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The Effect of Divergence between Cash Flow Right and Voting Right on Audit Hour and Audit Fee per Audit Hour

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Abstract

This study examines the association between ownership structure of client firms measured by the divergence between cash flow rights and voting rights, and audit hour and audit fee per audit hour. Auditors

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could spend more audit hours or increase the audit fees per audit hour for the risky firms which have greater divergence between cash flow right and voting right. Using 436 firm-year observations collected over 2003~2005 period from Korean stock market, we investigate this relationship. The empirical results reveal that the audit hour increases as the divergence increases. However, there is a great difference in the empirical results depending on the firm size. Although small firms show the positive association between the divergence and audit hour, large firms reveal the negative association between the two. In addition, there is no change in the hourly audit fee rate for total sample and small firm samples. In contrast, the hourly fee rate increases as divergence increases for the large firm sample. In summary, auditors increase hourly fee rate but decrease audit hour as the divergence of large firms increases. These findings are very interesting and provide new insights to regulators, academics, as well as practitioners.

Keywords: ownership divergence, audit hour, audit fee per audit hour, cash flow rights, voting rights

INTRODUCTION

This study examines the association between ownership structure of client firms and audit hour and audit fee per audit hour. In particular, the ownership structure in this study implies the divergence (or wedge) of control (voting right, i.e., the ability to elect the board of directors and influence or dictate decisions that require shareholder approval) and ownership (cash flow rights i.e., claims on cash payouts or dividend). If an owner or controlling shareholder owns a company through the pyramidal structure or cross-shareholdings, it is possible that the voting rights of the owner (or controlling shareholders) are greater than the cash flow rights of the same owner. The difference could influence the firm's audit-related policy and auditor's behavior (Choi et al. 2007). This study examines this issue with respect to audit hour and audit fee per audit hour.[1)]

East Asian countries are notorious for their poor corporate governance mechanism. The most significant characteristic of the ownership structure (which represents the corporate governance mechanism) in the region is the complicated pyramidal and cross-holding ownership structures typical among East Asian companies (Fan and Wong 2002). Among these

1) Henceforth, we use 'hourly fee rate' rather than 'audit fee per hour' for the simplicity purpose throughout the paper.

companies, controlling shareholders usually have higher level of control rights than the level of their equity ownership. Therefore, there exists divergence between cash flow rights and voting rights.[2] In prior accounting and finance literature, this divergence is widely used as a proxy for the information asymmetry or the risk (or the possibility) of expropriations against minority shareholders. This divergence could influence the owner and managers' behavior which in turn influence the audit hour and audit fee per audit hour.

The divergence could be positively associated with both (either) hourly fee rate and (or) audit hour. The auditor is paid a fee to attest to the assertions contained in the client's financial statements, and presumably the fee reflects the work the auditor must perform to bear the audit risk (Choi et al. 2008; Craswell et al. 1995; Simmunic 1980). Seetharaman et al. (2002) find that audit fees reflect risk differences across countries with different level of legal liability regime. Higher legal regime motivates the auditors to increase effort in defense against the increased likelihood of future litigation (Simunic and Stein 1996) and/or charge an insurance premium to cover possible future litigation costs (Pratt and Stice 1994). Thus, if auditors increase their effort by spending more hours on audit the firm, or if the auditors simply charge higher fees per audit hour without increasing the audit hour *per se*, the audit fee increases. In addition, it is possible that auditors increase both audit hour and audit fee per hour rather than increase either audit hour or hourly fee rate.

Using 436 firm-year observations collected for the period starting from year 2003 and ending 2005. The firms are listed on the Korean stock market and the divergence data are provided by Korea Fair Trade Commission (KFTC). Using those samples, we examine above predictions. The empirical results reveal that the

2) Ownership of the public corporations across the world is not so widely dispersed. Instead, higher ownership concentration somehow prevails in the developed countries as well as in the developing countries (Claessens et al. 2000; Faccio and Lang 2002). Ownership and control structures of many public companies in East Asia and Western Europe are well characterized by family-control, close relation of managers with the controlling owners, and the controlling owner's voting rights exceeding cash flow rights (Claessens et al. 2000; Faccio and Lang 2002; Haw et al. 2004; LaPorta et al. 1999; Shleifer and Vishny 1997).

audit hour increases as the divergence increases. However, there is a great difference in the empirical results depending on the firm size. Although small firms show the positive association between the divergence and audit hour, large firms reveal the negative association between the two. In addition, there is no change in the hourly audit fee rate for total sample and small firm samples as the ownership divergence increases. In contrast, the hourly fee rate increases as divergence increases for the large firm sample. In summary, auditors increase hourly fee rate but decrease audit hour as the divergence of large firms increases.

This paper could contribute to regulators, academics, as well as practitioners and investors in various ways. First, according to the findings in this study, regulators can use the findings in this study when they evaluate new regulations on auditing or corporate governance. For example, based on the findings in this study, regulators need to seek a way to increase audit hours in order to improve audit quality, especially for the firms with greater divergence in ownership structure.[3] Academics need to find a way to improve the audit quality with respect to corporate governance and the findings in this study are helpful to understand auditors' behavior. Accountants can use the information in audit planning and fee decisions. Finally, potential investors can use the information to understand the effect of corporate governance on the role of auditing.

This study is composed as follows. Section 2 discusses prior literature and presents research hypothesis. The Section 3 explains the sample, followed by empirical analyses in the Section 4. The final section concludes the study.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The Effect of Corporate Governance Structure

Modern firms are owned by multiple shareholders, including the controlling shareholders who have almost full control over the firm and other minority shareholders. In most cases,

3) The audit fee could increase by either audit hour or hourly fee rate. Rather than hourly fee rate increases, the increase in the audit hour can help auditors to perform extensive audits so that audit quality can be enhanced.

minority shareholders stay outside of the firm and have no or only a little authority to influence the firm's control. In such a situation, controlling shareholders have opportunity to expropriate wealth from other outside minority shareholders. Large investors may represent their own interests, which need not coincide with the interests of other investors in the firm, or with the interests of employees and managers (Shleifer and Vishiny 1997).

Ownership is highly concentrated in Korea as well as other developing countries (Fan and Wong 2002). When the ownership is sufficiently concentrated such that an owner gains dominant control of a firm, the controlling owner is able to determine the profit distribution and use firms to generate private benefits that are not shared by minority shareholders and may sometimes deprive minority shareholders of their rights to share profits. These agency conflicts can be exacerbated as the controlling owner leverages control through stock pyramids or cross-shareholdings while keeping his or her ownership level low (Fan and Wong 2002, 2005).[4)]

In a typical Korean large conglomerate, there is a great deal of intra-group shareholdings among the affiliated firms. A controlling shareholder or his/her family not merely directly owns a fraction of equity but also indirectly has d*e facto* control from the portion of equity which is held by the related parties, such as senior managers of the firm, affiliated non-profit organization and other affiliated firms (Kim and Yi 2006). We present the cross-shareholding structure of Samsung Group (the largest business conglomerate in Korea) in figure 1 as an example.[5)]

Samsung's intra-group shareholding or cross-shareholding structure is so complicated that it is hard to understand the structure at a glance. The main parent company of the Samsung is 'Samsung Everland' which is located at the top-right corner of figure 1. The company owns 13% of 'Samsung Life Insurance' only but the Samsung life insurance owns shares of many different companies and the other companies also crossly owns shares of different companies within the group.

4) This is called as 'entrenchment effect of ownership' (Fan and Wong 2002).
5) We show only listed companies in Figure 1. Thus, the many unlisted companies are not reported in the figure for the simplicity purpose.

In summary, the figure 1 clearly reveals how the controlling shareholders have control on the many companies in the Samsung group. Even though the controlling shareholders do not have great portion of the ownership, by cross-shareholding, the controlling shareholders can maintain their control and could try to expropriate the wealth of the minority shareholders.

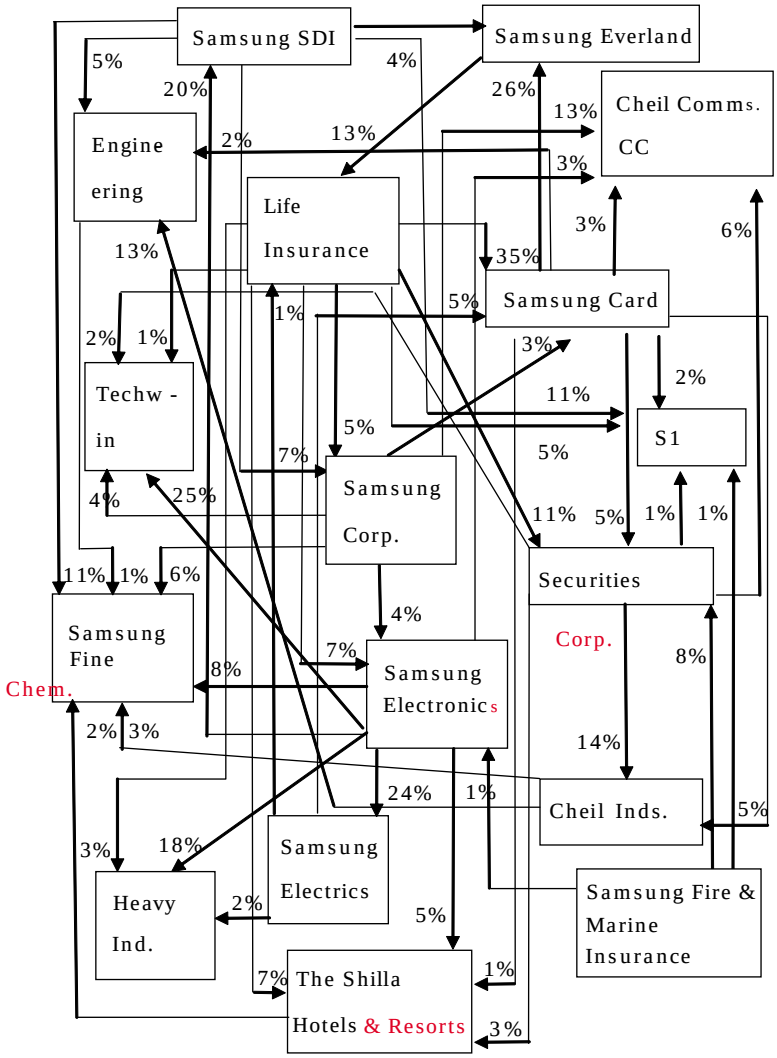

Figure 1. Samsung's Ownership Structure

The controlling shareholder does not have only an incentive to expropriate other investors' wealth, since the controlling shareholder has her cash flow rights of the firm, which means she loses some wealth too as. The higher the cash flow rights the largest shareholder has the higher is the cost she bears if she were to expropriate, and therefore the more aligned is her incentive with minority shareholders. In this way, the incentive of the controlling shareholders to expropriate outside investors is mitigated by their possible pecuniary loss, which means the more ownership the controlling owner has, the less she likely to expropriate.[6] This is so-called the incentive effect or alignment effect (Choi et al. 2007; Fan and Wong 2002).

However, when control rights increase and become greater than cash flow rights or when the controlling shareholder gain effective control via complicated ownership structures such as pyramidal ownership and cross-shareholding, controlling shareholders are more likely to expropriate, which implies that the entrenchment effect dominates the alignment effect in such a situation.

In this divergent ownership structure, the corporate governance of the firm can be problematic because of the ineffective monitoring by the board. Controlling shareholder and often her family members usually hold powerful positions on both the top management team and the board of directors. Controlling shareholders are entrenched at the helm and have the power to designate and monitor corporate managers. Thus, having effective control of a corporation enables the controlling

6) Among several papers about this issue, Fan and Wong (2002; 2005) clearly show the effect of the ownership divergence. For example, consider the following case. When considering buying 30% of Firm B, an entrepreneur has two options. The entrepreneur can directly buying 30% of equity of Firm B, which constitutes a typical horizontal corporate structure, or alternatively he/she can indirectly invest in Firm B through Firm A, of which he/she owns 50%, which he/she controls. Choosing the alternative way, the entrepreneur can purchase the shares of the Firm B paying only half cost of direct investment, leaving the saved purchasing cost to be borne by the outside shareholders. Given the ownership illustrated above, it costs the entrepreneur only $15 for every $100 expropriated from Company B and therefore $85 of net benefit from expropriation falls into the entrepreneur's hands. Clearly, if stock pyramids or cross-shareholdings were used to consolidate control, they would also result in the divergence between ownership and control, which exacerbates the entrenchment problem of controlling owners.

owner to make important decisions, such as profit-sharing policy. Although the minority shareholders are entitled to the cash flow rights in the proportion to their investments (i.e., ownership percentage), they face the uncertainty that the entrenched controlling owner may opportunistically deprive them of their rights.[7)]

Hypothesis Development

When there is a large separation of the voting and cash flow rights, it is possible that the controlling shareholder is entrenched by her voting power. As a result, the credibility of accounting can be reduced (Fan and Wong 2002; Francis et al. 2005; Kim and Yi 2005). Outside investors pay less attention to the reported accounting numbers, because they expect that the controlling owner produces and reports accounting information out of private incentive rather than as a true reflection of the firm's economic status. In addition, the firm's reported earnings may not be trusted by the outside investors since they perceive the possible manipulation of earnings for outright expropriation by the controlling shareholder. Furthermore, outside investors are aware of the controlling owner's incentive to avoid reporting information that would invite scrutiny from outside shareholders. As a result, the loss of credibility in reported earnings lowers the stock price informativeness of the earnings (Fan and Wong 2002). Francis et al. (2005) also document that earnings are less informative relative to dividends in U.S. firms with dual-class[8)] stocks that separate voting rights from cash flow rights.

7) Even this kind of agency problem, which arises between controlling shareholders and minority shareholders, is not often illegal. Entrenched controlling shareholder's opportunistic behavior may be often conducted within the legal constraints.

8) Dual-class stocks are a kind of multiple-classes stocks. When the firm has issued two or more classes of stock with differential voting rights, the voting structures constitute multiple-classes stocks. In a firm with a single class of common stock, cash flow rights and voting rights are equal and a controlling owner bears pro rata the shareholder wealth consequences of his/her decision. In a dual class structure, one class of common stock typically has more votes per share than the other, while both classes have equal or almost equal cash flow rights per share(Francis et al. 2005; Villalonga and Amit 2006).

However, expropriation, if detected, may induce close attention and external intervention by minority shareholders, analysts, stock exchanges, or regulators. Therefore the desire to keep away from external monitoring, potential legal problems, and consequent loss of reputation capital likely encourages insiders to veil their private benefits and non-value-maximizing decisions by managing reported accounting income, especially in the weak legal environment (Haw et al. 2004; Leuz et al. 2003). Because minority shareholders and other external stakeholders are not likely to have the resources or access to relevant information enough to observe insiders' actions, they are, as a result, unable to detect and straighten out insider's earnings management. In particular, by limiting outflow of information to the public, large shareholder also allows political rent seekers to evade potential competition and social sanctions, thus resulting in less disclosure and low transparency in reported income (Fan and Wong 2002).

These characteristics related to the ownership divergence could be influence the level of audit fees via the increase of the audit hour or hourly audit fee. The auditor is paid a fee to attest to the assertions contained in the client's financial statements, and presumably the fee reflects the work the auditor must perform to bear the audit risk (Choi et al. 2008; Craswell et al. 1995; Simmunic 1980). Seetharaman et al. (2002) find that audit fees reflect risk differences across countries with different level of legal liability regime. Higher legal regime motivates the auditors to increase effort in defense against the increased likelihood of future litigation (Simunic and Stein 1996) and/or charge an insurance premium to cover possible future litigation costs (Pratt and Stice 1994). In either case, audit fees should increase if the divergence is related to the risk of audit. Consistent with this prediction, Choi et al. (2007) report that divergence is positively associated with audit fees. As explained before, because the divergent firms have less transparency and could distort financial reporting, the auditor needs to bear more audit risk. In response to the increased audit risk, auditors could either increase their audit hour to search for the accounting irregularities more thoroughly or simply increase hourly fee rate to compensate for the risk. Of course, auditors could do both of them simultaneously. Accordingly, we propose the following two

hypotheses in alternative forms.[9)]

H1: There is positive association between audit hours and the ownership divergence.

H2: There is positive association between audit fees per audit hour and the ownership divergence.

METHODOLOGY

Sample and Data

We estimate the association between audit hour/hourly fee rate and deviation of control rights over cash flow rights using data from 436 audits (firm-year observations) performed for the listed large conglomerate-affiliated firms in Korea during 3 years from 2003 to 2005.[10)] KFTC compiles ownership and control rights data of large (not entire) conglomerate-affiliated companies, computes the divergence between them and posts the data in its homepage.[11)] KFTC datasets include the portion of shares held by a controlling shareholder and by her related parties. Related parties include relatives, senior managers of the firm, affiliated non-profit organizations, and other affiliated firms. Only listed firms are selected as sample firms since reliable financial data for other key variables are not obtainable even though KFTC datasets includes both of the listed and non-listed firms. For audit fees and audit hours, we collected the data from the annual report filings posted in the Data Analysis, Retrieval and Transfer System (DART) system.[12)] For control variables

9) Choi et al. (2007) already report the positive association between divergence and audit fee. In this study, we decompose audit fees into two components of the fee: hourly fee rate and audit hour to examine the individual effects of the components.

10) The samples used in this study are the same as those used in Choi et al.'s (2007) study. As a result, the descriptive statistics reported in tables 1 and 2, and the correlation coefficients reported in table 3 are also the same. We simply add *FEE_HOUR* and *HOUR* (audit fee rate and audit hour) variables in tables 2 and 3 in addition to the statistics reported in Choi et al.'s study.

11) www.ftc.go.kr.

12) DART is an electronic disclosure system operated by FSS (Financial Supervisory Service of Korea) that allows companies to submit disclosures online, where it becomes immediately available to investors and other users.

Table 1. Basic Statistics of Ownership Structures (%)

	N	Mean	Median	SD	Min.	Max.
Cash flow right	436	13.190	4.015	17.179	0	75.040
Voting right	436	43.356	41.290	17.411	0.600	95.170
Divergence	436	30.165	30.945	20.580	0	79.790

Variable definition: Cash flow right = a sum of direct ownership stakes(%) held by a controlling shareholder of a firm and his/her family members' ownership of the firm. Voting right = a sum of direct ownership held by a controlling shareholder of a firm, ownership held by family members and the ownership held by senior managers of the firm, affiliated non-profit organization and affiliated firms. Divergence = a difference between Cash flow right and Voting right, computed by subtracting Cash flow right(%) from Voting right(%) of the controlling shareholder of the firm.

other than audit fees and audit hours, we obtained data from KIS-VALUE II database.

For a simple recognition of the status of control and ownership structures of the sample, table 1 presents basic statistics of the cash flow rights and the voting rights of the controlling shareholders and the divergences between the two. Table 1 shows that, for the full sample, the average cash flow right of a controlling shareholder and her family members is 13.19% which is 30.17% lower than 43.36% of voting right she has. The divergence is substantial, ranging from 0 to 79 (79%). The standard deviation (SD) is also very large (20.58), suggesting that there is substantial variability for the divergence. In summary, large divergence indicates that a controlling shareholder and her family member increase and gain de facto control via the ownership of the related parties. This result is consistent with the finding in Claessens et al. (2000).

Model

To test hypothesis H1 and H2, we posit the following regression models:

$$FEE_HOUR \text{ or } HOUR = a0 + a1\ DVC + a2\ DVC*SIZE + a3\ SIZE + a4\ BIG4 + a5\ ROA + a6\ LEV + a7\ INVREC + a8\ ISSUE + a9\ YEAR2003 + a10\ YEAR2004 + e \quad (1)$$

where, *a0* to *a10* are regressional parameters, *e* is a normally distributed error term, and the other variables are defined as follows.

FEE_HOUR = hourly audit fee rate in thousand Korean won;
HOUR = the natural log of audit hours;
DVC = divergence, in percentage value, between cash flow rights and voting rights of a controlling shareholder of a firm;
SIZE = natural log of year-end market value of common equity in thousand Korean won;
BIG4 = 1 if the auditor of the firm is one of international Big 4-affiliated auditors and 0 otherwise;
ROA = return on assets of a firm;
LEV = long-term liabilities divided by total assets of a firm;
INVREC = sum of inventories and account receivables divided by total assets of a firm;
ISSUE = 1 if a firm has issued long-term debts or equities within three years and 0 otherwise;
YEAR 2003 = 1 when a firm year is 2003 and 0 otherwise;
YEAR 2004 = 1 when a firm year is 2004 and 0 otherwise.

Equation (1) use *FEE_HOUR* or *HOUR* as a dependent variable, which is a hourly fee rate or total number of logged audit hours, collected from the DART system. Equation (1) includes a test variable, DVC, which is defined as the divergence between voting rights and cash flow rights of a controlling shareholder of a firm, and the coefficient on DVC (i.e., *a1*) is expected to have a positive relation with *FEE_HOUR* or HOUR (i.e., $a1 > 0$). In addition to *DVC*, we add *DVC*SIZE* as an additional variable because Choi et al.(2007) report that the interaction term between *DVC* and *SIZE* is negatively associated with audit fees. Because the audit fee is determined by the multiplication of audit fees per audit hour and audit hour (i.e., *FEE_HOUR*HOUR*), it is possible that the coefficient on interaction term (i.e., *a2*) is also negatively correlated with hourly audit fee rate and audit hours.

The other control variables used in Equation (1) are chosen based on the prior studies of Simunic (1980) and Choi et al. (2008). *SIZE* represents firm size which is measured by the natural logarithm of the market value of common stocks. Generally, large firms have greater assets to be audited by

external auditors, incurring more audit efforts and thus increasing audit fees (Simunic 1980). So *SIZE* is expected to be positively related to *FEE* (i.e., $a3 > 0$). *BIG4* captures auditor's size effect on audit fees. Big brand name auditors are well documented to earn a fee premium over non-Big audit firms (Craswell et al. 1995; Francis 1984). Thus *BIG4* is expected to have a positive relation to *FEE*. *ROA* and *LEV* is the proxies for a client-specific audit risk to be borne by auditors. *ROA* is introduced because more profitable companies are less likely to end up in bankruptcy and so is expected to have a negative association with *FEE*. *LEV* captures risk associated with higher level of debt and thus is expected to have a positive relation with *FEE*. To clear the possible effect of outliers, this variable is first winsorized at the 10^{th} and the 90^{th} percentile values. We also include the ratio of inventory and receivables out of total assets (*INVREC*) as a proxy for audit complexity, which increases audit fees. New debt or equity issuance dummy (*ISSUE*) captures demands for quality audit since a firm is likely to have an incentive to produce quality reporting so as to invite outside investors when the firm is in needs of new external financing. High-quality financial reporting requires high-quality audit, which increases audit fees. ISSUE also measures litigation risks from bankruptcy, which are likely to be greater for firms who have recently financed external funds by issuing new equity or bonds in capital markets. In either case, *ISSUE* is expected to have a positive relation with audit fees.

EMPIRICAL RESULTS

Descriptive Statistics

The descriptive statistics for all variables included in the regression models are reported in table 2. The mean of hourly audit fee (*FEE_HOUR*) is 95.667. This number implies that average audit fee per audit hour is about 95,667 Korean won. This number is very small, representing the very low level of audit fees in Korea. But it seems that there is very large variability in the *FEE_HOUR* given the great value of the standard deviation. The average logged audit hour (*HOUR*) is 7.299.

Table 2. Summary Statistics of Regression Variables

Variable	Mean	Median	Std. Dev.	Min.	Max.
FEE_HOUR	95.667	85.877	79.978	24.822	1428.570
HOUR	7.299	7.170	0.944	4.025	10.472
DVC	30.165	30.945	20.580	0.000	79.790
SIZE	19.616	19.678	1.754	15.303	25.298
BIG4	0.876	1.000	0.329	0.000	1.000
ROA	5.327	5.245	7.487	-63.940	34.670
LEV	37.244	26.600	32.831	3.250	105.240
INVREC	0.210	0.192	0.128	0.000	0.713
ISSUE	0.486	0.000	0.500	0.000	1.000

Variable definition: FEE_HOUR = audit fees divided by audit hours in thousand Korean won. HOUR = the natural logarithm of the audit hour. DVC = divergence, in percentage value, between cash flow rights and voting rights of a controlling shareholder. SIZE = a natural log of year-end market value of common equity in thousand Korean won. BIG4 = 1 if the auditor of the firm is one of international Big 4(5,6) affiliated auditors and 0 otherwise. ROA = a return on assets of a firm. LEV = long-term liabilities divided by total assets of a firm. INVREC = inventory and an accounts receivable divided by total assets of a firm. ISSUE = 1 if a firm has issued long-term debts or equities within three years and 0 otherwise.

Sample firms have, on average, 30.17% of divergence (*DVC*) between cash flow rights and voting rights of controlling shareholders. The mean of naturally logged market value of common equity of firms (*SIZE*) is 19.62. If computed as raw (not logged) market value, the mean of raw market value of common equity of sample firms is 1,691 billion Korean Won. Because the sample firms are the firms belong to business conglomerates in Korea, they are on average very large firms.[13] On average, 87.6% of audits are conducted by one of the Big 4 auditors (*BIG4*). And sample firms have, on average, 5.33% of *ROA* and 37.24% of leverage ratio (*LEV*). Account receivables and inventories comprise, on average, 21% of total assets (*INVREC*). On average, 49% of firms in the sample have issued long-term debt or equities within three prior years (*ISSUE*).

13) In subsequent analyses, we divide the full sample into two subsamples based on the median value of the firm size (SIZE) and perform analyses.

Correlations

Pearson correlation coefficient for all variables that are included in the equation (1) and respective p values are reported in table 3.[14] As shown in the table 3, the divergence between voting rights and cash flow rights of a controlling shareholder is negatively correlated to audit hour but insignificantly related to hourly fee ratio. The correlation coefficient is -0.2822 between *DVC* and *HOUR* and is significant at less than 1% level. This result is consistent with the findings in Choi et al.'s (2007) study that show the negative correlation between audit fees and the divergence.

Choi et al.'s (2007) study report that audit fee decreases as the divergence increases if we do not control for the firm size. It implies that the correlation between the divergence and audit fee is negative. Because the correlation coefficients reported in table 3 is the simple Pearson correlation coefficient that do not control for any other variables, the correlation coefficient between the divergence and audit hour must also have negative sign. However, in contrast, the divergence is not related to the hourly fee rate. It suggests that audit hour mostly determines audit fees rather than hourly fee rate does so.

In addition, the strong positive correlations between *HOUR* and *SIZE* and between *HOUR* and *BIG4* support the previous literature that large firms and firms audited by Big 4 are likely to charge higher fees by increasing the audit hours. In addition, positive correlation between *HOUR* and LEV suggests that auditors spend more time to audit highly-levered risky firms.

The negative correlation between *HOUR* and *INVREC* do not support the findings in most prior studies that *INVREC* represents the complexity of the audit works.[15] This could be due to failure to control for other correlated variables. Thus, we are going to perform multivariate regression analyses later. In contrast, the hourly fee rate (*FEE_HOUR*) variable does not have any strong correlation with other control variables.

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14) Because the results using Spearman correlation are qualitatively similar, we do not report them separately for the simplicity purpose.

15) But this negative correlation is consistent with the negative correlation between audit fees and the divergence in Choi et al.'s (2007) study.

Table 3. Pearson Correlations (p-values) for Variables

	FEE_HOUR	HOUR	DVC	SIZE	BIG4	ROA	LEV	INVREC	ISSUE
FEE_HOUR	1.0000								
HOUR	-0.3660 (<0.0001)	1.0000							
DVC	0.0151 (0.7524)	-0.2822 (<.0001)	1.0000						
SIZE	-0.0576 (0.2294)	0.7432 (<.0001)	-0.3154 (<.0001)	1.0000					
BIG4	0.0086 (0.8574)	0.3264 (<.0001)	-0.0380 (0.4284)	0.2924 (<.0001)	1.0000				
ROA	-0.0287 (0.5499)	0.0910 (0.0576)	-0.1015 (0.0341)	0.3570 (<.0001)	0.0813 (0.0900)	1.0000			
LEV	-0.1250 (0.0090)	0.3472 (<.0001)	0.0589 (0.2191)	0.1090 (0.0227)	0.1064 (0.0262)	-0.3044 (<.0001)	1.0000		
INVREC	0.1100 (0.0215)	-0.2308 (<.0001)	0.1015 (0.0340)	-0.3099 (<.0001)	0.0518 (0.2804)	-0.1029 (0.0316)	-0.1710 (0.0003)	1.0000	
ISSUE	0.0855 (0.0744)	-0.0987 (0.0394)	0.1793 (0.0002)	-0.0496 (0.3008)	-0.0800 (0.0952)	-0.0627 (0.1906)	-0.0332 (0.4882)	0.1206 (0.0117)	1.0000

Variable definition: *HOUR* = a natural log of audit hours invested in auditing by an auditor. *FEE_HOUR* = an hourly audit fee rate in thousand Korean Won. *DVC* = divergence, in percentage value, between cash flow rights and voting rights of a controlling shareholder. *SIZE* = a natural log of year-end market value of common equity in thousand Korean won. *BIG4* = 1 if the auditor of the firm is one of international Big 4(5, 6) affiliated auditors and 0 otherwise. *ROA* = a return on assets of a firm. *LEV* = long-term liabilities divided by total assets of a firm. *INVREC* = inventory and an accounts receivable divided by total assets of a firm. *ISSUE* = 1 if a firm has issued long-term debts or equities within three years and 0 otherwise.

Among control variables, highest correlation exist between *SIZE* and *ROA* (0.3570) and between *SIZE* and *INVREC* (-0.3099). However, given that none of the correlations among control variables are greater than 0.4, it is not likely the correlations cause multicollineariy problem during the multivariate regression analyses.

Regression Analyses for H1

Next, we perform regression analyses with equation (1) to see if the divergence influences audit hours even after controlling for

other possibly correlated variables. The results are reported in table 4.[16] In here, the dependent variable is *HOUR* which is equal to the natural log of audit hours. We repeat regressions four times — with and without *DVC* variable for the full sample, and with *DVC* with small and large firm sub-samples. The column (1) of table 4 reports the results without *DVC* (and *DVC***SIZE* too) and the column (2) reports those with *DVC* using full sample. In addition, column (3) reports the results which use full model and the small firm samples, whereas the column (4) reports those using large firm samples.

First, the control variables reported in column (1) have all expected signs except ISSUE variable which has negative sign although positive sign is expected. But the coefficients on *ISSUE* as well as *INVREC* are not significant in column (1). In column (2), as expected, the *DVC* has positive coefficient (0.0613) which is significant at 1% level (t = 4.03), although the interaction term between *DVC* and *SIZE* has negative sign (-0.0033). These results imply that auditors increase audit hours when they audit a firm with greater divergence between control rights and cash flow rights. This is consistent with the first hypothesis *H1*. However, the degree of increase of the audit hour decreases as the firm size increases as indicated by negative coefficient on the interaction term. The results on the other control variables reported in column (2) are essentially the same as those in column (1). Thus, we do not separately explain them for the simplicity purpose.

Next, we perform analyses using subsamples divided by the median value of firm size (*SIZE*) as explained before. The column (3) of table 4 reports the results for the small firm subgroup (subsample) and the column (4) of table 4 reports the results for the large firm subgroup. The results reported in column (3) of table 4 are qualitatively identical to those in column (2). The coefficient on *DVC* is positive and significant, whereas the coefficient on *DVC***SIZE* is negative and significant.

However, the results completely changes when we use the large firms subsamples. The results using the large firms are reported

16) For all the results reported in table 4, we use White's (1980) method to correct for the heteroskedasticity. In addition, we check VIF scores to see if the multicollinearity causes any problem. However, we fail to find that the VIF values are greater than 10.

Table 4. Regression Result for Audit Hours

*HOUR = a0 + a1 DVC + a2 DVC*SIZE + a3 SIZE + a4 BIG4 + a5 ROA + a6 LEV + a7 INVREC + a8 ISSUE + a9 YEAR2003 + a10 YEAR2004 + e*

Variables	Expected	(1) Reduced model		(2) Full Sample		(3) Small firm subgroup		(4) Large firm subgroup	
	Sign	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
DVC	+			0.0613	4.03***	0.0688	2.41**	-0.1137	-2.16**
*DVC*SIZE*	–			-0.0033	-4.26***	-0.0038	-2.46**	0.0050	2.01**
SIZE	+	0.4055	21.72***	0.4851	16.59***	0.3786	5.09***	0.4366	6.15***
BIG4–	?	0.2574	2.96***	0.2917	3.42***	0.3391	3.57***	0.2046	1.16
ROA	–	-0.0143	-3.45***	-0.0115	-2.83***	-0.0041	-0.86	-0.0281	-3.81***
LEV	+	0.0064	7.18***	0.0067	7.64***	0.0089	6.56***	0.0052	4.62***
INVREC	+	0.2441	1.07	0.2255	1.01	-0.1855	-0.98	0.9224	2.30**
ISSUE	+	-0.1067	-1.96*	-0.0610	-1.12	-0.0730	-0.98	0.0088	0.12
Constant	–	-1.1439	-3.11***	-2.6607	-4.54***	-0.6671	-0.49	-1.6164	-1.07
Adj. R^2		0.6476		0.6646		0.4353		0.5648	
N		436		436		218		218	

Variable definition: *HOUR* = a natural log of audit hours invested in auditing by an auditor. *DVC* = divergence, in percentage value, between cash flow rights and voting rights of a controlling shareholder. *SIZE* = a natural log of year-end market value of common equity in thousand Korean won. *BIG4* = 1 if the auditor of the firm is one of international Big 4(5, 6) affiliated auditors and 0 otherwise. *ROA* = a return on assets of a firm. *LEV* = long-term liabilities divided by total assets of a firm. *INVREC* = inventory and an accounts receivable divided by total assets of a firm. *ISSUE* = 1 if a firm has issued long-term debts or equities within three years and 0 otherwise. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively (two-tailed test).

in the column (4). In column (4), the coefficient on *DVC* is negative (-0.1137) and significant at 1% level (t = -2.16). The results suggest that audit hours decrease as the divergence increases for the large firms. It means the full sample results reported in column (2) is due to the effect of small firms which dominate the effect of large firms on the audit hour. It is not clear at all why the results using large firm subsample are in sharp contrast with those using small firm subsample.[17)]

17) Given that this is an empirically driven descriptive study rather than a theory-based study, we leave the reason for this inconsistency as a topic for a future research.

Regression Analyses for H2

Next, we replace the dependent variable (*HOUR*) in table 4 with *FEE_HOUR* and examines if the hourly fee rate changes as the divergence changes. The results are reported in table 5. Like table 4, we repeat regressions four times — with and without *DVC* variable for the full sample, and with *DVC* with small and large firm sub-samples. The column (1) of table 5 reports the results without *DVC* (and *DVC*SIZE* too) and the column (2) reports those with *DVC* using full sample. In addition, column (3) reports the results which use full model and the small firm samples, whereas the column (4) reports those using large firm samples.

In column (1) of table 5, the control variables are mostly not significant at all, except the *LEV*. The variable has negative coefficient (-0.3175) which is significant at 5% level. These results generally imply that hourly audit fee rate does not change much. When we add *DVC* and *DVC*SIZE* in the equation (1), both variables are insignificant as reported in column (2). The results with small firm sub-samples, which are reported in column (3), also show that the variables of interests are not significantly related to the hourly fee rate. However, the results using large firm sub-samples reveal different results. As reported in column (4) of table 5, the coefficient on *DVC* is positive (10.9534) and the interaction term is negative (-0.5307). It implies that hourly fee rate increases as the divergence increases but the magnitude of the increase becomes smaller as the firm size increases. In summary, for small firms and full sample, the audit hours increase as the divergence increases but the hourly fee rate does not change. In contrast, the divergence for full sample and small firm sub-sample are not affecting hourly fee rate. But for large firms, audit efforts measured by audit hour decreases as the divergence increase, whereas the hourly fee rate increases. Recall that Choi et al. (2007) report negative association between *DVC* and audit fees in their analyses for the large firms. It seems that the negative association is derived by the hourly audit fee rate effect shown in table 5.

Table 5. Regression Result for Hourly Fee Rates

*FEE_HOUR = a0 + a1 DVC + a2 DVC*SIZE + a3 SIZE + a4 BIG4 + a5 ROA + a6 LEV + a7 INVREC + a8 ISSUE + a9 YEAR2003 + a10 YEAR2004 + e*

Variables	Expected	(1) Reduced model		(2) Full Sample		(3) Small firm subgroup		(4) Large firm subgroup	
	Sign	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
DVC	+			-0.7113	-0.32	-2.3476	-0.41	10.9534	2.60**
*DVC*SIZE*	-			0.0367	0.32	0.1338	0.43	-0.5307	-2.62***
SIZE	+	0.0548	0.02	-1.0074	-0.24	5.4304	0.37	7.1750	1.26
BIG4	+	6.9934	0.57	6.8066	0.55	8.7471	0.46	1.8721	0.13
ROA	-	-0.5766	-0.98	-0.5978	-1.01	-1.3535	-1.41	0.3762	0.64
LEV	+	-0.3175	-2.49**	-0.3174	-2.47**	-0.6653	-2.45**	-0.0681	-0.75
INVREC	+	44.7455	1.39	44.8527	1.39	75.3316	1.47	-18.7112	-0.58
ISSUE	+	11.1770	1.45	11.0030	1.40	11.2112	0.76	8.5529	1.43
Constant	?	85.0511	1.63	106.3455	1.25	-16.1408	-0.06	-57.8830	-0.48
Adj. R^2		0.0186		0.0142		0.0214		0.0177	

Variable definition: *FEE_HOUR* = an hourly audit fee rate in thousand Korean Won. *DVC* = divergence, in percentage value, between cash flow rights and voting rights of a controlling shareholder. *SIZE* = a natural log of year-end market value of common equity in thousand Korean won. *BIG4* = 1 if the auditor of the firm is one of international Big 4(5, 6) affiliated auditors and 0 otherwise. ROA = a return on assets of a firm. *LEV* = long-term liabilities divided by total assets of a firm. *INVREC* = inventory and an accounts receivable divided by total assets of a firm. *ISSUE* = 1 if a firm has issued long-term debts or equities within three years and 0 otherwise. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively (two-tailed tests).

CONCLUSION

This study examines the association between ownership structure of client firms and audit hour and audit fee per audit hour. If an owner owns a company through the pyramidal structure or cross-shareholdings, it is possible that the voting rights of the owner are greater than the cash flow rights of the same owner. The difference could influence the firm's audit-related policy and auditor's behavior. For example, the divergence could be positively associated with both (either) hourly fee rate and (or) audit hour. The auditor is paid a fee to attest to the assertions contained in the client's financial statements, and presumably the fee reflects the work the auditor must perform to bear the audit risk. If auditors increase their effort by spending more hours on audit the firm, or if the

auditors simply charge higher fees per audit hour without increasing the audit hour per se, the audit fee increases. In addition, it is possible that auditors increase both audit hour and audit fee per hour rather than increase either audit hour or hourly fee rate.

Using 436 firm-year observations collected over 2003~2005 period from Korean stock market and the divergence data provided by KFTC, we examine above predictions. The empirical results reveal that the audit hour increases as the divergence increases. However, there is a great difference in the empirical results depending on the firm size. Although small firms show the positive association between the divergence and hourly fee rate, large firms reveal the negative association between the two. In addition, there is no change in the hourly audit fee rate for total sample and small firm samples. In contrast, the hourly fee rate increases as divergence increases for the large firm sample. In summary, auditors increase hourly fee rate but decrease audit hour as the divergence of large firms increases. These findings are very interesting and provide new insights to regulators, academics, as well as practitioners.

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