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Article

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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

The effect of application of standard audit hour on audit quality under external audit law – Evidence from Korea

Kyong-Yong Kim¹ and Kyunbeom Jeong^{1*}

Abstract: This paper investigates the effect of the application of standard audit hour on audit quality under the external audit law in Korea. As a result of empirical analysis, first, it is confirmed that the absolute value of the discretionary accrual decreased due to the application of the standard audit hour under the external audit law, so the audit quality improved. Second, the degree to which audit quality improves due to the application of standard audit hour is greater when the rate of increase in audit hour is high. Third, the degree to which audit quality improves according to the rate of increase in audit hour due to the application of standard audit hour is greater when the proportion of quarterly or semi-annual review time is high. Fourth, the degree to which audit quality improves according to the rate of increase in audit hour due to the application of standard audit hour does not appear larger when the proportion of audit hour of senior auditors is high. This study is the first to comprehensively verify the effect of the standard audit hour under the external audit law in Korea, and the results of this study are useful for related institutions to operate the standard audit hour and are expected to have implications in the future.

Subjects: Business, Management and Accounting; Accounting; Auditing

Keywords: standard audit hour; audit quality; Audit hour; quarterly review hour (ratio); Audit hour by senior auditors

1. Introduction

The Korea Institute of Certified Public Accountants(KICPA) said on 13 February 2019, “We have confirmed the ‘standard audit hour’ that auditors should put in to improve audit quality and protect investors and other stakeholders.”. The standard audit hour system is one of the core issues of the amendment to the external audit law, and is applied from external audit of the financial statements for the fiscal year beginning after 1 November 2018. Standard audit hour is differently applied on the 11 groups that are divided according to the size of assets, but small and medium-sized companies with assets of less than 20 billion won are excluded, and if the standard audit hour rises more than 30% (50% for assets of 2 trillion won or more) from the previous year, the increase rate cap is introduced.

ABOUT THE AUTHOR

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Since only Korea and Greece disclose audit hour, overseas research on audit hour is very limited (Shin & Jeong, 2017). Prior studies analyzed with the standard audit hour provided by the KICPA from 2011 to 2014 suggested that the actual audit hour increased after the standard audit hour was provided (J. S. Park & Cho, 2016; Shin & Jeong, 2017). Considering the results of these previous studies and news articles that the audit fee is increased at least a few percent to more than twice as many, it can be expected that the standard audit hour system have some effect. However, the standard audit hour provided from 2011 to 2014 and the method of calculating the standard audit hour for the financial statements for the fiscal year started after 1 November 2018 are different. While the standard audit hour provided by the KICPA from 2011 to 2014 is calculated only with the average audit hour by industry and size, the standard audit hour under the external audit law is calculated by reflecting various factors such as addition or subtraction factors, upper limit of increase rate, audit hour of internal accounting management system, and audit hour application ratio by group. Therefore, it is questionable whether the same results as previous studies appear (J. S. Park & Cho, 2016; Shin & Jeong, 2017). Moreover, whether the standard audit hour system has the effect of improving audit quality is of interest not only to the supervisory authorities but also to the academia and the business community. In addition, we examine the operational implications of the standard audit hour system, focusing on the fact that audit quality may vary not only depending on the input audit hour but also on who audits, that is, it may vary depending on the proportion of quarterly review hour and the proportion of senior auditors.

This paper is the first study to verify the effectiveness of the standard audit hour system introduced by the external audit law in Korea, and has a difference and contribution from previous studies in that it simultaneously examined the relationship between audit hour and audit quality. Moreover, while previous studies related to the standard audit hour system have verified the necessity or expected effect of introducing the standard audit hour system with data provided by the KICPA before the implementation of the system under the External Audit Law, this study is different from previous studies in that it verifies the actual effect of the standard audit hour system with data generated after the standard audit hour system is implemented in earnest.

The remainder of this paper consists of the following. Research background and prior studies about the relationship between standard audit hour system and audit quality were reviewed, and research hypotheses were established based on this in Section 2. Section 3 explains a research model for investigating the research hypotheses and describes sample selection for empirical analysis. In Section 4, the results of empirical analysis for the hypotheses are presented. Section 5 concludes the study.

2. Research background and hypothesis

2.1. Overview of the standard audit hour system

In Korea, domestic and foreign investors' confidence in corporate accounting information has been very low as large-scale accounting scandals such as Daewoo Shipbuilding & Marine Engineering's accounting fraud case in 2015. Accordingly, the financial authorities proposed an amendment to the National Assembly, which includes the standard audit hour system, and passed the National Assembly approval on 28 September 2017. Since then, the KICPA announced the "Standard audit hour" on 14 February 2019, and it has been applied to the audit contract for the 2019 business year.

The standard audit hour system was introduced to reinforce the auditor's due care to the problem of insufficient audit hour input, which has emerged as one of the main causes of poor audit. Standard audit hour is the time that auditors should faithfully comply with audit standards and maintain proper audit quality. Standard audit hours include the time spent on audit tasks (review or audit of the internal accounting management system (excluding English audit), incidental tasks such as review of appointment of duties, etc.) and quarterly or semi-annual reviews (Article 3 of the standard audit hour).

The standard audit hour is applied differently according to the 11 groups that are divided by consideration of listing status, company size, business complexity, and auditor characteristics. Among them, Group 1 and 2 have more than 2 trillion won in assets at the end of the previous business year, Group 3 to 6 consist of the remaining listed companies with assets of less than 2 trillion won, Group 7 consists of KONEX(stock market for small and medium-sized enterprises) stock-listed corporations, and unlisted companies. Groups 8 to 11 include unlisted companies subject to external audit and are classified into each group according to the size of individual assets. Among them, Group 1 and 2 was applied 100% from the 2019 business year and other groups was not applied 100% in 2019. In addition, when applying the standard audit hour, the standard audit hour applied in the relevant business year shall be 150% upper limit and 100% lower limit compared to the audit hour in the previous business year. However, in the case of Group 3 to 11, the upper limit is 130% in the initial business year. Meanwhile, due to the amendment of the external audit law, the level of certification of the internal accounting management system for listed companies has been raised from review to audit. Thus, the listed companies with individual assets of 2 trillion won or more (Group 1 and 2) are audited by the internal accounting management system on a separate basis from the 2019 business year, then adding 40% of the standard audit hour for financial statements.

2.2. Researches on audit quality

Regarding the definition of audit quality in accounting audits, many researchers used some modifications to the definition of ; M. DeFond & Zhang, 2014). DeAngelo (1981) defined audit quality as the combined probability that auditors discover and report violations in the audit target company's accounting system. It was also said that the probability of discovering violations depends on the auditor's technical capabilities, audit procedures, and sampling ranges, and the probability of reporting found violations depends on the degree of independence of the auditor for the company to be audited.

In response, M. DeFond and Zhang (2014) stated that the definition of DeAngelo (1981) reduces the role of auditors to simple detection and reporting of the violations of accounting standards. They defined the high level of audit quality as audit quality with great confidence that the financial statements of the audited company faithfully reflect the inherent economic reality of the company.

Audit quality is difficult to measure because the degree of confidence of auditors cannot be observed, so previous studies have measured audit quality using various proxies (M. DeFond & Zhang, 2014). M. DeFond and Zhang (2014) classified audit quality substitutes into input-based measures and output-based measures. As input-based measurements, Big 4 accounting firms (the four largest accounting firms including Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers (PwC)), industrial auditors, audit fees, etc. were presented. As output-based measurements, important distortion of financial statements, audit opinions, discretionary accruals (earnings management), conservatism, profit response coefficient, and equity cost were presented. They also said that since audit quality cannot be fully grasped with one measurement, it is recommended to use multiple measurements with different characteristics as much as possible. As such, it can be seen that the measurement variables of audit quality vary, and many papers in the field of accounting audit use the measures of earnings management to verify the difference in audit quality (Caramanis & Lennox, 2008; Lopez & Peters, 2011; J. S. Park & Cho, 2016; Shin & Jeong, 2017, etc).

Earnings management is one of the most popular and unique concept in accounting, so many papers use it as a proxy for audit quality. If audit quality is high, then the firm less likely to manage earnings. Earnings management is measured by discretionary accruals that managers can use discretionary in order to manage their earnings. If there are more discretionary accruals in the firm, then we can conclude that the manager of the firm managed their earnings more.

2.3. Relationship between audit hour and audit quality

Since the countries that disclose audit hours are only Korea and Greece, overseas research on audit hours is very limited (Shin & Jeong, 2017). Deis and Giroux (1992) found that the audit quality measured by the number of characters recorded in the quality control review (QCR) results improves as the audit hour increases using internal data from audit department of the Texas Office of Education from 1984 to 1989.

Caramanis and Lennox (2008) analyzed the relationship between audit hour and earnings management using audit hour data disclosed in Greece from 1994 to 2002. As a result of the analysis, the smaller the audit hour, the larger the positive (+) abnormal accruals occurred than the negative (-) abnormal accruals, and more companies manage their earnings upward to achieve benchmark. Based on these results, they argued that the less auditors put in their audit efforts, the more likely the manager manage their earnings upward. Knechel et al. (2013) and M. DeFond and Zhang (2014) suggest that audit hour and audit fee are important factors in audit quality because if more audit time is spent, the quality of audit can be improved, and if the audit fee is high, more auditors may be put in.

Sohn et al. (2006) analyzed the audit hour of auditors by position, and showed a significant negative (-) relationship between audit hour and discretionary accruals (earnings management), suggesting evidence that audit hour improves audit quality. Park and Choi (2009) investigated the effect of abnormal audit fees and abnormal audit hours on audit quality, and observed that discretionary accruals decreased when audit hours are invested more than normal. Ryu et al. (2015) demonstrated the effect of audit hour and internal quality assurance hour on audit quality using data on audit hour and internal quality assurance hour of a specific Big 4 accounting firm. According to the empirical results, as the audit hour increases, the discretionary accruals of the audited company are suppressed, and the audit quality is improved.

2.4. Relationship between standard audit hour and audit quality

Prior to the introduction of the standard audit hour system under the External Audit Law, the KICPA estimated and provided the “standard audit hour by industry and size” from 2011 to 2014. By looking at previous studies using the standard audit hour that provided by KICPA, we would like to infer the effectiveness of the newly introduced standard audit hour system.

First, Park and Cho (2016) analyzed the impact of the provision of standard audit hour by the KICPA on the auditor’s actual audit hour and audit quality with data from 2008 to 2014 (excluding 2011). As a result of the analysis, the actual audit hour was increased more after the provision of the standard audit hour by the KICPA, and there was no significant difference in the degree of increase in audit hour between BIG4 and Non-BIG4, but it was found that the degree of increase in audit hour was greater for companies whose actual audit hour is below the standard audit hour in the previous year. In addition, the absolute value of discretionary accruals decreased after the provision of the standard audit hour by the KICPA, so the audit quality improved. The audit quality of companies whose actual audit hour for the relevant year is short of the standard audit hour was significantly lower than that of companies whose accrual audit hour exceeds the standard audit hour.

Shin and Jeong (2017) demonstrated the effect of the average audit hour provided by the KICPA on the actual audit hour and audit quality with data from 2012 to 2015. As a result of the empirical analyses, the auditor adjusted the actual audit hour every year to be close to the average audit hour provided by the KICPA. In the group that exceeded the standard audit hour, the actual audit hour continued to decrease every year, but the group that did not meet the standard audit hour reported that the trend was not constant. In addition, the higher the actual audit hour, the lower the discretionary accrual, the higher the audit quality. In the case of the under-achieving group, the discretionary accrual decreased significantly as the audit time was put in, while in case of the excess group, the discretionary accrual did not decrease significantly.

Summing up the preceding studies above, it can be seen that as the KICPA provided standard audit hour, the actual audit hour increased and the audit quality increased. Considering that the standard audit hour provided by the KICPA in the past is a guideline without special sanctions, it can be expected that the standard audit hour under the external audit law, which imposes certain sanctions such as being included in the auditor designation, can improve the audit quality in part along with the increase in the actual audit hour.

Therefore, at first, the following hypothesis 1 was established to verify whether the audit quality will improve by applying the standard audit hour under the amendment of external audit law in 2019.

Hypothesis 1: Audit quality is improved by applying standard audit hour under the external audit law.

The application of standard audit hour is aimed at inducing an appropriate level of audit hour to improve audit quality. Therefore, if the audit quality improved by applying the standard audit hour in the 2019 business year, one of the biggest factors would be the increase in the audit hour. The increase in audit hour does not occur in all companies, but it can be expected that the audit hour input before the standard audit hour is applied will mainly occur in companies that do not meet the standard audit hour prescribed by the external audit law. The actual audit hour after applying the standard audit hour of these companies is expected to increase considerably as mentioned above, but it is important whether the increased audit hour has actually increased enough to improve the audit quality. The effect of the increased audit time on audit quality may be weaker than expected in the first year of application, the 2019 business year. In addition, if an auditor performs audit work perfunctorily in accordance with the standard audit hour, it may be difficult for the increased audit hour to improve the audit quality. Whether the increased audit hour due to the application of the standard audit hour is the cause of improving the audit quality depends on whether the increased audit hour has actually contributed to improving the audit quality, so it is a matter of proof. Thus, hypothesis 2 is established as follows to verify that the degree of improvement of audit quality by applying the standard audit hour varies depending on the degree of increase in audit hour.

Hypothesis 2: The degree to which audit quality improves by applying the standard audit hour increase as the degree of increase in audit hour.

2.5. Moderating effect of quarterly or semi-annual review hour(proportion)

Since most countries do not disclose audit hours, international studies that analyze the relationship between quarterly or semi-annual review hour(proportion) and audit quality are also not found. Therefore, we focus on studies that have demonstrated the effectiveness of the quarterly review system, which can infer the relationship between the review hour and audit quality.

Ettredge et al. (2000) verified that entities that received a timely review of the quarterly report would have fewer deferred revisions. They found that companies that received timely reviews revise less frequent in the fourth quarter and more frequent in the first to third quarters.

Manry et al. (2003) analyzed whether companies that received a timely review of the quarterly report would have a stronger relationship between quarterly earnings and stock returns than those that received a retrospective review. As a result of the study, companies that received retrospective reviews showed a weak or no relationship between quarterly earnings and stock returns, while companies that received timely reviews showed a strong correlation between the two variables.

Krishnan and Zhang (2005) compared the stock price response and earnings response coefficient (ERC) to the submitted 10-Q report of companies with and without the attached quarterly review report and examined whether the quarterly review report has additional information in the earnings disclosure. They found that there was a positive (+) relationship between the ERC and the disclosure of the quarterly review report.

Agoglia et al. (2010) found that workload pressure has a negative (-) relationship with the effectiveness of audit, and Lopez and Peters (2012) reported that as a result of investigating the impact of busy audit periods and audit workload pressures on audit quality, companies audited during busy audit periods had higher absolute values of abnormal accruals and were more likely to achieve benchmark earnings. It was mentioned that these research results are consistent with the prediction that excessive audit workload lowers audit quality and increases managers' ability to manage earnings.

Using Korea's data, Shin and Jeong (2016) verified that there is a significant negative (-) relationship between the proportion of quarterly or semi-annual review hour and discretionary accruals. It means that if an auditor spends a relatively large amount of time during the quarterly or semi-annual review, the final audit can be efficiently performed, thereby improving the audit quality.

As such, previous studies have revealed that the quarterly or semi-annual review hour (proportion) can improve the audit quality, so hypothesis 3 is established as follows to verify that the degree of improvement of audit quality according to the increase of audit hour due to the application of standard audit hour is influenced by the proportion of the quarterly or semi-annual review hour.

Hypothesis 3: The degree to which the audit quality improves as the audit hour increases due to the application of the standard audit hour is greater when the proportion of the quarterly or semi-annual review hour increases.

2.6. Moderating effect of audit hour (proportion) of senior auditors

There is no overseas empirical study on the relationship between audit hour by position of auditors and audit quality. However, there are some studies suggesting that even if the same audit hour is put in, the audit quality may vary depending on the position of auditors, so we examine this.

Stein et al. (1994) analyzed the samples by dividing them into financial companies and manufacturing companies, and found that corporate size and operational complexity were the main determinants of audit time in both industries. It was also found that financial companies with internal auditors had less audit hour for lower-level auditors and more audit hour for higher-level auditors. O'keefe et al. (1994) investigated the characteristics of the audited company and the determinants of audit hour of partners, managers, seniors, and staff, arguing that it is reasonable for the audit hour of senior auditor to increase relatively when the risk of bankruptcy increases. Bell et al. (2008) also found that similar to O'keefe et al. (1994), risk-based audits increased the proportion of audit hours of senior auditors.

Bell et al. (2001) explained that as a result of analyzing the relationship between the perceived operating risk and audit hour, the audit hour increased as the perceived operating risk increased, and that the audit hour of partners, managers, and seniors excluding staff increased when the perceived risk was high.

Through previous studies, it can be seen that the impact on audit quality is different for each auditor position. In particular, the audit hour (proportion) of senior auditors, such as directors and registered accountants, can generally have a positive (+) effect on audit quality. Therefore,

hypothesis 4 is established to verify that the degree of improvement in audit quality according to the degree of increase in audit hour due to the application of the standard audit hour varies depending on the proportion of audit hour (proportion) of senior auditors.

Hypothesis 4: The degree to which the audit quality improves as the audit hour increases due to the application of the standard audit hour is greater when the proportion of audit hour of senior auditors increases.

3. Research design

3.1. Research model

3.1.1. Measurement of audit quality

As discussed in section 2, it can be seen that the measure of audit quality varies, and many papers in the field of accounting audit use earnings management measures to verify the difference in audit quality (Caramanis & Lennox, 2008; Lopez and Peters, 2011; J. S. Park & Cho, 2016; Shin & Jeong, 2017, etc). In this paper, audit quality is measured using the modified Jones model (Dechow et al., 1995), a representative model that estimates discretionary accruals, which is a representative proxy variable for earnings management. Jones (1991) model is the first model that calculate the discretionary accruals, but after that, modified Jones model is introduced as an improved model. So we use this model to estimate discretionary accruals. As we mentioned in section 2, there are more discretionary accruals, then we can conclude that the manager of the firm is more likely to manage their earnings. And then, we can also say that the audit quality of the firm is low, if the manager of the firm is more likely to manage their earnings. In conclusion, as a proxy for audit quality, if there are more discretionary accruals, then audit quality of the firm is higher.

First, the Jones model estimates non-discretionary accruals using changes in sales and tangible assets, and measures discretionary accruals by subtracting non-discretionary accruals from total accruals (Jones, 1991). Specifically, the regression coefficient is estimated according to the following equation, and the estimated regression coefficient is substituted into the following equation to estimate the discretionary accruals of individual companies. As you see, the equation (1), the modified Jones model is calculated by subtracting the change in credit sales from the change in sales when calculating discretionary accruals, taking into account that credit sales can be used as earnings management in the Jones model.

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_1 \left(\frac{1}{A_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \epsilon_{i,t} \quad (1)$$

Here, $TA_{i,t}$: Total accruals for firm i in year t (net income—operating cash flow)

$\Delta REV_{i,t}$: Changes in sales for firm i in year t (sales in year t—sales in year t-1)

$\Delta AR_{i,t}$: Changes in account receivables for firm i in year t (account receivables in year t—account receivables in year t-1)

$PPE_{i,t}$: Tangible assets for firm i in year t (excluding land and assets under construction)

$A_{i,t-1}$: Total assets for firm i in year t-1

$\epsilon_{i,t}$: Residuals for firm i in year t

After the estimation of equation (1), we can calculate the discretionary accruals using equation (2) and estimates that obtained by equation (1).

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \left[\hat{\beta}_1 \left(\frac{1}{A_{i,t-1}} \right) + \hat{\beta}_2 \left(\frac{\Delta REV_{i,t}}{A_{i,t-1}} \right) + \hat{\beta}_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) \right] \quad (2)$$

Here, $DA_{i,t}$: Discretionary accruals for firm i in year t

In this paper, the absolute value of discretionary accruals using the modified Jones model in the main analysis is used as a measure of audit quality.

3.1.2. Research model for hypothesis 1

A research model for verifying hypothesis 1 is set as shown in Equation (3). In this research model, the dependent variable is the absolute value of the discretionary accruals measured by the modified Jones model as a measure of audit quality, and the variable of interest is SAH (Standard Audit Hour) indicating whether the standard audit hour is applied. In order to analyze the effect of standard audit hour on audit quality, it is necessary to compare the audit quality of the pre-application period (2018) with the audit quality of the post-application period (2019). Accordingly, SAH, a dummy variable with a value of 1 if the year t is the post-application period and 0 otherwise, set as a variable of interest. In the research model, hypothesis 1 is supported that if β_1 (the regression coefficient of SAH) has a significant negative (-) value, the audit quality is improved by applying the standard audit hour under external audit law.

$$AQ_{i,t} = \beta_0 + \beta_1 SAH_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \beta_5 TA_{i,t-1} + \beta_6 LOSS_{i,t-1} + \beta_7 MK_{i,t} + \beta_8 BIG_{i,t} + \beta_9 FIRST_{i,t} + \sum IND + \epsilon_{i,t} \quad (3)$$

Here, $AQ_{i,t}$: Absolute value of discretionary accruals by modified Jones model for firm i in year t

$SAH_{i,t}$: Equals to 1 if year t is the post-application period, 0 otherwise

$SIZE_{i,t-1}$: The natural log of total assets for firm i in year $t-1$

$LEV_{i,t}$: Total liabilities for firm i in year t /Total assets in year $t-1$ (Debt ratio)

$ROA_{i,t}$: Net income for firm i in year t /Total assets in year $t-1$ (Return on assets)

$TA_{i,t-1}$: Total accruals for firm i in year $t-1$ /Total assets in year $t-1$

$LOSS_{i,t-1}$: Equals to 1 if net loss is reported in year $t-1$, 0 otherwise

$MK_{i,t}$: Equals to 1 if the firm i is listed in KOSPI market, 0 otherwise

$BIG_{i,t}$: Equals to 1 if the auditor is one of the big 4 auditors, 0 otherwise

$FIRST_{i,t}$: Equals to 1 if year t is the first year of audit by current auditor for firm i , 0 otherwise

$\sum IND$: Industry dummy variables (Based on middle classification level in the Korean Standard Industrial Classification List)

$\epsilon_{i,t}$: Residuals for firm i in year t

In the model of Equation (3), the control variables are variables used in previous studies and variables predicted to affect the audit quality are selected. SIZE is a variable to control the size of a company, and as the size of the company increases, earnings management is limited as monitoring and supervision increases inside and outside the company, so it is expected to have a negative (-) relationship with absolute value of DA, a proxy for audit quality (Dechow & Dichev, 2002). The debt ratio (LEV) is a variable for controlling a company's default risk and is expected to have a positive relationship because the higher

the debt ratio, the greater the incentive for managers to manage their earnings to reduce the default risk (M. L. DeFond & Jiambalvo, 1994; Watts & Zimmerman, 1983). The return on assets (ROA) is included to control a company's management performance (Dechow et al., 1995), total accruals in year t-1 ($TA_{i,t-1}$) is included in the model to control the reversal effect of the previous year's accruals (Ashbaugh et al., 2003). In addition, in the case of companies with a net loss in the previous year, the loss dummy variable (LOSS) is added to the model, and in order to control the characteristics of auditors and the impact of initial audits on the analysis results, large-scale auditors dummy (BIG) and initial audit dummy (FIRST) are added to the model, respectively. In order to control the characteristics of the industry to which the sample company belongs, the industry dummy variable (IND) is also reflected in the research model.

3.1.3. Research model for hypothesis 2

A model for hypothesis 2 is set as shown in Equation (4). Here, the variable of interest is ΔAH , which indicates the degree of increase in audit hour. After controlling the variables that are expected to affect the dependent variable, audit quality (ΔAQ), the effect of the audit hour increase rate ΔAH on the degree of audit quality improvement (ΔAQ) is examined. As in Equation (3), variables that can affect to the audit quality are included as control variables in the research model of Equation (4). However, in the research model of Equation (4), all variables except for the dummy variable are measured as the change value obtained by subtracting the value of the period before application from the value of the period after application of the standard audit hour. In the research model of Equation (4), hypothesis 2 is supported if the coefficient of the ΔAH variable has a significant negative (-) value.

$$\Delta AQ_{i,t} = \beta_0 + \beta_1 \Delta AH_{i,t} + \beta_2 \Delta SIZE_{i,t-1} + \beta_3 \Delta LEV_{i,t} + \beta_4 \Delta ROA_{i,t} + \beta_5 \Delta TA_{i,t-1} + \beta_6 LOSS_{i,t-1} + \beta_7 MK_{i,t} + \beta_8 BIG_{i,t} + \beta_9 FIRST_{i,t} + \sum IND + \epsilon_{i,t} \quad (4)$$

Here, $\Delta AQ_{i,t}$: Absolute value of DA for firm i in year t—absolute value of DA in year t-1

$\Delta AH_{i,t}$: (Audit hour for firm i in year t—Audit hour in year t-1)/Audit hour in year t-1

$\Delta SIZE_{i,t-1}$: Total assets for firm i in year t-1/Total assets in year t-2

$\Delta LEV_{i,t}$: Total liabilities for firm i in year t/Total assets for firm i in year t-1

- Total liabilities in year t-1/Total assets in year t-2

$\Delta ROA_{i,t}$: Net income for firm i in year t/Total assets for firm i in year t-1

- Net income in year t-1/Total assets in year t-2

$\Delta TA_{i,t-1}$: Total accruals for firm i in year t-1/Total assets for firm i in year t-1

- Total accruals in year t-2/Total assets in year t-2

See, Equation (1) for descriptions of the remaining variables

3.1.4. Research model for hypothesis 3

A model for hypothesis 3 is set as shown in Equation (5). In addition to the Equation (4), we add $\Delta Q_AHR(+)$ variable which is dummy variable indicating whether the proportion of the quarterly or semi-annual review hour increases or not, and the interaction variable with the degree of increase in the audit hour ($\Delta AH^* \Delta Q_AHR(+)$). The variable of interest is the interaction variable $\Delta AH^* \Delta Q_AHR(+)$. We examine whether the interaction variable $\Delta AH^* \Delta Q_AHR(+)$ exhibits a moderating effect on the degree of improvement in audit quality ΔAQ . Hypothesis 3 is supported if the coefficient of the interaction variable has a significant negative (-) value.

$$\begin{aligned} \Delta AQ_{i,t} = & \beta_0 + \beta_1 \Delta AH_{i,t} + \beta_2 \Delta Q_AHR(+)_i + \beta_3 \Delta AH_{i,t} * \Delta Q_AHR(+)_i + \beta_4 \Delta SIZE_{i,t-1} \\ & + \beta_5 \Delta LEV_{i,t} + \beta_6 \Delta ROA_{i,t} + \beta_7 \Delta TA_{i,t-1} + \beta_8 \Delta LOSS_{i,t-1} + \beta_9 MK_{i,t} \\ & + \beta_{10} \Delta BIG_{i,t} + \beta_{11} \Delta FIRST_{i,t} + \sum IND + \epsilon_{i,t} \end{aligned} \quad (5)$$

Here, $\Delta Q_AHR_{i,t}$: Quarterly or semi-annual review hour for firm i in year t/Total audit hour in year t
 —Quarterly or semi-annual review hour in year t-1/Total audit hour in year t-1

$\Delta Q_AHR(+)_i$: Equals to 1 if $\Delta Q_AHR_{i,t} > 0$, 0 otherwise

3.1.5. Research model for hypothesis 4

A model for hypothesis 4 is shown in Equation (6). For the proportion of audit hour of senior auditors, $\Delta BP_AHR(+)$ and $\Delta RA_AHR(+)$, which are variables of whether the proportion of audit hour of directors and registered accountants, are used. The variables of interest are interaction variables $\Delta AH * \Delta BP_AHR(+)$ and $\Delta AH * \Delta RA_AHR(+)$. Hypothesis 4 is supported if the regression coefficients of $\Delta AH * \Delta BP_AHR(+)$ and $\Delta AH * \Delta RA_AHR(+)$ have significant negative (-) values.

$$\begin{aligned} \Delta AQ_{i,t} = & \beta_0 + \beta_1 \Delta AH_{i,t} + \beta_2 \Delta HP_AHR(+)_i + \beta_3 \Delta AH_{i,t} * \Delta HP_AHR(+)_i + \beta_4 \Delta SIZE_{i,t-1} + \beta_5 \Delta LEV_{i,t} \\ & + \beta_6 \Delta ROA_{i,t} + \beta_7 \Delta TA_{i,t-1} + \beta_8 \Delta LOSS_{i,t-1} + \beta_9 MK_{i,t} + \beta_{10} \Delta BIG_{i,t} + \beta_{11} \Delta FIRST_{i,t} + \sum IND + \epsilon_{i,t} \end{aligned} \quad (6)$$

Here, $\Delta BP_AHR_{i,t}$: Audit hour of directors for firm i in year t/Total audit hour in year t—Audit hour of directors in year t-1/Total audit hour in year t-1

$\Delta RA_AHR_{i,t}$: Audit hour of registered accountants for firm i in year t/Total audit hour in year t—Audit hour of registered accountants in year t-1/Total audit hour in year t-1

$[\Delta HP_AHR(+)_i]$

$\Delta BP_AHR(+)_i$: Equals to 1 if $\Delta BP_AHR_{i,t} > 0$, 0 otherwise

$\Delta RA_AHR(+)_i$: Equals to 1 if $\Delta RA_AHR_{i,t} > 0$, 0 otherwise

4. Data and empirical results

4.1. Data and sample characteristics

The sample used in this paper is composed of two sets because the dependent variable of Hypothesis 1 and the dependent variable of Hypothesis 2 ~ 4 are different from each other. First, for hypothesis 1 to analyze whether the application of standard audit hour leads to improvement in audit quality, December settlement corporations listed on the KOSPI and KOSDAQ markets of the Korea Stock Exchange are selected as samples in 2018 and 2019. Among them, companies operating in the financial and insurance business and companies that cannot collect financial data are excluded from the sample. Through this process, a total of 3,928 firm-year are selected as a research sample to analyze hypothesis 1 as shown in Table 1. In order to control the effect of extreme values on the research results, the analysis is performed by adjusting the values outside the upper and lower 1% of the continuous variables to 99% and 1%, respectively (winsorization).

The reason why the sample selection period is set to 2018 and 2019 is that the standard audit hour system is applied from the audit of the financial statements of the 2019 fiscal year, so it is necessary to compare 2018 before the standard audit hour with 2019. In addition, since most companies in Korea settle in December, only December settlement corporations are selected as samples to prevent distortion of research results due to settlement month. Furthermore, companies operating in the financial and insurance business are excluded from the sample to secure sample homogeneity because the form of financial statements and the nature of accounting subjects are different from those of general companies.

Table 1. Sample selection for Hypothesis 1

Category	Firm-year
Companies listed in KOSPI and KOSDAQ market	4,398
(-) Companies that settle other than December	(-) 91
(-) Financial and insurance companies	(-) 250
(-) Companies unable to collect financial data	(-) 129
Final sample for Hypothesis 1	3,928

Table 2. Sample selection for Hypothesis 2 ~ 4

Category	Firm-year
Final sample for Hypothesis 1	3,928
(-) Companies that have data in only one year	(-) 36
(-) Companies unable to collect audit hour data	(-) 20
(-) Sample reduction by calculating the change value	(-) 1,936
(-) Companies with decreased audit quality	(-) 984
Final sample for Hypothesis 2 ~ 4	952

On the other hand, the second sample for Hypothesis 2 ~ 4 to investigate the cause of improvement in audit quality due to the application of standard audit hour have to analyze the changes in 2018 and 2019 for each variable, so companies with data in only one year are excluded from the sample for Hypothesis 1. After excluding companies that could not collect audit hour data, the number of samples is halved as a result of calculating the change values in 2018 and 2019. Furthermore, since the research hypotheses target companies with increased audit quality, companies with decreased audit quality are also excluded. Through this process, a total of 952 companies are selected as research samples to analyze hypotheses 2 ~ 4. Sample selection procedures are explained in [Table 2](#).

Panel A in [Table 3](#) shows descriptive statistics for the sample for Hypothesis 1. First, when looking at the average (median) value of AQ representing audit quality, it is 0.0773 (0.0437). The average values of SIZE which means the size of the company, LEV which represents the size of debt, and ROA which represents the return on asset, are 19.1158, 0.4727, and -0.0047, respectively. Meanwhile, companies that suffer loss in previous year (LOSS) accounted for 31.82% of the total, KOSPI-listed companies are 35.44% of the total, companies audited by BIG 4 auditors are 41.47%, and companies take initial audit(FIRST) are 24.64% of the total.

Panel B in [Table 3](#) shows descriptive statistics for the sample for Hypothesis 2 ~ 4. In the case of Δ AQ, which represents the change in audit quality, the average value is -0.0852, which means that the audit quality has improved according to the application of the standard audit hour system. The average value of Δ AH, which represents the change in audit hour, is 0.1434, and it can be seen that 14.34% more audit hour is invested in the standard audit hour application year than the year before the standard audit hour system is applied. However, the average value of Δ Q_AHR, which represents the change in the ratio of the quarterly or semi-annual review hour, is -0.0047, which shows a - 0.47% decrease in the ratio of the quarterly or semi-annual review hour in the year before the standard audit hour is applied. On the other hand, the average value of Δ BP_AHR, which represents the change of audit hour by the directors, and the average value of Δ RA_AHR, which represents the change of audit hour by registered accountants, are 0.0122 and 0.0182, respectively. Therefore, it can be seen that the proportion of each in the year of application of the standard audit hour system increased compared to the year before the application.

Table 3. Descriptive statistics

Variable	N	Mean	Standard Deviation	Minimum Value	Median	Maximum Value
Panel A: Descriptive statistics of the sample for Hypothesis 1						
AQ	3,928	0.0773	0.1046	0.0004	0.0437	0.8466
SAH	3,928	0.5000	0.5001	0.0000	0.5000	1.0000
SIZE	3,928	19.1158	1.4849	16.1639	18.8594	24.0864
LEV	3,928	0.4727	0.2778	0.0520	0.4503	1.6665
ROA	3,928	-0.0047	0.1373	-0.6986	0.0201	0.2938
TA	3,928	-0.0349	0.1944	-5.7969	-0.0223	3.6286
LOSS	3,928	0.3182	0.4658	0.0000	0.0000	1.0000
MK	3,928	0.3544	0.4784	0.0000	0.0000	1.0000
BIG	3,928	0.4147	0.4927	0.0000	0.0000	1.0000
FIRST	3,928	0.2464	0.4310	0.0000	0.0000	1.0000
Panel B: Descriptive statistics of the sample for Hypothesis 2 ~ 4						
Δ AQ	952	-0.0852	0.1316	-0.7177	-0.0411	-0.0001
Δ AH	952	0.1434	0.2750	-0.5118	0.0899	1.3668
Δ Q_AHR	952	-0.0047	0.1180	-0.2900	-0.0057	0.3765
Δ BP_AHR	952	0.0122	0.1018	-0.3412	0.0037	0.3581
Δ RA_AHR	952	0.0182	0.1447	-0.3608	0.0063	0.4305
Δ SIZE	952	0.1206	0.2766	-0.4933	0.0545	1.1510
Δ LEV	952	-0.0299	0.2602	-1.1780	-0.0064	1.0128
Δ ROA	952	0.0079	0.1333	-0.4608	-0.0036	0.5220
Δ TA	952	-0.0028	0.1459	-0.5213	0.0043	0.4165
LOSS	952	0.3330	0.4715	0.0000	0.0000	1.0000
MK	952	0.3288	0.4700	0.0000	0.0000	1.0000
BIG	952	0.3939	0.4889	0.0000	0.0000	1.0000
FIRST	952	0.2689	0.4436	0.0000	0.0000	1.0000

Panel A in Table 4 analyzes the correlation between the variables used for hypothesis 1. The correlation coefficient between SAH and AQ is significantly negative (-) at the 1% significance level. This result indicates that audit quality has improved in the year of application of the standard audit hour system. The size of the company(SIZE), the return on assets(ROA), total accruals in previous year(TA), whether or not it belongs to the KOSPI market(MK), and whether it is a BIG 4 auditor(BIG) show a significant negative (-) correlation with the audit quality. On the other hand, debt size(LEV), net loss in previous year(LOSS), and initial audit(FIRST) show a significant positive (+) correlation with audit quality, this means that if the debt size is large, the net loss is reported in the previous quarter, current year's audit is initial audit, then the audit quality is low.

Panel B in Table 4 represents the correlation between the variables used for hypothesis 2 ~ 4. The degree of increase in audit hour(Δ AH) and the degree of improvement in audit quality(Δ AQ) show a negative (-) correlation coefficient, but are not statistically significant. However, multiple regression analysis that controls the influence of other variables may have different results from correlation analysis. The degree of increase in the proportion of the quarterly or semi-annual review hour(Δ Q_AHR) and the degree of improvement in audit quality(Δ AQ) show a significant negative (-) correlation coefficient. It shows that the greater the degree of increase in the proportion of the quarterly or semi-annual review hour, the greater the degree of improvement in audit quality. In addition, the degree of increase of audit hour by the director(Δ BP_AHR) and that by the registered accountant(Δ RA_AHR) shows a significant negative (-) correlation coefficient with the

Table 4. Pearson correlation matrix

Panel A : Correlation matrix of variables for Hypothesis1 (N : 3,928)

	AQ	SAH	SIZE	LEV	ROA	TA	LOSS	MK	BIG	FIRST
AQ	1.0000									
SAH	-0.0489***	1.0000								
SIZE	-0.2851***	0.0331**	1.0000							
LEV	0.1600***	-0.0036	0.0880***	1.0000						
ROA	-0.4213***	-0.0268*	0.2291***	-0.1896***	1.0000					
TA	-0.2019***	-0.0256	0.1215***	-0.0523***	0.2326***	1.0000				
LOSS	0.2345***	0.0262	-0.2413***	0.1370***	-0.4880***	-0.2700***	1.0000			
MK	-0.2043***	0.0000	0.5817***	0.0655***	0.1025***	0.0686***	-0.1485***	1.0000		
BIG	-0.0957***	-0.0377**	0.4432***	0.0059	0.1013***	0.0354**	-0.1114***	0.3238***	1.0000	
FIRST	0.1217***	0.0484***	-0.1806***	0.0899***	-0.0883***	-0.0874**	0.1078***	-0.1174***	-0.1456***	1.0000

Panel B : Correlation matrix of variables for Hypothesis 2~4 (N : 952)

	ΔAQ	ΔAH	ΔQ_AH	ΔBP_AHR	ΔRA_AHR	ΔSIZE	ΔLEV	ΔROA	ΔTA	LOSS	MK	BIG	FIRST
ΔAQ	1.0000												
ΔAH	-0.0389	1.0000											
ΔQ_AH	-0.1537***	-0.0972***	1.0000										
ΔBP_AHR	-0.0687**	-0.2012***	0.0947***	1.0000									
ΔRA_AHR	-0.0415	-0.1202***	0.1265***	-0.4291***	1.0000								
ΔSIZE	-0.3226***	-0.0580*	0.1877***	0.0569*	0.1001***	1.0000							
ΔLEV	0.1909***	0.0610*	-0.1634***	-0.0214	0.0055	-0.5712	1.0000						

(Continued)

Table 4. (Continued)

ΔROA	-0.2211***	-0.0376	0.0413	0.0012	0.0416	-0.0247	-0.1348***	1.0000					
ΔTA	0.0163	-0.0261	0.0053	0.0529	0.0441	0.1960***	-0.0269	-0.3447***	1.0000				
LOSS	-0.2532***	-0.0664**	0.0183	0.0587*	-0.0550*	-0.0370	-0.0636**	0.4091***	-0.2208***	1.0000			
MK	0.2539***	0.1532***	-0.1209***	-0.0173	-0.0009	-0.1400***	0.0455	-0.0777**	-0.0326	-0.1481***	1.0000		
BIG	0.0921***	0.1533***	-0.1414***	-0.1079***	-0.0954***	-0.0711**	0.0010	-0.0011	-0.0604*	-0.1134***	0.3419***	1.0000	
FIRST	-0.1889***	-0.0919***	0.1797***	0.1260***	0.1870***	0.1624***	-0.1245***	0.1572***	0.0427	0.1596***	-0.1471***	-0.2320***	1.0000

Table 5. Regression results for Hypothesis 1

Independent variable	Predicted sign	Dependent variable: AQ (absDA)	
		Coefficient	t-value
(Constant)	±	0.258***	9.97
SAH	-	-0.011***	-4.03
SIZE	-	-0.011***	-8.29
LEV	+	0.043***	8.05
ROA	-	-0.238***	-19.69
TA	-	-0.050***	-6.67
LOSS	+	-0.009**	-2.55
MK	-	-0.013***	-3.49
BIG	-	0.006*	1.89
FIRST	+	0.009***	2.65
$\sum ND$		Included	
F-value		27.17 < 0.0001	
Adjusted-R ²		0.3118	
N		3,928	

degree of improvement in audit quality(Δ AQ). This means that the audit quality improves as the proportion of audit hours of the director or registered accountant increases.

4.2. Empirical results

Table 5 is the result of verifying Hypothesis 1 by Equation (3). In the model with audit quality(AQ) as a dependent variable, the coefficient value of the SAH variable representing the application period of the standard audit hour system is -0.011 , which is statistically significant at the 1% level. This means that the standard audit hour system under the external audit law contributed to the improvement of audit quality, and hypothesis 1 is supported. It can be said that the standard audit hour system is effective in the first year of application. The regression coefficients of the control variables are generally similar to those of prior studies.

Table 6 is the result for Hypothesis 2 by Equation (4) for the group with improved audit quality. In the research model of Equation (4), all variables except for the dummy variables are measured as the change value obtained by subtracting the value of the year before application from the applied year of the standard audit hour system. In the model with the degree of improvement in audit quality(Δ AQ) as a dependent variable, the coefficient value of Δ AH is -0.045 , which is statistically significant at the 1% level. These results imply that as the Hypothesis 2, the degree of improvement in audit quality due to the application of the standard audit hour system increased as the audit hour increased. Therefore, Hypothesis 2 is supported.

Table 7 is the result for Hypothesis 3 by Equation (5) for the group with improved audit quality. Likewise, in the research model of Equation (5), all variables except the dummy variable are measured as change values. In the model with Δ AQ as the dependent variable, which represents the degree of improvement in audit quality, the coefficient value of Δ AH* Δ Q_AHR(+), which is the variable of interest, is -0.050 , which is statistically significant at the 5% level. These results show that the degree of improvement in audit quality due to the increase in audit hour due to the application of the standard audit hour system is greater as the proportion of the quarterly or semi-annual review hour increased. Thus, we can conclude that Hypothesis 3 is supported. With the introduction of the standard audit hour system, companies that spend more time to audit in the quarterly or semi-annual review season rather than spend more time during the final audit period (busy season), have a greater the degree of improvement in audit quality.

Table 6. Regression results for Hypothesis 2

Independent variable	Predicted sign	Dependent variable: $\Delta AQ (\Delta absDA)$	
		Coefficient	t-value
(Constant)	±	-0.026	-1.43
ΔAH	-	-0.045***	-3.70
$\Delta SIZE$	-	-0.090***	-5.70
ΔLEV	+	0.017	1.09
ΔROA	-	-0.089***	-3.07
ΔTA	-	0.040	1.61
LOSS	?	-0.033***	-4.17
MK	?	0.033***	3.95
BIG	?	0.000	0.02
FIRST	?	-0.020**	-2.54
$\sum ND$		Included	
F-value		12.50 < 0.0001	
Adjusted-R ²		0.4401	
N		952	

Table 7. Regression results for Hypothesis 3

Independent variable	Predicted sign	Dependent variable: $\Delta AQ (\Delta absDA)$	
		Coefficient	t-value
(Constant)	±	-0.018	-0.95
ΔAH	-	-0.025	-1.55
$\Delta Q_AHR(+)$	-	-0.013*	-1.72
$\Delta AH * \Delta Q_AHR(+)$	-	-0.050**	-2.06
$\Delta SIZE$	-	-0.087***	-5.56
ΔLEV	+	0.014	0.87
ΔROA	-	-0.090***	-3.14
ΔTA	-	0.040	1.64
LOSS	?	-0.033***	-4.14
MK	?	0.032***	3.83
BIG	?	-0.003	-0.38
FIRST	?	-0.020**	-2.51
$\sum ND$		Included	
F-value		12.46 < 0.0001	
Adjusted-R ²		0.4466	
N		952	

Table 8 is the results for Hypothesis 4 for groups with improved audit quality. In the model with the degree of increase in audit quality (ΔAQ) as the dependent variable, the coefficients of the variables of interest are -0.008 and 0.002, respectively, but are not statistically significant. These results show that the degree of improvement in audit quality due to the increase in audit hour caused by the application of the standard audit hour system does not appear larger as the proportion of audit hour of senior auditors increased. Therefore, Hypothesis 4 is not supported. This may be due to the fact that the audit hour for companies subject to the external audit law has increased relatively significantly, and the burden on senior auditors has not been suppressed as much as the audit hour has increased (Hermanson et al., 2007). Also, if senior auditors who have

Table 8. Regression results for Hypothesis 4

Independent variable	Predicted sign	Dependent variable: $\Delta AQ (\Delta absDA)$			
		Model 1		Model 2	
		Coefficient	t-value	Coefficient	t-value
(Constant)	±	-0.024	-1.25	-0.028	-1.48
ΔAH	-	-0.042**	-2.17	-0.046***	-2.59
$\Delta HP_AHR(+)$					
$\Delta BP_AHR(+)$	-	-0.004	-0.55		
$\Delta RA_AHR(+)$	-			0.003	0.40
$\Delta AH * \Delta HP_AHR(+)$					
$\Delta AH * \Delta BP_AHR(+)$	-	-0.008	-0.32		
$\Delta AH * \Delta RA_AHR(+)$	-			0.002	0.09
$\Delta SIZE$	-	-0.090***	-5.69	-0.090***	-5.71
ΔLEV	+	0.017	1.05	0.017	1.05
ΔROA	-	-0.089***	-3.09	-0.090***	-3.09
ΔTA	-	0.039	1.57	0.039	1.58
LOSS	?	-0.033***	-4.15	-0.033***	-4.11
MK	?	0.033***	3.93	0.033***	3.92
BIG	?	0.000	0.03	0.000	0.03
FIRST	?	-0.020**	-2.50	-0.020**	-2.55
$\sum ND$		Included		Included	
F-value		12.12 < 0.0001		12.11 < 0.0001	
Adjusted-R ²		0.4394		0.4390	
N		952		952	

been performing non-audit services have been employed due to a lack of audit personnel, or if accountants who were closed from outside were recruited and mainly invested in busy final audit work, it may be difficult to improve audit quality in a short period of time due to the lack of experience in performing audit work even for senior auditors.

5. Conclusion

The purpose of this study is to confirm whether the audit quality is improved by applying the standard audit hour system under the external audit law. In particular, from the viewpoint that audit quality can vary not only depending on the absolute time spent for audit but also depending on who is audited, it is investigated to confirm whether the degree of improvement in audit quality as the audit hour increased differs depending on the degree of increase in the ratio of quarterly or semi-annual review hour and the degree of increase in audit hour by senior auditors.

As a result of the study, first, it is confirmed that the audit quality is improved by applying the standard audit hour system. It means that although it is the first year of application of the standard audit hour system, the standard audit hour system has worked to some extent. Second, it is confirmed that the degree of improvement in audit quality due to the application of the standard audit hour system is greater as the audit hour increased. These results suggest that audit quality can be improved when audit hour increases, as previous studies have already revealed. Third, it is showed that the degree of improvement in audit quality as the audit hour increased due to the application of the standard audit hour system is significantly greater when

the proportion of quarterly or semi-annual review hour is high than when the proportion of final audit hour is high. This is interpreted that the audit with a regular audit system has improved the audit quality due to the high efficiency of the audit. Fourth, it cannot be confirmed that the degree of improvement in audit quality as the audit hour increased due to the application of the standard audit hour system is greater with the high proportion of audit hour by senior auditors. This means that it may have been difficult to improve audit quality if senior auditors who performed non-audit services or were external accountants have been put into audit work at a time when the audit hour has increased significantly due to the implementation of the standard audit hour system in a short period of time due to the lack of experience in performing audit work even if they are senior auditors.

Based on the results of this study, the implications related to the operation of the standard audit hour system in the future are as follows. First, as with the results of previous studies, it is found that the audit quality improved as the audit hour increased, thus, it is necessary to thoroughly operate for the companies in the applicable group with less than 100% standard audit hour that have invested less than the appropriate standard audit hour so that additional standard audit hour is input according to the roadmap of the system. Second, it is found that the audit quality improved as the proportion of quarterly or semi-annual review hour increased rather than the proportion of final audit, therefore, it is necessary to improve the efficiency of audit work by supplementing the system so that audit hour is appropriately invested in the quarterly or semi-annual review process. Third, even if the proportion of audit hours of high-ranking auditors increased, the audit quality did not improve further, so it is necessary to thoroughly manage the appropriateness of the audit team's audit performance when evaluating the audit team's audit performance (audit proficiency), so that the simple experience of the accountant is not included in the audit work experience.

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