprise less than 100%. Its goal

is to make it possible for auditors to gather and assess data on certain attributes of chosen products in order to draw conclusions regarding audit samples taken from a population. The reason behind the usage of samples in the progression of control and auditing lies in the inability of the external auditor to carry out comprehensive examinations due to the large size of the projects and the multiplicity and diversity of financial operations, [12]. in addition to the high financial wages when conducting the comprehensive examination. Before conducting the various audit tests, the external auditor needs to decide for each audit procedure the size of the sample The appropriate method, as well as the mechanism for selecting the items of that sample from the community of financial operations that it represents, [13]. The method of sampling in the process of control and auditing is defined as withdrawing a group of transactions from the large community of financial operations subject to auditing to conduct testing and auditing and drawing conclusions in order to circulate them to the community. The use of samples in The audit relies on examinations of analytical procedures in evaluating the internal control system of the institution subject to audit, and if the examinations of essential analytical procedures are incorrect, this exposes the external auditor to sampling risks resulting from the adoption of a appropriate internal control system, which is otherwise. Despite the risks to which the auditor is referring to, however, is the statistical samples, however, the statistical sample in the audit can be usefully used in testing and evaluating financial transactions when the external auditor conducts a good examination of the three elements by the internal control system (accounting control and administrative control and internal control) and collects appropriate evidence of effectiveness and sufficiency through Analytical procedures, [14].

2. Factors affecting sample size in audit: [15].

There are a group of factors that affect sample size for control tests:

- The volume of the organization being audited; the external auditor may conclude that sampling is 100% if it is small. The auditor must make sure that a representative audit sample is taken in order to gather enough relevant audit evidence when the organization being audited is large.
- The item is considered highly important in the financial statements. the sample size will be very large, and on the contrary, when the level of relative importance of the item is evaluated as low, the sample volume will be lower.
- The scope of the audit's samples It depends for the kind of risk the external auditor is exposed to. The audit sample size for the financial statement item will need to be increased if the inherent risks are large since and the auditor will need to collect more evidence to support their findings. In addition, when control risks are The auditor will need to collect more evidence for support to assistance to their conclusion by taking more substantial actions.
- Usually the aim of the inspection is to ascertain The effectively designed and functioning of the internal control systems, by verifying the existence with certain control characteristics.
- The community of financial operations that which the external auditor intends to examine affects the amount of audit samples taken for examination. In the case of the community, it is the purchases invoices for the fiscal year or the sales lists for the fiscal year Inspection.

The Connection Between the Study's Variable

When taking a sampling approach to reviewing by the external auditor with insufficient analytical control procedures, the control and audit process will be exposed to two types of risks. For example, the external auditor concludes with a result from the sample taken that the balance of a particular account contains substantial errors, while in the actual reality of the community of this account it does not contain material misrepresentations, it prompts the outside auditor to increase size of the audit sample taken from the community and it will be a waste of time and costs, [16] As for the second type of sampling risk in auditing (risk of lack of reliance): it is that the external auditor concludes from the sample that the balance of a particular account does not contain material misrepresentations, while in the actual reality of the society this account contains material misrepresentations, that is, the auditor may accept Financial statements contain errors or material misrepresentations. This type of risk affects the effectiveness of the audit process because an auditor's judgment regarding the fairness and correctness of the financial statements is incorrect. Therefore, the external auditor, [17]. when using the sampling method in the audit, must defined the objective for the audit and specify for him the appropriate method of analytical procedures, which will include a study of the direction of the test. For example, suppose the goal of the

auditor is to supervise and audit the accounts of the creditors. In that case, the balances of the creditors' accounts in the statement of financial condition can be used to define the community. Here, the external auditor uses the method of horizontal analysis of the creditors' account, which is based on the comparison between the balances of the creditors' account in the statement of financial position over several fiscal years. The decision to apply statistical or non-statistical sampling methods is at the auditor's discretion as to the most effective way to obtaining sufficient and appropriate audit evidence. In the specific circumstances, whether the external auditor intends to utilize the sample in the audit to conclude the internal control system during a certain effective period, then the sample should include all the financial items related to that financial period in place. Analytical procedures should be used by the auditor towards the end of the audit when forming an opinion on whether the financial statements as a whole are consistent with the auditor's findings or forecasts [8]. Accordingly, the analytical procedure performed at or at approximately the end of the audit to enable the auditor must assess whether conclusions drawn from audit procedures are valid, and to verify these conclusions with respect to the separate constituents of the financial statements This will help the auditor reach an overall judgment about the plausibility of the financial statements.

3. Material and Methodology

This section provides Analyze the overall study model by identifying the correlation between the independent variable, the techniques of analytical procedures, according to the 520 audit standard, and the dependent variable, the threat of statistical samples in the audit process, according to the 530 audit standard, as follows:

Table 1. of the number of questions for the study variables

Number of Questions in the questionnaire list	variable
10	Methods of analytical procedures
10	Risks of statistical samples in auditing
"20"	The total

Source: Prepared by the authors (2024)

Description of the respondents in the research sample.

Table 2. Characteristics of the study sample

The ratio	S	The number is	Certificate	sequences
% 63.3	o	38	Ph.D	1
% 20	u	12	Master's	2
% 16.7	r	10	Bachelor's	3
100%	c e	60		Total

: Prepared by the authors (2024)

Calculating the Cronbach coefficient for the study variables :

Table 3. statement of the validity of the questionnaire

Kornbach alpha coefficient	The scale
0.90	Methods of analytical procedures
0.869	Risks of statistical samples in auditing
0.937	All variants

Source: Prepared by the authors (2024)

4. Results And Discussion

Questionnaire on the axis of analytical procedures methods according to auditing standard (520)

Table (4) shows the arithmetic means, standard deviations, level of response and its variable importance of analytical procedures methods according to the auditing standard

(520), as noted in the two tables, paragraph (2) which indicates (that the external auditor using the method of comparing the information of the institution subject to auditing with information at the level of the sector in which that institution operates helps the external auditor to understand the client's activity) obtained the maximum arithmetic mean of (4.38) and a standard deviation of (0.64). Paragraph (5), which indicates (that the external auditor uses the method of comparing the information of the institution subject to audit with his prospects of the external auditor gives the knowledge of Misrepresentations and financial fluctuations, especially when linking relationships between financial data and non-financial data) become the lowest arithmetic averages with an arithmetic mean of (3.8) and a standard deviation of (0.88), and this indicates the compatibility of the research sample answers and within the "high" response level. As for the variable working average level, the relative methods of analytical procedures according to the audit standard (520), the general arithmetic mean was (4.09), by a standard deviation of (0.759), and at a high level of response.

Table 4. for the arithmetic means, standard deviations, the level of response, and the relative importance of the methods of analytical procedures according to the audit standard (520) (N = 59)

, Relative Importance	, Response Level	, Standard Deviation,	Mean,	Phrase	Sequences
4	too high	0.82	4.11	The external auditor employs analytical procedures at every stage of the audit process, from the planning phase to the stage of formulating an opinion on the financial statements of the audited institution.	1
1	high	0.64	4.38	The external auditor employs the method of comparing the information of the institution subject, to audit with information at the level of the sector in which that institution operates helps the external auditor to understand the client's activity.	2
8	high	0.83	3.98	The external auditor's application of vertical financial analysis aids in identifying financial misstatements, and variations for that element within the same fiscal year.	3
7	high	0.78	4	The external auditor's application of horizontal financial analysis helps identify misstatements and financial fluctuations in that element across multiple fiscal years.	4
10	high	0.88	3.8	The external auditor's employ of the method of comparing the information of the institution subject to audit with the expectations of the external auditor contributes to identifying misstatements and financial fluctuations, especially when linking relationships between financial data and non-financial data.	5

9	high	0.70	3.9	The external auditor's use of the statistical regression method as an analytical procedure for two or more elements of the financial statements and counting them as independent and dependent variables contributes to the knowledge of fluctuations and financial misstatements.	6
2	too high	0.68	4.26	The analytical procedures are regarded as a fundamental framework in the work of external auditors for assessing the significance of the relationships among the elements of the financial statements that necessitate either extensive detailed testing or alternative approaches.	7
3	high	0.77	4.18	The analytical procedures bolster the external auditors' efforts to ascertain the accuracy and fairness of the account balances presented in the financial statements of the audited institution.	8
5	high	0.76	4.05	Analytica procedures can used as an indicator that determines the size of the financial difficulties experienced by the audited institution, which lead to the financial failure of that institution and its failure to continue in the future.	9
6	high	0.73	4.2	The application of comprehensive analytical procedures provides the external auditor with reasonable assurance regarding the reliability of the information presented in the financial statements.	10
	high	0.759	4.09		Total

Source: Prepared by the authors (2024)

• Questionnaire on the axis of statistical samples in the audit according to the audit standard (530):

Table (5) shows the arithmetic means, standard deviations, the degree of the response and their significance for the variable of statistical samples in the audit according to the audit standard (530). The internal control through the methods of analytical procedures on the basis of which the scope of audit samples is determined got the highest arithmetic averages of (4.30) and a standard deviation of (0.67). Paragraph (8), which refers to (of the factors affecting the efficiency and effectiveness of statistical audit samples, is the inherited risks of the financial statements element, and this can be addressed using the horizontal financial analysis method for that element and identifying inherited fluctuations and misrepresentations and following them up over several years) became the lowest arithmetic averages with an average The arithmetic value is (4.03) and a standard deviation of (0.75).

This indicates that the responses from the research sample are in agreement and fall within the "high" response level. As for the general rate of the statistical samples variable in the audit according to the audit standard (530), the general arithmetic mean was (4.16), with a standard deviation of (0.71), and at the level of the response "high".

Table 5. presents the arithmetic means, standard deviations, response levels, and relative importance for the statistical samples in accordance with auditing standard 530 (N=5).

, Relative Importance	, Response Level	, Standard Deviation,	Mean,	Phrase	Sequences
7	high	0.82	4.13	One factor that influences the size of statistical audit samples is the size of the institution. audited. This can be addressed through analytical procedures when using the method of comparing the information of the institution subject to audit with information at the level of the sector in which that institution operates in order to understand the activity and determine the appropriate sample size to avoid sampling risks.	1
4	high	0.64	4.185	One factor that influences the size of statistical audit samples is the relative importance of each element in the financial statements, and this can be addressed using the method of vertical financial analysis of the components of the financial statements and the assessment of the relative significance of each element. element and defining the appropriate sample to avoid sampling risks	2
10	high	0.83	4.03	One factor affecting the efficiency and effectiveness of statistical audit samples is the inherent risks associated with elements of financial statements, and this can be addressed by using the horizontal financial analysis method for that element and identifying the inherited fluctuations and misrepresentations and following them up over several years.	3
3	high	0.78	4.19	One of the factors influencing efficiency and effectiveness of the statistical audit samples is the control risks when they are high resulting for the weakness of the internal control system.	4
5	high	0.88	4.18	One of the factors influencing the efficiency and the effectiveness of the statistical audit samples is the risk of discovery when the internal audit procedures are insufficient. This can be addressed by using an intensive method for all analytical procedures that enhance the opinion of the external auditor with evidence.	5
9	high	0.70	4.08	One of the risks associated with statistical audit samples is the risk of increased dependence. When using the sampling method during an audit, external auditors need to carefully identify the purpose of the audit and select the appropriate analytical procedures.	6

8	high	0.68	4.1	One of the risks that the statistical audit samples are exposed to is the risk of lack of accreditation. The external auditor when using the sampling method in the audit is to determine the objective of the audit and determine for it the appropriate method of analytical procedures.	7
1	very high	0.77	4.30	The external auditor does not ues the method of statistical audit samples except after examining and evaluating the internal control system through the methods of analytical procedures on the basis which the scope of audit samples is determined.	8
2	very high	0.74	4.25	As a result of the employ of professional judgment, the external auditor was exposed to the risks associated with estimation. the statistical audit samples. To address this, we use the methods of analytical procedures in addition to inquiries to acquire sufficient and appropriate audit evidence.	9
6	high	0.77	4.16	The application of analytical procedures assists at the conclusion or near the conclusion of the audit process in evaluating whether it conclusions drawn as a result of the statistical audit samples are identical to its expectations or not.	10
	high	0.759	4.16		Total

Source: Prepared by the authors (2024)

• Examining for the relationship between the methods of analytical procedures and the risks of statistical samples in the audit.

Table 6. shows Matrix of correlation coefficients between the methods for analytical procedures and the risks of statistical samples in auditing

Risks of statistical sampling for audit	**Methods of analytical procedures**		
.846**	1	Pearson Correlation Coefficient	Methods of analytical procedures
.000		Sig. (2-tailed)	
60	60	N	
1	.846**	Pearson Correlation Coefficient	Risks of statistical sampling for audit
	.000	Sig. (2-tailed)	
60	60	N	
** The correlation is statistically significant at the 0.01 level (two-tailed)			

Source: Prepared by the authors (2024)

It is clear from the above table that there is a significant relationship between the methods of analytical procedures and the prevention of risks in statistical sampling during auditing, as outlined in auditing standards (520, 530).as the value of the correlation between the methods of analytical procedures and the risks of statistical samples in auditing was (846**.) at a significant level (0.01).

• Testing the impact relationship between the independent study variable, methods of analytical procedures, and the dependent variable, the risk of statistical samples in auditing.

Table 7. the effect relationship between the methods of analytical procedures and the risks of statistical samples in auditing

Morale level Sig	T test	Impact coefficient β	Bank name
0.000	4.479	0.000	independent variables
		1.135	Risks of statistical samples in auditing
		0.716	fixed limit
		146.283	R-squared is the coefficient of determination
		0.000	Test F

Source: Prepared by the authors (2024)

The above table clearly indicates that the fixed limit (1.135) has been reached. If the independent variable is equal to zero, and in the absence of any effect from the analytical procedures methods, the statistical sample in the audit process is approximately (1.135). The calculated value of (T) was (4.479). Compared to its tabular counterpart (1.671), we find that it is greater than the tabular T, with a degree of freedom of (60). The coefficient of determination (R^2) of (0.716) shows the effects that occur in the risks of the statistical sample of the audit process, and these effects are due to the effect of the independent variable, which is the analytical procedures methods. As for the additional effects, which total (0.284), they are due to variables that were not included in this model. The F-test and the significance level (sig) evaluate the overall significance of the model. It is worth noting that the estimated model is significant at a significance level of less than 5%. When comparing the calculated F with its tabular counterpart, we find that it is greater, as its value reached (146.283), while the tabular F reached (2.37), and the significance level (Sig. F) for the model as a whole is (0.000), which is less than the 5% threshold assumed by the researcher, and this supports the hypothesis of the model, indicating the existence of a significant influence relationship between the use of analytical procedures methods and prevention of statistical sample risks in auditing, as explained in auditing standards (520, 530).

5. Conclusions

The external auditor does not use sampling methods until the stage of audit when he has already assessed the internal control system, this evaluation entails analytical procedures which help determine the scope of the audit samples. The external auditor is also involved in analyzing the information of the institution being audited vis-a-vis the data of the industry within which the institution operates. This analysis is helpful to the external auditor in trying to understand the activities of the client. The overall findings of the statistical analysis confirmed an association between the variable under investigation and the dependent variable which in this case is the effect of the analytical procedures on controlling the risks associated with the statistical samples in the audit process. It measures either the level of significance Sig. F for the model as a whole which represents Never greater than (5%) which the researcher assumes and therefore must accept the hypothesis of the model there is a significant effect relationship which exists between the use of analytical procedures methods in preventing the risks of statistical samples in the audit study according to Standard auditing (520, 530).

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