

# Controlling and Auditing Business Operations: Developing A Scale\*†

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#### **ABSTRACT**

**Purpose:** The aim of this study is to develop an up-to-date measurement tool to evaluate the control and audit activities in all kinds of enterprises with expressions for control and audit within the scope of compliance audit.

**Methodology:** Current expressions related to control and audit were selected from the item pool created based on the literature and scale development stages were applied. The data were then analyzed to evaluate the validity and reliability of the scale.

**Findings:** The study developed a valid and reliable scale that can be used to measure control and audit activities in all types of businesses. The scale consists of five sub-dimensions: process control, materials and equipment, assessment, authorized person, standard procedures.

**Originality:** The study is original in that it developed a scale that can be used to measure control and audit activities in all types of businesses, regardless of their characteristics. The scale is also up-to-date, as it reflects the latest thinking on control and audit practices. The scale is also up-to-date as it reflects today's working conditions related to control and audit practices. It can also be used by practitioners to assess the effectiveness of their control and audit systems.

Keywords: Control, Audit, Scale Development, Automotive Industry.

JEL Codes: L23, L25, M10, M42, Y40.

# İşletme Faaliyetlerinin Kontrolü ve Denetimi: Bir Ölçek Geliştirme

### ÖZET

**Amaç:** Bu çalışmanın amacı, uygunluk denetimi kapsamında işletme faaliyetlerinin kontrol ve denetimi maksadıyla güncel bir ölçüm aracı geliştirmektir.

**Yöntem:** Literatüre dayalı olarak oluşturulan madde havuzundan kontrol ve denetim ile ilgili güncel ifadeler seçilerek ölçek geliştirme aşamaları uygulanmıştır. Veriler daha sonra ölçeğin geçerlik ve güvenirliğini değerlendirmek için analiz edilmiştir.

**Bulgular:** Çalışmada, her tür işletmede kontrol ve denetim faaliyetlerinin ölçülmesinde kullanılabilecek geçerli ve güvenilir bir ölçek geliştirilmiştir. Ölçek beş alt boyuttan oluşmaktadır: süreç kontrolü, malzeme ve ekipman, değerlendirme, yetkili kişi, standart prosedürler.

Özgünlük: Çalışma, özelliklerine bakılmaksızın her tür işletmede kontrol ve denetim faaliyetlerini ölçmede kullanılabilecek bir ölçek geliştirmesi bakımından özgündür. Ölçek, kontrol ve denetim uygulamalarıyla ilgili günümüzdeki çalışma koşullarını yansıttığı için de günceldir. Ölçek, araştırmacılar tarafından farklı işletme türlerinde kontrol ve denetim uygulamalarını incelemek için kullanılabilir.

Anahtar Kelimeler: Kontrol, Denetim, Ölçek Geliştirme, Otomotiv Sektörü.

JEL Kodları: L23, L25, M10, M42, Y40.

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Research Article | Submitted: 25.11.2023 | Accepted: 09.08.2024

Cite: Elma, O.E. (2024). "Controlling and Auditing Business Operations: Developing A Scale", Verimlilik Dergisi, 58(4), 587-600.

<sup>&</sup>lt;sup>\*</sup> This study is an expanded and revised version of the paper titled "Controlling and Auditing Business Operations: Developing A Scale", which was presented as an abstract at the 8<sup>th</sup> Global Conference on Business Management and Social Sciences held online on 18 March 2022.

<sup>&</sup>lt;sup>†</sup> This study was extracted from the author's doctoral dissertation called "The Role of Organizational Climate in The Relation Between Control and Auditing of Operational Activities and Business Capabilities: A Research on Industrial Enterprises", supervised by Prof. Dr. Ali Şükrü Çetinkaya at Selcuk University Institute of Social Sciences.

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#### 1. INTRODUCTION

Managers have to focus more on business management issues in order to adapt and keep up with rapidly changing environmental conditions. In this context, they give more importance to the control and auditing mechanism, which is among the basic functions of management such as planning, organizing, directing and coordination. Businesses use auditing mechanisms in order to control whether their activities are carried out within the framework of certain rules determined by laws and legal regulations, and whether they are carried out in line with the objectives and targets determined during the establishment phase. Monitoring the activities with control and audit mechanisms will prevent waste, fraud, abuse, faulty or wrong practices that have negative effects on growth and profitability, and will lay the groundwork for making healthier decisions for the future thanks to the feedback made as a result of control and audit activities. In this way, it will be easier to increase the competitiveness of the enterprises by using the assets and resources more effectively and efficiently.

Effective control and audit practices are crucial for ensuring the smooth operation and compliance of businesses across various industries. These practices help to identify and address potential risks, maintain operational efficiency, and uphold ethical standards. To effectively assess the implementation and effectiveness of control and audit procedures, robust measurement tools are essential. However, existing measures often lack comprehensiveness or fail to capture the nuances of contemporary business environments.

This study addresses this gap by developing a novel and comprehensive control and audit assessment scale. The scale draws upon extensive literature review and incorporates up-to-date practices to provide a holistic evaluation of control and audit activities across diverse business settings. The scale's development process adheres to rigorous methodological standards, ensuring its validity and reliability for measuring control and audit effectiveness.

The originality of this study lies in its twofold contribution. Firstly, the development of a comprehensive and versatile control and audit assessment scale addresses a critical need in the field. Secondly, the scale's focus on contemporary practices ensures its relevance and applicability in the current business environment. These contributions make the study a significant advancement in the area of control and audit assessment.

The study is organized as follows: Literature review is presented in Section 2, methods and materials are detailed in Section 3, findings of the study is given in Section 4, and the results are discussed and the study is concluded in Section 5.

### 2. LITERATURE REVIEW

Undoubtedly, making decisions that will be beneficial for the future of businesses can be realized as a result of the implementation of an effective, accurate and reliable control system. Control is the process of determining the degree of overlap between the targeted results and the results obtained (Büyükmirza, 2014: 15). Kepekçi (2000) said the control practices enable enterprises to evaluate the situation, have information about effectiveness and efficiency, examine the performance and identify the new measures to be taken in order to be more successful (Kepekçi, 2000: 65). According to Fayol (1917), control activities, which are among the basic functions of management, are defined as observing whether the actions are carried out according to the orders given and the rules set (Tosun, 1992: 196). According to Robbins and DeCenzo (2004), control is defined as the examination made to determine that the activities performed are going as planned and to eliminate the deficiencies that arise during the process of operation (Tuan and Memiş, 2007). Hodgets (1999) defines control as the activities that should be applied to all processes in order to be able to recognize the risks that may be encountered in the stage of reaching the future plans of the enterprises and to make timely interventions (Çetin and Mutlu, 1999: 145).

Auditing is a systematic practice that is carried out for a certain department or activity within the enterprise in a certain period, ensures that the pre-determined criteria are checked or not, and that reports the corrective measures are taken by sharing the results with the responsible persons (Ataman, 2001: 15). According to Güredin (1999: 10), auditing is a process consisting of the stages of collecting evidence and documents about the activities carried out in line with the objectives and targets, processing, recording, evaluating, reaching an opinion and reporting this opinion to the relevant parties (Güredin, 1999: 10). Whether the activities are carried out in accordance with the predetermined rules, methods, legal regulations and business policies within the framework of the objectives and plans is examined through compliance audits (Güredin, 1991: 14). The activities and behaviors made by the employees in the business processes are controlled within the scope of the compliance audit (Çömlekçi and Erdoğan, 1997: 6). Control activities in compliance audits are carried out through checklists specific to the work done (Türker et al., 2003). The basic process of compliance audit starts with the on-site and timely control of the activities

carried out within the enterprise. For this reason, within the scope of the compliance audit, it has been ensured that the expressions containing control activities are included in the prepared scale.

Auditing activities, which pave the way for the completion of a systematic process together with control, differ from control practices in terms of both the way they are implemented and their coverage areas. Although these two concepts are ultimately used to determine the differences between the targeted situation and the current situation, the audit mostly examines the last stage of the processes, while the control is made in the form of instant interventions during the implementation of the processes. While auditing evaluates all the activities carried out in the process of achieving the goals and objectives of the enterprises in terms of effectiveness and efficiency, control helps to maintain integrity with corrective or compensatory inputs during the execution of any activity. In addition, while control activities are continuous, auditing activities are generally performed periodically, control applications deal with instantaneous interventions, auditing makes comparisons with previous period data, while the power of tools-equipmentmachine is used during control, teams based on manpower are used in auditing activities, current conditions are evaluated with control practices while past, present and future conditions are considered by auditing activities (Sabuncu, 2017). In addition, while control activities can be intervened instantly, the process is expected to be completed for the intervention of audit activities (Özbek, 2012: 385). It is generally preferred that audit applications are carried out by experts from outside the enterprise, and control activities are carried out by experienced or senior personnel within the enterprise (Kaya, 2015). Although the concepts of control and audit are perceived differently from each other, the control activities carried out during the business processes act as a magnifying glass for the audit activities applied throughout the enterprise (Uyar, 2009: 4).

The control and audit practices related to the activities differ from business to business and even from department to department within the enterprise. The control and audit procedures to be applied to the enterprises, the objectives of the enterprises, the status of the establishment, their size, the sector, production capacity, production methods, business methods, laws and rules specific to them, working conditions, etc. vary by subject.

When the previous studies on control and auditing issues are examined, it has been determined that the fields of activity of the enterprises are taken into account, and the scales and surveys used are also analyzed in the same way. As a result, it has been seen that there are no common measurement tools that include standard control and audit procedures that should be applied for all kinds of businesses regardless of the sector and occupation. The scale created within the scope of the study should allow control and audit mechanisms to operate systematically, where procedures, features and rules that are considered indispensable and do not differ from business to business, regardless of which area it operates in and which processes it produces. For this reason, first of all, the principles that are seen to meet both national and international standards, include the mandatory actions for all businesses on control and auditing activities, and cover the rules regulated by official institutions and relevant Ministries in accordance with the legal regulations, have been brought together to form a pool of common items. Then, the items that were determined to have international characteristics within the scope of the study were considered and evaluated from this pool. As a result, it is aimed to develop an up-to-date scale that can be used in all kinds of research around the world, whose validity and reliability have been proven, and which will help to measure especially control activities, thus contributing to domestic and foreign literature.

### 3. METHODS and MATERIALS

This study, which was carried out in order to measure the control and audit practices of the activities, has been prepared in an empirical nature. The statements regarding the control and auditing practices currently used in the literature and in the sector were gathered together, and the statements that are indispensable for all kinds of businesses and all kinds of activities were selected from this pool and transferred to the survey form. The created questionnaires were applied to companies operating in the automotive sector in the Kocaeli region, and the data obtained were analyzed via SPSS-23 and AMOS-24 software. In this context, the data were first evaluated in terms of demographics using the SPSS-23 software, subjected to reliability, normality and validity tests, and analyzed by means of exploratory factor analysis (EFA) in order to determine the sub-dimensions. Afterwards, confirmatory factor analysis (CFA) was carried out using the AMOS-24 software in order to examine whether the identified sub-dimensions adequately represent the control and auditing of activities. In addition, correlation and multicollinearity tests were applied to examine the relationships between the compound variables.

# 3.1. Population and Sample

Manufacturing enterprises operating in Kocaeli in Türkiye constitute the universe of the study. Kocaeli is among the first cities that come to mind when it comes to industrialized cities in Türkiye, and it can reflect

the universe with the desired accuracy. Sampling framework of the research was employees working in automotive industry in Kocaeli province. Human resource managers of the automotive and automotive spare parts manufacturing enterprises were contacted and 23 of them agreed to allow to survey their employees. These enterprises systematically implement control and audit activities, have proven their success in the sector, and have different departments that are large enough to allow the implementation of different control and audit mechanisms. The surveyed companies were among "Turkey's Top 500 Industrial Enterprises" according to the reports announced by Istanbul Chamber of Industry (ISO) in 2020. A total of 695 questionnaires were delivered to randomly selected employees and 527 of them were scrutinized valid for analysis. This sample size was considered adequate (Hox and Bechger, 2006) to make generalization based on the given limitations.

#### 3.2. Data Collection Tool

Data for this study was gathered through a self-administered questionnaire. The questionnaire was developed based on a pool of items representing universally applicable business practices. These practices included essential transactions, legal principles, and mandatory rules established by regulations and provisions. The item pool specifically focused on standardized procedures and legal requirements crucial for internal control and audit activities, applicable across various business sectors and fields. It encompassed a comprehensive range of expressions identified in prior research, while also remaining adaptable to evolving work environments.

The questionnaire consisted of two distinct sections: demographics and the control and auditing measure. The demographic section comprised 12 questions designed to figure out the participants' profiles. Additionally, this section included a question regarding the frequency of control and audit activity performance to assess the overall significance businesses assign to such activities.

In the second part of the questionnaire, there were 50 items selected from the items pool that were determined suitable to measure the control and auditing of the activities in organizations. From the statements related to the control and auditing of activities; item numbers 1, 2, 3, 5, 7, 13, 15, 16, 17, 18, 19, 20, 25, 26, 31 and 32 were among the Control Forms prepared for enterprises by the Ministry of Agriculture and Forestry (2008); item numbers 4,10 and 30 were among the checklists prepared for official offices by the Ministry of Family, Labour and Social Security (2020); item numbers 6, 8, 9 and 21 were among the Occupational Health and Occupational Safety General Inspection Checklists prepared for the offices by the Joint Health and Security Units (2020); item numbers 11, 12, 23 and 24 were among the Inspection Forms prepared for enterprises by the Ministry of Agriculture and Forestry (2008); item numbers 14 and 22 are among the control items of the General Program of Activity Control included in the books written by Konrath (2002, p. 673) and Fonorow (1989); item numbers 27, 28 and 29 were among the audit items used in the study by Özalp (2006, p. 75); and item numbers between 33-50 were selected from Certification Audit Checklists and adapted to the scale ISO 9001 (2015). The scale of control and auditing of activities was a five-points Likert type scale ranging from strongly agree to strongly disagree.

### 3.3. Collection and Analysis of Data

In order to test whether the questionnaire created within the scope of the study is sufficient to measure the control and auditing of the activities; it was subjected to preliminary examination by experts in various positions, including academics, business managers, department heads, specialist or authorized personnel, and shift workers, supervisors, foremen and workers. The statements in the scale were evaluated as "appropriate" by all experts, and determined that the minimum content validity value of 0.62 for a group of individuals is exceeded (1.00), and for this purpose, the scale is suitable in terms of content validity (Lawshe, 1975).

The questionnaire was then pilot tested in two different companies operating in the automotive sector in Kocaeli region in Turkey to ensure that it was suitable for research quality before being used on large masses. In this context, feedback was received from all of the 45 questionnaires distributed. Some items of the scale of the control and auditing of activities had been modified based on the results of the pilot data analysis, and it was determined that the final version of the questionnaire was ready to be used by large masses. The Ethics Committee approved the data collection tool with the registration date and number 02.08.2021-E.108396.

The data obtained within the scope of the study were first evaluated statistically according to the demographic characteristics of the participants. Afterwards, reliability analysis was conducted in order to examine the internal consistency of the statements in the scale and to evaluate to what extent they reflect the variable to be investigated. After the reliability analysis, normality tests (skewness and kurtosis) and validity analysis were performed in order to examine whether the data were suitable for parametric tests. Then, EFA was carried out in order to gather items explaining the similar variable under a common sub-

dimension. After that, CFA was carried out in order to test whether these determined sub-dimensions accurately represent the control and auditing of activities. In order to test whether the reliability and structural validity of the scale are suitable for CFA, the compatibility of the scale was checked based on the average variance explained (AVE) and composite reliability (CR) values. After the CFA, correlation analysis was carried out to determine the direction and strength of the relations between the scale expressions, and multiple linear correlation tests were conducted to test whether there was a strong relationship between the items in a way that dominates each other.

#### 4. RESULTS

The data obtained within the scope of the study were first evaluated statistically according to the demographic characteristics of the participants. In this context, according to the information obtained from 527 surveys deemed appropriate, it was determined that more than half of the participants (60.5%) were men, and 47.1% were in the 25-34 age group and 36.4% were in the 35-49 age group. It was observed that more than half of the respondents (57.5%) were holding undergraduate degree. It has been determined that 49.1% of the respondents have at least 10 years or more work experience, and 45.5% have at least 2 years or more work-life experience. In addition, 58.1% of the enterprises have been operating for 20 years or more, showing that sufficient size and time are provided for the systematic implementation of control and audit activities. Based on these answers, it was commented that those who participated in the survey had sufficient knowledge and experience about the control and auditing of the activities in organizations.

## 4.1. Reliability Analysis

The reliability analysis of the scale was carried out by looking at Cronbach's Alpha values. The reliability analysis revealed that all expressions had sufficient correlation coefficients ( $\alpha > 0.30$ ). There were no reverse coded items in the scale. The reliability test results revealed that the Cronbach's Alpha value ( $\alpha$ ) was 0.981 (50 items). This result depicted that the scale is highly reliable in terms of internal consistency.

### 4.2. Normality Analysis

The normality test values of the data belonging to a total of 50 items in the scale are shown in Table-1 below.

In the Table-1, the statements related to the control and auditing of the activities are shown together with the question number in the survey next to the abbreviation "CAA (Control and Auditing)". Kolmogorov-Smirnov test calculated significant test results, meaning that the data are not normally distributed. However, when the skewness and kurtosis values of the data are examined, it is seen that the results are between - 1.5 and +1.5. According to these results, it can be interpreted that the data are normally distributed. In addition, according to the Central Limit Theorem, no matter how the population is distributed, in cases where the number of samples is large enough (greater than 30), the distribution is close to the normal distribution, and the mean and distribution of the selected samples are approximately equal to the mean and distribution of the population (Armutlu, 2008; Toscano et al., 2001). Based on these results, and since sample size (n=527) was big enough, it was evaluated that the data were suitable for parametric tests.

Table 1. Normality test of control and auditing of business activities scale

|                |            |              | Kolmogorov-Smirnov |     | Std.  |       | Std.             | Std.  |          |       |
|----------------|------------|--------------|--------------------|-----|-------|-------|------------------|-------|----------|-------|
| Items          | Ν          | Mean         | Statistic          | df  | Sig.  | Error | Skewness         | Error | Kurtosis | Error |
| CAA10          | 527        | 4.35         | 0.288              | 519 | 0.000 | 0.694 | -0.862           | 0.106 | 0.758    | 0.212 |
| CAA18          | 527        | 4.31         | 0.266              | 519 | 0.000 | 0.729 | -1.016           | 0.106 | 1.468    | 0.212 |
| CAA6           | 527        | 4.28         | 0.270              | 519 | 0.000 | 0.718 | -0.700           | 0.106 | -0.001   | 0.212 |
| CAA23          | 527        | 4.23         | 0.243              | 519 | 0.000 | 0.742 | -0.820           | 0.106 | 0.722    | 0.212 |
| CAA31          | 527        | 4.22         | 0.243              | 519 | 0.000 | 0.729 | -0.698           | 0.106 | 0.410    | 0.212 |
| CAA2           | 527        | 4.21         | 0.271              | 519 | 0.000 | 0.691 | -0.683           | 0.106 | 0.882    | 0.212 |
| CAA8           | 527        | 4.21         | 0.248              | 519 | 0.000 | 0.806 | -0.903           | 0.106 | 0.656    | 0.212 |
| CAA38          | 527        | 4.21         | 0.246              | 519 | 0.000 | 0.730 | -0.665           | 0.106 | 0.191    | 0.212 |
| CAA22          | 527        | 4.20         | 0.249              | 519 | 0.000 | 0.760 | -0.791           | 0.106 | 0.586    | 0.212 |
| CAA25          | 527        | 4.20         | 0.246              | 519 | 0.000 | 0.765 | -0.815           | 0.106 | 0.611    | 0.212 |
| CAA21          | 527        | 4.19         | 0.245              | 519 | 0.000 | 0.743 | -0.719           | 0.106 | 0.491    | 0.212 |
| CAA32          | 527        | 4.19         | 0.239              | 519 | 0.000 | 0.799 | -0.942           | 0.106 | 1.258    | 0.212 |
| CAA19          | 525        | 4.18         | 0.249              | 519 | 0.000 | 0.806 | -1.024           | 0.107 | 1.491    | 0.213 |
| CAA3           | 527        | 4.17         | 0.284              | 519 | 0.000 | 0.675 | -0.515           | 0.106 | 0.361    | 0.212 |
| CAA7           | 527        | 4.17         | 0.255              | 519 | 0.000 | 0.855 | -1.129           | 0.106 | 1.571    | 0.212 |
| CAA5           | 527        | 4.16         | 0.252              | 519 | 0.000 | 0.782 | -0.892           | 0.106 | 1.224    | 0.212 |
| CAA17          | 527        | 4.16         | 0.259              | 519 | 0.000 | 0.794 | -0.951           | 0.106 | 1.313    | 0.212 |
| CAA20          | 527        | 4.16         | 0.256              | 519 | 0.000 | 0.780 | -0.848           | 0.106 | 0.850    | 0.212 |
| CAA45          | 527        | 4.16         | 0.250              | 519 | 0.000 | 0.753 | -0.735           | 0.106 | 0.712    | 0.213 |
| CAA12          | 527        | 4.15         | 0.248              | 519 | 0.000 | 0.748 | -0.614           | 0.106 | 0.219    | 0.212 |
| CAA33          | 527        | 4.15         | 0.240              | 519 | 0.000 | 0.809 | -0.836           | 0.106 | 0.822    | 0.213 |
| CAA37          | 527        | 4.15         | 0.235              | 519 | 0.000 | 0.794 | -0.689           | 0.106 | 0.112    | 0.212 |
| CAA11          | 527        | 4.14         | 0.250              | 519 | 0.000 | 0.812 | -0.857           | 0.106 | 0.777    | 0.212 |
| CAA15          | 527        | 4.14         | 0.246              | 519 | 0.000 | 0.767 | -0.607           | 0.106 | -0.054   | 0.212 |
| CAA34          | 527        | 4.14         | 0.263              | 519 | 0.000 | 0.792 | -0.880           | 0.106 | 1.017    | 0.212 |
| CAA42          | 527        | 4.14         | 0.255              | 519 | 0.000 | 0.786 | -0.755           | 0.106 | 0.418    | 0.212 |
| CAA43          | 527        | 4.14         | 0.255              | 519 | 0.000 | 0.771 | -0.775           | 0.106 | 0.880    | 0.212 |
| CAA13          | 527        | 4.13         | 0.264              | 519 | 0.000 | 0.751 | -0.762           | 0.106 | 1.074    | 0.213 |
| CAA24          | 527        | 4.13         | 0.259              | 519 | 0.000 | 0.862 | -1.073           | 0.106 | 1.387    | 0.212 |
| CAA26          | 527        | 4.13         | 0.231              | 519 | 0.000 | 0.795 | -0.596           | 0.106 | -0.108   | 0.212 |
| CAA35          | 527        | 4.13         | 0.254              | 519 | 0.000 | 0.777 | -0.709           | 0.106 | 0.521    | 0.212 |
| CAA41          | 527        | 4.13         | 0.255              | 519 | 0.000 | 0.803 | -0.834           | 0.106 | 0.806    | 0.212 |
| CAA49          | 527        | 4.13         | 0.236              | 519 | 0.000 | 0.787 | -0.611           | 0.106 | -0.017   | 0.212 |
| CAA50          | 527        | 4.13         | 0.243              | 519 | 0.000 | 0.833 | -0.826           | 0.106 | 0.790    | 0.213 |
| CAA16          | 527        | 4.12         | 0.258              | 519 | 0.000 | 0.840 | -0.971           | 0.106 | 1.118    | 0.212 |
| CAA27          | 527        | 4.12         | 0.256              | 519 | 0.000 | 0.878 | -1.072           | 0.106 | 1.337    | 0.212 |
| CAA39          | 527        | 4.12         | 0.251              | 519 | 0.000 | 0.772 | -0.632           | 0.106 | 0.204    | 0.212 |
| CAA46          | 527        | 4.12         | 0.263              | 519 | 0.000 | 0.772 | -0.793           | 0.106 | 0.678    | 0.212 |
| CAA47          | 527        | 4.12         | 0.249              | 519 | 0.000 | 0.797 | -0.754           | 0.106 | 0.640    | 0.212 |
| CAA36          | 527        | 4.11         | 0.250              | 519 | 0.000 | 0.784 | -0.671           | 0.106 | 0.382    | 0.212 |
| CAA14          | 527        | 4.10         | 0.261              | 519 | 0.000 | 0.704 | -0.844           | 0.106 | 0.706    | 0.212 |
| CAA9           | 527        | 4.09         | 0.259              | 519 | 0.000 | 0.020 | -1.089           | 0.106 | 1.227    | 0.212 |
| CAA3           | 527        | 4.08         | 0.239              | 519 | 0.000 | 0.729 | -0.629           | 0.106 | 0.834    | 0.212 |
| CAA1           | 527<br>527 | 4.06         | 0.279              | 519 | 0.000 | 0.729 | -0.629<br>-0.645 | 0.106 | 0.034    | 0.212 |
| CAA48          | 527        | 4.07         | 0.242              | 519 | 0.000 | 0.843 | -0.733           | 0.106 | 0.407    | 0.212 |
| CAA46<br>CAA28 | 527<br>527 | 4.07         | 0.236              | 519 | 0.000 | 0.843 | -0.733<br>-0.651 | 0.106 | 0.407    | 0.212 |
| CAA26<br>CAA40 | 527<br>527 | 4.06<br>4.06 | 0.245              | 519 | 0.000 | 0.843 | -0.830           | 0.106 | 0.326    | 0.212 |
| CAA40<br>CAA29 | 527<br>527 | 4.06         | 0.236              | 519 | 0.000 | 0.879 | -0.630<br>-0.754 | 0.106 | 0.782    | 0.212 |
| CAA29<br>CAA44 | 527<br>527 | 3.95         | 0.248              | 519 | 0.000 | 0.879 | -0.754<br>-1.001 | 0.106 | 0.360    | 0.213 |
|                |            |              |                    |     | 0.000 |       |                  |       |          |       |
| CAA4           | 527        | 3.80         | 0.272              | 519 | 0.000 | 1.090 | -0.906           | 0.106 | 0.265    | 0.212 |

### 4.3. Exploratory Factor Analysis (EFA)

The control and auditing of business activities scale was analyzed within the scope of EFA. The "maximum likelihood" analysis method was applied in order to be compatible with the CFA to be applied later, and the "Direct Oblimin" rotation method was used due to the thought that there was a mutual relationship among the items in the scale. According to the EFA; the KMO results (0.965) showed that the sample size was good enough to conduct this analysis. The Bartlett's test of sphericity results  $(X^2 = 20564.292)$ ; df = 820; p

< 0.001) revealed that data was suitable for this analysis (Altunışık, Coşkun, Bayraktaroğlu and Yıldırım, 2007, p. 266; Kalaycı, 2010, p. 329; Karagöz and Kösterelioğlu, 2008, p. 86).

While performing EFA, the threshold value of 0.30 for the factor loads for the items were taken into account. The items with a factor loading below this value were not included in the analysis. Similarly, the items that have dual or more factor loadings at multiple components simultaneously were also removed from the analysis one by one and reanalyzed, respectively. As a result of the analyses, the items with a factor loading value above 0.50 were grouped and gathered under the same sub-dimension, and the explained variance values were examined in order to determine the strength of the factor structures of the sub-dimensions (Büyüköztürk, 2007: 40).

Table 2. Pattern matrix for the scale of control and auditing

|   | Components |       |        |       |        |  |
|---|------------|-------|--------|-------|--------|--|
| Items   | 1          | 2     | 3      | 4     | 5      |  |
| 35. It is clear who is responsible for the work to be done.   | 0,812      |       |        |       |        |  |
| 33. The work to be done is clearly stated.  | 0,779      |       |        |       |        |  |
| 34. Required resources are provided to perform the given job.   | 0,768      |       |        |       |        |  |
| 31. Defective equipment is repaired.  | 0,725      |       |        |       |        |  |
| 32. Regular cleaning of work clothes or protective clothing is carried out.   | 0,700      |       |        |       |        |  |
| 36. It is clear how long it will take to complete the work.   | 0,696      |       |        |       |        |  |
| 29. The work given is done on time.   | 0,653      |       |        |       |        |  |
| 28. The controls made are sufficient to prevent the risks that may be encountered.  | 0,623      |       |        |       |        |  |
| 30. After the employees have finished their work, they place all the materials in their   |            |       |        |       |        |  |
| places.   | 0,615      |       |        |       |        |  |
| 38. Necessary warning and warning systems are in place to prevent mistakes.   | 0,597      |       |        |       |        |  |
| 37. Procedures or guidelines regarding the work to be done have been prepared.  | 0,594      |       |        |       |        |  |
| 26. The activities being carried out are regularly checked and analyzed and recorded.   |            |       |        |       |        |  |
| 27. Employees have clear and up-to-date job descriptions that describe their jobs.  | 0,556      |       |        |       |        |  |
| 40. Nonconformities related to the business process are intervened in a timely  |            |       |        |       |        |  |
| manner.   | 0,497      |       |        |       |        |  |
| 23. Stock records of used tools and equipment are kept.   |            | 0,879 |        |       |        |  |
| 22. The consumption status of the tools and equipment used is recorded.   |            | 0,872 |        |       |        |  |
| 21. The materials are used in accordance with the work and standards.   |            | 0,774 |        |       |        |  |
| 19. All cleaning and maintenance activities of vehicles and equipment are recorded  |            |       |        |       |        |  |
| regularly.  |            | 0,734 |        |       |        |  |
| 18. Working clothes or protective clothes required by the job are worn.   |            | 0,733 |        |       |        |  |
| 25. Inspection and control programs are in place for regular activities.  |            | 0,733 |        |       |        |  |
| 20. The materials used are duly preserved.  |            | 0,726 |        |       |        |  |
| 24. The waste status of the tools and equipment used is questioned.   |            | 0,669 |        |       |        |  |
| 17. Defective equipment is identified by hanging an informative sign on it.   |            | 0,547 |        |       |        |  |
| 47. There are monitoring, measurement, analysis and evaluation methods suitable for   |            | 0,547 |        |       |        |  |
| the work.   |            |       | -0,886 |       |        |  |
| 46. Employees know what needs to be monitored and measured.   |            |       | -0,886 |       |        |  |
| 48. Monitoring and measurement activities are carried out on time.  |            |       | -0,862 |       |        |  |
|   |            |       |        |       |        |  |
| <ul><li>49. The audit criteria and scope specific to the activity performed are clear.</li><li>45. Customer demands and feedback are taken into account in the activities carried</li></ul> |            |       | -0,802 |       |        |  |
|   |            |       | -0,752 |       |        |  |
| out. 50. Continuous improvements are made regarding the adequacy and effectiveness of   |            |       |        |       |        |  |
| the activities.   |            |       | -0,700 |       |        |  |
| 43. The communication methods needed during the activities are clear.   |            |       | -0,582 |       |        |  |
| 42. The qualification standards of those who have to do the job are clear.  |            |       |        |       |        |  |
| 44. Performance evaluation of the employee is made in accordance with the work  |            |       | -0,573 |       |        |  |
|   |            |       | -0,570 |       |        |  |
| done.  2. Vehicles, equipment, machinery and equipment are used by the authorized   |            |       |        |       |        |  |
|   |            |       |        | 0,704 |        |  |
| personnel.  3. The assigned duties are carried out by the responsible personnel.  |            |       |        | 0,648 |        |  |
| · · · ·   |            |       |        |       |        |  |
| The activities carried out are controlled by the responsible personnel.  Activities are carried out according to actablished standards.   |            |       |        | 0,625 |        |  |
| 13. Activities are carried out according to established standards.  |            |       |        |       | -0,793 |  |
| 14. Activities are carried out as written in the procedures and task manuals.   |            |       |        |       | -0,789 |  |
| 12. The product or service flow is monitored.   |            |       |        |       | -0,775 |  |
| 11. Communication is easily made with all relevant units when necessary while doing   |            |       |        |       | -0,714 |  |
| the work.   |            |       |        |       |        |  |
| 15. The materials are used correctly in accordance with the technique.  |            |       |        |       | -0,793 |  |

A rotated factor matrix (pattern matrix) was created by the SPSS software in order to determine under which sub-dimension the expressions that constitute the control and auditing of the activities have a stronger factor load. The rotated factor matrix results and sub-dimensions of the control and audit scale of the business activities prepared within the scope of the study are shown in Table-2. Items numbered as 4, 5, 6, 7, 8, 9, 10, 16, 39 and 41 in the scale did not have sufficient factor loads on the pattern matrix during the analysis (r<0,30). They were excluded from the scope of the analysis.

In order to explain the variance calculated by the factors and to decide on the number of factors, the eigenvalue results were interpreted, and the factors with an eigenvalue of 1 and above were classified under various sub-dimensions (Table 3) (Durmuş et al., 2013: 105). In naming the sub-dimensions, the current terms and classifications in the control and audit procedures applied with the names of the subdimensions that come to the forefront by being used jointly in many studies related to the control and auditing of activities were used. Reliability analyzes of each sub-dimension revealed that the components had more than 0.88 Cronbach's alpha (α) values, explaining the sub-dimensions provided their own internal consistency. According to the Table 3, it has been determined that five sub-dimensions with 40 items explained %70,236 of total variance. As a result, the scale of control and auditing of the activities consisted of a total of 5 sub-dimensions named as process control, materials and equipment, assessment, authorized person, and standard procedures. Process control describes the regular control of people, materials, methods and standards that interact to transform inputs into outputs within a specified time period (Okay, 1998). Materials and equipment describe protective materials that should be used to avoid exposure to workplace injuries, unwanted accidents, disabilities and diseases, and the correct materials to be used during the production phase (OSHA, 2020). Assessment describes checking whether the initially set goals have been achieved and examining the reasons for deviation from the goals (Nunan, 1988). Authorized person describes stating in the legislation and regulations within the institution who, when and how the work should be done (Karatepe, 1988). Standard procedures describe routine and repetitive actions to be followed in business processes (EPA, 2007). It has been seen that in the literature researches, the subdimensions determined within the scope of the study are used for examining the functional activities, systematic production, use of resource, employee behaviors and business performance of the enterprises (Celuch et al., 2002; Kaleka, 2002; Lee, 2001; Güleryüz and Aydın, 2006; Özkalp et al., 2012; Tsui and Wang, 2002).

**Table 3. Eigenvalue results** 

| Component                   | Eigenvalue | Variance Explained (%) | Cronbach's Alpha | Number of Items |
|-----------------------------|------------|------------------------|------------------|-----------------|
| 1. Process Control          | 21,352     | 53,38                  | 0,957            | 14              |
| 2. Materials and Equipment  | 3,01       | 7,524                  | 0,945            | 9               |
| 3. Assessment               | 1,386      | 3,464                  | 0,943            | 9               |
| 4. Authorized Person        | 1,233      | 3,083                  | 0,885            | 3               |
| 5. Standard Procedures      | 1,114      | 2,785                  | 0,918            | 5               |
| Total Variance Explained (% | o)         | 70,236                 |                  |                 |

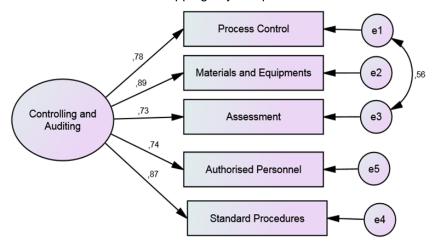
### 4.4. Confirmatory Factor Analysis (CFA)

A Confirmatory Factor Analysis (CFA) was conducted to test the extent to which the components represent the construct of the control and auditing. In this context, it was investigated whether the proposed model's goodness-of-fit index values were above the threshold values along with the Average Variance Extracted (AVE) above 0.50, and Composite Reliability Extracted (CR) above 0.70 (Hair Jr et al., 2010). Results of CFA revealed that (Table 4) all goodness-of-fit index values and validity values for the scale of control and auditing exceeded the threshold values.

Table 4. Results of CFA

| Index/Indicator | Threshold Value | Control and Auditing Scale |
|-----------------|-----------------|----------------------------|
| x²/df           | < 4             | 1.295                      |
| GFI             | > 0.90          | 0.996                      |
| AGFI            | > 0.90          | 0.985                      |
| NFI             | > 0.90          | 0.997                      |
| RFI             | > 0.90          | 0.993                      |
| CFI             | > 0.90          | 0.999                      |
| RMSEA           | < 0.08          | 0.024                      |
| AVE             | > 0.50          | 0.649                      |
| CR              | > 0.70          | 0.902                      |

The factor loading values of the components that constituted the concept of control and auditing were above 0.70 (Figure-1). In order to improve model, fit and increase accuracy, a covariance relationship was created between the "process control" and the "assessment" compound variables. As a result, construct validity of the scale was confirmed with CFA without dropping any compound variables.



Chi Square = 5.181; df = 4; p = .269

Figure 1. CFA for the control and auditing scale

## 4.5. Correlation and Multicollinearity Analysis

A Correlation analysis was carried out to see the relationship between components that were determined by the explanatory and confirmative factor analysis. The results of the correlation analysis (Table 5) depicted that there was a moderate and positive significant relationship (0.54<r<0.69) between the compound variables of the control and auditing scale.

Table 5. Result of correlation and multicollinearity analysis

|                            |     |       |       | •         | •     |         |         |         |         |       |
|----------------------------|-----|-------|-------|-----------|-------|---------|---------|---------|---------|-------|
|                            |     |       | Std.  |           |       |         |         |         |         |       |
| Sub-dimensions             | Ν   | Mean  | Dev.  | Tolerance | VIF   | 1       | 2       | 3       | 4       | 5     |
| 1. Process Control         | 527 | 4.125 | 0.644 | -         | -     | 1.000   |         |         |         |       |
| 2. Materials and Equipment | 527 | 4.195 | 0.644 | .326      | 3.067 | 0.682** | 1.000   |         |         |       |
| 3. Assessment              | 527 | 4.107 | 0.673 | .490      | 2.042 | 0.831** | 0.681** | 1.000   |         |       |
| 4. Authorized Person       | 527 | 4.153 | 0.629 | .505      | 1.982 | 0.560** | 0.663** | 0.546** | 1.000   |       |
| 5. Standard Procedures     | 527 | 4.133 | 0.676 | .351      | 2.851 | 0.680** | 0.768** | 0.654** | 0.654** | 1.000 |
|                            |     |       |       |           |       |         |         |         |         |       |

Note: \*\*: Correlation is significant at the 0.01 level (2-tailed).

A multicollinearity test was conducted in order to determine that there was no high-level correlation between the compound variables dominating each other. Tolerance and Variance Inflation Factor (VIF) values of the sub-dimensions were examined to determine the multicollinearity problem (Table-4). The VIF values were checked by applying different variations. It was seen that all results were within the threshold values (Çokluk, 2010; Kalaycı, 2010: 222). In other words, the Tolerance values were greater than 0.20, and the VIF values were less than 4. In addition, the Durbin Watson Coefficient (DWC) was also examined to ensure that there is no multicollinearity problem. It has been confirmed once again that the DWC value of the compound variables of the control and auditing of activities scale was calculated 2.001, that is within the threshold values (between 1.5 and 2.5) accepted in the literature (Küçüksille, 2010: 267). These results revealed that there was no multicollinearity problem between the compound variables that constitute the control and auditing scale.

### 5. CONCLUSION and DISCUSSION

The researches on control and audit activities in the past generally examined company specific cases, compared functional capabilities of the researched company, and evaluated the activities in terms of efficiency, productivity and performance. That's because there exited no or very limited single measurement tool consisting of indispensable standards and procedures. Thus, there was a need for a universal scale for the control activities that can be applied in all types of organizations. Therefore, the authors in this research aimed to develop a generic control and audit scale applicable to any type of businesses. The stages of the scale development process were meticulously applied as suggested by Slavec and Drnovšek (2012, p. 43) and effort was made to create a valid and reliable control and audit scale. In this context, the expressions in the Ministry of Agriculture and Forestry (2008), Ministry of Family, Labor and Social Security (2020), Joint Health and Security Units (2020) and ISO 9001 (2015) legal control forms and the expressions

in the studies of Fonorow (1989), Konrath (2002), and Özalp (2006), which seem to cover many studies on control and auditing in the past, were taken as reference and used in the scale by re-adapting them according to today's working conditions.

Effectiveness, efficiency and performance levels are examined with the control and audit practices of the activities carried out in the enterprises, and these criteria will increase thanks to the changes and regulations deemed necessary as a result of the information obtained (Celuch etc., 2002; Kaleka, 2002; Lee, 2001), control and audit systems have an impact on cyberloafing and organizational cynicism (Yıldırım, 2016: 146), prevents cheating, theft and misappropriation of assets (Ejoh and Ejom, 2014), it affects employee behavior due to the emergence of burnout, depersonalization and feelings of failure in environments where control and supervision practices are low (Güleryüz and Aydın, 2006), it has a positive effect on employee motivation due to the rewarding of successful personnel (Tsui and Wang, 2002), on the other hand, showing that being under constant control has a negative effect on employee behavior due to the pressure and stress causes (Özkalp et al., 2012) studies have been conducted in the past. As a result, it has been observed that control and audit practices have an effect on employees and employee behaviors in general. The sub-dimensions revealed within the scope of the study are compatible with the COSO (The Committee of Sponsoring Organizations) principles (control environment, risk management, control activities, information and communication, monitoring), which are accepted as a guide on control systems (Kaval, 2005: 125). It has been determined that it covers the control and audit procedures (assigning the relevant personnel, methods of doing business, using materials and equipment, keeping records, measuring performance and comparing, giving and following up reports) in the studies that are considered pioneering in control and audit issues (Fonorow, 1989: 137-140; Konrath, 2002: 671-674).

Due to the fact that control activities form the basis of audit practices and activities, and are in a guiding position in the successful passage of audit stages, the concepts of control and audit are a systematic process that complements each other (Yıldırım, 2016: 33). Business management should give more importance to control and auditing activities for future success than planning, organising, directing and coordinating, and should take the necessary precautions for the smooth functioning of this mechanism. Right control and right auditing can help to detect wrong, unnecessary or erroneous applications; take necessary measures timely not to repeat the same mistakes, and take the right steps towards achieving the desired success in the future.

The proposed scale has all the necessary values to be considered reliable and valid, contributes to the literature, and serves as a guide for researchers who want to work on especially control and auditing related researches in the future. In addition, the proposed scale can serve as a practical tool for sector practitioners and business managers to follow up daily operations. This valid and reliable control and auditing scale can help practitioners to detect the wrong or incomplete processes or transactions, intervene in undesirable situations in a timely manner, prevent bigger problems in the future, and take the necessary corrective actions. This in turn will lead to effective and efficient use of assets and resources increasing the performance.

At the result of this study, it is considered that this study can be a guide for researchers who want to work on control and auditing in the future, that the obtained scale can be developed by themselves in accordance with the future, and thus a new contribution to the literature will be provided. In addition, if the scale created within the scope of the study is used by sector practitioners and business managers, it is thought that upto-date evaluations can be made about the institutions they work for, and corrective measures can be taken thanks to the feedback provided by the audit activities, contributing to their future success.

This study was carried out in corporate enterprises operating in the automotive sector in the Kocaeli region in Türkiye. It is considered that the future studies will contribute to the literature thanks to the comparisons to be made as a result of the implementation of other regions, countries, or sectors.

The sampling framework of this study was employees working in automotive and automotive spare parts manufacturing enterprises operating in Kocaeli, in Türkiye. Similar studies can be carried out on different industries and in different regions to test the validity and reliability of the proposed scale.

### Acknowledgements

We would like to thank to the editor, referees and those who contributed to the study for reaching a wide population.

#### **Author Contributions**

Author 1: Conceptualization, Data Curation, Modelling, Writing-review and editing Author 2: Literature review, Conceptualization, Methodology, Data Curation, Analysis, Writing original draft, Modelling.

### **Conflict of Interest**

No potential conflict of interest was declared by the authors.

### **Funding**

Any specific grant has not been received from funding agencies in the public, commercial, or not-for-profit sectors.

### **Compliance with Ethical Standards**

For this study, the approval of the Ethics Committee of Selçuk University Institute of Social Sciences was obtained with the decision dated 02.08.2021 and numbered 108396.

#### **Ethical Statement**

It was declared by the authors that scientific and ethical principles have been followed in this study and all the sources used have been properly cited.



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#### **APPENDIX**

### Scale Items of the Control and Auditing of Business Activities

- CAA 1. The activities carried out are controlled by the responsible personnel.
- CAA 2. Tools, equipment, machinery and equipment are used by authorized personnel.
- CAA 3. The assigned tasks are carried out by the responsible personnel.
- CAA 4. Employees are not instructed other than their duties and responsibilities.
- CAA 5. Personal cleaning and hygiene rules are followed.
- CAA 6. An action plan has been made for emergencies and teams have been formed.
- CAA 7. Employees are provided with vocational training related to their jobs
- CAA 8. Employees are given training on the risks of their jobs.
- CAA 9. Employees are informed about their legal rights and responsibilities.
- CAA 10. Employees are given general occupational health and safety training.
- CAA 11. It is easily negotiated with all relevant units when necessary during the execution of the work.
- CAA 12. The product or service flow is monitored.
- CAA 13. Activities are carried out according to established standards.
- CAA 14. Activities are carried out as written in the procedure and task manuals.
- CAA 15. The materials used are used correctly in accordance with the technique.
- CAA 16. Cleaning and maintenance activities of all tools and equipment are carried out regularly.
- CAA 17. Defective equipment is identified by hanging an informative sign on it.
- CAA 18. Working clothes or protective clothing required by the job are worn.
- CAA 19. All cleaning and maintenance activities of vehicles and equipment are recorded regularly.
- CAA 20. The materials used are duly preserved.
- CAA 21. The materials used are in accordance with the work and standards.
- CAA 22. The consumption status of the tools and equipment used is recorded.
- CAA 23. Stock records of used tools and equipment are kept.
- CAA 24. The waste status of the tools and equipment used is questioned.
- CAA 25. There are audit and control programs for regular activities.
- CAA 26. The activities being carried out are regularly checked and analyzed and recorded.
- CAA 27. Employees have clear and up-to-date job descriptions that describe their jobs.
- CAA 28. The controls are sufficient to prevent the risks that may be encountered.
- CAA 29. The work given is done on time.
- CAA 30. Employees place all materials in their places after they have finished their work.
- CAA 31. Defective equipment is repaired.
- CAA 32. Regular cleaning of work clothes or protective clothing is carried out.
- CAA 33. The work to be done is clearly stated.
- CAA 34. Required resources are provided to perform the given job.
- CAA 35. It is clear who is responsible for the work to be done.
- CAA 36. It is clear how long it will take to complete the work.
- CAA 37. Procedures or guidelines regarding the work to be done have been prepared.
- CAA 38. There are necessary warning and warning systems to prevent mistakes.
- CAA 39. Nonconformities related to the business process are reviewed and analyzed.
- CAA 40. Nonconformities related to the business process are intervened in a timely manner.
- CAA 41. Employees have easy access to the information they need while doing their jobs.
- CAA 42. The qualification standards of those who have to do the job are clear.
- CAA 43. The communication methods needed during the activities are clear.
- CAA 44. Performance evaluation of the employee is made in accordance with the work done.
- CAA 45. Customer demands and feedback are taken into account in the activities carried out.
- CAA 46. Employees know what needs to be monitored and measured.
- CAA 47. There are monitoring, measurement, analysis and evaluation methods suitable for the work being done.
- CAA 48. Monitoring and measurement activities are carried out on time.
- CAA 49. The audit criteria and scope specific to the activity performed are clear.
- CAA 50. Continuous improvements are made regarding the adequacy and effectiveness of the activities.