Tentative Translation

Attachment 4

Economic Analysis Using Survey Results

[Overview]

"Guide for the Design and Implementation of an Effective Antimonopoly Act Compliance Program" (hereinafter referred to as the "AMA Compliance Guide") includes overall measures ("Overall Efforts for Compliance Related to the AMA" and "Periodic Evaluation and Update of the Program") as measures relevant to all specific measures ("Specific Measures to Prevent the AMA Violations" and "Specific Measures to Detect the AMA Violations at an Early Stage and Take Appropriate Actions") aimed at preventing the AMA violations and detecting these violations as soon as possible.

By appropriately implementing these overall measures, specific measures will be effectively executed, thereby establishing internal systems. This will enhance the awareness and knowledge of executives and employees related to the AMA compliance. As a result, the number of internal consultations concerning the AMA is expected to increase. Furthermore, when any AMA violations occur behind the scenes, whistleblowing reports are expected to be initiated. To verify this point, by using the survey, we examined the number of affirmative responses related to overall measures and specific measures introduced in the AMA Compliance Guide. We also analyzed the relationship between specific measures and internal consultations or whistleblowing reports related to the AMA matters.

Specifically, to clarify the impact of overall measures on specific measures, we conducted a regression analysis where we put the number of affirmative responses related to specific measures as the dependent variable and responses related to overall measures as the explanatory variable. The results indicate that the companies implementing overall measures tend to implement specific measures.

Furthermore, to clarify the impact of specific measures on the number of internal consultations related to the AMA and the presence of whistleblowing, we regressed the number of internal consultations and the presence of whistleblowing on the responses related to specific measures. The specific measures included in-house trainings on the AMA, incentive systems, the formulation and dissemination of internal rules for contact with competitors, and conducting audits on the AMA. The results show that the companies implementing these specific measures tended to experience an increase in the number of internal consultations related to the AMA. Additionally, the companies implementing specific measures, such as conducting in-house trainings on the AMA, tend to have internal whistleblowing reports regarding the AMA matters.

These results suggest that overall AMA compliance is improving across the company, following a sequence of implementing overall measures → implementing specific measures → an increase in internal consultations related to the AMA and detection of issues related to the AMA through whistleblowing.

When the design and implementation of an AMA compliance program strengthen internal systems and the awareness and knowledge of executives and employees related to the AMA compliance have improved, their sensitivity to risks related to the AMA violations increases. Consequently, they are more likely to question whether their own actions or those of others violate the AMA during daily business activities. This is expected to increase the number of internal consultations related to the AMA matters, and when any AMA violations occur behind the scenes, it is anticipated that whistleblowing will occur. To verify this, we analyzed the survey responses related to positive feedback[1] on both general and specific measures introduced in the AMA Compliance Guide, and examined the relationship between specific measures and internal consultations or whistleblowing related to the AMA matters.

The rest of this report is structured as follows.: Section 1 provides an overview of the data. Section 2 analyzes positive responses related to overall measures and specific measures. Section 3 analyzes specific measures and internal consultations or whistleblowing related to the AMA. Section 4 presents a summary.

Section 1: Data

The responses to the questionnaire survey of Tokyo Stock Exchange Prime Market-listed companies (number of responding companies: 869) were used in this analysis[2]・[3].

A. Overall Measures: Whether the conditions for aggregation in items 1 to 7 of Table 10 on page 79 of the main report are met [0 or 1]

B. Specific Measures: Whether the conditions for aggregation in items 8 to 15 of Table 10 on page 79 of the main report are met [0 or 1]

C. Number of affirmative responses regarding specific measures: Total for Item B. [0–8]

D. Number of Internal Consultations: Annual number of internal consultations received related to the AMA (Question 4-3-3) [0–500][4]

E. Presence or Absence of Whistleblowing: Presence or absence of whistleblowing related to the AMA over the past three years (FY2021–FY2023) (Question 5-2-3) [0 or 1]

F. Number of affirmative responses to questions related to the incentive system[5]: How many of the response options 2), 3), and 4) in Questionnaire Survey Item 4-4-4 (multiple selections allowed) are selected. [0–3]

G. History of Disposition, etc.: Whether or not the company has received any disposition, etc.[6] from the Japan Fair Trade Commission under the AMA within the past 20 years [0 or 1]

[1] The survey questionnaire asks whether various measures have been implemented for each item in the AMA Compliance Guide. A positive response indicates that the measure related to the question has been implemented.

[2] For the aggregated results of each response, refer to Attachment 3: "Simple Summary Table."

[3] Although omitted from the estimation formula and analysis results, the attributes of the surveyed companies (capital, sales, total number of employees, and staple industry) are also used as explanatory variables.

[4] Average annual number of internal consultations received related to the AMA over the past three years (FY2021–FY2023).

[5] An incentive system refers to a system that links cooperation in efforts to prevent or detect violations of the AMA early on to benefits for employees (such as commendations, rewards, or points added to personnel evaluations).

[6] For the definition of "disposition, etc.", see Note 2 in the main text of the report (page 4).

Section 2 Analysis of Positive Responses Related to Overall Measures and Specific Measures

1 Purpose of Analysis and Analytical Methods

To determine whether implementing overall measures increases the implementation of specific measures, and to identify which specific measure contributes the most, we conducted a regression analysis. The number of positive responses to specific measures (as described in C. above) served as the dependent variable for survey respondents. The responses related to overall measures (as described in A. above) and history of disposition, etc. (as described in G. above)[7] are used as explanatory variables.

Furthermore, as the number of affirmative responses rerated to specific measures—the dependent variable—consists of counts, a Poisson regression model is employed for the regression analysis[8]・[9]. The specific estimation formula is as follows:

$$
\begin{aligned}
&Number\ of\ Affirmative\ Responses\ Related\ to\ Specific\ Measures \\
&= \beta_0 + \beta_1 Messages\ from\ Top\ Management\ (No.1) \\
&+ \beta_2 Implementation\ of\ the\ AMA\ Violation\ Risk\ Assessment\ (No.2) \\
&+ \beta_3 Formulation\ and\ Dissemination\ of\ Code\ of\ Conduct\ (No.3) \\
&+ \beta_4 Formulation\ and\ Dissemination\ of\ Basic\ Rules\ (No.4) \\
&+ \beta_5 Preparation\ and\ Dissemination\ of\ Manuals\ (No.5) \\
&+ \beta_6 Establishment\ of\ Organizational\ Structure\ (Item\ 6) \\
&+ \beta_7 Evaluation\ and\ Updates\ of\ Program\ (No.7) \\
&+ \beta_8 History\ of\ Disposition, etc. + \varepsilon(Error\ Term)
\end{aligned}
$$

※ The “No.” in the formula refers to the number in Table 10 on page 79 of the main body of the report.

2 Analysis Results

The analysis results are shown in Reference Figure 1. All coefficients for overall measures are statistically significant and positive (maximum value approximately 0.3). This indicates that for any overall measure, the number of positive responses related to specific measures increases when the

[7] To verify the contribution to the number of affirmative responses related to specific measures, we also conducted an analysis by adding history of disposition, etc. (as mentioned in G.) as an explanatory variable. Furthermore, related to history of disposition, etc., in addition to directly affecting specific measures, it is also possible that it indirectly influences specific measures. For instance, companies with history of disposition, etc. may implement overall measures, which in turn lead to specific measures being implemented. Additionally, when verifying multicollinearity between overall measures and history of disposition, etc. using VIF (Variance Inflation Factor), the value was 1.58. This suggests that including each explanatory variable in the estimation poses no significant problem.

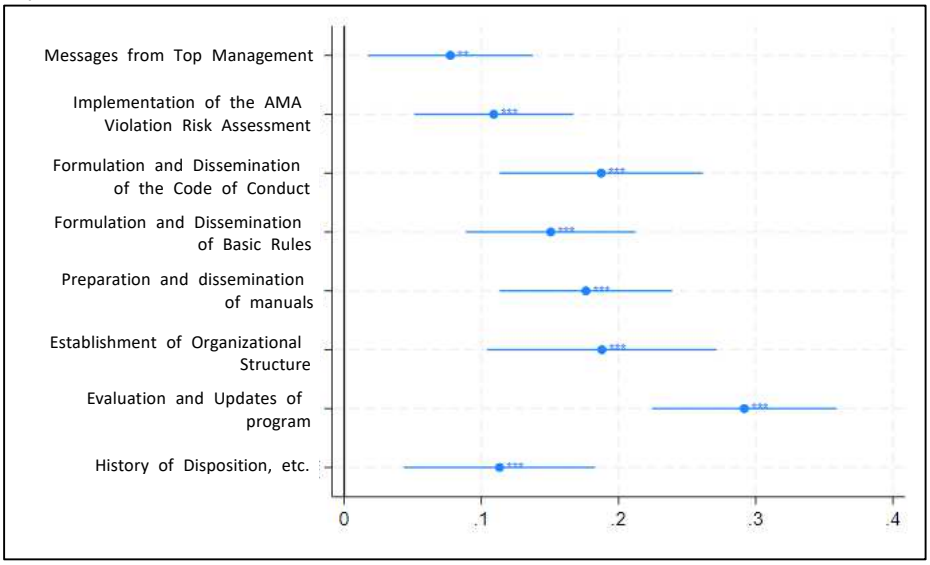
[8] This model is primarily used for analyzing count data and assumes that the dependent variable follows a Poisson distribution. In this analysis, the mean (4.506) and variance (4.568) are nearly equal, suggesting that the assumptions for Poisson regression analysis are satisfied.

[9] From the perspective of robustness verification, analyses using a basic linear regression model and analyses excluding control variables (variables related to other attributes of the surveyed companies) were conducted. The signs and significance levels of the estimated coefficients were consistent.

overall measure is implemented. Notably, as the coefficient is the largest, the evaluation and updates of the program contribute the most to whether the measure is implemented.

In summary, initiating overall measures is effective for implementing specific measures. Furthermore, the coefficient for history of disposition, etc. is statistically significant and positive, indicating that companies with a history of disposition, etc. for the AMA violations tend to implement specific measures.

Reference Chart 1: Analysis of the Number of Positive Responses Regarding Overall Measures and Specific Measures (n=869)



※ The horizontal axis plots the estimated regression coefficient (β) values (dots) and their 95% confidence intervals (horizontal lines).

※ If the 95% confidence interval does not include zero, the estimated coefficient for each variable is statistically significant at the 5% level.

※ The ** in the figure indicates statistical significance at the 5% level, while *** indicates significance at the 1% level.

Dependent Variable	Number of Affirmative Responses Related to Specific Measures
Explanatory Variable	
Messages from Top Management	**0.0774**** **(0.0365)**
Implementation of the AMA Violation Risk Assessment	**0.109***** **(0.0353)**
Formulation and Dissemination of the Code of Conduct	**0.187***** **(0.0450)**
Formulation and Dissemination of Basic Rules	**0.151***** **(0.0375)**
Preparation and Dissemination of Manuals	**0.176***** **(0.0382)**

Establishment of Organizational Structure	**0.188*** (0.0509)**
Evaluation and Updates of Program	**0.292*** (0.0408)**
History of Disposition, etc.	**0.113*** (0.0424)**

※ The numbers in parentheses indicate the standard error.

※ ** indicates statistical significance at the 5% level, while *** indicates statistical significance at the 1% level.

Section 3 Analysis of Specific Measures and Internal Consultations or Whistleblowing Related to the AMA

1 Purpose of Analysis and Analytical Methods

To clarify the impact of implementing specific measures on internal consultations or whistleblowing related to the AMA and to identify which measures contribute most significantly if such an impact occurs, we conduct the following analysis using the specific measures as explanatory variables.

(1) Regression Analysis with the Number of Internal Consultations Related to the AMA as the Dependent Variable

To clarify the impact of specific measures[10] on the number of internal consultations related to the AMA, we analyze the survey respondents[11] who indicated that their companies had established and disseminated an internal consultation desk where executives and employees could seek advice on whether their actions might constitute violations of the AMA. We treat the number of internal consultations related to the AMA (as described in D. above) as the dependent variable and responses related to specific measures (as described in B. above, excluding affirmative responses directly related to the dependent variable, i.e., affirmative responses meeting the conditions for positive responses for the establishment and dissemination of the consultation desk as listed in Table 10 on page 79 of the main text of the report) and the number of affirmative responses to questions related to incentive systems (as described in F. above) as explanatory variables.

Note that the dependent variable, the number of internal consultations related to the AMA, is count data. However, since this data is suspected of not satisfying the assumptions of equal mean and variance required for Poisson regression models, regression analysis is performed using a negative binomial regression model[12], a method applied to other count data analyses. The specific estimation formula is as follows:

[10] The incentive system is also considered to contribute to the design and implementation of AMA compliance programs. Therefore, the number of affirmative responses to questions related to the incentive system (as mentioned in F. above) was also added as an explanatory variable for analysis.

[11] Among companies that had established internal consultation desks to receive AMA-related inquiries from executives and employees over the past three years (FY2021–FY2023) (782 companies, derived from the 794 companies that answered in Question 4-3-1 that they had established consultation desks, excluding the 12 companies that selected “No consultation desk was established during the period” in Question 4-3-3), the distribution of internal consultation cases related to the AMA significantly differed between companies that disseminated their internal consultation desks (640 companies) and those that did not disseminate them (142 companies). The distribution of internal consultation cases concerning the AMA differed significantly between these two groups (e.g., 382 companies had zero internal consultations concerning the AMA; among these, 289 companies (75.7%) had disseminated their internal consultation desk, while 93 companies (24.3%) had not). Furthermore, while companies that disseminated their internal consultation desks showed a wide distribution of internal consultations related to the AMA, ranging up to 500 cases, companies that did not disseminate their consultation desks had a maximum of only 10 cases. Therefore, this analysis focuses solely on companies (640 companies) that established internal consultation desks to receive consultations from executives and employees related to the AMA over the past three years (FY2021 to FY2023) and also disseminated these desks.

[12] This model is used when data does not satisfy the Poisson distribution assumptions (equal mean and variance) and exhibits overdispersion (a tendency for variance to be larger than the mean). It explains situations where the observed variability (variance) in count data exceeds the Poisson model's assumption (mean = variance) by treating each individual observation as having a distinct “latent rate of occurrence.” This variability is modeled using a Gamma distribution.

$$
\begin{aligned}
&Number\ of\ Internal\ Consultations\ Related\ to\ the\ AMA \\
&= \beta_0 + \beta_1 Formulation\ and\ Dissemination\ of\ Rules\ for\ Contact\ with\ Competitors\ (Item\ 8) \\
&+ \beta_2 Implementation\ of\ In-House\ Training\ (No.9) \\
&+ \beta_3 Design\ and\ Dissemination\ of\ Internal\ Disciplinary\ Rules\ (No.11) \\
&+ \beta_4 Conducting\ Audits\ on\ the\ AMA\ (No.12) \\
&+ \beta_5 Establishment\ and\ Dissemination\ of\ Whistleblowing\ Hotline\ (No.13) \\
&+ \beta_6 Design\ and\ Dissemination\ of\ the\ Internal\ Leniency\ System\ (No.14) \\
&+ \beta_7 Formulation\ and\ Dissemination\ of\ Emergency\ Response\ Manual\ (No.15) \\
&+ \beta_8 Number\ of\ Affirmative\ Responses\ to\ Questions\ Related\ to\ the\ Incentive\ System \\
&+ \varepsilon(Error\ Term)
\end{aligned}
$$

※ The "No." in the formula refers to the number in Table 10 on page 79 of the main body of the report.

(2) Regression Analysis with the Presence or Absence of Whistleblowing Related to the AMA as the Dependent Variable

To clarify the impact of specific measures[13] on whistleblowing related to the AMA, for the survey respondents[14] who answered that they have established a whistleblowing hotline and disseminated it, the presence or absence of whistleblowing related to the AMA (as described in E. above) is used as the dependent variable, and the responses related to specific measures (as described in B. above, excluding the affirmative responses directly related to the dependent variable, i.e., the affirmative responses meeting the conditions for positive responses for the establishment and dissemination of the whistleblowing hotline as listed in Table 10 on page 79 of the main text of the report) and the number of affirmative responses to questions regarding incentive systems (as described in F. above) as explanatory variables.

Regarding whistleblowing related to the AMA, we use the presence or absence of such reports as the dependent variable—rather than analyzing the number of reports themselves, as in the case of internal consultations on the AMA (1)—because the original count data for this variable exhibits a skewed distribution. Specifically, nearly all cases (approximately 93%[15] of companies that have established and disseminated a whistleblowing hotline) show "zero reports." This skewed

[13] See Note 10.

[14] Companies that had established a whistleblowing hotline over the past three years (FY2021–FY2023) — 846 companies, calculated by taking the 854 companies that answered in Question 5-2-1 that they had established a whistleblowing hotline and excluding the eight companies that selected "No whistleblowing hotline was established during the period concerned" in Question 5-2-3)— were included. Among these, companies that did not disseminate their whistleblowing hotline (64 companies), all of which reported zero whistleblowing, were excluded. The analysis therefore covers only companies that established a whistleblowing hotline during the past three years (FY2021–FY2023) and disseminated it (782 companies).

[15] Of the 782 companies responding to this analysis, 724 reported "0 cases" and 43 reported "1 case." Meanwhile, two companies reported "10 cases" and one company reported "20 cases."

distribution makes it difficult to appropriately analyze the relationship between the number of reports themselves and the explanatory variables. Furthermore, for the regression analysis, a logistic regression model[16] is used, which is primarily applied when the dependent variable is binary (0 or 1). The specific estimation formula is as follows.

$$
\begin{aligned}
&Whether\ Whistleblowing\ Exists \\
&= \beta_0 + \beta_1 Formulation\ and\ Dissemination\ of\ Rules\ for\ Contact\ with\ Competitors\ (No.8) \\
&+ \beta_2 Implementation\ of\ In-House\ Training\ (No.9) \\
&+ \beta_3 Establishment\ and\ Dissemination\ of\ Internal\ Consultation\ Desk\ (No.10) \\
&+ \beta_4 Design\ and\ Dissemination\ of\ Internal\ Disciplinary\ Rules\ (No.11) \\
&+ \beta_5 Conducting\ Audits\ on\ the\ AMA\ (No.12) \\
&+ \beta_6 Formulation\ and\ Dissemination\ of\ the\ Internal\ Leniency\ System\ (No.14) \\
&+ \beta_7 Formulation\ and\ Dissemination\ of\ Emergency\ Response\ Manual\ (No.15) \\
&+ \beta_8 Number\ of\ Affirmative\ Responses\ to\ Questions\ Related\ to\ the\ Incentive\ System \\
&+ \varepsilon(Error\ Term)
\end{aligned}
$$

※ The “No.” in the formula refers to the number in Table 10 on page 79 of the main body of the report.

2 Analysis Results

(1) Regression Analysis with the Number of Internal Consultations Related to the AMA as the Dependent Variable

First, the regression analysis results with the number of internal consultations related to the AMA as the dependent variable are shown in Reference Figure 2. Among specific measures, the coefficients for implementing in-house training, formulating and disseminating rules for contact with competitors, and conducting audits on the AMA are all statistically significant and positive (maximum of approximately 1.1). This indicates that companies implementing these measures tend to see an increase in the number of internal consultations related to the AMA. Notably, the coefficient for the variable indicating whether in-house training is conducted is the largest, confirming that this measure has the highest contribution.

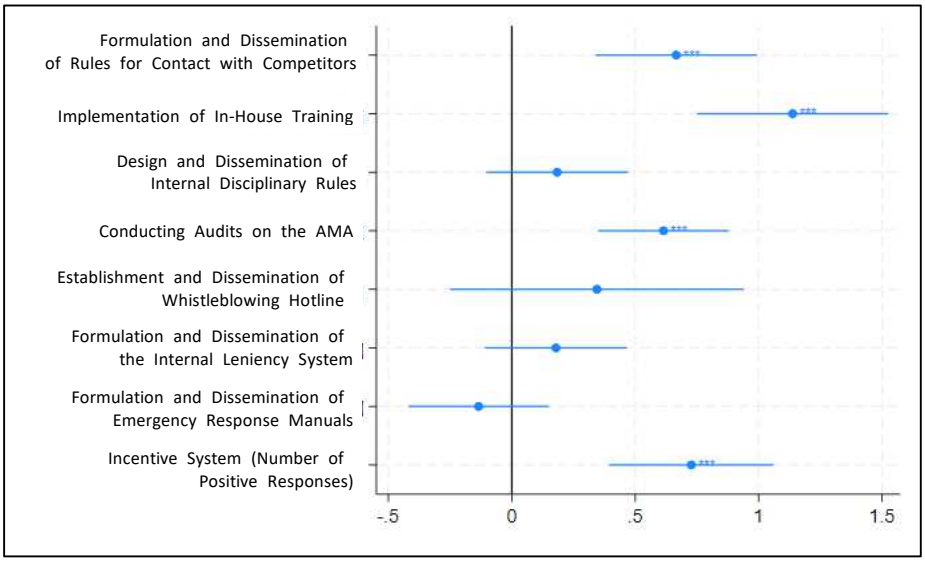
Furthermore, the coefficient for the number of affirmative responses to questions related to incentive systems is statistically significant and positive, indicating that companies implementing

[16] This model is primarily used when the dependent variable is binary (0 or 1), with the results interpreted as the probability of an event occurring. When binary data is the dependent variable, the probit model is a representative method used alongside the logistic regression model. Logistic regression enables interpretation via odds ratios, while the probit model is a latent variable approach assuming a standard normal distribution. Comparing both models and evaluating their fit (AIC/BIC), the logistic regression model showed better fit. Furthermore, the signs and significance levels of the estimated coefficients were consistent between the two models.

incentive systems tend to see an increase in the number of internal consultations related to the AMA[17].

In summary, the implementation of specific measures—such as in-house training, incentive systems, formulating and disseminating rules for contact with competitors, and audits on the AMA—has affected the awareness and behavior of executives and employees regarding internal consultations related to the AMA.

Reference Chart 2: Analysis of Specific Measures and Number of Internal Consultations Related to the AMA (n=640)



※ The horizontal axis plots the estimated regression coefficient (β) values (dots) and their 95% confidence intervals (horizontal lines).

※ If the 95% confidence interval does not include zero, the estimated coefficient for each variable is statistically significant at the 5% level.

※ The *** in the figure indicates statistical significance at the 1% level.

Dependent Variable	Number of Internal Consultations Related to the AMA
Explanatory Variable	
Formulation and Dissemination of Rules for Contact with Competitors	**0.666*** (0.199)**
Implementation of in-house training	**1.138*** (0.235)**
Design and Dissemination of Internal Disciplinary Rules	0.184 (0.175)
Conducting Audits on the AMA	**0.615*** (0.160)**
Establishment and Dissemination of Whistleblowing Hotline	0.345 (0.362)

[17] On the other hand, no statistically significant effect was observed regarding the design and dissemination of internal disciplinary rules, the establishment and dissemination of an internal whistleblowing hotline, the design and dissemination of internal leniency programs, or the development and formulation of emergency response manuals.

Design and Dissemination of the Internal Leniency System	0.179	(0.175)
Formulation and Dissemination of Emergency Response Manuals	-0.135	(0.174)
Incentive System (Number of Positive Responses)	**0.727*** **	**(0.202)**

※ The numbers in parentheses indicate the standard error.

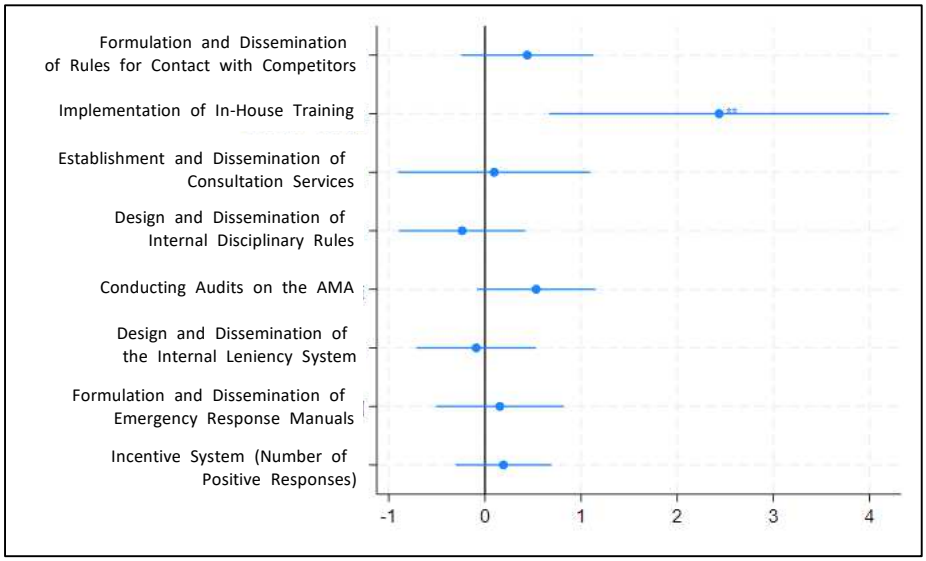
※ This indicates statistical significance at the 1% level.

(2) Regression Analysis with the Presence or Absence of Whistleblowing Related to the AMA as the Dependent Variable

Next, the regression analysis results with the presence of whistleblowing related to the AMA as the dependent variable are shown in Reference Figure 3. Among the specific measures, the coefficients for implementing in-house training are all statistically significant and positive (approximately 2.4). This indicates that companies implementing in-house training tend to have more whistleblowing related to the AMA[18].

In summary, the implementation of in-house training has affected the awareness and behavior of executives and employees related to whistleblowing related to the AMA.

Reference Chart 3: Analysis of Specific Measures and Presence or Absence of Whistleblowing Related to the AMA (n=782)



※ The horizontal axis plots the estimated regression coefficient (β) values (dots) and their 95% confidence intervals (horizontal lines).

※ If the 95% confidence interval does not include zero, the estimated coefficient for each variable is statistically significant at the 5% level.

[18] On the other hand, no statistically significant impact was observed regarding the formulation and dissemination of rules for contact with competitors, the establishment and dissemination of internal consultation desks, the design and dissemination of internal disciplinary rules, conducting audits on the AMA, the design and dissemination of internal leniency programs, the formulation and dissemination of emergency response manuals, or incentive systems.

※ The ** in the figure indicates statistical significance at the 5% level.

Dependent Variable	Whether There Is Whistleblowing Related to the AMA	
Explanatory Variable		
Formulation and Dissemination of Rules for Contact with Competitors	0.441	(0.418)
Implementation of in-house training	**2.436****	**(1.075)**
Establishment and Dissemination of Consultation Desk	0.097	(0.608)
Design and Dissemination of Internal Disciplinary Rules	-0.237	(0.400)
Conducting Audits on the AMA	0.533	(0.374)
Design and Dissemination of the Internal Leniency System	-0.091	(0.378)
Formulation and Dissemination of Emergency Response Manuals	0.155	(0.404)
Incentive System (Number of Positive Responses)	0.193	(0.304)

※ The numbers in parentheses indicate the standard error.

※ **indicates statistical significance at the 5% level.

Section 4 Summary

Findings from Section 2 suggest that implementing overall measures leads to the implementation of specific measures, thereby advancing the design and implementation of AMA compliance programs. Findings from Section 3 indicate that implementing specific measures has affected the awareness and actions of executives and employees regarding internal consultations and whistleblowing related to the AMA. These results suggest that the flow of implementing overall measures → implementing specific measures → increasing the number of internal consultations related to the AMA and detecting issues related to the AMA through whistleblowing is leading to improving the AMA compliance across the entire company.

Section 5 Appendix (Descriptive Statistics)

Variable Name	Number of Observations	Average	Standard Deviation	Minimum	Median	Maximum
Messages from Top Management	869	0.359	0.480	0	0	1
Implementation of the AMA Violation Risk Assessment	869	0.334	0.472	0	0	1
Formulation and Dissemination of the Code of Conduct	869	0.784	0.412	0	1	1
Formulation and Dissemination of Basic Rules	869	0.289	0.453	0	0	1
Preparation and Dissemination of Manuals	869	0.376	0.485	0	0	1
Establishment of Organizational Structure	869	0.814	0.390	0	1	1
Evaluation and Updates of Program	869	0.610	0.488	0	1	1
Formulation and Dissemination of Rules for Contact with Competitors	869	0.465	0.499	0	0	1
Implementation of in-house training	869	0.643	0.479	0	1	1
Establishment and Dissemination of Consultation Desk	869	0.742	0.438	0	1	1
Design and Dissemination of Internal Disciplinary Rules	869	0.519	0.500	0	1	1
Conducting Audits on the AMA	869	0.463	0.499	0	0	1
Establishment and Dissemination of Whistleblowing Hotline	869	0.907	0.291	0	1	1
Design and Dissemination of the Internal Leniency System	869	0.170	0.376	0	0	1
Formulation and Dissemination of Emergency Response Manuals	869	0.597	0.491	0	1	1
Number of Affirmative Responses Rerated to Specific Measures	869	4.506	2.137	0	5	8
Number of Internal Consultations Related to the AMA	782	8.963	31.365	0	1	500
Number of Whistleblowing Related to the AMA	846	0.142	0.953	0	0	20
Incentive System (Number of Positive Responses)	869	0.076	0.317	0	0	3
History of Disposition, etc.	869	0.173	0.378	0	0	1