Effects of IFRS Adoption, Big N Factor, and the IFRS-Related Consulting Services of Auditors on Audit Fees: The Case of Korea

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ABSTRACT

Listed Korean companies have mandatorily adopted the International Financial Reporting Standards (IFRS) since 2011. This study investigates whether audit quality (proxied by Big N factor) and IFRS-related consulting services provided by an auditor have an effect on the relationship between IFRS adoption and audit fees. Findings show that Korean accounting firms affiliated with foreign Big N firms have a positive effect on the relationship between IFRS adoption and audit fees. Korean accounting firms invest heavily in educating employees, maintaining high audit quality and reputation, and acquiring experience and expertise from the foreign Big N firms. Furthermore, this study finds that IFRS-related consulting services provided by auditors have negative effects on the relationship between IFRS adoption and audit fees. This finding indicates that auditors can mitigate audit costs through the knowledge spillover effect between audit and consulting services regardless of independence impairment because they understand the internal control of auditees from their consulting experiences.

Keywords: IFRS Adoption, Big N Factor, IFRS-Related Consulting Services, Audit Fees, Economic Consequences of IFRS
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1. Introduction

Listed Korean corporations have been mandated to apply the International Financial Reporting Standards ("IFRS") since 2011. Unlike the conventional rule-based accounting standards referred to as the generally accepted accounting principles ("GAAP"), the IFRS is a principle-based standard that requires managers to establish their reasons and logic within the framework of accounting principles and to apply such logic consistently (Kim & Kim, 2010). Professional auditing decisions and an extensive auditing scope are necessary in the adoption and application of the principle-based IFRS (Chung, 2012). In other words, professional decisions are necessary because of the application of the re-evaluation model for various assets, the recognition of impairment loss, the application of retirement pension based on employee wages in actuarial assumption, and the application of fair value. Moreover, the auditing scope has broadened with the application of consolidated financial statements or basic financial statements and others.

Accordingly, this study analyses the audit fees paid to auditors while considering the economic consequences of IFRS adoption. Given the highly professional decisions needed in the auditing process, accounting firms expand their investment to enhance audit quality; the expansion of the auditing scope then leads to the inevitable increase of audit costs (Lin & Yen, 2011). The reasons behind such outcomes have been identified in previous studies, the findings of which indicate that the audit fees paid to auditors are anticipated to increase more with the application of the IFRS than with that of the GAAP (Schadewitz & Vieru, 2010; Lin & Yen, 2011; Chung, 2012).

However, only a few studies have analysed the factors that affect the relationship between IFRS adoption and audit fees. Most studies show that audit fees are likely to increase after the adoption of the IFRS, but very few studies analyse the factors that strengthen or weaken this correlation. Thus, the present study investigates whether IFRS-related and Big N consulting services affect the relationship between IFRS adoption and audit fees. The following hypotheses are developed.

First, big accounting firms maintaining an international network (e.g., the Big N) may have relatively more experience in IFRS-based auditing and provide higher audit quality than those without an international network (Kim & Kang, 2010). Under this scenario, Korean accounting firms affiliated with Big N firms ("Korean affiliated Big N firms") acquire knowledge about the procedures and techniques of

IFRS-based auditing and train auditors thoroughly (Lin & Yen, 2011). Thus, the audit quality of Korean affiliated Big N firms is expected to be better than that of others. In addition, the correlation between IFRS adoption and audit fees is expected to improve when a Korean affiliated Big N firm is appointed as auditor because reputed accounting firms input relatively high audit costs, such as training costs and auditing hours, to maintain their reputation and high audit quality.

Second, auditors are allowed to provide their clients with IFRS-related consulting services without direct and aggressive participation as long as they apply the *Practical Guidelines (2008-1)* of the Korean Financial Supervisory Service ("KFSS") with appropriate safeguards that can control their self-review threat. In this case, the low-balling phenomenon emerges because accounting firms are likely to choose a non-audit service with high profitability over an audit service with low profitability. Accordingly, this study expects that auditors could mitigate the influence on the relevance between IFRS adoption and audit fees if they deliver IFRS-related consulting services in auditing.

The results of this study imply that the implementation of the IFRS can highlight the importance of establishing an international network for Korean accounting firms and that audit quality may be affected by the IFRS-related consulting and auditing services offered by only one auditor. Furthermore, this study shows substantial evidence that the IFRS-related consulting services of Korean affiliated Big N firms influence the increase of audit fees, which is one of the economic consequences of IFRS adoption.

This paper is organised as follows. Section 2 presents a review of previous studies on IFRS adoption and its relationship with audit fees. leading to the development of the hyphotheses of this study. Section 3 discusses established research models to describe how samples are selected. Section 4 presents the results of the empirical analysis and the interpretation thereon. Section 5 concludes the paper.

2. Literature Review and Hypotheses Development

2.1 Literature Review

Previous studies on the IFRS can be classified into two categories (Lin & Yen, 2011). The first analyses the change in earnings quality resulting from the gap between the response to conventional accounting standards and the adoption of the new accounting standards by firms listed in

the stock markets. The second analyses the economic consequences of IFRS adoption.

First, the studies that analyse market response to IFRS adoption and the influence of such responses on earnings quality argue that IFRS adoption lowers the cost of capital through positive market response, decreases earnings management activities, and enhances earnings persistence. Daske, Hail, Luez, and Verdi (2008) analyse the relevance between IFRS adoption and market liquidity in firms in 26 European countries to substantially prove that market liquidity increases after IFRS adoption, firm value increases by 3.5 per cent, and the cost of capital decreases by 4.9 per cent. They argue that this phenomenon is clearly seen in firms that voluntarily adopted the IFRS at an early stage. Barth, Landsman, and Lang (2008) report that the earnings management activities of firms that have adopted the IFRS are significantly less than those that have not adopted the standard; they also find that the timeliness and value relevance of the accounting information of the former are better than those of the latter.

Armstrong, Barth, and Jagolinzer (2010) analyse market response to European firms that have adopted the IFRS early, to show that such markets respond positively to early adoption and that information asymmetry between the internal and external aspects of firms decreases. Their findings show that IFRS adoption can enhance the quality of audit and the transparency of accounting information. Almost all the aforementioned studies conclude that IFRS adoption lead to a positive response by capital markets and to relatively few earnings management activities of managers (Ahmed, Neel, & Wang, 2013; Byard, Li, & Yu, 2011).

Ahmed, Chamlmers, and Khlif (2013) conduct a meta-analysis of the literature on IFRS adoption (with a final sample of 57 papers) to investigate financial reporting effects, value relevance, earnings transparency, and capital market effects. The authors argue that financial reporting quality and value relevance are enhanced after IFRS adoption and that IFRS adoption can benefit the information environment of firms because this standard provide accurate forecast information.

In the present study, we analyse the effect of IFRS adoption on audit fees and thus contribute to the literature on the economic consequences of IFRS adoption. The previous studies on the economic consequences of IFRS adoption focus on the change in audit fees and adoption cost and find that the IFRS, which is more complex and wider in auditing scope than the GAAP, increase audit risk and cost, thus causing audit fees to

increase. Griffin and Stoke (2009) analyse the relationship between the governance reform in New Zealand and that in other countries based on audit and non-audit fees from 2002 to 2007. They find a greater increase in audit fees in New Zealand firms that have voluntarily adopted IFRS early since 2005 compared with firms in other countries. In particular, the audit fees of the firms that voluntarily adopted the IFRS increase by a statistically significant degree for three years after the adoption compared with audit fees for one year before the adoption.

Schadewits and Vieru (2010) measure and analyse the complexity of the IFRS in terms of income before taxes, net income during the term, equity, and total debt to examine the relationship between audit fees and the level of amendment/review of financial statements resulting from the difference between the GAAP and the IFRS in Finland. Their findings suggest that an increase in the number of consolidated financial statements and the disclosure of additional footnotes increase both audit fees and non-audit fees (as consulting fees) after IFRS adoption. DeGeorge, Ferguson, and Spear (2012) study 438 Australian firms to analyse the consequences of IFRS adoption on audit fees and find that the audit fees of these firms increase during the fiscal year after the adoption. They argue that the audit fees of small-sized firms that are not expected to be influenced by IFRS adoption increase sharply after the adoption.

Using a sample of 4,581 listed Chinese corporations, Lin and Yen (2011) analyse the changes in audit fees before and after IFRS adoption and find that audit fees increase after IFRS adoption. They also find a greater increase in the audit fees of Korean auditors affiliated with international accounting firms compared with that of auditors affiliated with Government corporations. In the case of Korean accounting firms affiliated with international ones, their heavy investment in IFRS audit equates to high audit costs. The increase in the audit fees of Government corporations audited by Korean accounting firms are lower than that of Government corporations audited by Korean affiliated Big N firms (Chung, 2012).

To identify probable problems in the adoption and practical application of the IFRS, Lim, Kim, and Lee (2009) conduct a survey of auditees, auditors, and users of accounting information and find a 30 per cent increase in audit time, audit risk, and audit fees after IFRS adoption. Kim and Kang (2010) analyse the effect of IFRS adoption on the prior entry of auditors and on audit quality to determine the increasing tendency of audit contracts with Korean affiliated Big N firms. Chung

(2012) also analyses the change in audit fees and audit time of 58 firms that adopted the IFRS at an early stage in 2009 and 2010 and finds that such firms experience an increase in the level of business performance and financial position after IFRS adoption; this change leads to an increase in non-audit fees.

2.2 Theoretical Perspective and Hypotheses Development

2.2.1 Theoretical Perspective

The competitive advantages of an organisation result from the unique resources owned by such organisations in the resource-based view (Barney, 2001). Knowledge is an organisation's most important resource. Accordingly, accounting firms are also likely to enhance their knowledge by establishing an alliance with international accounting firms to ensure their competitiveness in the accounting market. This can be seen in Korea where certain accounting-firms are affiliated with the Big N firms.

Further, intangible assets such as financial resources and facilities and the knowledge required to carry on business may be sourced internally as well as from outside the firm (Henderson & Cockburn, 1994). Therefore, the ability of the external dynamic network is necessary where there is a lack of resources internally. With the adoption of IFRS in Korea, Korean accounting firms have an incentive to network with foreign Big N firms, in order to maintain the audit quality.

In the theoretical view, IFRS adoption has two factors that influence audit fees. First, the acceptable level of discretion of managers causes auditors to input additional time and effort in auditing after adopting the principle-based IFRS (Marden & Brackney, 2009). Furthermore, accounting firms incur high costs for the development of the IFRS-related expertise and capabilities of auditors. In other words, these firms must make heavy investments to improve audit quality according to the new accounting standards. Consequently, these incremental costs are the key causes of the increase in audit fees (Lin & Yen, 2011).

Second, audit premium differs depending on the level of litigation risk and audit costs (Simunic & Stein, 1996). As the IFRS is principle based, it is characterised by the wide discretion of managers through which auditors can judge a specific accounting event or accounting transaction. Therefore, the litigation risk of auditors is higher due to the possibility of earnings management activities of auditees, eventually increasing the audit fees for compensation (Hay, Knechel, & Wong, 2006). In the process of adopting new accounting standards,

the complexity of audit may increase as the conventional accounting standards are replaced. For example, auditing becomes complicated and its scope expands when the conventional GAAP is replaced by the IFRS because applying fair-value accounting makes the review of the adequacy of evaluation and the application of standard-based actuarial measures indispensable in classifying financial instruments and employee wages (Chung, 2012).

2.2.2 Hypotheses Development

The result of the complexity resulting from the adoption of IFRS is the inevitable increase of audit time and audit cost. If any earnings management activity occurs as an evaluation of fair value and a re-classification of account during the application of new accounting standards, audit risk, such as the litigation risk of auditors, increases as a result of the demand for compensation. We thus formulate the following hypothesis:

Hypothesis 1: Audit fees increases after IFRS adoption

Audit quality is another factor that determines audit fees (Francis & Stoke, 1986). Since the IFRS adoption by several countries in 2007, preference for international accounting firms has increased (Lin & Yen, 2011). Such preference is attributable to the fact that Big N firms with an international network are likely to have more audit experience and greater expertise in IFRS than non-Big N firms. Similarly, Korean accounting firms affiliated with Big N firms are likely to conduct more thorough training for auditors compared with other firms which are not affiliated with any of the foreign Big N firms, as they have access to the Big N firms' knowledge of auditing procedures and techniques based on the IFRS. This can be explained by the resource-based view, in which Big N firms invest heavily in the acquisition of knowledge resources. These investments in turn are reflected in the audit fees. Accordingly, the audit quality of Korean affiliated Big N firms may be higher than that of other accounting firms. Furthermore, Korean affiliated Big N firms are expected to incur relatively high audit costs, such as training costs and audit time, compared with regular firms to maintain high audit quality and reputation. A survey conducted by the KFSS of Korea shows that whereas the training time of Korean certified

public accountants for IFRS adoption at Korean affiliated Big N firms is 43.5 hours on average, that at Korean firms which are not affiliated with any of the Big N firms is merely 22.05 hours; the result indicates the considerable effort of Korean affiliated Big N firms to enhance their expertise (KFSS, 2009).[1]

As auditees must demand an efficient switch of accounting standards and as the IFRS requires comprehensive professional decisions, firms are likely to hire auditors with extensive experience and expertise (Kim & Kang, 2010). Based on the expected increase in the audit fees of Korean affiliated Big N firms after IFRS adoption, we develop the following hypothesis:

Hypothesis 2: Korean affiliated Big N firms increase the relationship between audit fees and IFRS adoption

As auditors are likely to prefer non-audit duties that could generate higher profitability than audit duties could, the loss leader phenomenon can occur in the audit services. That is, audit services can be used as loss leaders to avail them of contracts for non-audit services (Shin & Kim, 2010). Similarly, non-audit services can influence audit fees. Knowledge transfer between audit and non-audit fields occurs when any consultation or design service related to IFRS adoption is offered by auditors during IFRS adoption. This phenomenon results from the effect of the depth of auditees' understanding of accounting and internal control systems on audit performance. By contrast, the *Practical Guideline (2008-1)* offered by the KFSS specifies that auditing firms can offer IFRS-related services at the recommended level of consultation without aggressive and direct participation when external auditors are equipped with appropriate safeguards to control self-review threat.[2] Thus, auditors can offer IFRS-related services as long as their independence is not compromised at the auditing level. Under such a scenario, accounting firms offering non-audit services related to

[1] "Survey for IFRS Adoption by Accounting Firms" (2009).

[2] The study by Lee, Oh, and Jeong (2011) show that the IFRS-related cost incurred by corporations listed on securities markets ranges from USD10,000 to USD2.3 million with an average of USD210,800. The press release of the KFSS on March 16, 2010 describes the findings of the survey on the preparation for corporations' IFRS adoption; that is, the IFRS-related cost incurred by corporations on average is USD271,800 (which includes the cost for evaluating fair value and the actuarial calculation cost related to employee wages). The cost of IFRS adoption is thus very high.

IFRS adoption can input relatively less audit time and cost compared with those that do not offer such services. As consultation about new accounting standards precedes actual adoption, the IFRS consultation is expected to moderate the relationship between IFRS adoption and audit fees. Accordingly, the following hypothesis is developed:

Hypothesis 3: The IFRS-related consulting services of an auditor moderate the relationship between IFRS adoption and audit fees

3. Research Design

3.1 Research Model

This study analyses the effect of non-audit services related to IFRS adoption on audit fees. The model of Equations (1) and (2) is set to be similar to the models of Lin and Yen (2011) and Chung (2012). The dependent variables of Equations (1) and (2) are defined by the natural logarithm value (*LnAF*) of audit fees and the rate of change of audit fees (ΔAF); *Adoption*, *Big N*, and *Consulting* are variables of key interest. In particular, the interaction variables of *Adoption*×*Big N* and *Adoption*×*Consulting* are added to the model to verify Hypotheses 2 and 3. These variables are used to analyse the effect depending on the consulting service of the Korean affiliated Big N firms during IFRS adoption.

Adoption is an empirical variable for verifying Hypothesis 1 in Equation (1), which is a model for analysing Hypotheses 1 and 2. If audit fees increase after IFRS adoption, β_1 has a positive coefficient. *Adoption*×*Big N* is a variable for verifying Hypothesis 2. If the increase in audit fees at *Big N* is considerably high after IFRS adoption, β_3 has a positive sign although *Big N* is controlled.

Adoption×*Consulting* is a variable for verifying Hypothesis 3 in Equation (2). If the increase in audit fees is low after IFRS adoption, during which auditors offer consulting services, β_3 has a negative sign although *Consulting* is controlled.

$$LnAF_{i,t} (or \Delta AF_{i,t}) = a_0 + \beta_1 Adoption_{i,t} + \beta_2 Big\ N_{i,t} + \beta_3 Adoption_{i,t} X\ Big\ N_{i,t} + \beta_4 Pre\text{-}Adoption_{i,t} + \beta_5 OPIN_{i,t} + \beta_6 INITIAL_{i,t} + \beta_7 FOR_{i,t} + \beta_8 SIZE_{i,t} + \beta_9 INVREC_{i,t} + \beta_{10} LIQUID_{i,t} + \beta_{11} ROA_{i,t} + \beta_{12} GRW_{i,t} + \beta_{13} LEV_{i,t} + \beta_{14} LOSS_{i,t} + \Sigma \beta_n IND_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$LnAF_{i,t} (or \Delta AF_{i,t}) = a_0 + \beta_1 Adoption_{i,t} + \beta_2 Consulting_{i,t} + \beta_3 Adoption_{i,t} X\ Consulting_{i,t} + \beta_4 Big\ N_{i,t} + \beta_5 Pre\text{-}Adoption_{i,t} + \beta_6 OPIN_{i,t} + \beta_7 INITIAL_{i,t} + \beta_8 FOR_{i,t} + \beta_9 SIZE_{i,t} + \beta_{10} INVREC_{i,t} + \beta_{11} LIQUID_{i,t} + \beta_{12} ROA_{i,t} + \beta_{13} GRW_{i,t} + \beta_{14} LEV_{i,t} + \beta_{15} LOSS_{i,t} + \Sigma\beta_n IND_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where:

LnAF	=	the natural logarithm of audit fees
ΔAF	=	the rate of change of audit fee (= (audit $fees_{i,t}$ - audit $fees_{i,t-1}$) over audit $fees_{i,t-1}$)
Adoption	=	the dummy variable, 1 if firm has adopted IFRS and 0 if otherwise
Consulting	=	the dummy variable, 1 if any consulting service relating IFRS adoption is offered by auditor and 0 if otherwise
Big N	=	the dummy variable, 1 if auditor is in alliance with Big N firm and 0 if otherwise
Pre-Adoption	=	the dummy variable, 1 if firm has voluntarily adopted IFRS before 2011and 0 if otherwise
OPIN	=	the dummy variable, 1 if audit opinion is "unqualified" and 0 if otherwise
INITIAL	=	the dummy variable, 1 if the audit of current auditor is initial(first) and 0 if otherwise
FOR	=	the foreigner's ownership
SIZE	=	the natural logarithm of prior total assets
INVREC	=	the sum of inventories and account receivables to prior total assets
LIQUID	=	the current ratio
ROA	=	the return on assets
GRW	=	the sales growth rate
LEV	=	the debt to total assets
LOSS	=	the dummy variable, 1 if firm reports net loss and 0 if otherwise
$\sum IND$	=	the industry dummy variable (KIS 2digit)

The coefficient signs of the control variables are as follows. *Pre-Adoption* indicates the firms that voluntarily adopted the IFRS before 2011. Pre-adopters may have had different incentives. In addition, auditors may have increased audit risks resulting from the monitoring by financial institutions because of early adoption; thus, they might ask for high audit fees (Lee, Park, & Yoon, 2011).[3] Consequently, *Pre-Adoption* is anticipated to have a positive relevance to audit fees.

The other control variables used in the present study are those used in the audit pricing model of previous studies (Simunic, 1984; Choi &

[3] Lee et al. (2011) find that corporations with high debt ratio, high financing demand, and high total market value invested heavily in IFRS adoption.

Park, 2009). *OPIN* may affect audit fees because it is likely to influence the audit risk of the term depending on the opinion of the auditor. However, the audit fees of titration may be relatively low; thus, *OPIN* is anticipated to have negative relevance to audit fees. Moreover, the audit fees in the first year of audit replacement can be utilised as a low-balling strategy at initial audit (*INITIAL*); this variable is thus expected to indicate a negative coefficient for audit fees (Lee et al., 2011). Foreign ownership (*FOR*) is anticipated to have positive or negative effects on the relatively high audit fees of foreign shareholders because the hypothesis that foreign ownership as a proxy of corporate governance may strengthen audit quality is debatable. *SIZE* is introduced as the most influential variable in previous studies and the audit fees of big firms is anticipated to increase (Simunic & Stein, 1996; Choi & Park, 2009). As managers can easily utilise inventories and account receivables for opportunistic earnings management, audit risk is also relatively high for INVREC. Accordingly, large inventories and account receivables equate to a large increase in audit fees (Choi & Park, 2009). So, this study uses the industry dummy variable, in the research model for controlling the effects of inventories and account receivables because the level of these accounts differs in each industry (Schadewitz & Vieru, 2010).

Firms with high liquidity (*LIQUID)* (measured by current ratio) have low audit risk; thus, audit fees are expected to decrease (Choi, Kim, & Zang, 2010). Managers of firms with low profitability (*ROA*) in the past have opportunistic tendencies that increase audit risk; thus, audit fees may increase (Kwon, Kim, & Jung, 2005; Kwak & Park, 2010). Firms with high growth rate (*GRW*), which indicates an increase in sales, are supposed to have high audit risk because of the high probability of earnings management activity of managers. Thus, audit fees are expected to be high. *LEV* is the measure indicating long-term financial stability in terms of debt ratio (Kwak & Park, 2010). That is, a high debt ratio results in poor long-term financial stability and, consequently, in an increase in audit fees (Kang & Kim, 2005; Choi et al, 2010). As a measure of audit risk, *LOSS* is expected to have a positive correlation with audit fees because low profitability resulting from term loss indicates additional audit input costs resulting from increased audit risk (Choi & Park, 2009). The industry dummy variable (*ΣIND*) is included in the model in order to capture specific effects of industry level, i.e. the Government's regulation to the IFRS adoption or the level of inventories and account receivables.

Especially because IFRS requires the appreciation of the evaluation model to various assets, the recognition of retirement pensions based

on employee wages in actuarial assumption, and the application of fair value factors can affect the decision making process of firms in IFRS adoption. However, because this study investigates just the relationship between the IFRS adoption and audit fees after the decision, it is not necessary to control these factors in this model.

3.2 Sample Selection

This study utilises the financial data of corporations listed on securities markets from 2006 to 2011. The data is extracted from the TS-2000 database. The selected data of audit and non-audit fees disclosed in the Electronic Disclosure System of the KFSS are selected based on the following basis:

1. only firms with financial year ending in December are selected;
2. firms in the financial industry are excluded;
3. firms with incorrect or missing data are excluded; and
4. industries with less than 20 firms are excluded.

Table 1 presents the sample selection. Firms with 86 firm-years in the financial industry and 325 firm-years of disclosing incorrect financial data and missing audit fees data are excluded from the initial sample of 3,824 firm-years. The final sample, which consists of 3,293 firm-years, also excludes 120 firm-years as they are from industries with less than 20 firms.

Table 1: Sample Selection

	Firm-year
Initial Sample	3,824
Sample Selection Criteria	
Financial Industry	(86)
Incorrect or missing data	(325)
Less than 20 firms by each industry or business type	(120)
Final Sample	3,293

4. Results

4.1. Descriptive Statistics

Table 2 presents the descriptive statistics of the variables. The mean of the audit fees (*LnAF*) is 18.194 ranging from 14.077 to 22.057, and the

distribution of change in audit fees (ΔAF) ranges from 0.098 to 2.928 with a mean of 0.214, which shows that audit fees had increased gradually since 2006 and then increased significantly in 2011 because of the all-out adoption of the IFRS.[4] The mean of *Adoption* showing IFRS adoption is 19.8 per cent (652 firm-years out of the total samples). 2,440 (74.1

Table 2: Descriptive Statistics (N=3,293)

Variable	Mean	Std. Deviation	Minimum	1st Quartile	Median	3rd Quartile	Maximum
LnAF	18.194	0.777	14.077	17.707	18.057	18.525	22.057
ΔAF	0.214	0.589	0.098	0.103	0.123	0.145	2.928
Adoption	0.198	0.307	0	0	0	0	1
Big N	0.741	0.27	0	0	1	1	1
Consulting	0.137	0.301	0	0	0	0	1
Pre-Adoption	0.022	0.143	0	0	0	0	1
OPIN	0.880	0	0	1	1	1	1
INITIAL	0.384	0.486	0	0	0	1	1
FOR	9.307	8.339	0	0.612	1.580	11.870	45.480
SIZE	19.487	1.503	14.518	18.44	19.221	20.293	25.489
INVREG	0.297	0.165	0	0.180	0.284	0.401	1.292
LIQUID	1.415	5.482	0	0.640	0.967	1.452	336.756
ROA	0.028	0.395	-3.477	0.008	0.036	0.070	28.531
GRW	0.034	0.755	-42.247	-0.023	0.051	0.142	2.388
LEV	0.459	0.394	0	0.302	0.456	0.595	26.476
LOSS	0.186	0.389	0	0	0	0	1

Note: Variable definition: *LnAF* is the natural logarithm of audit fees. ΔAF is the rate of change of audit fee. *Adoption* is the dummy variable, 1 if firm has adopted IFRS and 0 if otherwise. *Consulting* is the dummy variable, 1 if any *consulting* services relating IFRS adoption are offered by auditor and 0 if otherwise. *Big N* is the dummy variable, 1 if auditor is in alliance with *Big N* and 0 if otherwise. *Pre-Adoption* is the dummy variable, 1 if firm has voluntarily adopted IFRS before 2011and 0 if otherwise. *OPIN* is the dummy variable, 1 if audit opinion is "unqualified" and 0 if otherwise; *INITIAL* is the dummy variable, 1 if the audit of current auditor is initial (first) and 0 if otherwise. *FOR* is the Foreigner's ownership. *SIZE* is the natural logarithm of prior total assets. *INVREC* is the sum of inventories and account receivables to prior total assets. *LIQUID* is the current ratio. *ROA* is the return on assets. *GRW* is the sales growth rate. *LEV* is the debt to total assets. *LOSS* is the dummy variable, 1 if firm reports net loss and 0 if otherwise. $\sum IND$ is the industry dummy variable (*KIS* 2 digit).

[4] Other reasons include the increase in assets, audit risk, global financial crisis, and audit costs (Chung, 2012).

per cent) firm-years are audited by the Korean affiliated Big N firms. Up to 451 firm-years (13.7 per cent) are provided with IFRS-related consulting services by external auditors. Such services fall under the new non-audit services sector recommended in the *Practical Guidelines (2008-1)* of the KFSS.

For the control variables, the samples (*Pre-Adoption*) that had introduced the IFRS at an early stage before 2011 are 72 (2.2 per cent) and 2,898 (88 per cent) firm-years; these samples have unqualified opinions from auditors (*OPIN*). The sample of initial audit (*INITIAL*) is 1,264 (38.4 per cent) firm-years, which account for a considerable part of the entire sample. Foreign ownership (*FOR*) has a distribution range of 0 per cent to 45.48 per cent, thus indicating a mean of 9.31 per cent. The means for firm size (*SIZE*), inventories and sales debt ratio (*INVREC*), and current ratio (*LIQUID*) are 19.487, 0.297 and 1.41 respectively. The averages of return on asset (*ROA*), sales growth rate (*GRW*), debt ratio (*LEV*), and term loss (*LOSS*) are 0.028, 0.034, 0.459 and 0.186, respectively. These values are similar to the descriptive statistics in Chung (2012) that used the same sample.

4.2 Correlation

Table 3 shows the Pearson correlation among the variables. As for the natural logarithm of the audit fees (*LnAF*), the rate of change in audit fees (ΔAF) has a statistically significant positive (+) correlation coefficient ($p<0.0001$), which shows indirectly the trend of the gradual increase in audit fees. For *LnAF*, *Adoption*, which is a key variable of interest, shows a significant positive (+) correlation at the 1 per cent level. *Big N* and *Consulting* also show statistically significant positive (+) correlations. These findings suggest that audit fees are likely to increase because of the audit services of Korean affiliated Big N firms after IFRS adoption, and, the IFRS-related consulting services also increase the audit fees.

For the ΔAF of the dependent variables, *Adoption* shows a statistically significant positive (+) correlation ($p<0.1$), whereas *Big N* and *Consulting* are not statistically significant. This finding indicates that the audit services of Korean affiliated Big N firms or the IFRS-related consulting services offered by auditors do not directly affect the change in audit fees.

The early adoption of IFRS (*Pre-Adoption*), foreign ownership (*FOR*), firm size (*SIZE*), and debt ratio (*LEV*) show statistically significant positive (+) correlations. This finding corresponds to those of Shin and

Table 3: Pearson Correlations

	LnAF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ΔAF(1)	0.086***	1													
	(0.000)														
Adoption(2)	0.094***	0.024*	1												
	(0.000)	(0.072)													
Big N(3)	0.038***	0.011	-0.075***	1											
	(0.002)	(0.994)	(0.000)												
Consulting(4)	0.168***	0.004	0.295***	0.020	1										
	(0.000)	(0.73)	(0.000)	(0.115)											
Pre-Adoption(5)	0.068***	-0.013	0.382***	0.004	0.077***	1									
	(0.000)	(0.336)	(0.000)	(0.731)	(0.000)										
OPIN(6)	-0.021	-0.074	0.140	0.032*	0.084*	0.086*	1								
	(0.141)	(0.122)	(0.107)	(0.084)	(0.066)	(0.065)									
INITIAL(7)	-0.060***	0.008	0.350***	-0.041***	0.024**	0.023*	0.033*	1							
	(0.000)	(0.551)	(0.000)	(0.001)	(0.055)	(0.093)	(0.091)								
FOR(8)	0.356***	0.017	-0.167***	0.039***	-0.013	-0.012	0.105	-0.124***							
	(0.000)	(0.191)	(0.000)	(0.002)	(0.303)	(0.365)	(0.354)	(0.000)							
SIZE(9)	0.833***	0.018	0.078***	0.023	0.132***	0.04***	0.091*	-0.009	0.367***	1					
	(0.000)	(0.172)	(0.000)	(0.063)	(0.000)	(0.004)	(0.054)_	(0.448)	(0.000)						
INVREC(10)	-0.226***	0.005	-0.034***	0.016	-0.057***	-0.029**	0.155	0.003	-0.138***	-0.319***	1				
	(0.000)	(0.671)	(0.007)	(0.185)	(0.000)	(0.035)	(0.311)	(0.77)	(0.000)	(0.000)					
LIQUID(11)	-0.067***	0.021	0.059***	0.004	0.050***	0.004	0.095	0.018	0.011	-0.058***	-0.026**	1			
	(0.000)	(0.103)	(0.000)	(0.742)	(0.000)	(0.743)	(0.339)	(0.141)	(0.39)	(0.000)	(0.038)				
ROA(12)	0.010	-0.012	-0.01	0.006	-0.005	-0.005	0.107*	-0.009	0.044***	0.029**	-0.032**	0.008	1		
	(0.423)	(0.366)	(0.396)	(0.611)	(0.678)	(0.707)	(0.061)	(0.448)	(0.000)	(0.02)	(0.01)	(0.488)			
GRW(13)	-0.003***	0.035***	0.01	0.018	0.002	-0.004	0.115	-0.004	0.017	0.013	0.026**	-0.004	0.084***	1	
	(0.787)	(0.008)	(0.426)	(0.164)	(0.845)	(0.773)	(0.153)	(0.719)	(0.193)	(0.30)	(0.048)	(0.724)	(0.000)		
LEV(14)	0.078***	0.039***	-0.014	-0.019	-0.014	-0.013	-0.320	0.051***	-0.064***	0.034***	0.108***	-0.099***	-0.093***	-0.005	1
	(0.000)	(0.003)	(0.25)	(0.136)	(0.272)	(0.333)	(0.522)	(0.000)	(0.000)	(0.006)	(0.000)	(0.000)	(0.000)	(0.656)	
LOSS(15)	-0.081***	0.011	0.038***	-0.027**	0.011	0.025*	-0.106	0.033***	-0.136***	-0.166***	0.034	-0.036	-0.198***	-0.10***	0.177***
	(0.000)	(0.973)	(0.002)	(0.034)	(0.385)	(0.078)	(0.660)	(0.009)	(0.000)	(0.000)	(0.006)	(0.004)	(0.000)	(0.000)	(0.000)

Note: (a) *, **, *** indicate significance at the 10%, 5% and 1% (two tailed levels), respectively.
(b) ( ) indicates p-value.
(c) Refer to note of Table 2 for variable definitions.

Kim (2010), Lin and Yen (2011), and Chung (2012) on the model of audit fees. The results of these studies suggest that firms that have voluntarily adopted IFRS for other incentives before its mandatory adoption have high foreign ownerships, are big in size, have high debt ratios, and have paid a considerable amount of audit fees. Initial audit (*INITIAL*), inventories and sales ratio (*INVREC*), current ratio (*LIQUID*), sales growth rate (*GRW*), and *LOSS* have statistically significant negative (−) correlation coefficients, thereby supporting the findings of Simunic and Stein (1996), and Chung (2012) that factors such as discount of audit fees at initial audit, higher liquidity ratio and financial distress can decrease audit fees.

Table 4 shows the results of the analysis of the effects of IFRS adoption and of the audit by Korean affiliated Big N firms on audit fees.[5] The results of analyses (1) and (2) with *LnAF* as the dependent variable indicate that audit fees increase after IFRS adoption, wherein *Adoption* has a statistically significant positive coefficient, that is, either 0.111 ($p<0.001$) or 0.109 ($p<0.001$). These results suggest an increase in audit fees because compared with that of the GAAP, the auditing scope of the IFRS has expanded through the use of tangible assets revaluation based on the IFRS and through actuarial assumption in calculating employee wages and in drawing-up consolidated financial statements. This expansion increases audit risk. Consequently, Hypothesis 1, which states that audit fees increase after IFRS adoption, is supported. This evidence can be also observed in Analyses (3) and (4) with ΔAF as the dependent variable. A positive (+) coefficient of *Adoption* at the 5 per cent level suggests that the increase in the rate of audit fees after IFRS adoption is considerable.

Big N has statistically significant positive coefficients ($p<0.05$ or $p<0.1$) in Analyses (1) and (3), respectively. This result indicates that the audit fees of Korean affiliated Big N firms are relatively high. However, the same variable is not statistically significant in Analysis (4) but has a significant positive coefficient. This result supports the findings of Francis and Stoke (1986), Lin and Yen (2011), and Chung (2012) that Big N firms are paid fees that correspond to their high-quality audit. In cases of audits by Korean affiliated Big N firms during IFRS adoption, the interaction variable (*Adoption*×*Big N*) indicating the effect on audit fees has a statistically significant positive coefficient ($p<0.1$), which indicates

[5] The problem of multicollinearity does not exist because the VIF values of the variables are less than 3.

that the audit fees paid to the auditors of Korean affiliated Big N firms are high because of sound internal training, knowhow, expertise, and audit experience (Choi & Park, 2009). In the resource-based view, these results also show that Korean affiliated Big N firms can provide high audit quality in new IFRS environment, at the expense of high costs for knowledge transaction with the Big N firms.

Accordingly, these results support Hypothesis 2, which states that the relationship between IFRS adoption and audit fees is strengthened in the case of audit by Korean affiliated Big N firms. However, the interaction variable is not statistically significant in Analysis (4).[6]

The effects of control variables on audit fees (*LnAF*) are statistically significant in Analyses (1) and (2), whereas the effects of the rate of change on audit fees (ΔAF) are not statistically significant in Analyses (3) and (4). In the case of initial audit (*INITIAL*), the results show that the discount in the initial audit is negative at the 1 per cent level in Analyses (1) and (2) but is not statistically significant in Analyses (3) and (4) because the rates of change of the dependent variables have continuous distributions, whereas those of the independent variables have dichotomous or discontinuous distributions. The rest of the control variables in Analyses (1) and (2) are similar to the findings of Choi and Park (2009), and Lin and Yen (2011).

4.3 Results of Regression

Table 4 shows the results of the analysis of the effects of IFRS adoption and of the audit by Korean affiliated Big N firms on audit fees.[7] The results of Analyses (1) and (2) with *LnAF* as the dependent variable indicate that audit fees increase after IFRS adoption, wherein *Adoption* has a statistically significant positive coefficient, that is, either 0.111 ($p<0.001$) or 0.109 ($p<0.001$). These results suggest an increase in audit fees because compared with that of the GAAP, the auditing scope of the IFRS has expanded through the use of tangible assets revaluation based on the IFRS and through actuarial assumption in calculating employee wages and in drawing-up consolidated financial statements.

[6] It can indicate that Analysis (4) cannot show a significant value of less than 10 percent because the rate of change is considered as the dependent variable and the interaction variable is a dummy variable. The same can be seen in the coefficients of the independent variables. However, the interaction variables are marginally significant and have a positive sign. Hypothesis 2 is thus supported.

[7] The problem of multicollinearity does not exist because the VIF values of the variables are less than 3.

This expansion increases audit risk. Consequently, Hypothesis 1, which states that audit fees increase after IFRS adoption, is supported. This evidence can be also observed in Analyses (3) and (4) with ΔAF as the dependent variable. A positive (+) coefficient of *Adoption* at the 5 per cent level suggests that the increase in the rate of audit fees after IFRS adoption is considerable.

Big N has statistically significant positive coefficients ($p<0.05$ or $p<0.10$) in Analyses (1) and (3), respectively. This result indicates that the

Table 4: Regression Result 1: The Effect of IFRS Adoption and Audit Quality on Audit Fees

Variables	Expected Sign	***LnAF***		**ΔAF**	
		(1)	***(2)***	***(3)***	***(4)***
Intercept	?	9.783***	9.781***	-0.097	-0.095
		(3.17)	(3.13)	(-0.59)	(-0.58)
Adoption	+	0.111***	0.109***	0.051**	0.054**
		(5.97)	(5.74)	(2.90)	(1.85)
Big N	+	0.039**	0.036**	0.011*	0.013
		(2.07)	(1.94)	(1.71)	(1.46)
Adoption × *Big N*	+	—	0.084*	—	0.072
			(1.77)		(1.42)
OPIN	—	-0.014*	-0.032	-0.121	-0.137
		(-1.67)	(-1.43)	(-0.91)	(-0.88)
INITIAL	—	-0.039***	-0.038***	-0.004	-0.005
		(-3.15)	(-3.07)	(-0.24)	(-0.28)
FOR	+	0.003***	0.003***	0.001	0.001
		(8.82)	(8.81)	(1.19)	(1.19)
SIZE	+	0.425***	0.425***	0.003	0.003
		(3.93)	(3.91)	(0.45)	(0.43)
INVREC	+	0.089**	0.088**	-0.01	-0.01
		(2.23)	(2.23)	(-0.17)	(-0.16)
LIQUID	—	-0.001**	-0.001**	-0.003**	0.003**
		(-2.08)	(-2.08)	(-2.14)	(-2.14)
ROA	+	0.005	0.005	-0.02	-0.02
		(0.39)	(0.39)	(-1.05)	(-1.05)
GRW	+	-0.011*	-0.011*	0.025**	0.025**
		(-1.68)	(-1.69)	(2.36)	(2.36)
LEV	+	0.292***	0.292***	0.173***	0.172***
		(9.39)	(9.4)	(3.61)	(3.6)
LOSS	+	0.073***	0.074***	-0.017	-0.017
		(4.82)	(4.84)	(-0.72)	(-0.73)
$\sum IND$		Included	Included	Included	Included
F-stat		323.4***	317.17***	122.13***	120.03***
Adj.R^2		0.752	0.752	0.214	0.190

Note: (a) *, **, *** indicate significance at the 10%, 5% and 1% (two tailed levels), respectively.
(b) ( ) indicates t-statistics.
(c) Refer to note of Table 2 for variable definitions.

audit fees of Korean affiliated Big N firms are relatively high. However, the same variable is not statistically significant in Analysis (4) but has a significant positive coefficient. This result supports the findings of Francis and Stoke (1986), Lin and Yen (2011), and Chung (2012) that Big N firms are paid fees that correspond to their high-quality audit. In cases of audits by Korean affiliated Big N firms during IFRS adoption, the interaction variable (*Adoption*×*Big N*) indicating the effect on audit fees has a statistically significant positive coefficient ($p<0.10$), which indicates that the audit fees paid to the auditors of Korean affiliated Big N firms are high because of sound internal training, knowhow, expertise, and audit experience (Choi & Park, 2009). In the resource-based view, these results also show that Korean affiliated Big N firms can provide high audit quality in new IFRS environment, at the expense of high costs for knowledge transaction with the Big N.

Accordingly, these results support Hypothesis 2, which states that the relationship between IFRS adoption and audit fees is strengthened in the case of audit by Korean affiliated Big N firms. However, the interaction variable is not statistically significant in Analysis (4).[8]

The effects of control variables on audit fees (*LnAF*) are statistically significant in Analyses (1) and (2), whereas the effects of the rate of change on audit fees (Δ*AF*) are not statistically significant in Analyses (3) and (4). In the case of initial audit (*INITIAL*), the results show that the discount in the initial audit is negative at the 1 per cent level in Analyses (1) and (2) but is not statistically significant in Analyses (3) and (4) because the rates of change of the dependent variables have continuous distributions, whereas those of the independent variables have dichotomous or discontinuous distributions. The rest of the control variables in Analyses (1) and (2) are similar to the findings of Choi and Park (2009), and Lin and Yen (2011).

Table 5 presents the results of the analysis of the effects of IFRS-related consulting services and IFRS adoption on audit fees.[9]

The positive coefficient of *Adoption* is consistent with the result shown in Table 4, which also supports Hypothesis 1. With *LnAF* as a dependent variable, *Consulting* has statistically significant positive

[8] It can indicate that Analysis (4) cannot show a significant value of less than 10 per cent because the rate of change is considered as the dependent variable and the interaction variable is a dummy variable. The same can be seen in the coefficients of the independent variables. However, the interaction variables are marginally significant and have a positive sign. Hypothesis 2 is thus supported.

[9] The VIF values of the variables are less than 2, thus indicating that multicollinearity is not a problem.

coefficients, namely, 0.102 (p<0.001) and 0.107 (p<0.001) in Analyses (1) and (2), respectively, thus confirming the phenomenon of audit fees increasing after IFRS adoption. This increase in audit fees can be attributed to the relevant consulting services by auditors just before IFRS adoption. It is inconsistent with the results of Shin and Kim (2010) and

Table 5: Regression Result 2: The Effect of IFRS Consulting Services on Audit Fees

Variables	Expected Sign	***LnAF***		Δ_{AF}	
		(1)	***(2)***	***(3)***	***(4)***
Intercept	?	9.833***	9.832***	-0.101	-0.098
		(3.64)	(3.56)	(-0.62)	(-0.61)
Adoption	+	0.082***	0.082***	0.054**	0.068**
		(4.24)	(3.73)	(1.82)	(1.99)
Consulting	+	0.102***	0.107***	0.084	0.087
		(5.73)	(5.06)	(1.31)	(1.32)
Adoption×Consulting	+	—	-0.016**	—	-0.042*
			(-2.32)		(-1.72)
Big N		0.034**	0.03*	0.011	0.013
		(1.83)	(1.67)	(0.41)	(0.45)
OPIN	—	-0.018**	-0.047*	-0.132	-0.146
		(-1.92)	(-1.66)	(-1.09)	(-1.37)
INITIAL	—	-0.035***	-0.034**	-0.004	-0.005
		(-2.88)	(-2.75)	(-0.26)	(-0.26)
FOR	+	0.003***	0.003***	0.001	0.001
		(9.00)	(8.99)	(1.18)	(1.18)
SIZE	+	0.422***	0.422***	0.003	0.003
		(9.93)	(9.85)	(0.48)	(0.44)
INVREC	+	0.093**	0.093**	-0.01	-0.01
		(2.36)	(2.36)	(-0.17)	(-0.17)
LIQUID	—	-0.002**	-0.002**	0.003**	0.003**
		(-2.30)	(-2.27)	(2.15)	(2.18)
ROA	+	0.005	0.005	-0.02	-0.02
		(0.42)	(0.43)	(-1.06)	(-1.05)
GRW	+	-0.011*	-0.011*	0.025**	0.025**
		(-1.65)	(-1.69)	(2.36)	(2.35)
LEV	+	0.293***	0.294***	0.173***	0.173***
		(9.47)	(9.49)	(3.61)	(3.61)
LOSS	+	0.071***	0.071***	-0.016	-0.017
		(4.66)	(4.68)	(-0.71)	(-0.73)
$\sum IND$		Included	Included	Included	Included
F-stat		319.69***	307.83***	120.39***	147.35***
Adj.R^2		0.753	0.753	0.194	0.271

Note: (a) *, **, *** indicate significance at the 10%, 5% and 1% (two tailed levels), respectively.
(b) ( ) indicates t-statistics.
(c) Refer to note of Table 2 for variable definitions.

Simunic and Stein (1996). However, in Analyses (3) and (4) with ΔAF as the dependent variable, *Consulting* is not statistically significant, which is considered to be the result of the difference between the independent and dependent variables, as shown in Table 4.

In the analysis of the effects of IFRS-related consulting services by auditors on audit fees, *Adoption*×*Consulting* has negative coefficients ($p<0.05$, $p<0.1$) in Analyses (3) and (4), respectively, thus indicating that the IFRS-related consulting services by auditors along with audit in the course of IFRS adoption reduce the increase in audit fees. So, this result, supporting Hypothesis 3, can be explained by knowledge spillover phenomenon. Shin and Kim (2010), and Choi et al. (2010) show that knowledge spillover exists between audit and non-audit fields because auditors can apply their knowledge on the internal control, accounting environment, and transaction and business structures of the firm where the auditors have provided non-audit services such as IFRS-related consulting services.

If a knowledge spillover is observed, the auditor can input lower costs and efforts in providing IFRS-related consulting services. Therefore, this study shows that the interaction variable (*Adoption*×*Consulting*) has a negative coefficient, as shown in Table 5. That is, although audit fees increase after IFRS adoption given the expansion in the auditing scope and the increase of audit risk, the audit fees may be reduced when IFRS-related consulting services are offered along with audit services. Hypothesis 3, which states that an auditor's IFRS-related consulting services weaken the relevance between IFRS adoption and audit fees, is therefore supported.

In Analyses (1) and (2), the control variables are statistically significant. In Analyses (3) and (4), current ratio (*LIQUID*), sales growth rate (*GRW*), and debt ratio (*LEV*) are statistically significant, which is the same result shown in Table 4.

4.4 Additional Tests

We further investigate whether audit services is treated as a loss leader for the sale of non-audit services such as consulting services or whether the audit fees decrease only because the audit cost decreases by improving the controllability of audit risk and appreciating the internal control system of audited corporations while consulting services are conducted. Audit time is directly related to audit costs (Choi et al., 2010). Thus, this study assumes that audit time is a proxy measure of audit complexity, incurred from the gap between IFRS and GAAP. So, this

study expects the consulting services mitigate the relationship between IFRS adoption and audit time if there is knowledge spillover between consulting and audit fields.

Table 6 shows the regression results of the natural logarithm of audit time (*LnAT*) as a dependent variable. In Analyses (1) and (2), *Adoption* has statistically significant positive coefficients, namely, 0.232 ($p<0.001$) and 0.247 ($p<0.001$), after IFRS adoption, whereas the interaction variable (*Adoption*×*Consulting*) has a statistically significant negative coefficient of -0.061 ($p<0.05$), which confirms that audit time decreases when auditors perform IFRS-related consultation along with audit services. This outcome indicates that audit services, rather than IFRS-related consulting services, utilise the effect of knowledge spillover between consulting and audit areas and is not downgraded in terms of quality by treating it as a loss leader.

Table 6: Additional Test: The Effect of IFRS Consulting Services on Audit Time

Variables	Expected Sign	*(1)*		*(2)*	
		Coefficient	***t-stat.***	***Coefficient***	***t-stat.***
Intercept	?	-1.999***	-12.80	-1.997***	-12.78
Adoption	+	0.232***	8.16	0.247***	7.56
Consulting	+	0.139***	5.30	0.153***	4.89
Adoption×*Consulting*	+	—		-0.061**	1.97
Big N		0.077***	2.79	0.0783***	2.77
OPIN	—	-0.021**	-2.03	-0.049*	-1.71
INITIAL	—	0.005	0.28	0.005	0.28
FOR	+	0.003***	6.53	0.003***	6.53
SIZE	+	0.445***	6.70	0.445***	6.60
INVREC	+	0.063	0.57	0.033	0.57
LIQUID	—	-0.004***	-3.11	-0.004***	-3.06
ROA	+	0.005	0.25	0.005	0.26
GRW	+	0.011	1.05	0.011	1.05
LEV	+	0.133***	2.93	0.133***	2.92
LOSS	+	0.071***	4.66	0.121***	5.39
∑*IND*		Included		Included	
F-stat		165.97***		159.80***	
Adj.R^2		0.613		0.613	

Note: (a) *, **, *** indicate significance at the 10%, 5% and 1% (two tailed levels), respectively.
(b) Independent variable, *LnAT,* is the natural logarithm of audit time.
(c) Refer to note of Table 2 for other variable definitions

5. Conclusions

Unlike the conventional rule-based accounting standards referred to as the GAAP, the IFRS is a principle-based standard that requires managers to establish their reasons and logic within the framework of accounting principles and to apply the logic consistently (Kim & Kim, 2010). The higher degree of auditor's professional skepticisms is necessary in the IFRS environment. And then, the auditing scope has broadened with the application of consolidated financial statements or basic financial statements and others.

Additionally, the findings of Schadewitz and Vieru (2010), Lin and Yen (2011), and Chung (2012) indicate that the audit fees paid to auditors are anticipated to increase more with the application of the IFRS than with that of the GAAP. Therefore, the purpose of this study is to investigate the effects of IFRS adoption, the Big N factor and IFRS-related consulting services on audit fees. The results are as follows.

First, a positive coefficient correlation exists between IFRS adoption and audit fees, thus confirming that audit fees increase after IFRS adoption because audit costs increase during the audit process as the auditors' work and the demand for professional decisions increase, and these demands are beyond the application of conventional standards and the scope of managers' discretion (because IFRS is a principle-based accounting standard).

Second, Korean affiliated Big N firms enhance the positive relationship between IFRS adoption and audit fees, thus indicating that the audit costs by Korean affiliated Big N firms after IFRS adoption may increase (Lin & Yen, 2011; Chung, 2012). This finding means that Korean affiliated Big N firms can offer high-quality audit services because they have invested heavily in gaining experience and in improving expertise (Kim & Kang, 2010; Lin & Yen, 2011).

Third, an auditor's IFRS-related consulting services weaken the positive relationship between IFRS adoption and audit fees, thus indicating that availing of an auditor's audit services and consulting services may lower the audit fees. This finding is consistent with those of Shin and Kim (2010), that audit services can be treated as a kind of loss leader.

In addition, this study indirectly investigates whether audit quality deteriorates because of the nature of loss leaders in audit services based on numerous prior studies in the additional tests, and whether the audit process can be effective because of the knowledge spillover

effect between audit and consulting areas when auditors conduct both audit and IFRS-related consulting services (Choi, Kim, & Zang, 2010; Shin & Kim, 2010; Simunic & Stein, 1996). The results show that the design of or advice on an IFRS accounting system offered by auditors can reduce audit time.

There are several limitations to this study. First, this study only uses a dummy variable as IFRS-related consulting services variable. This cannot be as useful a variable as the dollar amount of consulting fees would be. It may be that the result is influenced by small amounts of consulting fees. Second, this study measures Korean affiliated Big N firms as high audit quality, in accordance with prior studies (such as Shin & Kim, 2010; Simunic & Stein, 1996), but Korean affiliated Big N firms cannot always reflect high audit quality.

This study is expected to have several implications. First, the results of this study suggest that the importance of international networks for accounting firms under the IFRS must be given close attention and that auditors' IFRS-related audit and consulting services may influence audit quality or auditor independence. Second, for its academic implication, this study presents empirical evidence that factors such as the Big N and IFRS-related consulting services may affect the increase in audit fees, which is an economic consequence of IFRS adoption. This study also shows that the strategies of accounting firms for innovation and enhancement of capacity are, to form alliances with international Big N accounting firms. This is consistent with the resource-based views. Finally, this study provides an implication that Governmental policy makers should consider the possibility of audit quality impairment when auditors perform IFRS-related consulting and audit services, simultaneously.

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