

Jung, Hoon; Kim, Bumjoon; Kang, Sun A.

**Conference Paper**

## The Effect of Administrative Fine Regulation on the Korean Telecommunications Regulatory Accounting Regime

24th Biennial Conference of the International Telecommunications Society (ITS): "New bottles for new wine: digital transformation demands new policies and strategies", Seoul, Korea, 23-26 June, 2024

**Provided in Cooperation with:**

International Telecommunications Society (ITS)

*Suggested Citation:* Jung, Hoon; Kim, Bumjoon; Kang, Sun A. (2024) : The Effect of Administrative Fine Regulation on the Korean Telecommunications Regulatory Accounting Regime, 24th Biennial Conference of the International Telecommunications Society (ITS): "New bottles for new wine: digital transformation demands new policies and strategies", Seoul, Korea, 23-26 June, 2024, International Telecommunications Society (ITS), Calgary

This Version is available at:

<https://hdl.handle.net/10419/302498>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# The Effect of Administrative Fine Regulation on the Korean Telecommunications Regulatory Accounting Regime

Hoon Jung, Cheongju University

Bum Joon Kim, The Catholic University of Korea

Sun A Kang, Chungnam National University

**Keywords:** Administrative Penalty, Administrative Fine, Telecommunications Regulatory Accounting, Accounting Separation

## 1. Introduction<sup>12</sup>

This research empirically investigates the effect of the administrative fine regulation on annual operating report within the Korean telecommunications regulatory accounting system.

In Korea, facility-based telecommunication service providers that meet certain criteria have obligation to submit annual operating report in accordance with the Korean Telecommunications Business Act. This report undergoes audit by the government. And the government impose administrative fine for any telecommunications regulatory accounting violations found. The purpose of these administrative fine is to ensure the reliability of the telecommunications regulatory accounting information in the annual operating report. According to Park(2007), the purpose of the telecommunications regulatory accounting is to provide useful information to the Minister of Science and ICT, the relevant business operator, etc. for rendering reasonable judgment on matters

related to fair competition in telecommunication market, including the computation of costs of telecommunications services, the computation of interconnection charges and prices for providing facilities, the computation of compensation for losses incurred in relation to universal services, and cross-subsidization. The main difference between telecommunication regulatory accounting and financial accounting is the accounting separation. In other words, accounting separation is the reporting of revenues, expenses, and assets separately for each defined telecommunications service. The regulatory accounting system requires telecommunications companies to report their assets, profits and expenses separately by 3G, 4G, 5G, fixed phones, and public phones.

In March 2010, the Telecommunications Business Act was amended to impose administrative fine for accounting violations by facility-based telecommunications providers who have obligations to submit annual operating report. The administrative fine system was introduced starting with the audit of FY (Fiscal Year) 2010 annual operating report. Prior to this, the administrative penalty regulation worked until the audit of the FY 2009 operating report. The Korean Telecommunications Business Act can impose administrative fine for accounting violations, amounting to no more than 3% of sales revenue

---

<sup>1</sup> This research is a revised and supplemented version of "A Study on improvement of the accounting system in response to changes in the telecommunications business environment", a broadcasting and telecommunications policy research project of the Korean Ministry of Science and ICT in 2022.

<sup>2</sup> Contact address: Hoon Jung(hoon@cju.ac.kr)

after the annual operating report verification.

There were significant changes in the telecommunications regulatory accounting regulation in 2010. Prior to FY 2010, the means of post-regulation was administrative penalty regulation, and from 2010, the means of post-regulation enforcement is administrative fine regulation.

According to Kim et al. (2023), the reasons for the change from an administrative penalty regulation to an administrative fine regulation were an increase in repeated regulatory accounting violations, an increase in the reliability demand of regulatory accounting information, and an increase in the likelihood of accounting separation errors.

The research question of this study is whether the introduction of administrative fine is effective. This research investigates the effect of the administrative fine regulation on the annual telecommunication operating report.

The effectiveness of the administrative fine can be examined by testing whether the administrative fine has reduced for telecommunications regulatory accounting violations, increased the reliability of regulatory accounting information, or reduced accounting separation errors. The research methodology of this study is OLS to examine the effect of the administrative fine regulation of the telecommunication regulatory accounting regime.

This research analyzes the changes in the number and amount of the telecommunications regulatory accounting errors pre and post the introduction of the administrative fine system, using the data from the annual operating report audit results of 2006~2020.

The results of the analysis are as follows.

We empirically presented that the total amount of telecommunications regulatory accounting errors and the number of telecommunications regulatory accounting errors decreased due to the adoption of an administrative fine regulation from an administrative penalty regulation.

The OLS analysis shows that the adoption of the administrative fine regulation reduced the amounts of telecommunications regulatory accounting errors and the number of telecommunications regulatory accounting errors. This result suggests that the change from the administrative penalty regulation to the administrative fine regulation in 2010 improved the quality of telecommunications regulatory accounting information. The policy implication of this research is that to improve the quality and reliability of regulatory accounting information, the regulatory authority should continue to operate the administrative fine system. If highly reliable regulatory accounting information is required, the penalty system should be maintained. If highly reliable regulatory accounting information is required for the telecommunications market regulation, the administrative penalty regulation should be maintained.

The contributions of this research are twofold. First, this research is the first empirical research on the effect of an administrative fine regulation of the Korean Telecommunications Regulatory Accounting Regime. Second, this research empirically demonstrates the effect of the administrative fine regulation adopted in 2010.

## **2. Literature Review**

### **2.1 Accounting Separation**

Cave and Martin (1994) evaluates the implementation and implications of accounting separation as an alternative to structural separation for dominant telecommunications operators in Australia and the UK. Accounting separation aims to increase transparency and foster competition without the extensive disruption that structural separation Cave and Martin (1994) that while accounting separation has significant potential to promote competition and transparency, its effectiveness can only be proven through practical implementation and experience. The authors advocate for stringent accounting separation as a

preliminary step before considering more drastic measures like structural separation. Bromwich and Hong (2000) insisted accounting separation aims to utilize financial accounting methodologies to segment the organization into segments that operate as independently as possible from other organizational components.

## 2.2 Administrative Penalty and Administrative Fine

Kim et al. (2017) defined that an administrative penalty is a financial penalty imposed by a government or local government agency for certain violations of public order.

Kim et al. (2017) insisted that an administrative penalty is an administrative order penalty, used to indirectly enforce the performance of public law obligations, which is in that sense distinct from an administrative criminal penalty.

According to Kim et al. (2017), an administrative penalty is a type of monetary punishment imposed for simple violations of administrative law obligations that are relatively light and do not directly infringe on administrative or social purposes but may indirectly cause a risk of disrupting administrative order.

Kim et al. (2017) defined that an administrative fine refers to an administrative penalty imposed by an administrative agency according to the amount of the profit in order to deprive the person of the economic benefit resulting from the violation when an economic benefit is obtained due to a violation of administrative regulations or obligations under the administrative law.

According to Kim et al. (2017), this was introduced as a means of securing the fulfillment of obligations under the Monopoly Regulation and Fair Trade Act, mainly in the field of economic law, so that a person who violates an obligation can obtain economic benefits from the violation or have the effect of hindering the order of free and fair competition due to the violation. In cases where it is judged to be serious or have a

significant impact on consumers, etc. (III. Decision on whether to impose a penalty 1. General principles of the “Notice on Standards for Imposition of Penalty Surcharges, etc.”), administration is imposed according to the amount of profits in order to deprive the profits. It is a sanction.

An administrative fine is similar to administrative penalty in that they are “administrative” sanctions and “financial” sanctions (Kim et al. 2017).

An administrative penalty is an orderly punishment for a violation of an administrative obligation, and an administrative fine is an administrative means to ensure the implementation of a violation of an administrative obligation. The maximum amount of money to be imposed as an administrative penalty is determined according to the degree of criminality, but an administrative fine is a fine for violation of an obligation. It is different in that it is determined within the expectations of operating revenue under the circumstances.

Nosenzo et al. (2013) investigates the impact of bonuses and fines on compliance behavior in inspection games. Fines are a stronger incentive for encouraging compliance compared to bonuses. Wang et al. (2019) argued that the effectiveness of legal punishments in deterring offending depends on the certainty, severity and celerity of punishments.

According to Wang et al. (2019), empirical results are mixed with regards to the efficiency of fines regulation. Cherry (2001) presents financial penalties, such as fines and forfeitures, serve as a substantial deterrent, comparable to the deterrent effect of imprisonment. On the contrary, Gneezy and Rustichini (2000) experimented a monetary fine for late-coming parents. As a result, the number of late-coming parents increased significantly. This means that fines do not decrease the sanctioned behavior.

Based on previous studies, it would be contribution to study whether the effects of financial sanctions such as an administrative fine

are also seen in the telecommunication regulatory accounting regulation.

### **3. Telecommunications Regulatory Accounting Regulation in Korea and Hypothesis**

#### **3.1 Background and Purpose**

According to ITU (2009), regulatory accounting refers to a system of accounting principles and practices that are imposed by regulatory authorities, such as National Regulatory Authorities (NRAs), on operators in the telecommunication sector. The purpose of regulatory accounting is to ensure transparency, non-discrimination, and the prevention of anticompetitive behavior in the telecommunication market. It involves the allocation of costs and revenues to different services, the separation of accounts for different activities, and the establishment of accounting standards to facilitate regulatory oversight. Regulatory accounting is essential for setting cost-based prices, estimating Universal Service Obligations, identifying anticompetitive behavior, and ensuring fair competition within the sector.

According to ITU (2009), accounting separation is a fundamental aspect of cost accounting models in the telecommunications sector. It involves the systematic disaggregation of costs, revenues, and capital employed for different services included in the accounting model. This process ensures transparency, non-discrimination, and compliance with regulatory obligations. Implementing accounting separation requires a comprehensive set of accounting policies, procedures, and techniques.

According to Hardt (1995), for accounting separation to be effective, the regulator must ensure that the integrated firm's output quantities are based on the published costs rather than the actual costs.

Telecommunications regulatory accounting aims to provide valuable information for rational

decision-making regarding matters related to fair competition in the telecommunications industry. This includes the calculation of the cost of telecommunications services, the determination of interconnection charges and unbundled network element charges and the computation of universal service loss compensation funds. It serves the purpose of assisting the Minister of Science and ICT, relevant operators, and others in making informed judgments on these matters.<sup>3</sup>

Accounting separation is a key concept in the telecommunications regulatory accounting. As competition was introduced to the Korean telecommunications market in the early 2000s, making fair competition environment became a very important mission for the government. This is the background to the adopting of telecommunications regulatory accounting regulations.

#### **3.2 Adoption of an administrative fine on the regulatory accounting violation**

According to Kim et al. (2023), the adoption of the administrative fine regulation is an increase in repetitive regulatory accounting violations, an increase in the need for reliability of regulatory accounting information, and an increase in the possibility of accounting separation errors.

In February 2010, the Korea Communications Commission announced that 21 telecommunications carriers, including SK Telecom, KT, KTF, and LG Telecom, violated accounting separation standards in 299 cases. The Korea Communications Commission pointed out that one of the reasons why the same violation is repeated every year is that the upper limit of the administrative penalty is only ₩10 million (\$7,264<sup>4</sup>), making it less effective. There is also

---

<sup>3</sup> Regulations on telecommunications regulatory accounting and reporting (Presidential Decree No. 31380, Jan. 5, 2021)

<sup>4</sup> Exchange rate: 1\$=₩1,376.7

criticism in the National Assembly regarding this. In the 2009 National Assembly audit, Rep. Lee Kyung-jae pointed out the low level of government sanctions as the reason for the increase in the number of accounting separation violations by telecommunications operators. He also pointed out low administrative penalty as the cause of repeated telecommunications regulatory accounting violations.

In March 2010, the Telecommunications Business Act was amended to provide for the imposition of an administrative fine on telecommunications providers for violations of regulatory accounting regulations (Kim et al. 2023)

Accordingly, a system of imposing and administrative fine was introduced from the audit of FY 2010 operating reports of telecommunications operators.

Prior to the introduction of an administrative fine regulation, an administrative penalty regulation was operated until the audit of the FY 2009 operating report. Starting with the audit of the FY 2010 operating report, the administrative fine regulation has been applied to impose fines for regulatory accounting violations in an amount equal to no more than 3% of the sales revenue after the audit of the annual operating report of telecommunications operators.<sup>5</sup>

The administrative fine should consider the content and extent of the violation, the duration and number of the telecommunications regulatory accounting violation, the amount of profit obtained due to the violation, and the revenue of the telecommunications business operator involved in the prohibited act or the telecommunications regulatory accounting violation.<sup>6</sup>

In short, an administrative penalty was applied until the audit of FY 2009 operating

reports, and an administrative fine regulation has been adopted from the audit of FY 2010 operating reports.

### 3.2 Hypothesis

As mentioned above, Korea government adopted the administrative fine regulation of telecommunications regulatory accounting to signal telecommunications operators to invest resources in producing reliable regulatory accounting information.

Korean government wanted to increase the reliability of telecommunications regulatory accounting information by introducing an administrative fine regulation. It is an empirical research topic to examine whether the introduction of an administrative fine is effective.

As discussed in the previous section, the reasons for introducing the administrative fine regulation were the increase in repetitive telecommunication regulatory accounting violations, the increase in requirements for the reliability of telecommunications regulatory accounting information, and the increase in the possibility of accounting separation errors. Then, we can confirm whether the introduction of the administrative fine regulation was effective by looking at whether accounting violations have decreased, the reliability of regulatory accounting information has increased, and accounting separation errors have decreased. Overall, it is necessary to investigate whether the quality of regulatory accounting information has improved due to the introduction of the administrative fine regulation of the telecommunications regulatory accounting.

Therefore, the hypothesis of this study is set as follows.

Hypothesis: The introduction of fine regulations for accounting violations in the telecommunications regulatory accounting can positively promote the reliability of regulatory accounting information.

---

<sup>5</sup> Article 53 (2) of the Korean Telecommunications Business Act

<sup>6</sup> Article 53 (2) of the Korean Telecommunications Business Act

#### 4. Empirical model

This study uses multi-year and multi-enterprise which have obligation to submit annual operating report panel data for panel regression. We use the OLS on Equation (1) to examine hypothesis. We set the models by using the variables of the number of telecommunications regulatory accounting error, the total amount of telecommunications regulatory accounting error, the administrative fine dummy.

$$AI_{i,t} = \beta_0 + \beta_1 FineDum_{i,t-1} + \beta_2 NSVC_{i,t} + FirmDum + YRDum \quad (1)$$

Where  $AI_{it}$  is the accounting information quality of firm  $i$  on year  $t$ , we use two dependent variables as proxies for AI. One is the number of telecommunications regulatory accounting errors and the other is the total amount of telecommunications regulatory accounting errors. Also we use  $FineDum_{i,t-1}$  is the administrative dummy which means that if fiscal year is from 2010,  $FineDum$  is 1, otherwise 0,  $NSVC_{i,t}$  is the number of telecommunications service subject to accounting separation of firm  $i$  on year  $t$ ,  $FirmDum$  is firm dummy.  $YRDum$  is year dummy.

According to prior studies, if the introduction of an administrative fine regulation is effective, the quality of telecommunications regulatory accounting information and the number of errors will be improved due to the adoption of an administrative fine regulation on the telecommunications regulatory accounting regime. Thus, we could expect  $\beta_1$  to have a statistically significant negative value. Following this perspective,  $\beta_1$  is expected to have a statistically significant negative value.

#### 5. Sample and Descriptive Statistics

##### 5.1 Sample selection

Table 1 describes the sample selection process. We start with all data related to audit of

annual operating reports from fiscal years 1998 to 2020. This information was provided by the Korean Ministry of Science and ICT. The data on the number of telecommunications services subject to accounting separation regulation and the numbers of telecommunications regulatory accounting error, have existed since 2001. Also, there is no remaining data on the error amount of telecommunications regulatory accounting discovered during the audit of annual operating report from fiscal years 1998 to 2005, the period of the administrative penalty regulation. Finally, the final sample consists of 238 firm-year observations.

Table 1. Sample selection procedure

Initial sample	291
Less observations 1998-2005	50
Less observations with M&A	2
Less observations with no data on administrative penalty amount or exemption	9
Final sample	230

Table 2 shows the distribution of sample firms by year. The year with the most observations is the fiscal year of 2008 and 2009, which accounted for 9.132% of the sample. Overall, the distribution of the sample by year is evenly distributed with no significant differences by year.

Table 2. Distribution of sample.

	Freq.	Percent	Cum.
2006	13	5.65	5.65
2007	17	7.39	13.04
2008	21	9.13	22.17
2009	21	9.13	31.30
2010	15	6.52	37.83
2011	15	6.52	44.35
2012	15	6.52	50.87
2013	16	6.96	57.83
2014	16	6.96	64.78
2015	15	6.52	71.30
2016	14	6.09	77.39
2017	15	6.52	83.91
2018	13	5.65	89.57
2019	12	5.22	94.78
2020	12	5.22	100.00
Total	230	100.00	

## 5.2 Descriptive statistics

Table 3 displays the descriptive statistics for the main variables. The mean values of logERR and NERR are 23.468 and 10.826, respectively. The mean (median) value of the FineDum is 0.687. This means that 68.7% of the sample is subject to an administrative fine regulation, and the remaining 31.3% is subject to an administrative penalty regulation.

Table 3. Descriptive statistics for study variables

	logERR	NERR	FineDum	NSVS
N	230	230	230	230
Mean	23.468	10.826	0.687	9.396
SD	2.252	8.526	0.465	6.697
Min	18.082	1	0	1
Max	28.765	45	1	27

Variable definitions are as follows: logERR=log(the total amount of telecommunications regulatory accounting errors), NERR= the number of telecommunications regulatory accounting errors, FineDum= the

administrative dummy which means that if fiscal year is from 2010, FineDum is 1, otherwise 0, NSVS= the number of telecommunications service subject to telecommunications regulatory accounting regulation on firm.

Table 4 compares the indicators of an administrative penalty regulation and an administrative fine regulation. The average number of telecommunications regulatory accounting errors during the administrative penalty regulation was 16.8, the average total amount of telecommunications regulatory accounting error was ₩337.8billion(\$245mil<sup>7</sup>), and the average amount of an administrative penalty was ₩4.3million. The average number of telecommunications regulatory accounting errors was 16.8, the average number of telecommunications service subject to telecommunications regulatory accounting regulation on firm was 7.8.

In comparison, the average number of telecommunications regulatory accounting errors during the administrative fine regulation period was 8.1, the average total amount of telecommunications regulatory accounting error was ₩33.9billion(\$248mil<sup>8</sup>), and the average amount of an administrative penalty was ₩51million. The average number of telecommunications regulatory accounting errors was 8.1, the average number of telecommunications service subject to telecommunications regulatory accounting regulation on firm was 10.8.

By moving from the administrative penalty to the administrative fine period, the average number of telecommunications regulatory accounting error decreased by almost half from 16.8 to 8.1.

The average total amount of telecommunications regulatory accounting error also decreased by one-tenth, from ₩337.8billion

<sup>7</sup> Exchange rate: 1\$=₩1,376.7

<sup>8</sup> Exchange rate: 1\$=₩1,376.7



(\$245mil) to ~~₩~~33.9billion(\$248mil). The number of telecommunications services subject to telecommunications regulatory accounting regulation on firm increased from an average of 7.8 in the administrative penalty period to 10.2 in the administrative fine period.

Table 4. Comparison an administrative penalty regulation and an administrative fine regulation (logERR, Fine: ~~₩~~)

Panel A: An administrative penalty

	logERR	NERR	Penalty	NSVS
N	72	72	72	72
Mean	337.8 bil	16.8	4.3 mil	7.8
SD	600.4 bil	10.7	2.3 mil	6.7
Min	0.71bil	4	2 mil	1
Max	3,107 bil	45	10 mil	27

Panel B: An administrative fine

Penalty	logERR	NERR	Fine	NSVS
N	158	158	158	158
Mean	33.9 bil	8.1	51 mil	10.1
SD	57.8 bil	5.5	92 mil	6.6
Min	0.07 bil	1	0.01 mil	1
Max	2,748 bil	27	674 mil	27

Table 5 presents the correlations between the variables of interest. As shown in Table 4, the indicators of the total amount of telecommunications regulatory accounting errors are positively correlated with the number of telecommunications regulatory accounting errors and the number of telecommunications services subject to accounting separation regulation on firm. However, the correlation between logERR and FineDum is negatively correlated. This means the adoption of an administrative fine regulation has negative relation with the total amount of telecommunications regulatory accounting errors and the number of telecommunications regulatory accounting errors.

Table 5. Correlations between variables

	(1)logERR	(2)NERR	(3)FineDum	(4)NSVC
(1)	1.000			
(2)	0.721***	1.000		
(3)	-0.524***	-0.478***	1.000	
(4)	0.386***	0.261***	0.158**	1.000

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## 6. Empirical test and results

Table 6 presents the relationship between an administrative fine regulation and the regulatory accounting information proxied by logERR and NERR is regressed on FineDum which presents the adoption of an administrative fine regulation.

In column (1), the coefficient of FineDum was negative and statistically significant. In column (2), the coefficient of FineDum was negative and statistically significant. These results are generally consistent with prior studies which show that the effect of an administrative fine regulation. These results means that the adoption of an administrative fine regulation promotes the quality of telecommunications regulatory accounting information. And these results support the hypothesis of this research.

Table 6. The effect of an administrative fine regulation on the regulatory accounting information.

	(1)	(2)
VARIABLES	logERR	NERR
Constant	8.275***	5.877
	(0.000)	(0.247)
FineDum	-2.062***	-8.988***
	(0.000)	(0.000)
NSVC	0.093***	0.244*
	(0.004)	(0.093)
FirmDum	Included	Included
YRDum	Included	Included
Observations	230	230
R-squared	0.835	0.761

pval in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 7. Conclusion

This study attempts to empirically show that an administrative fine regulation of telecommunications regulatory accounting regime. There is little research that has empirically examined the effects of ex post regulation on regulatory accounting.

In this study, the relationship between an administrative fine and the regulatory accounting information was examined based on the Korean telecommunications regulatory accounting data.

For the analysis, 230 firm-year observations from 2006 to 2020 for firms subject to telecommunications regulatory accounting ex-post regulation were set as the sample.

The results of the analysis are as follows.

We empirically presented that the total amount of telecommunications regulatory accounting errors and the number of telecommunications regulatory accounting errors decreased due to the adoption of an administrative fine regulation from an administrative penalty regulation.

The OLS analysis shows that the adoption of the administrative fine regulation reduced the

amounts of telecommunications regulatory accounting errors and the number of telecommunications regulatory accounting errors. This result suggests that the change from the administrative penalty regulation to the administrative fine regulation in 2010 improved the quality of telecommunications regulatory accounting information. The policy implication of this research is that to improve the quality and reliability of regulatory accounting information, the regulatory authority should continue to operate the administrative fine system. If highly reliable regulatory accounting information is required, the penalty system should be maintained. If highly reliable regulatory accounting information is required for the telecommunications market regulation, the administrative penalty regulation should be maintained.

The contributions of this research are twofold. First, this research is the first empirical research on the effect of an administrative fine regulation of the Korean Telecommunications Regulatory Accounting Regime. Second, this research empirically demonstrates the effect of the administrative fine regulation adopted in 2010.

## References

- Bromwich, M., & Hong, C. (2000). Costs and regulation in the UK telecommunications industry. *Management Accounting Research*, 11(1), 137-165.
- Cave, M., & Martin, I. (1994). The costs and benefits of accounting separation: the Australian and British debates. *Telecommunications Policy*, 18(1), 12-20
- Cherry, T. L. (2001). Financial penalties as an alternative criminal sanction: Evidence from panel data. *Atlantic Economic Journal*, 29, 450-458.
- Gneezy, U., & Rustichini, A. (2000). A fine is a price. *The journal of legal studies*, 29(1), 1-17.
- Hardt, M. (1995). The non-equivalence of accounting separation and structural

separation as regulatory devices. *Telecommunications policy*, 19(1), 69-72.

International Telecommunications Union (2009),  
REGULATORY ACCOUNTING GUIDE

Kim B., Kang S., Jung H., Song S., Ko C., Jo M.,  
Oh H. (2023). A Study on improvement of  
the accounting system in response to changes  
in the telecommunications business  
environment, Ministry of Science and ICT.

Kim H., Kang M., Na C. (2017), A Legislative  
Model for Rational Administrative Fine  
System, Korea Legislation Research Institute.

Kim I., Kim J., Byeon J. (2010). The  
Administrative Monetary Penalty against  
Regulatory Violation: An Empirical Analysis  
of the Determinants of the Surcharges  
Imposed by the Korean Fair Trade Law.  
*Seoul Law Journal*, 51(1), 147-189.

Ministry of Science and ICT (2024), Korean  
Telecommunications Business Act

Ministry of Science and ICT (2024), Korean  
Telecommunications Business Act  
Presidential Decree No.31380

Nosenzo, D., Offerman, T., Sefton, M., & van Der  
Veen, A. (2014). Encouraging compliance:  
Bonuses versus fines in inspection  
games. *The Journal of Law, Economics, &  
Organization*, 30(3), 623-648.

Park, J. (2007). A Study on Telecommunication  
Regulatory Cost Information  
Assurance. *Korean Journal of Management  
Accounting Research*, 7(1), 71-96.

Wang, Y., Ashton, J. K., & Jaafar, A. (2019).  
Money shouts! How effective are  
punishments for accounting fraud?. *The  
British Accounting Review*, 51(5), 100824.