

Communication during the Pandemic: Use of videoconferencing in Audit Committee-Auditor Communication

Abstract

Using Korean listed firms' mandatory disclosure on the communication method for meetings between the Audit Committee and auditors from 2019 to 2020, we find that videoconferencing leads to weaker audit quality. We measure the degree of videoconferencing by the proportion of videoconferencing in the total number of meetings between the Audit Committee and auditors. We provide preliminary results on whether changes in communication methods affect audit quality. Our results are robust to change analyses, balanced sample analyses, including auditor fixed effects, and using an alternative measure of audit quality and videoconferencing. We find that Audit Committee independence or expertise does not affect the relationship between videoconferencing and audit quality but holding more formal Audit Committee meetings during the year mitigates the negative impact of videoconferencing on audit quality. Our paper contributes to the literature on information processing of Audit Committees.

Data availability: All data are publicly available from sources identified in the text.

JEL Classifications: M40; M42

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1. Introduction

Even as we bid farewell to lockdowns and face masks, some COVID19-induced changes may be here to stay. COVID19 has accelerated the adoption of videoconferences (Bauer, Humphreys, and Trotman 2022) and we have become much more accustomed to communicating through videoconferences. Nonetheless, there is little empirical evidence whether videoconferencing can replace face-to-face communication, especially for complex tasks such as discussions between external auditors (hereafter, auditors) and the Audit Committee. This paper examines how videoconferencing affects the communication quality between auditors and the Audit Committee. More specifically, this paper investigates the effect of videoconferencing on how the Audit Committee gathers, shares, and discusses information with the auditor, and how this would impact the audit quality.

While audit literature has examined the effects of Computer-Mediated-Communication (CMC) and Face-to-Face (FTF) interactions (e.g., Bennett and Hatfield 2018), videoconferencing seems to be the best of both worlds. Videoconferencing contains more media richness than CMC and allows for synchronous communication, thus emulating the benefits of FTF while maintaining social distance. Videoconference participants can see, hear, and respond to other participants (i.e., acknowledge their social presence) as in a face-to-face conversation. The synchronous nature of videoconferencing also pushes meeting participants to be well prepared for a Q&A session as with a FTF meeting (Brazel, Agoglia, and Hatfield 2004; McAllister, Mitchell, and Beach 1979; Bettman, Johnson, and Payne 1990). Videoconferencing can also reduce travel fatigue which hinders the cognitive abilities of participants.

However, videoconferencing can strain and alter the interaction between the Audit Committee and auditors. Videoconferencing makes it difficult for Audit Committee members to hold pre-meetings—a valuable source of information collection. The increased formality also hinders

informal side conversations. Videoconferencing can dampen in-depth and lengthy discussions, thus deteriorating the information dissemination process. It is more difficult to build relationships but easier for conflicts to escalate in videoconferences (Mortensen and Hinds 2001). This may cause auditors and Audit Committee members to refrain from debates and disagreements and not express their opinion. Thus, it remains an empirical question whether videoconferencing is as effective in FTF in terms of facilitating communication between the Audit Committee and auditors.

We measure the degree of videoconferencing by the proportion of videoconferencing out of the total number of meetings between the Audit Committee and auditors. From 2019, all Korean listed firms must disclose how the meeting occurred (i.e., face-to-face, conference call, email, videoconferencing) in their audit reports. We use fiscal year 2019 and 2020 data to examine whether changes in communication methods affect audit quality. Although our data is limited to two years and the results are preliminary, we have the advantage of having pre-pandemic data of 2019 and thus can use the COVID-19 pandemic as an external shock to examine whether videoconferencing affects audit quality.

Using Korean listed firms' unique disclosure on the communication method for meetings between the Audit Committee and auditors, we find that using videoconferencing leads to weaker audit quality. The results are robust to change analyses, balanced sample analyses, including auditor fixed effects, and using an alternative measure of audit quality and videoconferencing. We find that Audit Committee independence or expertise does not affect the relationship between videoconferencing and audit quality. However, holding more Audit Committee meetings during the year mitigates the negative impact of videoconferencing on audit quality.

Our paper contributes to the literature on information processing of Audit Committees. We investigate whether the AC and auditors can effectively process information through

videoconferencing, and how the communication medium affects information processing. We answer to the call for literature on numerous factors effecting auditor communication (Cohen, Gaynor, Krishnamoorthy, and Wright 2007; Bauer et al. 2022; Hatfield and Saiewitz 2022). We examine how videoconferencing changes how information is gathered, shared, and discussed, and how this would impact the audit quality.

Next, we contribute to the literature on the effectiveness of CMC and FTF in auditing. Prior literature has examined how CMC and FTF affects the auditor-client relationship and examined whether CMC is as effective as FTF for auditors to detect clients' deception (Bennett and Hatfield 2018; Saiewitz and Kida 2018). However, auditors do not need to aggressively detect the deception of the Audit Committee, or vice versa. Although they do monitor each other and are deeply interested in each other's integrity, both parties want to cooperate to achieve successful oversight of management and complete the audit process. Prior literature has also examined the effectiveness of CMC versus FTF in workpapers and review of auditors' performance (Brazel et al. 2004). We shed light on the discussion of alternative communication mediums in auditing by expanding the literature on the different impact on AC-auditor interactions.

Lastly, we contribute to the literature on AC-auditor relationship. There has been scant large-sample empirical evidence on how the Audit Committee and auditors interact, and how this affects the audit quality. We add to process-oriented research on Audit Committees by examining Audit Committee behaviors (Beasley, Carcello, Hermanson, and Neal 2009; DeFond and Zhang 2014; Free, Trotman, and Trotman 2021).

The remainder of the paper is organized as follows. Section 2 provides a literature review and hypotheses development. Section 3 describes our sample and empirical design. Section 4 presents the empirical results and Section 5 presents additional tests and robustness checks. Section 6

concludes the paper.

2. Related Literature and Hypothesis Development

2.1. Related Literature

The COVID-19 pandemic has affected the interactions of various audit process participants (International Auditing and Assurance Standards Board [IAASB] 2020a, 2020b; Luo and Malsch 2020; Bauer et al. 2022). Due to social distancing, lockdowns and travel restrictions, auditors and clients could no longer meet face-to-face (Luo and Malsch 2020). Virtual communication was widely adopted to overcome the restrictions to face-to-face communication. Virtual¹ communication crosses geographical barriers using technology-mediated communication (e.g., Lipnack and Stamps 1999; Lurey and Raisinghani 2001; Bell and Kozlowski 2002; Martins et al. 2004; Mak and Kozlowski 2019; Raghuram, Hill, Gibbs, and Maruping 2019; BusinessThink 2020; Bauer et al. 2022). Virtual communication was not invented during the COVID19 pandemic; all professional interactions lie on some continuum² from completely face-to-face to completely virtual (Mak and Kozlowski 2019). However, the pandemic has led to widespread adoption of videoconferencing (Bauer et al. 2022; Despujol, Pruvot, and Hornick 2020).

Communication methods have been traditionally categorized as Computer-mediated Communication (CMC) and Face-to-Face Communication (FTF) (e.g., Martins et al. 2004; Mak

¹ Some researchers define virtual teams as teams that do not interact face-to-face at all (e.g., Bouas and Arrow 1995), while some “permit some face-to-face communication as long as the majority of interaction occurs electronically” (e.g., Jarvenpaa and Leidner 1999; Maznevski and Chudoba 2000). Nonetheless, there is no established proportion of communication to be classified as ‘virtual’ (Martins, Gilson, and Maynard 2004). Virtual teams use technologies such as telephones, web sites, instant messaging, file- and application-sharing, electronic bulletin boards, group decision support systems, and real-time calendar/scheduling systems. The extent to which a team uses these technologies affects its extent of virtualness (Bell and Kozlowski 2002; Griffith, Sawyer, and Neale 2003; Martins et al. 2004).

² Recent definitions have stressed the ubiquity of virtual interactions, pointing out that a purely face-to-face team that does not use any communication technology is rare in organizations today (e.g., Griffith and Neale 2001).” (Martins et al. 2004). Work team interactions lie on a continuum from completely face-to-face to completely virtual, based on the extent of technology dependence and the degree of geographical dispersion (Mak and Kozlowski 2019)

and Kozlowski 2019). CMC and FTF differ in their extent of media richness³ (Daft and Lengel 1984) and whether they enable synchronous collaboration (e.g., Riopelle et al. 2003). Media Rich communication channels (i.e., FTF communication in contrast to email) contain social context cues from facial expressions or body language (Daft and Lengel 1984; Epley and Kruger 2005) and audio elements that helps establish social presence⁴. FTF communication leads to more cooperation and information sharing (e.g., Bazerman, Curhan, Moore, and Valley 2000; Frohlich and Oppenheimer 1998; Swaab, Galinsky, Medvec, and Diermeier 2012; Saiewitz and Kida 2018), more honesty (Van Zant and Kray 2014), and greater rapport (Drolet and Morris 2000). People can respond rapidly, interact more, and ask more questions in FTF communication (Short et al. 1976; Wilson and Williams 1977; Bennett and Hatfield 2018).

Nonetheless, CMC communication is omnipresent (e.g., Baltes, Dickson, Sherman, Bauer, and LaGanke, 2002; Brazel et al., 2004). CMC also has its own benefits in that CMC is more effective for brainstorming (e.g., DeRosa, Smith, and Hantula 2007) and clients may dislike disruptions from face-to-face communication (Kachelmeier 2018). The asynchronous nature of CMC communication enables auditors to work where and whenever (Shumate and Brooks 2001; Brazel et al. 2004) and craft a better response to specific reviewer concerns (Brazel et al. 2004). Also, CMC may be more effective for simple document requests. These differences between FTF and CMC can affect audit judgement (e.g., Baltes et al. 2002; Kachelmeier and Towry 2002).

³ Different communication channels that provide varying levels of paralinguistic and social context cues, including voice inflection, volume, pronunciation, and gestures.

⁴ Social presence is “the degree to which one perceives the presence of the participants who are communicating in an interaction and is enhanced when more social context cues are available to the individual (Short, Williams, and Christie 1976)”. Audio and visual channels provide additional elements such as “tone of voice, pauses, and speed. The existence of a visual channel (e.g., talking face-to-face) further increases social presence by allowing for cues (e.g., facial expressions, body language and talking distance) that can alter the meaning of the audio channel alone, often in subconscious ways (Short et al. 1976). Additionally, visual cues improve the synchronicity of interaction, indicating the level of understanding (or lack of understanding), as well as signals regarding whose turn it is to talk in the conversation.”

Videoconferencing has the benefit of both FTF and CMC. Videoconferencing can achieve the media richness, social presence, and synchronous communication of Face-to-Face communication, thus emulating the benefits of FTF while adhering to government social distancing guidelines. It is also easy to inform participants simultaneously, which contributes to building trust among participants (Bauer et al. 2022).

However, videoconferencing has its own limitations and may alter the communication. For example, conflicts can quickly escalate (Mortensen and Hinds 2001). Individual creative performance can be affected negatively (Allen, Golden, and Shockley 2015; Kniffin et al. 2021). Videoconferencing increases the cognitive load because as participants use exaggerated movements to transmit social context cues (Bailenson 2021). Virtual interactions during the pandemic have increased in formality⁵ (Bauer et al., 2022), with auditors holding more frequent and structured communication (Luo and Malsch 2020) to encourage information processing within virtual interactions (Kniffin et al. 2021). More formal interactions may affect knowledge sharing, social cohesion, and intrateam trust (Boivie, Bednar, Aguilera, and Andrus 2016; McKinsey and Company 2020). These characteristics of videoconferencing are particularly important for the AC-Auditor communication process because each party needs to fully comprehend the critical issues (Bauer et al., 2022).

2.2. Communication between the Audit Committee and Auditors

The Audit Committee (AC) oversees the financial reporting and audit process (Kadous, Nolder, and Peecher 2018; Beasley, Carcello, Hermanson, and Neal 2009; Center for Audit Quality [CAQ] 2014) and is critical to corporate governance (Cohen, Hoitash, Krishnamoorthy, and Wright 2014;

⁵ “Formality can also relate to the structure of virtual meetings, including the number of attendees, amount of meeting time, recording of meetings, and the ways attendees can interact.” (Bauer et al., 2022, page. 7)

DeFond and Zhang 2014; Kang, A. Trotman, and K. Trotman 2015; He, Pittman, Rui, and Wu 2017). While the Audit Committee can be explained with agency theory or resource dependence theory (e.g., Beasley, Carcello, Hermanson, and Neal 2009; Clune, Hermanson, Tompkins, and Ye 2014; Cohen, Krishnamoorthy, and Wright 2017), Boivie, Bednar, Aguilera, and Andrus (2016) and Free et al. (2021) explain Audit Committee behavior with an information-processing perspective. They argue that even when AC members have the best of intentions, inherent characteristics of the AC may limit their effective oversight. How the AC processes information is affected by AC's infrequent meetings, high degrees of information asymmetry due to their diverse functional background⁶, and their challenging task of simultaneously supporting and monitoring management (Boivie et al. 2016; Free et al. 2021).

Free et al. (2021) note that the AC engages in formal and informal meetings to mitigate information processing barriers. To supplement the infrequent formal meetings, AC Chairs engage in frequent pre-meetings. Pre-meetings help AC chairs prepare for formal meetings by understanding important issues in a more informal way. AC chairs share information in pre-meetings with AC members to reduce the information asymmetry between AC members and avoid suboptimal decisions based on scattered information (Lu, Yuan, and McLeod 2012; Stasser and Abele 2020). In addition, formal and informal AC meetings help AC members to socially connect and build trust (Bauer et al. 2022).

Auditors are a valuable resource for the Audit Committee. To effectively support and monitor management, the Audit Committee relies heavily on auditors. Audit partners frequently interact with the AC Chair and attend the formal AC meetings (Boivie et al. 2016; Free et al. 2021; Bauer et al. 2022). Effective communication with the Audit Committee is also important for auditors.

⁶ AC members come from various functional backgrounds such as accounting, law, banking, and general management (Free et al. 2021).

Section 204 of the Sarbanes-Oxley Act of 2002⁷ requires auditors to communicate critical issues to the AC in a timely manner (Cohen et al., 2008). The interaction between the AC and auditors itself establishes trust in the other party (Bauer et al. 2022). AC members ask probing questions to auditors (Pomeroy 2010; Kang, A. Trotman, and K. Trotman 2015; Kang 2019) and auditors provide important answers (Fiolleau, Hoang, and Pomeroy 2019; Bhattacharjee, Moreno, and Pyzoha 2020). These interactions are critical for the effective oversight of management and upholding audit quality.

2.3. Hypothesis Development

Before the COVID 19 pandemic, auditor and Audit Committee meetings were a mix of Face-to-Face communication and Computer-Mediated Communication. During the pandemic, some firms used videoconferencing for both formal meetings and pre-meetings. Because of the similarities between videoconferencing and face-to-face communication, it is possible that videoconferencing has no incremental impact on audit quality. However, videoconferencing may affect the collection, distribution, and dissemination of information between AC and auditors (Bauer et al. 2022).

First, virtual interactions are more formal (Bauer et al. 2022). It is more difficult to have side conversations during pre-meetings and formal meetings. Although people can set up private zoom conversations, it is more likely to be out of context than meeting for lunch, or more difficult to arrange than dropping by their office. Each separate private conversation, if it does occur, would

⁷ Section 204 of the Sarbanes-Oxley Act of 2002 requires “the auditor to communicate to the audit committee in a timely manner: (1) all critical accounting policies and practices used by management, (2) alternative treatments of accounting principles, (3) ramifications of alternative disclosures and the auditor’s preferred treatment, and (4) other material written communications between the auditor and management” (Cohen, Gaynor, Krishnamoorthy, and Wright 2008, 1).

be less effective. This limits information collection and distribution for AC members and auditors.

Second, information is distributed and disseminated through active discussions and Q&A sessions and such interactions are more complicated in videoconferences. Raising timely questions without interrupting the discussion is more difficult in an online environment (Bauer et al. 2022) and does not fully achieve the synchronicity of face-to-face communication. Zoom fatigue also makes it more difficult to hold a productive conversation on difficult topics (Fosslien and Duffy 2020). Each formal face-to-face meeting of the AC may go up to five hours of intensive briefing and discussion. The quality of such meetings may decrease rapidly if the meeting is held as a videoconference.

Lastly, it is difficult to build social cohesion and intrateam trust relationships through videoconferencing, which would be detrimental to audit quality. Auditors and Audit Committee members assess each other on the ability to ask astute questions and provide shrewd answers. Without satisfactory discussions, the Audit Committee may have less confidence in the auditor's work (McKinsey and Company 2020; Bauer et al. 2022) In a weak relationship, conflicts and misunderstandings may escalate rapidly (Mortensen and Hinds 2001). Audit quality will falter when there are more conflicts and misunderstandings between the Audit Committee and auditors.

Therefore, we investigate whether videoconferencing has an impact on the communication between auditors and the Audit Committee. We test the following hypothesis:

Hypothesis. *The use of videoconferencing for AC-Auditor communication does not affect audit quality.*

3. Sample and Research Design

3.1. Sample

After the revision of the Act on External Audit of Stock Companies, all listed Korean companies were required to disclose information about the communication between the Audit Committee and auditors from 2014. Initially most audit reports included only the frequency of meetings. In 2018, the Korean Institute of Certified Public Accountants (KICPA) established the Audit Practice Guidelines for Communication with Corporate Governance. The guidelines pushed for more detailed disclosure on information about the communication between the Audit Committee and auditors, such as the frequency of meetings, meeting type, meeting attendees, and contents of major discussions at each meeting. We manually collect the details of the Audit Committee and auditor communication from the audit reports; Appendix A provides an example of a disclosure on the communication between the Audit Committee and auditors.

Our sample consists of listed companies in Korea for fiscal year 2019 and 2020. We designate meetings for fiscal year 2019 as pre-pandemic meetings because South Korea adopted social distancing policies at the end of March 2020.⁸ Meetings for fiscal year 2020 are set as the post-pandemic meetings.⁹ From initial firm-meetings over the two years, we exclude observations with non-December fiscal year-end and firm-meetings with unidentifiable meeting types. We obtain financial and audit data from FnGuide and TS-2000¹⁰. After omitting observations with missing data, the final sample is consisted of 1,058 firm-year observations for 561 firms from 2019 to 2020. To mitigate the influence of outliers, we winsorize all continuous variables at the 1st and 99th levels. Table 1 shows the detailed procedure of our sample selection.

⁸ Listed firms in Korea must disclose annual reports and audit reports within three months after the fiscal-year end.

⁹ The audit practice guidelines for the communication with corporate governance is effective from 2018. However, most disclosures are not proper and complete to analyze our research question especially for the balanced comparison of pre-pandemic and post-pandemic periods, Thus, the sample period in this study begins from 2019.

¹⁰ FnGuide and TS-2000 are large data providers of Korean data.

[Insert Table 1 here]

3.2. Variable Description

To examine whether videoconferencing affects audit quality, we use absolute value of discretionary accruals as our measure of audit quality. We estimate the following model by year and industry and obtain the residuals to measure the discretionary accruals (Jones 1991; Dechow, Sloan, and Sweeney 1995; Ball and Shivakumar 2006):

$$ACC_{i,t} = \beta_0 + \beta_1 (1/ASSET_{i,t-1}) + \beta_2 (REV_{i,t} - \Delta REC_{i,t}) + \beta_3 PPE_{i,t} + \beta_4 CFO_{i,t} + \beta_5 DCFO_{i,t} + \beta_6 CFO_{i,t} * DCFO_{i,t} + \varepsilon_{i,t}, \quad (1)$$

In Equation (1), i and t denote firm and year. ACC is total accrual calculated as net income minus operating cash flow. $(REV - \Delta REC)$ is sales revenue minus changes in account receivables from year $t-1$ to year t scaled by total assets ($ASSET$). We also include PPE , property, plant, and equipment divided by lagged total assets. Following Ball and Shivakumar (2006), we include operating cash flow scaled by lagged total assets (CFO), an indicator variable for negative operating cash flow ($DCFO$), and their interactions to account for asymmetric recognition of accruals depending on the direction of operating cash flow. Equation (1) is estimated for each year and industry, and the residual from the model is used as discretionary accruals.¹¹ Absolute value of the residual from equation (1) is our proxy for audit quality (ADA).

To estimate the degree that the Audit Committee and auditors utilize videoconferencing as a communication mean, we measure the ratio of the number of videoconferencing meeting to the total number of meetings between Audit Committee and auditor ($VIDEO$).

¹¹ We assess the robustness of our results using the absolute value of discretionary accruals from Kothari, Leone, and Wasley (2005) which account for performance effect in calculating discretionary accruals. See section 5.2 for detail.

3.3. Research Design

We estimate the following firm-fixed Ordinary Least Squares (OLS) regression model:

$$\begin{aligned} ADA_{i,t} = & \beta_0 + \beta_1 VIDEO_{i,t} + \beta_2 CALL_{i,t} + \beta_3 TEXT_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 CFO_{i,t} \\ & + \beta_6 LOSS_{i,t} + \beta_7 LEV_{i,t} + \beta_8 ZSCORE_{i,t} + \beta_9 FINANCING_{i,t} + \beta_{10} CFOVOL_{i,t} \\ & + \beta_{11} BTM_{i,t} + \beta_{12} SGROWTH_{i,t} + \beta_{13} ACC_{i,t-1} + \beta_{14} BIG4_{i,t} + \beta_{15} ACH_{i,t} \\ & + \beta_{16} INDSPE_{i,t} + \beta_{17} VOLUNTARY_{i,t} + Year\ FE + Firm\ FE + \varepsilon_{i,t}, \end{aligned} \quad (2)$$

Our variable of interest is *VIDEO*, which indicates the ratio of the auditor-Audit Committee meetings to the total number of the meetings. To control for different type of meeting medium to the audit quality, we control for the ratio of conference call to the total meeting (*CALL*), and text-based (e.g., e-mail) meetings (*TEXT*) in the model. Following prior studies, we control for various firm, auditor, and Audit Committee characteristics to account for various factors that affect audit quality (Ashbaugh, LaFond, and Mayhew 2003; Choi, C. Kim, J. Kim, and Zang 2010; Dechow et al. 1995; Hribar and Nichols 2007; Teoh, Welch, and Wong 1998). We control firm size (*SIZE*) as natural logarithm of total assets, operating cash flow (*CFO*), and loss indicators (*LOSS*) to incorporate performance effect on accruals (Kothari et al. 2005; Ball and Shivakumar 2006). We add firm leverage (*LEV*) and an indicator for external financing (*FINANCING*) to control for earnings management incentive for highly levered and external financing firms. We add Altman (1968)'s Z-score (*ZSCORE*) to control for the effect of financial condition on audit quality. To mitigate the concern that operational environment and growth opportunities affect accrual levels, we add cash flow volatility (*CFOVOL*), book-to-market ratio (*BTM*), and sales growth (*SGROWTH*) to the model. Also, we control total accruals of year t-1 (*ACC*) because heterogeneity in the accrual levels at the firm-level may affect the audit quality. We additionally control for auditor characteristics such as Big4 auditors (*BIG4*), first year of audit (*ACH*), and industry

specialist auditors (*INDSPE*).¹² Lastly, we add an indicator for voluntarily introduced audit committee (*VOLUNTARY*) because only firms that exceed 2 trillion KRW (approximately 1.6 billion USD) in total assets of year t-1 are required to set up an Audit Committee following the Korean Commercial Act. We include firm indicators (i.e., firm fixed effect) to control for time-invariant firm characteristics which potentially affect the audit quality.¹³ We include firm-fixed effects to mitigate concerns that omitted time-invariant variables may drive the relation between the use of videoconferencing and audit quality. All variables are defined in Appendix B.

4. Empirical Results

4.1. Descriptive Statistics and Univariate Comparison

Table 2 shows the descriptive statistics. For brevity, we only report mean and standard deviation of variables. We provide sample distribution of pre-pandemic period (i.e., fiscal year 2019) and post-pandemic period (i.e., fiscal year 2020) to provide univariate comparison of the variables. The level of *ADA* increases by 0.07 after the pandemic with statistically significant deterioration of audit quality. This increase supports the notion that auditors face difficulty in their audit procedures in general.

More interestingly, the mean of use of videoconferencing (*VIDEO*) increases from 0.3% of 2019 to 1.4% in 2020. While conference call (*CALL*) and text-based communication (*TEXT*) do not change significantly before and after the pandemic, the significant increase of videoconferencing is noteworthy.

[Insert Table 2 here]

¹² To check the robustness of our results, we include auditor fixed effect to control for unobservable auditor characteristics that may affect the audit quality. Our inferences are not changed. See section 5.2 for detail.

¹³ Our results are robust after including industry fixed effects instead of firm fixed effects.

4.2. Videoconferencing and Audit Quality

Table 3 shows the main results of our paper. In column (1), we report the result of Equation (2) without any control variables, but only with year and firm fixed effects. In column (2), we estimate Equation (2) with various firm, auditor, and Audit Committee characteristics to control for factors that affect audit quality. In columns (1) and (2), we find that firms with more use videoconferencing as a communication medium have higher absolute value of discretionary accruals and poor audit quality. The coefficient on *VIDEO* is 0.0612 and significant at 5% level (t-stat = 2.55). In column (3), we additionally control for different ways of communication (i.e., *CALL* and *TEXT*). The coefficient on *VIDEO* is positive and significant at 1% level (coefficient = 0.0668; t-stat = 2.72). In terms of economic significance, we find that one standard deviation increase in the use of videoconferencing leads to 10% increase in absolute value of discretionary accruals from its mean.¹⁴ This effect is sizeable and comparable to the effect of operating cash flow on audit quality ($-0.0725 \times 0.071 = -0.0052$). Collectively, the results of Table 3 suggest that videoconferencing weakens audit quality.

[Insert Table 3 here]

To draw causality, we estimate Equation (2) using the change value of continuous variables. This change analysis provides evidence how changes in videoconferencing from 2019 to 2020 contributes to changes in audit quality between 2019 and 2020. As our sample only includes two fiscal years (i.e., 2019 and 2020), we cannot include firm fixed effect in the model for change analysis. Instead, we include industry fixed effects to account for industry-level heterogeneity in audit quality. For indicator variables, we use level variables instead of change variables.

¹⁴ $0.0668 \times 0.060 = 0.0040$.

The results for the change analysis are reported in Table 4. The sample size is reduced to 497 firm-year observations as we only have one observation for each firm. In column (2), we find that changes in videoconferencing is negatively related to changes in audit quality.¹⁵ The coefficient on $\Delta VIDEO$ is 0.0346 and significant at 10% level. In column (3), we additionally control for $\Delta CALL$ and $\Delta TEXT$ in the model and still find a positive and significant coefficient on $\Delta VIDEO$ (t-stat = 1.93). Thus, after controlling for changes in various measures of firm, auditor, and audit committee level characteristics, we find that the use of videoconferencing negatively affects audit quality.

[Insert Table 4 here]

4.3. Cross-Sectional Test

To corroborate our main findings, we conduct a cross-sectional test using the characteristics of the Audit Committee. Prior studies examine how Audit Committee characteristics such as independence, expertise, and activity affect financial reporting quality (Abbott and Parker 2000; Carcello and Neal 2000; Klein 2002; Xie, Davidson III, and DaDalt 2003; Bedard, Chtourou and Courteau 2004). The Audit Committee improves audit quality through communication by linking management and external auditors (Carcello, Hermanson, and Neal 2002). Hence, the Audit Committee's characteristics could affect the relationship between videoconferencing and audit quality.

We define three Audit Committee characteristics as follows: independence as the ratio of independent directors on the Audit Committee (AC_INDEP); financial expertise as the ratio of financial experts on the Audit Committee (AC_EXPERT); and activity calculated as the natural logarithm of the sum of one and the number of formal Audit Committee meetings for year t

¹⁵ In column (1), we also find that changes in videoconferencing is negatively related to changes in audit quality, but marginally insignificant (coefficient = 0.0302; t-stat = 1.64).

(*AC_ACTIVE*).¹⁶ We interact the three audit committee characteristics variables with *VIDEO*.

Table 5 reports the results of cross-sectional tests. In Columns (1) to (4), we do not find any evidence that Audit Committee independence or financial expertise affects the negative effect of videoconferencing on audit quality. However, we find that the coefficients on *VIDEO*AC_ACTIVE* in Columns (5) and (6) are negative and significant at 10% level (coefficient = -0.0500 and -0.0533; t-stat = -1.77 and -1.86, respectively). The results suggest that the Audit Committee's activities, but not composition (i.e., independence, financial expertise), affect the negative impact of videoconferencing on audit quality. Thus, as documented in Sharma, Naiker, and Lee (2009), the Audit Committee's diligence in monitoring is more important than its composition.

[Insert Table 5 here]

5. Additional Analyses and Robustness Checks

5.1. Effect on Audit Fees and Audit Effort

An auditor's cost function is comprised of direct production costs and expected future losses (Simunic 1980); audit fees are defined as the product of the number of audit hours (audit efforts) and audit costs per hour (audit fee premium). Prior studies on the determinants of audit fees provide mixed results on whether the downward pressure on audit fees during crisis affects the audit fee structure (Beck and Mauldin 2014; Ettredge, Fuerherm, and Li 2014; Krishnan and Zhang 2014). A similar downward pressure on audit fees is expected during the Covid 19 pandemic. It is also

¹⁶ Some prior literature regards audit committee activity as audit committee diligence. Due to the difficulty to quantitatively measure the diligence of audit committee, prior studies have used the frequency of audit committee meetings as the proxy for the diligence of audit committee (e.g., DeZoort, Hermanson, Archambeault, and Reed 2002; Raghunandan and Rama 2007). In this paper, we interchangeably use these two terms (audit committee activity and audit committee diligence).

possible that videoconferencing between the auditor and Audit Committee reduces the various costs such as travel expenses and coordination time. Therefore, the types of the AC-auditor communication may be the mechanism through which lower audit production costs influences audit fees as well as audit effort.

To check this possibility, we explore whether the videoconferencing reduces audit fees and audit hours. Untabulated results show that the use of videoconferencing is not correlated with audit fees and audit hours, suggesting that the use of videoconferencing is not a cost-efficient way to conduct audit procedure. Taken together, our findings collectively suggests that the use of videoconferencing to cope with pandemic period contributes to lowering audit outcome (i.e., audit quality) without compromising either input (i.e., audit effort) or output (i.e., audit fees) in audit production.

5.2. Balanced Sample Analysis

It is possible that observable various firm, auditor, and audit committee characteristics drive our results. We perform an Entropy Balancing analysis (Hainmueller 2012) to address these concerns. Entropy balancing allows us to retain a high degree of covariate balance on the first and second moments of covariate distributions without losing sample observations.¹⁷ To divide the sample into two depending on the use of videoconferencing, we introduce a dummy variable that equals to one if at least one meeting is based on videoconferencing method during the year. Panel A of Table 6 shows the differences in characteristics of our treatment (videoconferencing = 1) and control sample (videoconferencing = 0). After entropy balancing, we find no statistically

¹⁷ We are cautious about conducting Propensity Score Matching (PSM) analysis because we have small number of videoconferencing observations. After conducting 1:2 PSM, we only obtain 60 observations from matched sample. Even though we find a marginally significant coefficient on *VIDEO* using PSM sample, we do not report the results for this reason.

significant differences in firm, auditor, and audit committee characteristics between the treatment and control samples. Panel B of Table 6 reports the results of estimating our main analysis using balanced sample. Specifically, the coefficient on *VIDEO* is positive and significant at 10% level, consistent with our main finding that the videoconferencing between auditors and audit committee negatively affects the audit quality. Collectively, the result of entropy balancing analysis mitigates the concern that our results are driven by systematic differences between firms with videoconferencing and those without videoconferencing.

[Insert Table 6 here]

5.3. Robustness Tests

We perform a battery of sensitivity analyses. First, we estimate our main analysis with alternative variable of audit quality. Specifically, we follow Kothari et al. (2005) and estimate discretionary accruals after controlling for firm performance (return on assets). We still find a positive and significant coefficient on *VIDEO* (Column (1), Table 7). Second, various auditor characteristics may affect the relation between the way of communication and audit quality. Thus, in addition to firm fixed effects, we additionally include auditor fixed effects in the model. We find robust results even after including auditor fixed effects (Column (2), Table 7). Third, we estimate our variable of interest (the use of videoconferencing) with an alternative definition. We define *VIDEO2* as the number of video-based conferences to the sum of video-based conferences and face-to-face conferences (i.e., we drop conference call and text-based communication from the denominator). In Column (3), we find similar results. Lastly, Chen, Hribar, and Melessa (2018) argues that when residuals are used as dependent variables, the generated coefficient in the model is biased estimates. To address this concern, we include variables used in Equation (1) as additional

control variables in the model. Our inferences remain unchanged (untabulated).

[Insert Table 7 here]

6. Conclusion

Using Korean listed firms' mandatory disclosure on the communication method for meetings between the Audit Committee and auditors from 2019 to 2020, we find that videoconferencing leads to weaker audit quality. Our results are robust to change analyses, balanced sample analyses, including auditor fixed effects, and using an alternative measure of audit quality and videoconferencing. We find that Audit Committee independence or expertise does not affect the relationship between videoconferencing and audit quality, but holding more formal Audit Committee meetings during the year mitigates the negative impact of videoconferencing on audit quality.

We acknowledge that audit quality may be affected by factors outside the interaction of the Auditor and AC. For instance, audit quality may be affected by difficulties in communication between auditors and clients. Due to factory shutdowns or various other factors, the communication between auditors and clients may have been disrupted. This may directly affect audit quality but not be induced by the changes in communication between the auditor and the Audit Committee. Despite this alternative possibility, we believe our research setting is still valid to test our research question. In South Korea, the communication between auditor and Audit Committee is much more likely to be disrupted compared to communication between the auditor and client. South Korea has never experienced full lockdowns. Individuals who test positive for COVID19 have been required to isolate at their homes, but it has been rare for entire companies to shut down. Whilst Work-From-Home has increased in 2020, it has only doubled from 2019. In

general, day-to-day work environment remained similar except for some weeks of mandatory WFH policies limited to large corporations. Social distancing policies were focused on meetings exceeding 5 people, and thus meetings with external parties were more the issue. Given that Audit Committees are not full-time employees and that auditor-AC meetings are highly visible, it is more likely for firms to schedule AC-auditor meetings via videoconferencing. Hence, we expect to observe a greater effect on the auditor-AC communication rather than the auditor-client communication.

References

- Abbott, L. J. and S. Parker. 2000. Auditor selection and audit committee characteristics. *Auditing: A Journal of Practice and Theory* 19 (2): 47-66.
- Alge, B. J., C. Wiethoff, and H. J. Klein. 2003. When does the medium matter? Knowledge-building experiences and opportunities in decision-making teams. *Organizational Behavior and Human Decision Processes* 91: 26–37.
- Allen, T. D., T. D. Golden, and K. M. Shockley. 2015. How effective is telecommuting? Assessing the status of our scientific findings. *Psychological Science in the Public Interest* 16 (2): 40-68.
- Altman, E. I. 1968. Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance* 23 (4): 589-609.
- Ashbaugh, H., R. LaFond, and B. Mayhew. 2003. Do nonaudit services compromise auditor independence? Further evidence. *The Accounting Review* 78 (3): 611-639.
- Bailenson, J. N. 2021. Nonverbal overload: A theoretical argument for the causes of Zoom fatigue. *Technology, Mind, and Behavior* 2 (1).
- Ball, R. and L. Shivakumar. 2006. The role of accruals in asymmetrically timely gain and loss recognition. *Journal of Accounting Research* 44 (2): 207-242.
- Baltes, B. B., M. W. Dickson, M. P. Sherman, C. C. Bauer, and J. S. LaGanke. 2002. Computer-mediated communication and group decision making: A meta-analysis. *Organizational Behavior and Human Decision Processes* 87 (1): 156-179.
- Bauer, T. D., K. A. Humphreys, and K. T. Trotman. 2022. Group judgment and decision making in auditing: Research in the time of COVID-19 and beyond. *Auditing: A Journal of Practice & Theory* 41 (1): 3-23.
- Bazerman, M. H., J. R. Curhan, D. A. Moore, and K. L. Valley. 2000. Negotiation. *Annual Review of Psychology* 51 (1): 279-314.
- Beasley, M. S., J. V. Carcello, D. R. Hermanson, and T. L. Neal. 2009. The audit committee oversight process. *Contemporary Accounting Research* 26 (1): 65-122.
- Beck, M. J. and E. G. Mauldin. 2014. Who's really in charge? Audit committee versus CFO power and audit fees. *The Accounting Review* 89 (6): 2057-2085.
- Bell, B. S., and S. W. J. Kozlowski. 2002. A typology of virtual teams. *Group & Organization Management* 27: 14–49
- Bennett, G. B., and R. C. Hatfield. 2018. Staff auditors' proclivity for computer-mediated communication with clients and its effect on skeptical behavior. *Accounting, Organizations and Society* 68: 42-57.
- Bedard, J., S. M. Chtourou, and L. Courteau. 2004. The effect of audit committee expertise, independence, and activity on aggressive earnings management. *Auditing: A Journal of Practice and Theory* 23 (2):13-35.
- Bettman, J. R., E. J. Johnson, and J. W. Payne. 1990. A componential analysis of cognitive effort in choice. *Organizational Behavior and Human Decision Processes* 45 (1): 111-139.
- Bhattacharjee, S., K. K. Moreno, and J. S. Pyzoha. 2020. The influence of perspective taking encouraged by the audit committee on auditor and client judgments during accounting disputes. *Auditing: A Journal of Practice & Theory* 39 (3): 29-53.
- Boivie, S., M. K. Bednar, R. V. Aguilera, and J. L. Andrus. 2016. Are boards designed to fail? The implausibility of effective board monitoring. *Academy of Management Annals* 10 (1): 319-407.
- Bouas, K. S., and H. Arrow. 1995. The development of group identity in computer and face-to-face groups with membership change. *Computer Supported Cooperative Work* 4 (2): 153-178.

- Brazel, J. F., C. P. Agoglia, and R. C. Hatfield. 2004. Electronic versus face-to-face review: The effects of alternative forms of review on auditors' performance. *The Accounting Review* 79 (4): 949-966.
- BusinessThink. 2020. What skills does EY look for in its graduates of the future? BusinessThink.com (October 14). Available at: <https://www.businessstink.unsw.edu.au/articles/skills-ey-graduates-future>
- Carcello, J. V., and T. L. Neal. 2000. Audit committee composition and auditor reporting. *The Accounting Review* 75 (4): 453-467.
- Carcello, J. V., D. R. Hermanson, and T. L. Neal. 2002. Disclosures in audit committee charters and reports. *Accounting Horizons* 16 (4): 291-304.
- Center for Audit Quality (CAQ). 2014. The CAQ approach to audit quality indicators. (April 1). Washington, DC: CAQ. Available at: <https://www.thecaq.org/caq-approach-audit-quality-indicators>
- Chaiken, S. 1980. Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology* 39 (5): 752.
- Chen, W. E. I., P. Hribar, and S. Melessa. 2018. Incorrect inferences when using residuals as dependent variables. *Journal of Accounting Research* 56 (3): 751-796.
- Choi, J. -H., F. Kim, J.-B. Kim, and Y. Zang. 2010. Audit office size audit quality and audit pricing. *Auditing: A Journal of Practice & Theory* 29 (1): 73-97.
- Clune, R., D. R. Hermanson, J. G. Tompkins, and Z. Ye. 2014. The nominating committee process: A qualitative examination of board independence and formalization. *Contemporary Accounting Research* 31 (3): 748-786.
- Cohen, J., L. M. Gaynor, G. Krishnamoorthy, and A. M. Wright. 2008. Academic research on communications among external auditors, the audit committee, and the board: Implications and recommendations for practice. *Current Issues in Auditing* 2 (1): A1-A8.
- Cohen, J. R., U. Hoitash, G. Krishnamoorthy, and A. M. Wright. 2014. The effect of audit committee industry expertise on monitoring the financial reporting process. *The Accounting Review* 89 (1): 243-273.
- Cohen, J., G. Krishnamoorthy, and A. Wright. 2017. Enterprise risk management and the financial reporting process: The experiences of audit committee members, CFO s, and external auditors. *Contemporary Accounting Research* 34 (2): 1178-1209.
- Daft, R. L., and R. H. Lengel. 1984. Information richness: A new approach to managerial behavior and organization design. *Research in Organizational Behavior* 6: 191-233.
- Dechow, P. M., R. Sloan, and A. Sweeney. 1995. Detecting earnings management. *The Accounting Review* 70 (2): 193-225.
- DeFond, M., and J. Zhang. 2014. A review of archival auditing research. *Journal of Accounting and Economics* 58 (2-3): 275-326.
- DeRosa, D. M., C. L. Smith, and D. A. Hantula. 2007. The medium matters: Mining the long-promised merit of group interaction in creative idea generation tasks in a meta-analysis of the electronic group brainstorming literature. *Computers in Human Behavior* 23 (3): 1549-1581.
- Despujol, B., A. Pruvot, and S. Hornick. 2020, November 11. How Videoconferencing And Covid-19 May Permanently Shrink The Business Travel Market. Forbes. <https://www.forbes.com/sites/oliverwyman/2020/11/11/how-covid-19-may-permanently-shrink-the-business-travel-market/?sh=28de07382432>
- DeZoort, F. T., D. R. Hermanson, D. S. Archambeault, and S. A. Reed. 2002. Audit committee effectiveness: A synthesis of the empirical audit committee literature. *Journal of Accounting Literature* 21: 38-75.
- Drolet, A. L., and M. W. Morris. 2000. Rapport in conflict resolution: Accounting for how face-to-face

- contact fosters mutual cooperation in mixed-motive conflicts. *Journal of Experimental Social Psychology* 36 (1): 26-50.
- Epley, N., and J. Kruger. 2005. When what you type isn't what they read: The perseverance of stereotypes and expectancies over e-mail. *Journal of Experimental Social Psychology* 41 (4): 414-422.
- Ettredge, M., E. E. Fuerherm, and C. Li. 2014. Fee pressure and audit quality. *Accounting, Organizations and Society* 39 (4): 247-263.
- Fiolleau, K., K. Hoang, and B. Pomeroy. 2019. Auditors' communications with audit committees: The influence of the audit committee's oversight approach. *Auditing: A Journal of Practice & Theory* 38 (2): 125-150.
- Fosslien L., and M. W. Duffy. 2020, April 29. How to Combat Zoom Fatigue. *Harvard Business Review*. 2-5.
- Free, C., A. J. Trotman, and K. T. Trotman. 2021. How audit committee chairs address Information-Processing barriers. *The Accounting Review* 96 (1): 147-169.
- Frohlich, N., and J. Oppenheimer. 1998. Some consequences of e-mail vs. face-to-face communication in experiment. *Journal of Economic Behavior & Organization* 35 (3): 389-403.
- Griffith, T. L., and M. A. Neale. 2001. Information processing in traditional, hybrid, and virtual teams: From nascent knowledge to transactive memory. *Research in Organizational Behavior* 23: 379-421.
- Griffith, T. L., J. E. Sawyer, and M. A. Neale. 2003. Virtualness and knowledge in teams: Managing the love triangle of organizations, individuals, and information technology. *MIS quarterly* 27: 265-287.
- Hainmueller, J. 2012. Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political Analysis* 20 (1): 25-46.
- He, X., J. A. Pittman, O. M. Rui, and D. Wu. 2017. Do social ties between external auditors and audit committee members affect audit quality? *The Accounting Review* 92 (5): 61-87.
- Heller, R. 2010. A cost-benefit analysis of face-to-face and virtual communication: overcoming the challenges. Ithaca, NY: Cornell University, ILR School, Center for Advanced Human Resource Studies.
- Hribar, P. and D. C. Nichols. 2007. The use of unsigned earnings quality measures in tests of earnings management. *Journal of Accounting Research* 45 (5): 1017-1053.
- International Auditing and Assurance Standards Board (IAASB). 2020a. *Highlighting Areas of Focus in an Evolving Audit Environment Due to the Impact of COVID-19*. Staff Audit Practice Alert. New York, NY: IAASB. Available at: <https://www.iaasb.org/publications/highlighting-areas-focus-evolving-audit-environment-due-impact-covid-19-1>
- International Auditing and Assurance Standards Board (IAASB). 2020b. *Auditor Reporting in the Current Evolving Environment Due to COVID-19*. Staff Audit Practice Alert. New York, NY: IAASB. Available at: <https://www.iaasb.org/publications/auditor-reporting-current-evolving-environment-due-covid-19>
- Jarvenpaa, S. L., and D. E. Leidner. 1999. Communication and trust in global virtual teams. *Organization Science* 10 (6): 791-815.
- Jones, J. 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29 (2): 193-228.
- Kachelmeier, S. J. 2018. Testing auditor-client interactions without letting auditors and clients fully interact: Comments on Bennett and Hatfield (2018). *Accounting, Organizations and Society* 68: 58-62.
- Kachelmeier, S. J., and K. L. Towry. 2002. Negotiated transfer pricing: Is fairness easier said than done? *The Accounting Review* 77 (3): 571-593.
- Kadous, K., C. J. Nolder, and M. E. Peecher. 2018. *The Role of Attitudes in Financial Audits and Directions for Future Research*. In *The Handbook of Attitudes* (pp. 232-267). Routledge.

- Kang, Y. J. 2019. Are Audit Committees more challenging given a specific investor base? Does the answer change in the presence of prospective critical audit matter disclosures? *Accounting, Organizations and Society* 77: 101051.
- Kang, Y. J., A. J. Trotman, and K. T. Trotman. 2015. The effect of an audit judgment rule on audit committee members' professional skepticism: The case of accounting estimates. *Accounting, Organizations and Society* 46: 59-76.
- Kennedy, J. 1993. Debiasing audit judgment with accountability: A framework and experimental results. *Journal of Accounting Research* 31 (2): 231-245.
- Kirkman, B. L., B. Rosen, P. E. Tesluk, and C. B. Gibson. 2004. The impact of team empowerment on virtual team performance: The moderating role of face-to-face interaction. *Academy of Management Journal* 47 (2): 175-192.
- Klein, A. 2002. Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics* 33 (3): 375-400.
- Kniffin, K. M., J. Narayanan, F. Anseel, J. Antonakis, S. P. Ashford, A. B. Bakker, P. Bamberger, H. Bapuji, D. P. Bhave, V. K. Choi, S. J. Creary, E. Demerouti, F. J. Flynn, M. J. Gelfand, L. L. Greer, G. Johns, S. Kesebir, P. G. Klein, S. Y. Lee, H. Ozcelik, J. L. Petriglieri, N. P. Rothbard, C. W. Rudolph, J. D. Shaw, N. Sirola, C. R. Wanberg, A. Whillans, M. P. Wilmot, and M. van Vugt. 2021. COVID-19 and the workplace: Implications, issues, and insights for future research and action. *The American Psychologist* 76 (1): 63-77.
- Kothari, S. P., A. J. Leone, and C. E. Wasley. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39 (1): 163-197.
- Krishnan, G. and Y. Zhang. 2014. Is there a relation between audit fee cuts during the global financial crisis and banks' financial reporting quality? *Journal of Accounting and Public Policy* 33 (3): 279-300.
- Lipnack, J., and J. Stamps. 1999. Virtual teams: The new way to work. *Strategy & Leadership* 27: 14-18.
- Lu, L., Y. C. Yuan, and P. L. McLeod. 2012. Twenty-five years of hidden profiles in group decision making: A meta-analysis. *Personality and Social Psychology Review* 16 (1): 54-75.
- Luo, Y., and Malsch B. 2020. Exploring improvisation in audit work through auditors' responses to COVID-19. *Working paper*, Queen's University.
- Lurey, J. S., and M. S. Raisinghani. 2001. An empirical study of best practices in virtual teams. *Information & Management* 38: 523-544.
- Mak, S., and S. W. J. Kozlowski. 2019. *Virtual Teams: Conceptualization, Integrative Review, and Research Recommendations*. In *The Cambridge Handbook of Technology and Employee Behavior*, edited by R. Landers, 441-479. Cambridge, UK: Cambridge University Press.
- Martins, L. L., L. L. Gilson, and M. T. Maynard. 2004. Virtual teams: What do we know and where do we go from here? *Journal of Management* 30 (6): 805-835.
- Maznevski, M. L., and K. M. Chudoba. 2000. Bridging space over time: Global virtual team dynamics and effectiveness. *Organization Science* 11 (5): 473-492.
- McAllister, D. W., T. R. Mitchell, and L. R. Beach. 1979. The contingency model for the selection of decision strategies: An empirical test of the effects of significance, accountability, and reversibility. *Organizational Behavior and Human Performance* 24 (2): 228-244.
- McKinsey & Company. 2020. COVID-19: Briefing Materials. Global Health and Crisis Response. (July 6). Available at: <https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Risk/Our%20Insights/COVID%2019%20Implications%20for%20business/COVID%2019%20July%2009/COVID-19-Facts-and-Insights-July->

6.pdf

- Mortensen, M., and P. J. Hinds. 2001. Conflict and shared identity in geographically distributed teams. *International Journal of Conflict Management* 12: 212–238.
- Pomeroy, B. 2010. Audit committee member investigation of significant accounting decisions. *Auditing: A Journal of Practice & Theory* 29 (1): 173-205.
- Raghunandan, K., and D. V. Rama. 2007. Determinants of audit committee diligence. *Accounting Horizons* 21 (3): 265-279.
- Raghuram, S., N. S. Hill, J. L. Gibbs, and L. M. Maruping. 2019. Virtual work: Bridging research clusters. *Academy of Management Annals* 13 (1): 308–341.
- Riopelle, K., J. C. Gluesing, T. C. Alcordo, M. Baba, D. Britt, W. McKether, L. Monplaisir, H. H. Ratner, and K. H. Wagner. 2003. *Context, Task, and the Evolution of Technology Use in Global Virtual Teams*. In C. B. Gibson & S. G. Cohen (Eds.), *Virtual teams that work: Creating conditions for virtual team effectiveness*: 239–264. San Francisco: Jossey-Bass.
- Saiewitz, A., and T. Kida. 2018. The effects of an auditor's communication mode and professional tone on client responses to audit inquiries. *Accounting, Organizations and Society* 65: 33-43.
- Sharma, V., V. Naiker, and B. Lee. 2009. Determinants of audit committee meeting frequency: Evidence from a voluntary governance system. *Accounting Horizons* 23 (3): 245-263.
- Short, J., E. Williams, and B. Christie. 1976. *The Social Psychology of Telecommunications*. New York, NY: John Wiley.
- Shumate, J. R., and R. C. Brooks. 2001. The effect of technology on auditing in government: A discussion of the paperless audit. *The Journal of Government Financial Management* 50 (2): 50.
- Simunic, D. A. 1980. The pricing of audit services: Theory and evidence. *Journal of Accounting Research* 18 (1): 161-190.
- Stasser, G., and S. Abele. 2020. Collective choice, collaboration, and communication. *Annual Review of Psychology* 71 (1): 589–612.
- Swaab, R. I., A. D. Galinsky, V. Medvec, and D. A. Diermeier. 2012. The communication orientation model: Explaining the diverse effects of sight, sound, and synchronicity on negotiation and group decision-making outcomes. *Personality and Social Psychology Review* 16 (1): 25-53.
- Teoh, S. H., I. Welch, and T. J. Wong. 1998. Earnings management and the underperformance of seasoned equity offerings. *Journal of Financial Economics* 50 (1): 63-99.
- Tetlock, P. E., and J. I. Kim. 1987. Accountability and judgment processes in a personality prediction task. *Journal of Personality and Social Psychology* 52 (4): 700.
- Wilson, C., and E. Williams. 1977. Watergate words: A naturalistic study of media and communication. *Communication Research* 4 (2): 169-178.
- Xie, B., W. N. Davidson III, and P. J. DaDalt. 2003. Earnings management and corporate governance: the role of the board and the audit committee. *Journal of Corporate Finance* 9 (3): 295-316.
- Van Zant, A. B., and L. J. Kray. 2014. “I can't lie to your face”: Minimal face-to-face interaction promotes honesty. *Journal of Experimental Social Psychology* 55: 234-238

APPENDIX A

Disclosure Example on the Audit Committee-Auditor Communication (SK hynix Inc., KRX: 000660)

Appendix B shows the disclosure of SK Hynix Inc., the world's third-largest semiconductor company headquartered in South Korea, on the communication method for meetings between the Audit Committee (AC) and the Auditor. This table is included in the 2020 audit report of SK Hynix Inc..

| Round | Meeting Date | Attendee | Meeting Type | Content |
|-------|--------------|-------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | 2020.5.13 | Company: 4 AC members Auditor: 1 audit partner & 3 independent auditors | Face-to-face | <ul style="list-style-type: none"> - Quarterly review of major audit-related issues - Selection planning of Key Audit Matters (hereafter, KAM) - Arrangement of the annual accounting audit plan |
| 2 | 2020.8.12 | Company: 4 AC members Auditor: 1 audit partner & 3 independent auditors | Face-to-face | <ul style="list-style-type: none"> - Quarterly review of major audit-related issues - Evaluation of the audit contract and auditor independence - Matter of checking the overall audit plan including group audit and KAM - Evaluation of the audit procedure for internal accounting control system |
| 3 | 2020.11.11 | Company: 4 AC members Auditor: 1 audit partner & 3 independent auditors | Face-to-face | <ul style="list-style-type: none"> - Quarterly review of major audit-related issues - Status checking on the annual audit process, including KAM - Evaluation of the interim audit procedure for internal accounting control system |
| 4 | 2021.2.22 | Company: 4 AC members Auditor: 1 audit partner & 2 independent auditors | Videoconferencing | <ul style="list-style-type: none"> - Evaluation of all stages of independent audit process and audit results - Evaluation of the audit procedure and results for KAM - Evaluation of the audit procedure and results for internal accounting control system |

Source: <https://dart.fss.or.kr/dsaf001/main.do?rcpNo=20210322000782&dcmNo=7905129>

APPENDIX B
Variable Definitions

| Variable | Definition |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>ADA</i> | = The absolute value of discretionary accruals on the Ball and Shivakumar (2006) model; |
| <i>ADA2</i> | = The absolute value of discretionary accruals on the performance-matched modified-Jones model (Kothari et al. 2005); |
| <i>VIDEO</i> | = The number of videoconferencing calls, divided by all types of meetings between Audit Committee members and external auditors; |
| <i>VIDEO2</i> | = The number of videoconferencing calls, divided by a sum of the number of videoconferencing calls and face-to-face meetings between Audit Committee members and external auditors |
| <i>CALL</i> | = The number of call meetings, divided by all types of meetings between Audit Committee members and external auditors; |
| <i>TEXT</i> | = The number of text-based meetings, divided by all types of meetings between Audit Committee members and external auditors; |
| <i>SIZE</i> | = The natural logarithm of total assets; |
| <i>CFO</i> | = Operating cash flows divided by total assets; |
| <i>LOSS</i> | = A dummy variable that equals one if net income is less than zero, and zero otherwise; |
| <i>LEV</i> | = Total Liabilities divided by total assets; |
| <i>ZSCORE</i> | = Altman's (1968) Z-Score; |
| <i>FINANCING</i> | = A dummy variable that equals one if the firm issues its shares by at least 10 percent or increases the amount of long-term debt by at least 20 percent in year <i>t</i> , and zero otherwise; |
| <i>CFOVOL</i> | = The standard deviation of <i>CFO</i> from year <i>t</i> -2 to year <i>t</i> ; |
| <i>BTM</i> | = Ratio of book value of equity to market value of equity; |
| <i>SGROWTH</i> | = Sales growth rate from year <i>t</i> -1 to year <i>t</i> ; |
| <i>ACC</i> | = Total accruals divided by lagged total assets; |
| <i>BIG4</i> | = A dummy variable that equals one if the auditor is one of the Big 4 accounting firms, and zero otherwise; |
| <i>ACH</i> | = A dummy variable that equals one if the firm switches its auditor, and zero otherwise; |
| <i>INDSPE</i> | A dummy variable that equals one if the audit firm's market share is 20 percent or more than 20 percent within industry, and zero otherwise (Reichelt and Wang 2010), where the audit firm's market share is defined as audit engagement fees collected by the audit firm divided by the total audit engagement fees paid by all client firms in a given industry and year; |
| <i>VOLUNTARY</i> | = A dummy variable that equals one if the firm whose amount of lagged total assets is not more than two trillion won voluntarily establishes the Audit Committee, and zero otherwise; |
| <i>AC_INDEP</i> | = Ratio of independent directors on the Audit Committee; |
| <i>AC_EXPERT</i> | = Ratio of financial experts on the Audit Committee; |
| <i>AC_ACTIVE</i> | = The natural logarithm of the sum of one and the number of Audit Committee meetings for year <i>t</i> . |

TABLE 1
Sample Selection

| | |
|------------------------------------------------------------------|-------|
| Firm-meetings on hand-collected, non-financial firms (2019-2020) | 3,930 |
| Less: | |
| Firm-meetings with non-December fiscal year-end | (15) |
| Firm-meetings with unidentifiable meeting types | (19) |
| Firm-meetings on initial sample | 3,896 |
| | |
| Firm-years on initial sample (2019-2020) | 1,175 |
| Firm-years without firm-specific control variables | (117) |
| Final sample | 1,058 |

TABLE 2
Descriptive Statistics

| Variable | Full sample (N=1,058) | | Pre-Pandemic (N=508) | | Pandemic (N=550) | | Difference Tests |
|------------------|--------------------------|-------------|-------------------------|-------------|---------------------|-------------|-------------------------------|
| | (1) Mean | (2) Std. | (3) Mean | (4) Std. | (5) Mean | (6) Std. | (7) = (5) - (3) Mean Diff. |
| <i>ADA</i> | 0.040 | 0.041 | 0.036 | 0.039 | 0.043 | 0.042 | 0.006** |
| <i>VIDEO</i> | 0.009 | 0.060 | 0.003 | 0.036 | 0.014 | 0.075 | 0.011*** |
| <i>CALL</i> | 0.012 | 0.071 | 0.009 | 0.060 | 0.015 | 0.079 | 0.006 |
| <i>TEXT</i> | 0.473 | 0.428 | 0.453 | 0.427 | 0.492 | 0.428 | 0.039 |
| <i>SIZE</i> | 20.308 | 1.732 | 20.326 | 1.733 | 20.291 | 1.732 | -0.035 |
| <i>CFO</i> | 0.059 | 0.071 | 0.057 | 0.067 | 0.061 | 0.075 | 0.005 |
| <i>LOSS</i> | 0.267 | 0.443 | 0.262 | 0.440 | 0.273 | 0.446 | 0.011 |
| <i>LEV</i> | 0.217 | 0.168 | 0.219 | 0.167 | 0.215 | 0.169 | -0.005 |
| <i>ZSCORE</i> | 2.252 | 1.354 | 2.257 | 1.334 | 2.247 | 1.373 | -0.010 |
| <i>FINANCING</i> | 0.295 | 0.456 | 0.289 | 0.454 | 0.300 | 0.459 | 0.011 |
| <i>CFOVOL</i> | 0.045 | 0.039 | 0.044 | 0.038 | 0.047 | 0.039 | 0.003 |
| <i>BTM</i> | 1.399 | 1.121 | 1.496 | 1.143 | 1.309 | 1.094 | -0.187*** |
| <i>SGROWTH</i> | 0.028 | 0.227 | 0.047 | 0.222 | 0.012 | 0.231 | -0.035** |
| <i>ACC</i> | -0.038 | 0.074 | -0.028 | 0.071 | -0.047 | 0.076 | -0.019*** |
| <i>BIG4</i> | 0.595 | 0.491 | 0.640 | 0.481 | 0.555 | 0.497 | -0.085** |
| <i>ACH</i> | 0.297 | 0.457 | 0.191 | 0.393 | 0.395 | 0.489 | 0.204*** |
| <i>INDSPE</i> | 0.340 | 0.474 | 0.337 | 0.473 | 0.344 | 0.475 | 0.007 |
| <i>VOLUNTARY</i> | 0.749 | 0.434 | 0.752 | 0.432 | 0.745 | 0.436 | -0.007 |

Table 1 provides descriptive statistics for Korean listed firms with Audit Committee in our hand-collected data set. Columns (1) and (2) report the sample characteristics for the full sample, consisting of 1,058 firm-year observations over the period 2019-2020. The pre-pandemic sample consists of 508 firm-year observations in columns (3) and (4), and the post-pandemic consists of 550 firm-year observations in columns (5) and (6). The column (7) reports the differences-in-means of our variables used in analysis between the pre-pandemic and pandemic period. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1st and 99th percentiles. See Appendix B for variable definitions, and Table 1 for sample selection.

TABLE 3
The Use of Videoconferencing and Audit Quality

| | Dep. Variable = <i>ADA</i> | | |
|---------------------|----------------------------------|----------------------------------|-----------------------------------|
| | (1) | (2) | (3) |
| <i>VIDEO</i> | 0.0542** (2.26) | 0.0612** (2.55) | 0.0668*** (2.72) |
| <i>CALL</i> | | | -0.0025 (-0.09) |
| <i>TEXT</i> | | | 0.0069 (1.16) |
| <i>SIZE</i> | | 0.0131 (0.95) | 0.0119 (0.85) |
| <i>CFO</i> | | -0.0738** (-2.42) | -0.0725** (-2.37) |
| <i>LOSS</i> | | 0.0016 (0.38) | 0.0019 (0.46) |
| <i>LEV</i> | | -0.0002 (-0.00) | 0.0024 (0.06) |
| <i>ZSCORE</i> | | -0.0019 (-0.50) | -0.0017 (-0.44) |
| <i>FINANCING</i> | | 0.0049 (1.48) | 0.0049 (1.49) |
| <i>CFOVOL</i> | | 0.1163 (1.55) | 0.1205 (1.60) |
| <i>BTM</i> | | 0.0030 (0.74) | 0.0029 (0.72) |
| <i>SGROWTH</i> | | 0.0032 (0.42) | 0.0030 (0.39) |
| <i>ACC</i> | | 0.0386 (1.60) | 0.0390 (1.61) |
| <i>BIG4</i> | | -0.0013 (-0.18) | -0.0029 (-0.41) |
| <i>ACH</i> | | 0.0003 (0.10) | 0.0003 (0.07) |
| <i>INDSPE</i> | | 0.0058 (1.26) | 0.0062 (1.33) |
| <i>VOLUNTARY</i> | | 0.0311* (1.79) | 0.0324* (1.86) |
| Fixed effects | Firm, Year | Firm, Year | Firm, Year |
| Observations | 1,058 | 1,058 | 1,058 |
| Adjusted R^2 | 0.410 | 0.422 | 0.421 |

This table reports the regression results for the audit quality (*ADA*) on the videoconferencing (*VIDEO*) variable. Column (1) reports the results of *ADA* on *VIDEO* without any control variables. Column (2) reports the results including controls, and Column (3) reports the results including controls and other types of meeting variables (i.e., *CALL* and *TEXT*). Each column includes firm and year fixed effects. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1st and 99th percentiles. See Appendix B for variable definitions.

TABLE 4
Change Regression Analysis

| | Dep. Variable = ΔADA | | |
|----------------------------------|--------------------------------|---------------------------------|---------------------------------|
| | (1) | (2) | (3) |
| $\Delta VIDEO$ | 0.0302 (1.64) | 0.0346* (1.90) | 0.0357* (1.93) |
| $\Delta CALL$ | | | 0.0046 (0.18) |
| $\Delta TEXT$ | | | 0.0031 (0.50) |
| $\Delta SIZE$ | | 0.0267* (1.67) | 0.0261 (1.62) |
| ΔCFO | | -0.0529* (-1.92) | -0.0526* (-1.91) |
| $LOSS$ | | 0.0009 (0.17) | 0.0009 (0.17) |
| ΔLEV | | -0.0256 (-0.61) | -0.0241 (-0.57) |
| $\Delta ZSCORE$ | | -0.0002 (-0.04) | -0.0002 (-0.04) |
| $FINANCING$ | | 0.0036 (0.75) | 0.0033 (0.69) |
| $\Delta CFOVOL$ | | 0.0497 (0.67) | 0.0512 (0.69) |
| ΔBTM | | 0.0009 (0.28) | 0.0010 (0.30) |
| $\Delta SGROWTH$ | | 0.0029 (0.46) | 0.0029 (0.46) |
| ΔACC | | 0.0189*** (4.76) | 0.0188*** (4.75) |
| $BIG4$ | | 0.0012 (0.20) | 0.0013 (0.22) |
| ACH | | -0.0041 (-0.87) | -0.0038 (-0.81) |
| $INDSPE$ | | 0.0067 (1.18) | 0.0068 (1.19) |
| $VOLUNTARY$ | | 0.0142** (2.42) | 0.0141** (2.41) |
| Fixed effects | Industry, Year | Industry, Year | Industry, Year |
| Observations | 497 | 497 | 497 |
| Adjusted R^2 | 0.041 | 0.095 | 0.091 |

This table reports the change regression results. Column (1) reports the results of ΔADA on $\Delta VIDEO$ without any control variables. Column (2) reports the results including controls, and Column (3) further controls for other types of meeting variables (i.e., $\Delta CALL$ and $\Delta TEXT$). Each column includes firm and year fixed effects. Industry is classified using the first 2-digit Standard Industry Code. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1st and 99th percentiles. See Appendix B for variable definitions.

TABLE 5
Audit Committee Characteristics, Use of Videoconferencing, and Audit Quality

| | Dep. Variable = <i>ADA</i> | | | | | |
|----------------------------------------|--------------------------------|--------------------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| <i>VIDEO</i> | -0.1518 (-0.56) | -0.1583 (-0.58) | 0.0640 (1.18) | 0.0688 (1.25) | 0.1344*** (2.83) | 0.1423*** (2.95) |
| <i>CALL</i> | | -0.3314 (-1.36) | | -0.0256 (-0.39) | | -0.0560 (-0.91) |
| <i>TEXT</i> | | 0.0515 (0.85) | | 0.0053 (0.53) | | 0.0088 (0.98) |
| <i>VIDEO</i> × <i>AC_INDEP</i> | 0.2138 (0.77) | 0.2244 (0.81) | | | | |
| <i>VIDEO</i> × <i>AC_EXPERT</i> | | | -0.0123 (-0.12) | -0.0143 (-0.14) | | |
| <i>VIDEO</i> × <i>AC_ACTIVE</i> | | | | | -0.0500* (-1.77) | -0.0533* (-1.86) |
| <i>AC_INDEP</i> | -0.0490* (-1.72) | -0.0263 (-0.60) | | | | |
| <i>AC_EXPERT</i> | | | -0.0061 (-0.66) | -0.0050 (-0.37) | | |
| <i>AC_ACTIVE</i> | | | | | 0.0052** (2.34) | 0.0067** (2.06) |
| Interactions with <i>CALL</i> | Included | Included | Included | Included | Included | Included |
| Interactions with <i>TEXT</i> | Included | Included | Included | Included | Included | Included |
| Controls | Included | Included | Included | Included | Included | Included |
| Fixed Effects | Firm, Year | Firm, Year | Firm, Year | Firm, Year | Firm, Year | Firm, Year |
| Observations | 993 | 993 | 993 | 993 | 993 | 993 |
| Adjusted R^2 | 0.4005 | 0.3991 | 0.3962 | 0.3915 | 0.4060 | 0.4036 |

This table reports whether the effect of videoconferencing (*VIDEO*) on audit quality (*ADA*) depends on the characteristics of the Audit Committee (e.g., independence, financial expertise, and activity). Variable definitions are provided in Appendix B. Each column includes firm and year fixed effects. All continuous variables are winsorized at the 1st and 99th percentiles. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 6
Balanced Sample Analysis: Entropy Balancing Test

| Panel A: Univariate Analysis After Entropy Balancing | | | | | |
|------------------------------------------------------|----------------------|-----------------|----------------------|-----------------|------------------------------------|
| Variable | <i>VIDEOCONF</i> = 0 | | <i>VIDEOCONF</i> = 1 | | Differences (p-Value) (1) - (3) |
| | Mean (1) | Variance (2) | Mean (3) | Variance (4) | |
| <i>ADA</i> | 0.047 | 0.001 | 0.047 | 0.001 | 0.896 |
| <i>SIZE</i> | 21.220 | 4.339 | 21.360 | 4.387 | 0.266 |
| <i>CFO</i> | 0.079 | 0.003 | 0.080 | 0.003 | 0.877 |
| <i>LOSS</i> | 0.126 | 0.111 | 0.125 | 0.114 | 0.946 |
| <i>LEV</i> | 0.216 | 0.034 | 0.217 | 0.034 | 0.897 |
| <i>ZSCORE</i> | 2.002 | 1.001 | 2.015 | 1.007 | 0.829 |
| <i>FINANCING</i> | 0.168 | 0.140 | 0.167 | 0.145 | 0.947 |
| <i>CFOVOL</i> | 0.041 | 0.001 | 0.041 | 0.001 | 0.903 |
| <i>BTM</i> | 1.430 | 2.028 | 1.439 | 2.042 | 0.912 |
| <i>SGROWTH</i> | 0.090 | 0.062 | 0.090 | 0.062 | 0.969 |
| <i>ACC</i> | -0.032 | 0.004 | -0.032 | 0.004 | 0.955 |
| <i>BIG4</i> | 0.785 | 0.169 | 0.792 | 0.172 | 0.796 |
| <i>ACH</i> | 0.293 | 0.207 | 0.292 | 0.216 | 0.972 |
| <i>INDSPE</i> | 0.578 | 0.244 | 0.583 | 0.254 | 0.864 |
| <i>VOLUNTARY</i> | 0.456 | 0.248 | 0.458 | 0.259 | 0.943 |

| Panel B: Regression Results with the Balanced Sample | |
|------------------------------------------------------|-----------------------------------|
| | Dep. Variable = <i>ADA</i> (1) |
| <i>VIDEO</i> | 0.0445** (1.99) |
| <i>CALL</i> | 0.0187 (0.42) |
| <i>TEXT</i> | -0.0025 (-0.24) |
| Controls | Included |
| Fixed Effects | Firm, Year |
| Observations | 1,058 |
| Adjusted R^2 | 0.8175 |

Table 6, Panel A reports the means and differences-in-means of variables used in analysis, partitioned by whether the communication between the Audit Committee and external auditors is facilitated by means of videoconferencing (*VIDEOCONF*). This panel A provides the descriptive statistics across the entropy-balanced weighted control variables between firms classified as *VIDEOCONF* = 1 and those classified as *VIDEOCONF* = 0. Panel B reports the regression results for the audit quality (*ADA*) on the videoconferencing (*VIDEO*) variable, where we both control for and entropy balance the mean and variance between the two groups of all control variables. All continuous variables are winsorized at the 1st and 99th percentiles. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. See Appendix B for variable definitions.

TABLE 7
Robustness Tests

| Dep. Variable = | <i>ADA2</i> | <i>ADA</i> | |
|-----------------------------|---------------------------------|-----------------------------------|----------------------------------|
| | (1) | (2) | (3) |
| Proxy for Videoconferencing | <i>VIDEO2</i> | | |
| <i>VIDEO</i> | 0.0780* (1.78) | 0.0630*** (2.68) | 0.0334** (2.46) |
| <i>CALL</i> | -0.0445 (-0.88) | 0.0002 (0.01) | |
| <i>TEXT</i> | 0.0070 (0.66) | -0.0049 (-0.76) | |
| <i>SIZE</i> | 0.0130 (0.52) | 0.0115 (0.83) | 0.0395** (2.30) |
| <i>CFO</i> | -0.0433 (-0.79) | -0.0843*** (-2.69) | 0.0407 (1.08) |
| <i>LOSS</i> | 0.0126* (1.69) | 0.0030 (0.72) | 0.0041 (0.80) |
| <i>LEV</i> | 0.1286* (1.77) | 0.0275 (0.66) | -0.0322 (-0.65) |
| <i>ZSCORE</i> | 0.0135* (1.94) | -0.0011 (-0.26) | -0.0077 (-1.57) |
| <i>FINANCING</i> | 0.0175*** (2.98) | 0.0069** (2.07) | 0.0102*** (2.69) |
| <i>CFOVOL</i> | 0.0118 (0.09) | 0.1098 (1.34) | 0.0655 (0.76) |
| <i>BTM</i> | -0.0051 (-0.70) | 0.0028 (0.71) | 0.0008 (0.18) |
| <i>SGROWTH</i> | 0.0053 (0.39) | 0.0038 (0.48) | -0.0105 (-1.11) |
| <i>ACC</i> | 0.0367 (0.85) | 0.0368 (1.47) | -0.0195 (-0.59) |
| <i>BIG4</i> | -0.0105 (-0.83) | -0.0236 (-0.55) | -0.0030 (-0.30) |
| <i>ACH</i> | 0.0099 (1.61) | 0.0000 (0.01) | 0.0010 (0.27) |
| <i>INDSPE</i> | 0.0116 (1.39) | 0.0044 (0.95) | 0.0008 (0.14) |
| <i>VOLUNTARY</i> | 0.0377 (1.21) | 0.0267 (1.61) | 0.0303* (1.95) |
| Fixed Effects | Firm, Year | Firm, Year, Auditor | Firm, Year |
| Observations | 1,058 | 1,058 | 679 |
| Adjusted R^2 | 0.2640 | 0.4871 | 0.4318 |

This table reports the results of robustness tests. Column (1) reports the regression of *ADA2*, as the alternative proxy for audit quality following the Kothari et al. (2005) on *VIDEO* with controls. In Column (2), we additionally include auditor-fixed effects. Column (3) reports the regression of *ADA* on *VIDEO2* with controls. *VIDEO2* is defined as the number of videoconferencing calls, divided by a sum of the number of videoconferencing calls and face-to-face meetings between Audit Committee members and external auditors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1st and 99th percentiles. See Appendix B for variable definitions.