



Research on the role of internal audits in ensuring the effectiveness of internal control systems in the Turkish public sector

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Abstract

The purpose of this research is to investigate the role of internal audit units in Turkish public administrations in ensuring and improving the effectiveness of their internal control systems within the framework of the internal control components of the Public Internal Control Standards, determined on the basis of the COSO (Committee of Sponsoring Organizations of the Treadway Commission) model. In our study, the survey method was used to collect data, and questions were answered according to a five-point Likert scale. In order to obtain evidence for the construct validity of the developed scale, a factor analysis was performed, and the components were examined in line with the factor analysis. In this context, statistical data obtained for each research question were examined with a one-way analysis of variance, a t-test and a factor analysis to determine whether there was a significant difference according to gender, experience in the field of auditing, education level, type of administration, or certification variables. The survey study was conducted among internal auditors who work in public administration in Turkey. It was determined that the internal auditors do not get sufficient support from senior management and employees in terms of organizational structure to ensure the effectiveness of the internal control system.

Keywords:

Internal audit
Internal control
Law No. 5018
Public internal control standards.

JEL Classification:

H83; M48; M42; M38.

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Publisher:

Scientific Publishing Institute

Received: 21 March 2023

Revised: 10 May 2023

Accepted: 25 May 2023

Published: 1 June 2023

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Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

1. Introduction

Law No. 5018 on Public Financial Management and Control was adopted in 2003 with the aim of harmonization with EU norms and was fully implemented in 2006. It replaced the classical centralized management approach with a decentralized management approach that combines administrative and financial responsibility through expenditure units to which appropriations are allocated. This new method of public financial management system was designed in compliance with internationally recognized norms and EU legislation. An attempt was made to strengthen the system using modern management tools such as multi-annual budgeting, strategic planning, fiscal transparency, accountability, accrual-based accounting, internal controls and internal audits (Koçak & Kavakoğlu, 2010). An internal audit is one of the most critical units involved in creating, implementing, developing and monitoring these management tools in the public sector. In this respect, internal audits have an essential role in realizing this understanding and adding value to the work of public administrations.

The definition of “internal control” in Turkey seems to be in line with the internationally accepted definition by COSO. In Article 63 of Law No. 5018, titled “Internal Audit”, the fundamental duty of an internal audit is “to evaluate and improve the efficiency of risk management, management and control processes of administrations' management, control structures and financial transactions...”. In addition, almost all of the clauses listed in Article 64 of the Law regarding the duties of an internal audit contain duties for strengthening the internal control system in the administration. In this context, one of the main reasons for the existence of internal audits in public administration is the evaluation and improvement of the effectiveness of the internal control system through a continuous, systematic and disciplined approach.

2. Literature Review

Studies on internal audits and internal control, both in theory and practice, increased in parallel with the developments in the accounting field. Especially in the 2000s, various accounting scandals in the world caused researchers to focus more on internal control and internal audits, and research on these issues has improved in terms of quality and quantity. This section briefly refers to some studies carried out on Turkey's public sector and globally regarding internal control and internal auditing.

In the research conducted by [Sarens and De Beelde \(2005\)](#) based on six case studies in Belgium, it was determined that the expectations of senior management and their approach to internal audits have an important role on the effectiveness of internal auditors ([Sarens & De Beelde, 2005](#)). In another study conducted in Ethiopia on the value adding role of internal audits in the public sector emphasized that the traditional audit approach focused on compliance is still dominant in the public sector, contrary to the value adding audit approach ([Mihret & Woldeyohannis, 2008](#)).

In research conducted on public institutions in Wales, it was stated that effective cooperation between audit committees and internal audit units contributes to corporate governance ([Davies, 2009](#)). In a study examining the effectiveness of internal audits in the public sector in Malaysia, it was concluded that the lack of personnel is the biggest obstacle to establishing an effective internal audit system ([Ahmad, Othman, Othman, & Jusoff, 2012](#)).

A study conducted on internal auditors working in the public sector in Kano state, Nigeria, emphasized that the current internal audit unit structure needs to be reviewed and the technical knowledge and skills of internal auditors need to be improved in order to increase the effectiveness of internal audits, especially in the field of information technology ([Unegbu & Kida, 2011](#)). In a study conducted on the effectiveness of internal audit units in Karnataka in India, the issues of improving the competencies of internal auditors, direct and regular reporting, cooperation with senior management, and the development of whistleblowing mechanisms were emphasized ([Vijayakumar & Nagaraja, 2012](#)).

In a study conducted in Italy, it was concluded that internal auditors, whose independence and competence are ensured, are effective in permanently eliminating the deficiencies of internal control systems ([Mazza & Azzali, 2015](#)). In a study conducted in Libya, it was revealed that the characteristics of internal auditors and the support of senior management have a significant positive effect on the effectiveness of internal audit activities ([Endaya & Hanefah, 2016](#)).

Academic studies in Turkey on the topic of internal audits have increased in parallel with global developments. Accordingly, in Turkey, between 1985 and 2017, a total of 468 works were carried out, including 601 post-graduates and 133 doctorates ([Kavut, Adiloğlu, & Güngör, 2019](#)). One of the first important studies on the role of internal audits in ensuring the effectiveness of internal control in the public sector was conducted by [Kepekci \(1982\)](#) titled “The Role of Internal Audit in Ensuring the Effectiveness of Internal Control System in Business”. In the research, in order for the auditors working in public economic enterprises to ensure the effectiveness of the internal control system, it was concluded that the staff of the audit board should be strengthened and that an internal audit standard should be determined.

Another study addressing the role of internal audits in ensuring the effectiveness of the internal control system was conducted by [Bicer \(2006\)](#). As a result of a study carried out on a non-public company, whose shares are traded on the stock exchange, it was concluded that the internal audit units should be directly affiliated with the board of directors or an audit committee to ensure the effectiveness of the internal control system and to ensure the independence of the internal audit units ([Bicer, 2006](#)). One of the important studies addressing the role of internal audits in ensuring the effectiveness of the internal control system is “The Role of Internal Audit Process on Control Activities: A Study on Public Financial Management and Control Subject” by [Mantar \(2013\)](#). In this study, the effectiveness of internal audit units in evaluating and developing control activities was examined. According to the results of the study, it was concluded that the internal audit activities within the scope of the control activities do not show the expected effect in the public sector ([Mantar, 2013](#)).

Another study that measures the effectiveness of internal audits in public administration is the research carried out by [Gokalp \(2013\)](#). As a result of the research, in addition to confirming that internal audits are effective in public institutions, it was also determined that an effective internal control system has not yet been established in public administration and that the employees of the institutions do not have sufficient awareness of internal audits ([Gokalp, 2013](#)). [Baris \(2019\)](#) provided an audit model for provincial directorates of national

education in accordance with contemporary audit approaches and proposed an increase in the number of internal audit staff in the Ministry of National Education to enable the internal auditors to work more effectively in provincial organizations.

A study was carried out by [Yıldırım \(2019\)](#) to evaluate whether internal control systems and internal audit functions are effectively implemented in public universities. The research found that internal control systems and internal audit units had been established in public universities where the survey was carried out, but these elements did not work effectively and the desired level could not be achieved.

Considering the existing research on the subject, a study has not yet been conducted to evaluate the effectiveness of internal audits in the public sector in Turkey. Whereas most of the existing studies examine the internal audit process, this work primarily investigates the effectiveness of the internal control system, which has been implemented in the Turkish public sector since 2006. Thanks to this study, the Public Internal Audit, which entered the public literature with Law No. 5018, was implemented with the primary duty "...to evaluate and improve the management and control structures of the administrations and the risk management, management and control processes of their financial transactions...". The results will reveal the current situation in terms of the benefits of the control system.

3. Methodology and Results

3.1. The Objective and Importance of the Research

This study aims to investigate the role of internal audit units, based on the COSO model in public administrations, in ensuring and enhancing the effectiveness of the internal control system within the framework of the internal control components (control environment, risk management, control activities, information & communication, and monitoring activities) included in the Public Sector Standard. Through this study, the current situation will be determined by measuring the effectiveness of the internal audit units working in the public sector in the evaluation and development of the internal control system, and the strengths and the improvable aspects of internal audits will be determined.

3.2. The Scope and Constraints of the Research

This study covers internal auditors employed in public institutions within the framework of the provisions of Law No. 5018. A total of 880 internal auditors who work in public administrations as of December 24, 2018, from the Current Full-Unoccupied Internal Auditor Staff by Administrations in the Announcements section of the official website of the Internal Audit Coordination Board, were accepted as the population of the research ([İDKK, 2018](#)). A questionnaire was used to collect data for the study from as many participants as possible by hand or electronically. In this context, 218 participants answered the questionnaire electronically and 66 by hand, giving a total of 284 participants. Accordingly, the number of respondents made up 32.3% of the research population.

The questionnaire sent to internal auditors was prepared by addressing only certain issues related to internal audit activities. This is considered to be a factor that limits the ability to comment on the general situation of internal audits.

Considering that the issues covered in the survey comprise five components, 18 standards and 79 general conditions in the Public Internal Control Standards, it is thought that reflecting these issues in all aspects will make it difficult to make a healthy evaluation in terms of participation in the survey and interpretation of the results. Therefore, among the components, standards and general conditions in the Public Internal Control Standards, the main headings that are considered to make the most contribution to the research have been selected. Another constraint of the study is that the determinations and evaluations were made in line with the opinions of only the public sector internal auditors who participated in the survey.

3.3. Research Method

The questionnaire method was used because it facilitates data analysis and rapid returns, and it provides easy access to people in the research universe.

During the preparation of the questionnaire used in the research, Public Internal Control Standards published by the Ministry of Treasury and Finance in Turkey was used as the main basis. In addition, relevant literature, previous survey studies, public regulations, and the expressions in the International Internal Audit Standards were used. In addition, before administering the questionnaire, it was examined and approved by the Anadolu University Ethics Committee.

The survey form consists of three parts. The first part, within the framework of the Public Internal Control Standards, contains 24 questions which are answered according to the 5-point Likert scale to measure the role of internal audits in ensuring the effectiveness of internal control. The second part consists of six questions to collect information on gender, experience in auditing, education level, type of administration and certification of the participants. The last section consists of one open-ended question for the participants to state if there are additional issues related to the research subject.

In this study, the overall aim was to look at the problem in an exploratory fashion. Therefore, the choice of an exploratory factor analysis (EFA) is purely based on the exploratory side of the study. A confirmatory factor analysis (CFA) was not planned at the time of the article submission.

3.4. Data Analysis Methods

The data obtained were analyzed with the help of SPSS. The 95% confidence interval was measured in all analyses.

First, the reliability of the developed scale and the consistency of items with each other were measured using Cronbach's alpha internal consistency coefficient, which was determined to be 0.921. Since the coefficient is between $0.80 \leq \alpha \leq 1.00$, it can be said that the scale used in the survey is highly reliable.

Factor analysis should be performed to determine the number of factors before evaluating the data. Factor analysis is one of the frequently used techniques in social sciences to obtain evidence for the validity of the constructs in scale development (Çokluk, Şekercioğlu, & Büyüköztürk, 2010). According to the KMO (Kaiser–Meyer–Olkin) and Bartlett test results, the KMO value of the questionnaire scale consisting of 24 items is 0.908 and the Chi-square value is 3811.479, $p < 0.000$. According to these results, the available data are sufficient and suitable for factor analysis.

In exploratory factor analysis, we give a meaning to each factor, and in order to do that, we look at the factor loadings. In a perfect world, one might only be interested in factor loadings bigger than 0.70, but generally, factor loadings bigger than 0.50 are used.

In this study, factor loadings less than 0.49 are not shown in the tables, which is a common approach in factor analysis. This makes it easier for the reader to give a meaning to each factor, otherwise there will be too many factors loadings that are not effective but are still shown in the table, and this creates complications when interpreting factors. The decision to leave out some of the factor loadings comes from statistics literature.

Accordingly, the existing data in the contribution scale of internal audits to the internal control systems in the public sector, which consists of 24 questions, was analyzed by factor analysis, and the rotated factor structures are presented in Table 1.

As a result of the factor analysis on the scale with six factors, the first factor (risk assessment and control activities) explains 38.911% of the total variability, the second factor (information & communication) explains 8.985%, the third factor (monitoring activities) explains 6.184%, the fourth factor (organization structure) explains 5.525%, the fifth factor (control environment) explains 4.935%, and the sixth factor (other assurance activities) explains 4.290%. Thus, all six factors explain 68.831% of the total variability, and this percentage is considered to be a sufficient level.

3.5. Analysis of the Factors Regarding the Role of Internal Audits in Ensuring the Effectiveness of Internal Control

In this section, we aim to answer the question: How effective are internal audit units in ensuring the effectiveness of the internal control system? The dimensions of the scale, whose factor analysis result was determined to be six factors, will be examined and evaluated. The Organization Structure factor, which includes the institution's compliance with the Public Internal Control Standards and the issues regarding the adoption and ownership of this system, will be evaluated first. The five components in the Public Internal Control Standards, which are subsequently determined based on the COSO model, will be analyzed in the order specified in the COSO model.

Table 1. Factor analysis regarding the scale of internal audits in the public sector and their contribution to internal control systems.

Item	Factor loading values					
	1	2	3	4	5	6
Factor name: Risk assessment & control activities						
In the audits, the written procedures regarding the activities, financial decisions and transactions of the administration are examined to determine if are sufficient.	0.757					
In the audits, the controls determined by the administration regarding the audited process are examined to determine if they are sufficient.	0.694					
A risk assessment of the audited process is performed by the internal auditors.	0.630					
In the audits, the "separation of duties" principle is examined to determine if it is applied correctly.	0.608	0.505				
In the audits, the "hierarchical controls" required to be performed by the managers are examined to determine if they are sufficient.	0.602	0.582				
In the audits, the measures taken to ensure the "continuity of activities" are examined to determine if they are sufficient.	0.580	0.580				
In the audits, the risk assessment of the unit regarding the audited process is examined to determine if it is sufficient.	0.466					
Number of items: 7; Eigenvalue: 9.339; Explained variance: 38.911%						

Item	Factor loading values					
	1	2	3	4	5	6
Factor name: Information & communication						
During audits, the reporting procedures of the auditee are examined to determine if they are sufficient.		0.740				
During audits, the procedures regarding the reporting of errors, method and fraud are examined to determine if they are sufficient.		0.720				
In the audits, the horizontal and vertical communication systems of the audited unit are examined to determine if they are sufficient.		0.670				
During audits, the recording, filing and archiving systems of the audited unit are examined to determine if they are sufficient.		0.646				
Number of items: 4; Eigenvalue: 2.157; Explained variance: 8.985%						
Factor name: Monitoring activities						
Remediation of the findings determined as a result of the audit within the framework of the action plan is subjected to monitoring activities by our unit.			0.763			
A "system audit" is performed by our unit for the internal control system of our administration.			0.666			
The reports submitted by our unit are taken into account in the internal control system evaluations made by the administration.			0.617			
Internal audit activities in our unit are carried out in accordance with the public internal audit standard.			0.604			
Number of items: 4; Eigenvalue: 1.484; Explained variance: 6.184%						
Factor name: Organization structure						
Our institution complies with the public internal control standards.				0.854		
The public internal control standards are known by our institution's staff.				0.844		
The internal control system has been adopted by senior management.				0.781		
Number of items: 3; Eigenvalue: 1.326; Explained variance: 5.525%						
Factor name: Control environment						
Our unit provides training and consultancy services to other units regarding the "control environment" component.					0.820	
Our unit provides training and consultancy services to the administration on issues related to the risk management process.					0.721	
Our unit informs the top manager about the functioning of the internal control system in the institution.					0.675	
Issues regarding the "control environment" component in our unit are evaluated during the audits.					0.505	
Number of items: 4; Eigenvalue: 1.184; Explained variance: 4.935%						
Factor name: Other assurance activities						
In our unit, auditing activities are carried out in the field of information technology (IT).						0.783
A "performance audit" is performed effectively by our unit.						0.781
Number of items: 2; Eigenvalue: 1.030; Explained variance: 4.290%						
Total number of items: 24; Cronbach's alpha: 0.921; Total explained variance: 68.831%						
Extraction method: Principal component analysis.						
Rotation method: Equamax with Kaiser normalization.						

3.5.1. Analysis and Evaluation of Data and Findings Regarding Organization Structure

In order to establish a strong internal control system in the administrations, it is crucial that the system is adopted by the employees and is supported by senior management. In the administrations that are compatible with the internal control standard and have an organizational structure where the internal control system is adopted by the senior management, the internal audit activities are carried out more effectively and the internal audit units contribute more to the development of the internal control system. In order to determine the current situation of public administrations, the level of participation of internal auditors in terms of the organizational structure dimension is detailed in [Table 2](#).

As seen in [Table 2](#), when the responses given to the statement "Public internal control standards are known by our institution's staff" are examined, only one third (33.4%) of the internal auditors evaluating the current situation of the institutions agree with the statement. When the 24% who neither agree nor disagree is added to the group of 42.6% who do not agree with the statement, it can be interpreted that the standards published by the Public Internal Control Standards communiqué in 2007 are still not fully known by most of the public institutions' (66.6%) personnel. From the answers given to this question, internal control systems, which are expected to be established in public institutions in accordance with Law No. 5018, it seems that the majority of the employees do not have a full understanding of the requirements. Therefore, it can be said that it will be difficult for internal auditors to effectively contribute to the system in these administrations.

Table 2. Levels of participants' agreement with statements regarding the dimension of "organizational structure".

Survey question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Average	Standard deviation
	%	%	%	%	%	\bar{x}	σ
Factor name: Organization structure							
Public internal control standards are known by our institution's staff.	10.6%	32.0%	24.0%	27.1%	6.3%	2.86	1.119
Our institution complies with the public internal control standards.	7.7%	24.3%	31.7%	31.7%	4.6%	3.01	1.027
The internal control system has been adopted by senior management.	10.2%	22.9%	26.1%	32.7%	8.1%	3.05	1.135

The participants' responses to "Our institution complies with the Public Internal Control Standards" are similar to that of the first statement. Accordingly, 36.3% of the internal auditors stated that the institutions were in compliance with the internal control standards, 32% stated that the institutions did not comply with the standards, and 31.7% were undecided. According to these data, most of the public institutions (63.7%) are not fully compliant with the Public Internal Control Standards. The Turkish Court of Accounts (Sayıştay), which is the most important actor of external audits in public administrations, also supports the External Audit General Assessment Reports (Sayıştay, 2015, 2016, 2019). A significant total of 967 findings regarding financial management and internal control systems in public administrations were detected in the regularity audits conducted by the Court of Accounts in 2018 (Sayıştay, 2019).

Another statement regarding the organizational structure factor is "The internal control system has been adopted by top management" and is used to measure the attitude of senior management toward the internal control system. Out of the responses, 40.8% of the internal auditors agreed with the statement, 33.1% expressed a negative opinion, and 26.1% were undecided. The lack of consensus among the participants reveals that, in public institutions, senior managers have different perspectives regarding internal control systems. When the rate of undecided participants is added to the participants who responded negatively to the statement, it can be said that the top managers (59.2%) do not fully adopt an internal control system. Similar evaluations by the top managers in public administrations show that they generally do not adopt or support internal audits or an internal control system sufficiently; this has been emphasized in many previous studies on this subject (Celikay, 2012; Demirel, 2017; Kükreker & Kavak, 2020; Mantar, 2013; Uysal, 2014; Yıldırım, 2019).

The responses to the questionnaire and the evaluation of the data in Table 2 show that the internal control system is not fully known (66.6%) and is not sufficiently supported by senior management (59.2%) in the majority of the public administrations regarding "organization structure". It is also understood that most of the administrations (63.7%) do not fully comply with the Public Internal Control Standards. In this context, it can be said that organizational structure negatively affects the role of internal audits in ensuring the effectiveness of internal control in the public sector in general.

3.5.2. Analysis and Evaluation of the Findings Regarding the Control Environment Component

In accordance with the Public Internal Control Standards communiqué for the "Control Environment" component, internal auditors are responsible for contributing to the establishment of a strong internal control system through information, training, consultancy and assurance activities. This responsibility also includes the development of the issues specified in the organizational structure factor explained in the previous section.

As seen in Table 3, when the expression "Our unit informs the top manager about the functioning of the internal control system in the institution" is examined, 66.9% of the participants agreed with this statement, 16.9% had a negative response, and 16.2% were undecided. Considering the ratio of the responses to this statement, it can be said that most of the administrations (66.9%) are regularly informed by the internal auditors about the functioning of the internal control system, but this is not yet at the expected level in some administrations.

The attitudes of the internal auditors toward the training and consultancy services that they carry out in order to establish, adopt and strengthen the internal control system in the administrations where they work were measured with two statements. The first of these is "Our unit provides training and consultancy services to other units on matters related to the control environment component." It is seen that 53.5% of the participants agreed with this statement, 31.7% expressed a negative opinion, and 14.8% were undecided. For the second statement "Our unit provides training and consultancy services to the administration on issues related to the risk management process", the level of agreement of internal auditors shows similarities. It is observed that 54.2% of the internal auditors agreed with the statement, 30.3% expressed a negative opinion, and 15.5% were undecided. From the answers given to these two statements, it can be said that some internal audit units carry out training and consultancy activities for the internal control system, but this is not yet at the desired level.

Table 3. Participants' level of agreement with statements related to the "control environment" dimension.

Survey question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Average	Standard deviation
	%	%	%	%	%	\bar{x}	σ
Factor name: Control environment							
Our unit informs the top manager about the functioning of the internal control system in the institution.	5.3%	11.6%	16.2%	48.2%	18.7%	3.63	1.076
Our unit provides training and consultancy services to other units regarding the "control environment" component.	6.7%	25.0%	14.8%	40.1%	13.4%	3.28	1.173
Our department provides training and consultancy services to the administration on issues related to the risk management process.	8.1%	22.2%	15.5%	40.5%	13.7%	3.29	1.190
Issues regarding the control environment component in our unit are evaluated during the audits.	3.2%	5.6%	9.2%	59.5%	22.5%	3.92	0.908

For "Issues regarding the control environment component in our unit (which aims to measure the assurance activities performed for the control environment component) are evaluated during the audits", the majority of internal auditors (82.0%) agreed with the statement.

Based on the responses of the participants to the questionnaire and the evaluation of the data in Table 3, the majority (66.9%) of the public administrations regarding the "Control Environment" dimension inform senior management about the functioning of the internal control system. Yet, it is evident that internal auditors are not at the expected efficiency level in some administrations. On the other hand, whether the standard regarding the control environment is fulfilled or not, is evaluated effectively in most of the administrations (82.0%) during the audits. Although training and consultancy activities on this issue are carried out in some public administrations (53.5%), it can be said that the internal audit units are not yet at the desired efficiency level.

3.5.3. Analysis and Evaluation of the Findings Regarding the Risk Assessment and Control Activities Components

The risk assessment component, which is the second component of the Public Internal Control Standards, and the control activities component, which is the third component, are two important components that complement each other and form the core of the internal control system. The factor analysis result is combined into a single factor under the title of Risk Assessment and Control Activities, and this dimension alone explains 38.911% of the total variability. In Table 4, the agreement levels of the participants with the statements regarding the risk assessment and control activities dimensions are shared.

Table 4. Participants' level of agreement with statements related to "risk assessment and control activities".

Survey question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Average	Standard deviation
	%	%	%	%	%	\bar{x}	σ
Factor name: Risk assessment & control activities							
A risk assessment of the audited processes is conducted by the internal auditors.	2.8%	2.5%	4.5%	51.8%	38.4%	4.20	0.861
In the audits, the risk assessment of the unit regarding the audited processes is examined to determine if it is sufficient.	6.0%	13.0%	12.4%	52.1%	16.5%	3.60	1.092
In the audits, the controls determined by the administrations regarding the audited processes are examined to determine if they are sufficient.	1.8%	4.6%	5.6%	57.0%	31.0%	4.10	0.835

Survey question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Average	Standard deviation
	%	%	%	%	%	\bar{x}	σ
In the audits, the written procedures regarding the activities, financial decisions and transactions of the administration are examined to determine if they are sufficient.	2.5%	3.9%	5.9%	55.3%	32.4%	4.11	0.866
In the audits, the "separation of duties" principle is examined to determine if it is applied correctly.	0.7%	4.9%	9.2%	56.7%	28.5%	4.07	0.796
In the audits, the "hierarchical controls" required to be conducted by the managers are examined to determine if they are sufficient.	1.1%	4.6%	11.2%	55.6%	27.5%	4.03	0.816
In the audits, the adequacy of the measures taken to ensure the "continuity of activities" standard is examined.	1.1%	6.0%	11.9%	59.9%	21.1%	3.94	0.815

It is seen that the vast majority (90.2%) of the internal auditors who participated in the questionnaire agreed with the statement that a risk assessment of the audited processes is performed by internal auditors. In addition, as the average of the answers given to the statement has a high value of 4.20, it can be said that internal auditors conduct their audit activities in a risk-oriented manner and make risk assessments regarding the audited processes.

If we examine the role of internal audit units in the “risk assessment” component in the public sector before we evaluate the level of agreement with the other statements on this issue, internal audit units are expected to evaluate the risk management system covering the administration regarding risk management processes or evaluate the management of risks during assurance duties. In order to measure whether this expectation of internal audit units regarding risk management processes has been fulfilled, the level of agreement with the statement is examined to determine whether the risk assessment of the unit related to the audited processes is sufficient. The majority (68.6%) of the internal auditors who participated in the survey agreed with this statement. Most of the internal audit units evaluate the risk assessments of the audited units during their audit activities. However, when the undecided group, with a response rate of 12.4%, is added to the group with a negative opinion (19%), a considerable percentage of 31.4% appears. When the reason for this result is examined, it can be said that this ratio may have been caused by the fact that the internal control system was not fully adopted in some administrations, as explained in the dimension of organizational structure. In some public institutions where the internal control system is not fully established, it is thought that the internal audit units cannot measure the risk assessments of these administrations because the administrative units do not perform risk assessments.

To measure the current status of the internal audit units regarding the audited processes, we examine whether the controls determined by the administrations are sufficient. It is seen that the majority (88%) of the internal auditors who participated in the survey agreed with this statement. Considering the average of the answers (4.10), it can be said that the internal auditors effectively examine the adequacy of the controls determined by the administration related to the process that they audit.

In order to measure the effectiveness of internal audit units in terms of achieving the standard, the statement “the written procedures regarding the activities, financial decisions and transactions of the administration are examined to determine if they are sufficient” is included in the survey. The majority (87.7%) of the internal auditors agreed with the statement. Considering that the average of the answers is also high (4.11), it can be said that the internal auditors contribute effectively to whether the written procedures related to the activities of the administration and financial decisions and transactions are sufficient or not.

Within the scope of Control Activities, to measure the effectiveness of internal audit units in fulfilling Standard 9: Separation of Duties, which foresees the allocation of approval, implementation, recording and control duties of financial decisions and transactions to reduce mistakes and fraud, we asked if the “Separation of Duties” principle is applied correctly. It is seen that a great majority (85.2%) of the internal auditors agreed with the statement. Considering that the average of the answers given to the question is also high (4.07), it can be said that internal auditors contribute effectively to the administrations regarding the correct implementation of the "Separation of Duties" principle in the audits.

Another standard of the control activities component (Standard 10: Hierarchical controls) was used to measure the effectiveness of internal audit units, so the statement "hierarchical controls required to be conducted by the managers are examined to determine if they are sufficient" is included in the survey. It is seen that the majority of the internal auditors (83.1%) agreed with this statement. Considering the average of

the answers given to the question (4.03), it can be said that internal auditors effectively examine the adequacy of hierarchical controls regarding the processes that they audit.

To measure the contribution of the internal audit units to "Standard 11: Continuity of Activities", which includes the measures to be taken by the administrations to ensure the continuity of their activities, the statement "the adequacy of the measures taken to ensure the "continuity of activities" standard is examined" was added to survey. It is seen that a great majority (81.0%) of the internal auditors agreed with the statement. Considering that the average of the answers given to the question is also high (3.94), it can be said that the administration examines the adequacy of the measures taken to ensure the continuity of the activities in the audits conducted by the internal auditors.

As a result, within the framework of the responses to the survey and the evaluation of the data in Table 4 for the dimensions of risk assessment and control activities, it can be said that, in general, internal auditors contribute effectively to the internal control system.

3.5.4. Analysis and Evaluation of the Findings Regarding the Information & Communication Component

The fourth component of the Public Internal Control Standards, "Information and Communication," connects the other components through information sharing and communication. It serves a vital role in increasing the operability and implementation capability of the internal control system by organizing the flow of information in the administration (Bumko, 2014). This component covers the information, communication, and recording systems to make sure that the required information is provided to those who need it in a certain format and within a deadline that enables them to carry out the internal controls and other obligations. Table 5 presents the level of the participants' agreement with the statements related to the "Information and Communication" dimension.

Regarding the statement "In the audits, the horizontal and vertical communication systems of the audited unit are examined to determine if they are sufficient," it is seen that 64% of the participants agreed with the statement, 14.8% expressed a negative opinion, and 21.2% were undecided. From these results, it can be said that internal auditors generally evaluate the horizontal and vertical communication systems in their administrations during audits (64%), but this is not yet at the expected level in some administrations.

Table 5. Participants' level of agreement with statements related to the "information & communication" dimension.

Survey question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Average	Standard deviation
	%	%	%	%	%	\bar{x}	σ
Factor name: Information & communication							
In the audits, the horizontal and vertical communication systems of the audited unit are examined to determine if they are sufficient.	1.8%	13.0%	21.2%	49.6%	14.4%	3.61	0.945
In the audits, the reporting procedures of the audited unit are examined to determine if they are sufficient.	1.4%	8.5%	12.6%	59.9%	17.6%	3.83	0.862
In the audits, the recording, filing and archiving systems of the audited unit are examined to determine if they are sufficient.	2.8%	3.9%	9.5%	61.3%	22.5%	3.96	0.854
In the audits, the procedures for reporting errors, irregularities and frauds are examined to determine if they are sufficient.	1.4%	7.4%	13.7%	61.3%	16.2%	3.83	0.834

When the responses to the statement "In the audits, the reporting procedures of the audited unit are examined to determine if they are sufficient," are examined, 77.5% of the participants agreed with the statement, 9.9% expressed a negative opinion, and 12.6% were undecided. Therefore, it can be said that internal auditors generally evaluate the reporting procedures in their administrations during audits (77.5%).

When the responses to the statement "In the audits, the recording, filing and archiving systems of the audited unit are examined to determine if they are sufficient" are examined, 83.8% of the participants agreed with the statement, 6.7% expressed a negative opinion, and 9.5% were undecided. Based on the responses, it can be said that during the audits performed by the majority of internal auditors, their administrations effectively examine the recording, filing and archiving systems. The average response score of 3.96 supports this result.

When the responses to the statement "In the audits, the procedures for reporting errors, irregularities and frauds are examined to determine if they are sufficient" are examined, 77.5% of the participants agreed, 8.8%

expressed a negative opinion, and 13.7% were undecided. From the responses, it can be said that internal auditors generally evaluate the reporting mechanisms regarding errors, irregularities and corruption in their administration during audits (77.5%).

As a result of the responses to the survey and the evaluation of the data in Table 5, it can be said that in the Information & Communication dimension, internal auditors contribute effectively to the internal control system in most of the public administrations.

3.5.5. Analysis and Evaluation of the Findings Regarding the component of Monitoring Activities

Monitoring activities is undertaken to evaluate whether the internal control system makes the expected contribution in terms of achieving the goals and objectives of the administration within the framework of the internal control standards and to determine the actions for the areas of the system that are open to development (Bumko, 2014). The most important actors of this component are the internal auditors working within the administrations. Internal audit units are expected to play the most important role in providing a standard for this component by the evaluation, assurance and monitoring activities regarding the internal control system. The statements prepared to measure the contributions of internal auditors to the internal control system in the dimension of "monitoring activities" and the answers given by the participants are detailed in Table 6.

Article 8 of the Regulation on the Working Principles and Procedures of Internal Auditors in Turkey defines the system audit as "...analyzing the activities of the audited unit and the internal control system with an approach that contributes to the organizational structure, identifying deficiencies, investigating the quality and appropriateness, and evaluating the adequacy of resources and methods applied." A system audit is the most important assurance activity conducted by internal auditors to increase the efficiency of the internal control system. Regarding this critical issue, the statement "A system audit is conducted by our unit of the internal control system of our administration" was prepared to measure the current situation of internal audit units in the public sector. It is seen that 85.2% of the participants agreed with the statement, 9.1% had a negative opinion, and 5.7% were undecided. The answers show that a high rate of 85.2% of internal audit units conduct a system audit of the internal control system. The average response of 4.12 given to the statement in question also supports this result.

Table 6. Participants' level of agreement with statements related to the dimension of "monitoring activities".

Survey question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Average	Standard deviation
	%	%	%	%	%	\bar{x}	σ
Factor name: Monitoring activities							
A system audit is conducted by our unit of the internal control system of our administration.	1.4%	7.7%	5.7%	47.2%	38.0%	4.12	0.927
The reports submitted by our unit are taken into account in the internal control system evaluations conducted by the administration.	5.3%	7.7%	27.5%	43.7%	15.8%	3.57	1.018
Remediation of the findings determined as a result of the audit within the framework of the action plan is subjected to monitoring activities by our unit.	2.8%	2.5%	4.9%	46.5%	43.3%	4.25	0.880
Internal audit activities in our unit are carried out in accordance with the public internal audit standards.	2.5%	5.3%	9.8%	47.2%	35.2%	4.07	0.938

In accordance with public legislation, administrations are obliged to internally evaluate internal control systems at least once a year. One of the bases of this assessment made by the administrations regarding the internal control system is the internal audit report. The statement "The reports submitted by our unit are taken into account in the internal control system evaluations conducted by the administration" was added to the survey in order to measure whether this issue related to monitoring activities has been fulfilled. When the responses are examined, it is seen that 59.5% of the participants agreed with the statement, 13% expressed a negative opinion, and 27.5% were undecided. In this context, it can be said that some of the public administrations (59.5%) take the internal audit reports into account in the internal evaluations regarding the internal control system. However, a large proportion of the respondents (27.5%) did not give an opinion on this question. It is thought that this situation is caused by the fact that an internal control system has not been

fully established in some administrations and, therefore, internal controls have not been evaluated in these administrations. In the external audit reports of the Sayıştay in recent years, it is stated that internal control systems have not been evaluated annually and have not been reported to the top manager by some public administrations (Sayıştay, 2018, 2019).

One of the most important elements that differentiates an internal audit from classic auditing is that the correction of the findings detected as a result of an internal audit are subjected to monitoring activities in a planned manner. To measure the effectiveness of this issue, a statement was developed regarding the remediation of the findings as a result of the audit, and it is seen that 89.8% of the participants agreed with the statement, 5.3% gave a negative opinion, and 4.9% were undecided. From the responses given to the statement, the majority (89.8%) of internal audit units subject the findings detected in the audits to monitoring activities. An average of 4.25 of the answers given to the statement also supports this result.

In accordance with the general conditions of the monitoring activities component, it is necessary to carry out the activities of internal audit units in public institutions in accordance with the Public Internal Audit Standards. When the statement "Internal audit activities in our unit are carried out in accordance with the public internal audit standards" is examined, 82.4% of the participants agreed, 7.8% expressed a negative opinion, and 9.8% were undecided. In this context, it can be said that most of the internal audit units (82.4%) carry out their activities in accordance with the Public Internal Audit Standards. An average of 4.07 of the answers given to the statement in question also supports this result.

Finally, as a result of the answers given by the participants to the questionnaire and the evaluation of the data in Table 6 for the monitoring activities dimension, it can be said that, in the vast majority of public administrations, internal auditors contribute effectively to the internal control system. Accordingly, most of the internal audit units (85.2%) have the efficiency of the internal control system; it is understood that they contribute through the system audits that they conduct. In addition, it is observed that the majority of internal audit units (89.8%) subject the findings to planned monitoring activities. On the other hand, only some (59.5%) of the internal control evaluation reports prepared by the administrations take into account the internal audit reports. Finally, when monitoring activities in accordance with the general conditions in the standard are taken into consideration, most of the public administration's (82.4%) internal auditors carry out their activities in accordance with the Public Internal Audit Standards.

3.5.6. Analysis and Evaluation of Findings Related to other Assurance Activities

Internal auditors contribute to the strengthening of the internal control structure of institutions with the training, consultancy and assurance activities carried out in the administrations in which they have served. In this context, assurance activities have an important place among the duties of internal auditors. In this section, performance audits and IT audit issues, which are excluded from the system audit, are discussed in the monitoring activities factor and contribute to the development of the internal control system and are examined under the "other assurance activities" dimension.

One of the most important objectives in the 2017–2019 Public Internal Audit Strategy document, which is one of the most basic documents guiding internal audit activities in the public sector, is the issue allocating more resources to performance and IT audits. In this context, the statements prepared to measure the attitudes of internal auditors regarding the aforementioned audit types and their level of participation in these questions are detailed in Table 7.

Table 7. Participants' level of agreement with statements related to the dimension of "other assurance activities".

Survey question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Average	Standard deviation
	%	%	%	%	%	\bar{X}	σ
Factor name: Other assurance activities							
A performance audit is conducted effectively by our unit.	25.7%	41.5%	12.4%	14.1%	6.3%	2.33	1.185
Auditing activities are carried out in the field of information technology (IT) in our unit.	15.5%	25.4%	10.2%	30.6%	18.3%	3,10	1.380

Internal auditors contribute to the development of the internal control system by carrying out performance evaluations of their administrations. In this context, when the statement "A performance audit is conducted effectively by our unit" is examined, it is seen that 20% of the participants agreed with the statement, 67.2% expressed a negative opinion, and 12.4% were undecided. When the undecided group at the rate of 12.4% is added to the group who did not agree with the statement with the rate of 67.2%, it can be said that 79.6% of internal auditors do not carry out a performance audit. An average of 2.33 of the answers given to this statement also supports this result.

An IT audit, which is defined as "an evaluation of the continuity and reliability of the electronic information systems of the audited unit" in Article 8 of the Regulation on the Working and Procedures and

Principles of Internal Auditors, is an assurance activity that makes significant contributions to the internal control system of the administrations. Regarding IT audits, when the statement “Auditing activities are carried out in the field of information technology (IT) in our unit” is examined, it is seen that 48.9% of the participants agreed with the statement, 40.9% expressed a negative opinion, and 10.2% were undecided. When the undecided group is added to the group who expressed negative opinions, it can be said that IT audits are not performed effectively in almost half of the administrations (51.1%).

As a result, within the framework of the responses given by the participants and the evaluation of the data in Table 7, it is observed that in the dimension of “other assurance activities”, the majority (79.6%) of the public administrations do not carry out an effective performance audit and IT audits are not performed in a significant part of the public administrations (51.1%). In this context, it can be said that other assurance activities negatively affect the role of internal audits in ensuring the effectiveness of internal control in the public sector in general.

4. Conclusion

In our research, a survey was carried out on 284 public internal auditors to determine whether the role of internal audit activities in the public sector ensures the effectiveness of the internal control system, as stated in theory. Through the survey, we aimed to the answer the question “How effective are internal audit units in the public sector in the evaluation and development of the internal control system of their administrations within the framework of the components of the Public Internal Control Standards?”.

An evaluation of the answers given by the internal auditors to the questionnaire shows that the internal audit units in public administration have an effective role in ensuring the efficiency of the internal control system in terms of risk assessment and control activities, and information & communication and monitoring activities. In this area, it is understood that the internal audit units in public administration carry out system audits effectively, effectively monitor the elimination of detected findings, and that the units generally operate in accordance with the Public Internal Audit Standards. Regarding the control environment dimension, the assurance activities of internal audit units are effective. However, information, training and consultancy activities carried out in this field are generally not at the desired level yet. On the other hand, due to the fact that internal control systems are still not fully understood in most of the public administrations and are not sufficiently supported by the senior management, it is understood that the internal auditors cannot make sufficient contributions to the system regarding the dimension of organizational structure. It has been determined that internal audit units in the dimension of "other assurance activities", including performance audit and IT audit issues, cannot provide a sufficient contribution.

As a result, internal audits conducted in the Turkish public sector have reached a certain level of knowledge and maturity. As a result of the research, it has been determined that the internal auditors working in public administration do not get sufficient support from senior management or employees in the dimension of organizational structure and the system is not fully adopted in terms of ensuring the effectiveness of the internal control system. For the control environment dimension, it was found that assurance activities play an active role, but although the information, training and consultancy activities of this component are partially carried out on the subjects that include the standard, it is not yet at the desired level. Finally, it has been determined that internal auditors have not yet provided the expected contribution in the field of IT audits and performance audits, which were examined within the dimension of “other assurance activities”. In order for internal audits to provide the expected contribution in ensuring the effectiveness of internal control systems, within the framework of the principles determined in this study, it is important to put the suggestions presented into practice, especially senior management’s support for internal audits.

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