Exploring Improvisation in Audit Work through Auditors' Responses to COVID-19

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ABSTRACT

This paper explores auditors' responses to unexpected, systematic changes in circumstances. We use the COVID-19 outbreak, a "critical incident" that disrupted all year-end audits in China, to understand this underexplored research area. Based on 24 semi-structured interviews, we first describe how COVID-19 disrupts both formal and informal aspects of audit (i.e., those documented in audit plans according to auditing standards, and those not documented in audit plans). Applying an improvisational lens, we find that in response to disruptions, auditors had to improvise by designing and executing new actions concomitantly to maintain quality and ensure timely audits: auditors modified sequence of audit process, changed format of audit procedures, and produced new behavior. We show that auditors' improvisation is based on their mobilization of organizational memory, and we discuss consequences of auditors' improvisation. Our findings suggest that computer-mediated communications with enhanced channels (e.g., audio or visual channels) only partially mitigate the disruption of face-to-face interactions with clients and within teams, while generating additional efforts to establish mutual understanding of files, status, and actions to be taken. Our evidence and discussion of how auditors' improvisation changes with local versus non-local clients also provide insights regarding the role and setup of local offices.

Key words: Audit planning; Improvisation; Crisis.

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I. INTRODUCTION

Every audit starts with an audit plan. However, during the course of the audit, auditors are required by auditing standards to modify the audit plan as necessary if circumstances change significantly, for example, "as a result of unexpected events" (AS2101.15, PCAOB 2010; ISA 300.A13, IAASB 2009). To date, we have little empirical evidence on whether and how, when systematic changes in circumstances take place during tests of detail, auditors adjust and cope with the disruptions to maintain a similar level of audit quality. In this field study, we examine and document in real-time how auditors respond to the recent novel Coronavirus (COVID-19 hereafter) crisis, taking advantage of the "critical incident" (Flanagan 1954) to shed light on this under-researched area.

Extreme contexts are recognized as providing "a unique platform for the study of hard-to-get-at organizational phenomena" (Hällgren, Rouleau, and De Rond 2018, 112). They help "uncover what people were probably doing in more ordinary situations but were too unreflective to recognize or too conventional to admit" (attributed to Everett C. Hughes in Riesman and Becker 2009). Seminal contributions in management and organizational research originated out of extreme contexts (Weick 1993a; Bartunek, Rynes, and Ireland 2006; Bamberger and Pratt 2010). As noted by Christianson, Farkas, Sutcliffe, and Weick (2009), although extreme events may never repeat themselves identically, patterns of actions that convert chaos into order likely will. Important to our study, extreme contexts may provide particularly rich insights into organizational processes of adjustment and prioritisation (Hällgren et al. 2018). Thus, analyzing auditors' reactions to an extreme case – a health crisis – helps us better understand how auditors carry out their tasks and react to changes in circumstances in normal times.

The idea of studying auditors in extreme events is not new. Gendron and Spira (2010a; 2010b) document the impact of Arthur Anderson's demise on auditors' professional identity and their perceptions of the capability of firms and regulators to control auditing. Others have critically discussed auditors' roles in the financial crisis (Humphrey, Loft, and Woods 2009; Sikka 2009). However, the COVID-19 outbreak represents a unique type of crisis that is decidedly different from those studied in the prior auditing literature. That is, the crisis does not originate from the audit profession, the clients, or the capital markets. Despite occurring outside the core activities and responsibilities of auditors, COVID-19 has a profound impact on auditors' work and auditing firms' operations.[1]

To carry out our study, we conduct semi-structured interviews with 24 professionals, focusing on those working in Big 4 accounting firms (19 out of 24), as well medium and small accounting firms (2 out of 24), and industry (3 out of 24) in China. Focusing on auditors in China increases validity of our study for several reasons. China is the first country that reported COVID-19 cases and enforced large-scale reactions to COVID-19. Thus, among audit professionals, those based in China are the first ones to live through the crisis and the first ones that had to react to the crisis. Second, COVID-19 peaked from the end of January to roughly mid-March in China, largely coinciding with the busy season for year-end audits. In comparison, in most of the rest of the world, COVID-19 peaked from late March, or the end of busy season. While audit work may still be disrupted, the effect on year-end audit work is likely greatest for auditors in China. As such, interviewing auditors in China likely provides comprehensive and representative evidence on auditors' reactions to the crisis.

[1] Disruptions to auditors' and accountants' work also attracted media attention such as coverage by Wall Street Journal (Maurer 2020a; Maurer 2020b).

Our interviewees cover different geographic regions and local offices from all Big 4 firms. Notably, our interviewees include both Chinese nationals and a foreign expatriate working in China. Collectively, their clients consist of large public companies listed in the U.S., Hong Kong, mainland China, as well as non-listed companies subject to statutory audit. We choose to conduct interviews from March to May 2020, when the year-end audits are substantially complete but the impact of COVID-19 is still highly salient, to minimize the risk of retrospective memory reconstruction (Foddy 1993). The real-time-ness of the interviews and the diverse representation of our interview participants add further methodological credibility and empirical relevance to the study (Bloomfield, Nelson, and Soltes 2016; Malsch and Salterio 2016).

We find that COVID-19 disrupts both *formal* aspects of audit, i.e., audit procedures documented in audit plans, and *informal* aspects of audit, i.e., those outside of documented, planned audit procedures. In terms of formal aspects of audit, several audit procedures become impossible as a result of mandatory social distancing, shelter-in-place, travel restrictions, and imposed quarantine periods: these include onsite inspection and physical examination of sampled items, third party confirmations, and inquiries. In terms of informal aspects of audit, almost all interviewees mention major disruptions to face-to-face communication within the audit team and with clients. Our interviewees are primarily concerned with the subsequent inability to monitor team progress (both in terms of efficiency and quality), difficulty in providing coaching, challenges with accessibility, and reduced communication effectiveness. From this point of view, we echo prior studies that argue communications within teams and with clients have become an integral and critical part of the audit process (Bennett and Hatfield 2013, 2018; Downey and Bedard 2019).

Prior literature indicates that in response to external time pressure to solve problems and lack of prior routines in a crisis, organization members often respond with improvisation (Weick 1996; Baker, Miner, and Eesley 2003). More specifically, organizational improvisation refers to convergence between the composition and execution of a task while drawing on available resources (Moorman and Miner 1998a; Kamoche, Cunha, and Cunha 2003). Consistent with this theoretical notion, we find that, faced with disruptions to their work, auditors improvise to ensure timely and quality audits. Auditors improvise in *sequence of behavior*, such as moving the timeline of audit procedures that involve onsite inspection and examination; in *format of behavior*, such as alternative ways to perform in-person procedures, and alternative ways to communicate; in *production of new behavior*, notably regular and frequent (often on a daily basis) structured communication to monitor progress and quality of the engagements, and increased involvement from more senior members of the team (e.g., partners). We also analyze antecedents to auditors' improvised reactions to the crisis. We find that auditors do not improvise out of the blue. Instead, improvisation occurs based on (if not because of) their exploitation of organizational memory (Moorman and Miner 1998a), which includes procedural knowledge ("how things are done") and declarative knowledge (fact knowledge). Auditors draw on tacit procedural knowledge such as how audit work used to be performed without disruptions and where knowledge is stored, as well on codified declarative knowledge such as audit standards and firm guidance regarding what audit procedures are (not) allowed.

We note that the occurrence of improvisation does not equate successful improvisation (Vera and Crossan 2004). As such, we examine consequences of auditors' improvised responses to disrupted audit work. On the positive side, interviewees believe audit quality is not negatively affected. Consistent with the improvisation literature (Weick and Westley 1996; Christianson et

al. 2009), auditors' improvisation can lead to updated mental models at the individual level, such as greater acceptance towards flexible work arrangement, and organizational learning at the group level, such as routinizing the new communication frequency and structure post-COVID-19 and accelerating adoption of new technologies. Improvisation also produces unintended consequences such as more tension and stress at work, and longer (sometimes unreported) hours.

This paper makes several contributions. To our knowledge, we are the first field study that documents the impact of COVID-19 on auditing. As such, we provide detailed, real-time descriptions that should be informative to researchers, practitioners, and regulators concerned with the impact of the pandemic on audit quality. We show that the COVID-19 crisis disrupts both formal aspects of audit such as the procedures mandated by auditing standards and documented in audit plans, and informal aspects such as communication within the audit teams and with clients. We introduce the concept of "improvisation" to auditing literature as a distinct behavioral response to disruptions to timely and quality audits. Thus, our study extends prior literature on audit planning (e.g., Joyce 1976; Bedard 1989; Cohen and Kida 1989; Bauer, Hillison, Peecher, and Pomeroy 2019), and provides rich empirical evidence on how auditors can modify the design and execution of their audit plans concomitantly during substantive tests of details. We also contribute to the discussion on the effect of face-to-face communication versus computer-mediated communication on auditors' inquiries (Bennett and Hatfield, 2018; Kachelmeier, 2018). Our findings suggest that computer-mediated communications with enhanced channels (e.g., audio or visual channels) only partially mitigate the disruption of face-to-face interactions with clients and within teams. Our evidence and discussion of how auditors' improvisation changes with local versus non-local clients provide insights regarding the setup and role of local offices.

The remainder of the paper is structured as follows. In Section II, we review relevant literature that leads to our research questions. Section III provides a discussion of our interview method. We present our analysis of interview findings in Section IV, starting with evidence on disruptions to year-end audit work posed by the COVID-19 crisis, followed by findings on the improvisation mechanisms used by auditors to overcome these disruptions. Finally, Section V concludes and discusses the implications of our study.

II. BACKGROUND AND LITERATURE REVIEW

In this section, we first review current knowledge of auditors' adjustment to audit planning and introduce the literature on crisis and an often-noted consequence of crises, improvisation. We then describe the setting of our study, disruptions to year-end audit work by COVID-19, in light of the theoretical lens.

Audit Planning Adjustments

Audit regulations require auditors to modify audit strategy and the audit plan if circumstances change significantly, for example, "as a result of unexpected events" (AS2101.15, PCAOB 2010; ISA 300.A13, IAASB 2009), but the existing literature on auditors' adjustments to audit plans has mixed findings. Experimental studies find that auditors modify their planned hours and/or planned procedures given different levels of internal control strength (Joyce 1976; Gaumnitz, Nunamaker, Surdick, and Thomas 1982; Libby and Frederick 1990), analytical procedures results (Biggs, Mock, and Watkins 1988; Cohen and Kida 1989), or explicit requirement to assess fraud risk (Houston, Peters, and Pratt 1999). Bauer et al. (2020) identify auditors' implemental mindset as an important barrier for effective audit plan revisions. They suggest therefore that auditors "would make better audit planning decisions after receiving advice than when deciding for themselves" (Bauer et al., 2020). By contrast, archival research

finds little change in the nature or extent of planned procedures over time (Wright 1988; Bedard 1989; Mock and Wright 1993). In response to changes in risk, auditors tend to modify the extent but not nature of their planned tests (Mock and Wright 1993; Mock and Wright 1999; Bedard and Johnstone 2004; see also Zimbelman 1997 for an experiment). In short, when they happen, adjustments to audit plans tend to be triggered primarily by the realization of idiosyncratic client risks or the activation of a specific mindset. To date, the literature provides little empirical evidence and theorizing on auditors' efforts to maintain a similar level of audit quality when systematic disruptions fundamentally undermine the design and execution of the audit planning.

Crisis and Improvisation

An organizational crisis is a "low-probability, high-impact situation characterized by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly" (Pearson and Clair 1998, 60). Management researchers have been interested in studying crises as they present "wicked problems" (Stubbart 1987), and significant contributions to management and organizational studies originate from such extreme contexts as nuclear meltdown (Perrow 1984), chemical leak (Shrivastava 1987), fire (Weick 1993a), aircraft carrier emergencies (Quinn and Worline 2008), among others. Extreme contexts such as crises provide "a unique platform to study hard-to-get-at organizational phenomena" (Hällgren et al. 2018, 112). Even if crises rarely strike twice, the ensuing activities that transform chaos into order likely would recur in organizations (Christianson et al. 2009). Thus, researchers and organizations benefit by studying crises, in addition to understanding how key stakeholders might be impacted by and respond to a crisis, and what resources and information stakeholders might mobilize in managing a crisis (Mitroff and Pearson 1993).

Despite researchers' interest in studying crises, prior literature on crisis response tends to focus on the "set of coordinated communication and actions used to influence *evaluators'* crisis perceptions" (Bundy and Pfarrer 2015, 346). For instance, the widely used Coomb's situational crisis communication theory (SCCT) is concerned with stakeholders' perceptions of the organization based on how much responsibility they attribute to the organization for the crisis (Coombs 2007; Coombs and Holladay 2002). In contrast, disruptions – crises that occur *outside the core activities* of organizations, frequently portrayed as "unique, unprecedented, or even uncategorizable" (Christianson et al. 2009) – are less understood (Hällgren et al. 2018). Despite their paucity, disrupted contexts have much to offer researchers in terms of examining how actors adjust to a catastrophic event (Christianson et al. 2009; Powley 2009; Martí and Fernández 2013; Hällgren et al. 2018).

In particular, researchers who study crises recognize that effective crisis management typically involves improvisation and adjustment (Pearson and Clair 1998). Others have argued that crises offer ideal conditions for improvisation to occur (Roux-Dufort and Vidaillet 2003). Specifically, we draw on Moorman and Miner's (1998b, p. 698) definition of improvisation as "the degree to which composition and execution converge", that is the degree to which designing and executing a task converge (Moorman and Miner 1998a, 1998b; Cunha, Cunha, and Kamoche 1999; Kamoche et al. 2003).[2] An organization often improvises when it perceives an unexpected and unplanned occurrence that demands speed and action (Crossan and Sorrenti 1997; Hatch 1997; Moorman and Miner 1998b; Moorman and Miner 1998a; Weick 1993a; Weick 1993b), which are characteristic of crises and disasters (Kamoche and Cunha 2001). Commonly cited

[2] Various authors have attempted to define the phenomenon of "improvisation", see Table 2 of Cunha et al. (1999). The list of studies that explicitly or implicitly touches upon improvisation spans across 4 pages. For parsimony, we focus on the common attributes across those definitions.

examples of improvisation in crisis include how crew members took actions to save a ship with a broken-down navigation system (Hutchins 1991) and how NASA scientists rescued Apollo XIII despite working with unfamiliar concepts (Lovell and Kluger 1995). As these examples illustrate, time pressure to act and uncertainty (in other words, lack of relevant prior routines) often stimulate improvisation (Moorman 1995; Weick 1993a; Baker et al. 2003; Vera and Crossan 2004).

The construct of improvisation has two key elements. First, improvisation means temporal coincidence of design and execution: improvisation is deliberate but extemporaneous. In other words, improvisation is deliberate, rather than random deviations from prior routines; it involves some degree of novelty, as opposed to following established routines (Hatch 1997; Baker et al. 2003). Specifically, prior literature has categorized improvisation into behavioral improvisation (novel actions taken to affect organizational outcomes) vs. cognitive improvisations (new interpretations of external stimuli), as well as product improvisation (which affects nature of products) vs. process improvisation (which relates to sequence of previous routines) (Miner, Bassof, and Moorman 2001).

Second, as the quote "You can't improvise on nothin', man. You gotta improvise on somethin'." (Kernfeld 1995, attributed to Charles Mingus) suggests, improvisation has to both depart from and build on existing resources, which serves as "an implicit starting place" (Hatch 1997): such resources include material resources (e.g., information systems), cognitive resources (e.g., explicit or tacit knowledge and mental models), and social resources (e.g., relationships, behavior norms).

Thus, despite being a multifaceted construct, improvisation can be distinguished from a variety of other related constructs and behavorial responses to disruption, including adaptation, bricolage, creativity, or intuition (Baker et al. 2003). Table 1 outlines these distinctions.

[Insert Table 1 here]

As mentioned, improvisation doe not equate successful improvisation outcomes. From that perspective, considerable prior research has argued that pre-existing organizational memory is an important determinant of the execution and quality of improvisation (Pressing 1984; Hatch 1997). Organizational memory refers to "stored information from an organization's history that can be brought to bear on present decisions" (Weick 1979; Cowan 1988; Huber 1991; Walsh and Ungson 1991; Salterio and Denham 1997). Organizational memory is composed of procedural memory and declarative memory. Procedural memory represents knowledge "for how things are done" (Cohen and Bacdayan 1994), such as routines, and often represents tacit knowledge for individuals and organizations (Nonaka 1990; Cohen 1991; Cohen and Bacdayan 1994). Declarative memory represents knowledge of facts, events, or propositions (Anderson 1983). Declarative memory may be stored in collective knowledge structures such as shared information systems (Walsh 1995) and in codified material forms such as reports, handbooks, or published research. Researchers on improvisation argue that successful deployment of both procedural and declarative memory would be especially likely to result in more coherent, rapid, and novel actions – in other words, effective improvisation (Moorman and Miner 1998a; Moorman and Miner 1998b).

In terms of outcomes, improvisation can have both a positive and/or a negative side. Positive outcomes include organizational learning. That is, from crises and the ensuing improvisation, organizations can update members' mental models, learn more about themselves

and their environment, and enhance future performance by routinizing their improvisation (Cunha et al. 1999; Miner et al. 2001). However, improvisation may also entail negative results. Lessons from improvisation may be turned into "legitimate but inefficient solutions to a given category of problems" (Cunha et al. 1999); individuals in the organizations may undergo increased anxiety due to the uncertainty to provide immediate solutions to sudden and unexpected problems (Bastien and Hostager 1988; Eisenberg 1990).

Novel Coronavirus Disease (COVID-19) and Year-end Audit in China

The novel coronavirus disease (COVID-19) is an infectious disease first reported to the WHO from Wuhan, China, on December 31, 2019 (originally known as "pneumonia of unknown cause"). On March 11, the WHO classified COVID-19 as a pandemic (World Health Organization (WHO) 2020a). However, between the end of December 2019 and mid-March 2020, the reported COVID-19 cases were mostly confined to East Asia, particularly China (World Health Organization (WHO) 2020b). There, the complexity of containing the outbreak was compounded by statutory holidays for the Spring Festival from January 24 to January 30, 2020. Similar to Christmas holidays in the west, the week-long holidays are customarily preceded and accompanied by high, if not maximum, volumes of travels and gatherings. In response, on January 23, the then epicenter of the outbreak, Wuhan, started lockdown, banning almost all travels within the city and to/from outside. Virtually at the same time, multiple provinces declared the highest level of emergency, restricted travels, and mandated shelter-in-place. Official holidays were extended from January 30 to February 2, but most provinces mandated shelter-in-place until at least February 9, extending the shutdown of all productions by almost two weeks. Phased reopening started to take place mid-February, but social distancing remained in force. As such, resumed work often entailed rotations, where employees took shifts

rather than going back to work all at once. Phased reopening, relaxation of travel restrictions, and lifting of emergency levels continued in the month of March as the number of infected individuals stayed flat. On April 8, Wuhan released quarantine, the last municipality to do so in China. In comparison, in the rest of the world, the COVID-19 outbreak and official measures in response started much later: in Italy, the lockdown in several northern provinces started on March 8; In the United States, the earliest shelter-in-place was initiated on March 19 by California; in Canada, the first province to declare a state of emergency was Quebec on March 12.

Thus, while auditors across the globe are subject to various COVID-19-related measures such as lockdown and shelter-in-place, the impact on auditors based in China is particularly worth examining, because a) auditors in China are the first ones to experience the pandemic and to respond to it while carrying out their audit work, and b) the timing of the outbreak in China – January to April – coincides almost exactly with year-end audit work. Being the first to experience the pandemic makes auditors in China have few precedents to follow and thus, makes the alternative of improvisation even more important as a coping strategy. Furthermore, unlike other countries such as the United States and Canada, where companies may choose their year-end date, year-end for Chinese corporations is set to be December 31. In other words, the impact of COVID-19 is felt on *all* year-end audits and statutory audits. The complexity and uncertainty faced by auditors in China are further compounded by lack of official guidance in early days: the Chinese Institute of Certified Public Accountants (CICPA) did not issue guidance on completing audit work during COVID-19 until March 20; the China Security Regulatory Commission (CSRC, the equivalent of SEC) did not specifically allow delayed filing of annual report disclosure until April 7, by which time a significant number of companies already filed their

audited financial statements according to predetermined schedules. As such, the magnitude of the disruption and the uncertainty are acutely experienced by auditors working on year-end audits:

> The uncertainty, when it was February and March, the uncertainty in the whole situation was huge, because China Security Regulatory Commission (CSRC) did not announce the possibility to delay audit report until April. So before then, one still wanted to be ahead [of the audit timeline]. Because in China, in Wuhan, work resumption schedule was pushed back week by week. It was not directly delaying one month or two months. It was clear in the beginning that [the situation] was going to evolve with the epidemic. (P21)

To illustrate the timeline, we juxtaposition relevant events related to COVID-19 and those relevant to year-end audit work from December 2019 to April 2020 in Figure 1.

[Insert Figure 1 here]

In short, the Chinese context offers an ideal research setting as interviewing auditors in China likely provides comprehensive and representative evidence on the impact of COVID-19 on auditors and auditors' reactions.

Given the unprecedented nature of the COVID-19 pandemic and its overwhelming impact on all walks of life, we consider it a crisis, consistent with the definition of a "low-probability, high-impact situation characterized by ambiguity of cause, effect, and means of resolution." Importantly, we consider the COVID-19 pandemic to be a crisis for auditors that is different from past ones such as the downfall of Arthur Anderson and the financial crisis (Humphrey et al. 2009; Sikka 2009; Gendron and Spira 2010a; Gendron and Spira 2010b) in that the COVID-19 crisis represents a disruption, an extreme event that occurs *outside the core activities* of organizations (Hällgren et al. 2018), whereas past crises originated within the profession or within the capital markets for which auditors work. In other words, the COVID-19 crisis represents an extreme case of disruption for auditors. Informed by the theoretical lens of crisis and improvisation, we examine the following research questions (RQs):

Research Question 1 (RQ1). What aspect(s), if any, of the audit work is disrupted by the COVID-19 crisis?
Research Question 2 (RQ2). How do auditors respond to disruptions to their work by the COVID-19 crisis?
Research Question 3 (RQ3). What are the antecedents and consequences of auditors' responses to the COVID-19 crisis?

Examining extreme cases often lead to insights on regular work (Riesman and Becker 2009). We believe this paper not only extends the emerging literature on COVID-19's impact to the audit profession, but also makes an important contribution to our understanding of audit work in general. In particular, it sheds light on how auditors adjust audit plans to unexpected, unplanned for, systematic disruptions (as opposed to idiosyncratic changes to one engagement) during substantive tests. Because our null expectation is that improvisational behaviours – the convergence of design and execution – emerge as a significant feature of auditors' response to the impact of COVID-19 on audit planning, it is important to note that improvisation is not the only behavioural alternative. Auditors may consider and enact at least six general alternative responses (Baker et al. 2003, p. 259): "(1) they may do nothing; (2) they may engage in more or less random or intuitive behavior; (3) they may invoke previously acquired routines; (4) they may engage in design or planning; (5) [they may] execute a prior plan that preceded execution; and (6) they may improvise". Thus, although inaction or the enactment of a specific pre-pandemic emergency plan seems very unlikely given auditors' professionalism and the surprise outbreak of a new disease, improvisation is only one response among multiple alternatives following a crisis.

III. METHOD

We followed recent guidance on field study methods (Ittner 2014; Evans, Feng, Hoffman, Moser, and Van der Stede 2015; Bloomfield et al. 2016) to understand the impact of the COVID-

19 crisis on auditors' year-end audit work and their responses thereto. Specifically, we used a semi-structured interview approach, in line with previous positivist qualitative studies in the audit literature (Hirst and Koonce 1996; Cohen, Krishnamoorthy, and Wright 2002; McCracken, Salterio, and Gibbins 2008; Griffith, Hammersley, and Kadous 2015; Westermann, Bedard, and Earley 2015; Bills, Hayne, and Stein 2018; Dodgson, Agoglia, Bennett, and Cohen 2020). We interviewed 24 professionals working in auditing and accounting (broadly conceived) from March to May 2020 over the phone. We deliberately chose to interview participants when the memory was "fresh" to minimize the risk of retrospective reconstruction and/or sensemaking of the memory (Foddy 1993; Gendron and Spira 2010a; Gendron and Spira 2010b) as a result of the evolving situation of COVID-19 in China and the rest of the world. In other words, we chose to conduct our interviews when the year-end audits were substantially complete, the impact of COVID-19 was still highly salient (for example, "I'm still working from home" per P3, P4), but before the epidemic was considered over.

Interviewees

We obtained interviewees by first reaching out to our personal contacts of auditors based in China who worked on year-end audits during COVID-19, followed by a snowball sampling approach (Miles, Huberman, and Saldana 2014) where our initial set of contacts put us in touch with other auditors. We focused on interviewing managers and senior managers (17 out of 24) as they are in charge of the ongoing management of the audit (Libby and Frederick 1990; Hackenbrack and Knechel 1997). Furthermore, recent research suggests that audit managers have a strong influence on audit quality because of their hands-on participation in the day-to-day operations of the audit engagement (Cameran, Ditillo, and Pettiniccio 2018; Wells 2020), including supervision, work assignment, review, mentor, participation in key audit judgments

(Maister 1993). The remaining interviewees range from staff to associates, as hearing from people with different perspectives triangulates our empirical findings and strengthens the study's credibility (Adler and Adler 1998). Our final group of interviewees is comprised of 19 professionals from Big 4 auditing firms, two from local medium- and small-sized auditing firms, and three working in industry. Nineteen of our interviewees work in external audit (including IT audit), two work in tax and transaction services in Big 4 auditing firms, and three in internal audit and compliance functions in industry. Our interviewees vary in terms of geographic regions (representing both first-tier and second-tier cities), firms (covering all Big 4 firms), industry, and experience. Our interviewees include both non-Chinese expatriate auditor as well as Chinese nationals. We triangulate responses across participants to ensure our finding applies across groups (Rubin and Rubin 2005). Table 2 summarizes information relating to each interview while protecting participants' anonymity.

[Insert Table 2 here]

Development of the Interview Guide

We designed our semi-structured interview questions based on a review of prior literature on crisis management, a review of releases in response to COVID-19 by audit regulators and audit firms, and our knowledge of the audit process. Our final instrument contained five semi-structured, open-ended interview questions that were neutral in nature to elicit interviewees' perspectives rather than to "lead the witness" (e.g., Hirst and Koonce 1996; Cohen et al. 2002). We first let the respondents talk freely about their experiences with as little interference as possible and followed up on topics that they had not already covered in detail (Kenno, McCracken, and Salterio 2017). After each round of several interviews, we updated our interview guide, and incorporated common, new topics that emerged (Hirst and Koonce 1996;

Westermann et al. 2015; Dodgson et al. 2020).[3] Appendix A lists the final set of interview questions and follow-up questions. To avoid demand effects, we did not refer to "improvisation" in our semi-structured interviews but rather raised each issue progressively and explored each interviewees' experiences. We continued our interviews until we reached the point of saturation (Malsch and Salterio 2016). That is, no new insight is gained from the last few interviews; the interview provides consistent accounts with findings in earlier interviews.

Data Collection and Analysis

The interview lasted on average 51 minutes (ranging from 25 to 71 minutes). All interviews were conducted over the phone by one of the authors in English or Chinese, who also took detailed notes during the interviews.[4] After each interview, the audio file was recorded and transcribed. Interviews conducted in Chinese were translated into English. We checked the transcripts for accuracy and sent back the transcripts for the interviewees to review (Malsch and Salterio 2016; Kenno et al. 2017). After two or three interviews, the two authors debriefed and discussed key themes that came up during the interview and refined the interview questions.

Using NVivo, the authors developed and agreed on a coding scheme reflecting the themes that arose from the interviews. All along the analysis, we moved between data and theoretical ideas to test and validate our findings, constantly reviewing and rereading transcripts to make sure that no new insights came to light (Yin, 2014; Kenno et al. 2017).

IV. FINDINGS

In this section, we describe our empirical findings from our interviews. We first report COVID-19's disruptions to audit work as experienced by our interviewees, followed by auditors'

[3] For example, one topic we expanded during the course of our interviews is improvisation of structured communication, which we discuss below.
[4] The interview study was approved by the research ethics board (IRB) of the authors' university.

responses to these disruptions. We conclude this section with an analysis of what factors underlie auditors' responses to disrupted audit work and consequences of auditors' improvisation.

Disruptions to Audit Process

From the end of January to at least mid-February 2020, strictly enforced travel bans were in place in China to curb the spread of COVID-19, including but not limited to restrictions on interprovincial travel and public transportations, as well as mandatory shelter-in-place at local community level. Such measures disrupted audit work profoundly, rendering it impossible to carry out planned procedures:

> [W]e can't go to the client site after the Spring Festival. My firm stipulates that travel is not allowed unless it is approved by a high level officer like Chief Risk Officer… Local clients also have some strict measures. For example, the client in City X asked us not to take taxi or public transportation. [The client mandated that] even local colleagues must stay in the hotel next to the client site. Local hotels also have rules. (P4)

Even if travel was approved, auditors would face quarantine measures mandated by both destination and home provinces, making it less feasible given the tight audit timeline:

> I worked for a project from City Y office just two weeks ago, because if they came to City Z they had to be quarantined for 14 days and when they returned [they had to be] quarantined for another 14 days, this is not doable, not feasible. (P1)

Notably, not only auditors were restricted from traveling and getting to client sites, so were the clients:

> For some companies, their financial staff and information system are in the office. If the place is under quarantine, financial staff cannot come back or go to the office. They cannot find the information in SAP or in some other systems. (P10)

Prolonged travel restrictions and shelter-in-place mandates disrupted both formal aspects of audit, i.e., audit procedures documented in audit plans and governed by auditing standards, as well as informal aspects of audit, i.e., aspects of audit process not documented in audit plans, notably communication within audit teams and with clients. We discuss the two aspects in turn.

Formal Aspects of Audit

Most interviewees described formal aspects of audit work disrupted by COVID-19 (and the associated mandatory measures), including audit confirmations and audit procedures that auditors planned to carry out at client sites. Auditors also mentioned areas where additional attention was required because of COVID-19, including subsequent event disclosure and going concern assessment.

In terms of audit confirmations, the disruptions were two-fold: first, to the extent that resources were still available (i.e., if the party receiving confirmation requests was not completely shut down), it took more time for financial institutions and other third parties to prepare confirmations; second, in-transit time was longer for confirmations to be received by audit teams. The disruptions were exacerbated by a third factor, that is, Chinese auditing standards require 100% response rate for bank confirmations. Lastly, Big 4 audit firms tend to rely on shared service centers for routine procedures such as sending confirmation requests. Thus, COVID-19 also slowed down the preparation of confirmation requests, although fewer interviewees mention disruptions to *sending* confirmation than *receiving* confirmations. Our interviewees gave vivid examples of the disruptions they experienced:

> For one engagement, the CFO is based in the United States this year… However, we need CFO signature for certain documents, such as confirmation requests. For bank confirmation requests, they need to be hand signed by the CFO on the CFO's seal before we send the confirmation letters to the bank, and receive confirmations back. Because of the epidemic this year, the CFO can't come back for the time being… In this regard, the impact is relatively great. In addition, when we eventually issue auditor's report, we need the CFO to sign it. (P14)

The disruption to audit confirmation procedures also changed as the COVID-19 situation gradually evolved over the world. Interviewees also mentioned significant disruptions to

receiving confirmations from overseas as the center of the epidemic shifted to Europe and the United States.

COVID-19 also disrupted investigative audit procedures that auditors planned to carry out at client sites, including vouching/tracing of contracts and other audit evidence that are physically at client sites:

> I have a few engagements that scheduled client-site work after the Spring Festival including interviews, sampling, reviewing contracts and vouching. But we were not able to go to client site this year… Internal control tests, detail tests and substantial procedures all require review of contracts and vouching. (P13)

Interviewees emphasized the importance of actually physically seeing the original documents for audit quality. As such, the disruptions were not trivial:

> To obtain audit evidence for certain audit procedures, we need to see the original evidence, so such evidence should be saved while at client's local physical location. Without being in the field, we cannot see the original evidence, which becomes an obstacle for auditing. (P11)

Consistent with guidance provided by professional bodies such as the International Auditing and Assurance Standards Board (IAASB) and the Chinese Institute of Certified Public Accountants (CICPA), our interviewees noted subsequent event disclosure and going concern assessment as requiring particular attention because of the impact of COVID-19. Notably, while those areas required additional attention by the auditors, our interviewees did not consider additional work in these areas to be significant disruptions. Rather, it is consistent with routine audit work where auditors assess specific risks, design audit procedures, followed by carrying out audit procedures based on the plan, a planning – execution process auditors are familiar with.[5]

[5] In contrast, the responses we note in the subsection, "Auditor Responses to Disruptions to Audit Process" do not follow the sequence of planning – execution. Rather, consistent with the definition in improvisation literature (Moorman and Miner 1998a), planning and execution are indistinguishable. As such, we do not focus on how auditors make judgment on going concern and subsequent events in this paper.

Informal Aspects of Audit

Almost all interviewees mentioned, without prompt, disruptions to face-to-face communication as a result of COVID-19 and its associated measures such as shelter-in-place. In particular, our interviewees described challenges with supervision, coaching, and coordination within the team, and challenges with client communication:

> After the Spring Festival this year, one of my engagements involved a first-year staff… When I received the end product, I could see that the result was actually not very ideal. Compared with the progress he communicated earlier on the phone, there were discrepancies, perhaps because his understanding of what it means to complete a working paper is different. Cases like this needed my special attention. I called the staff directly and asked how he thought he was doing. He in fact also admitted he was slacking off working from home, so the working paper was not well done. In addition, he hasn't touched this section of working paper before, [so] he might have come across some difficulties learning. (P14)

Another interviewee illustrated what it means to be not as "effective" when working remotely:

> [Y]ou spend much more time communicating. What I used to turn around and say one line, now I need to make a Skype call, and they have to be available to pick up your Skype call. If they go to washroom, you can't find them and tell them what you want. What you want to tell them, if face-to-face, I'd tell them where exactly, I can tell them what I want to change to, now I have to tell them you are on page X, line Y, column Z, which item and which number has an issue, I have to go about like this. (P21)

Interestingly, even when face-to-face interactions and communications are replaced by enhanced communications methods with visual or audio elements, such as Skype, the benefits to greater social presence and the ability to observe and hear audio or visual cues that are absent with computer-mediated communications (Bennett and Hatfield 2018) remain potentially undermined. Similar to the quotes above, many interviewees mentioned difficulty in monitoring progress and providing coaching for junior staff. In addition, as audit work is produced in a hierarchical group setting, team communication was also disrupted:

> Within the engagement, there may be ten or so individuals. We ask something from a junior, and the team communicate level by level down. Even though we have group video conference calls or level-by-level notifications in group chats or other ways, in the end the effect is not as good as centralized communication in the field. This also leads to really a lot of efforts spent in early days on this part of communication. For example, you ask for something, one person understands, but another person only absorbs a part of it, the final deliverable would not be as good as what would be working in field. (P19)

For those interviewees who work as a component auditor, that is, as part of the group audit engagement in a different location or for a network firm, they also mentioned challenges in communicating with the group auditor abroad.

> At the beginning, it was a bit difficult because of course, [group auditors abroad] had their own deadlines and so on. Usually, they are a bit reluctant…because at that time, at least for my engagements, they are all from France or Switzerland, Germany, so at that time they were not really impacted by COVID-19. It was hard for them to understand the situation in China with a lockdown, with difficulty to work remotely with the clients. (P23)

Likewise, communication with clients was disrupted:

> What I'm saying is that if [staff] have a question, they cannot go and step into the client's office and ask the question in two minutes. They have to go through all the sample, then they print a long email with all their questions, saying that on the invoice number, I don't know which one, we have a difference of 100, something like this. (P23)

The disruption affected both junior auditors, as the example above, but also for more senior members of the engagement team whose roles include building shared understanding with clients, which was rendered more difficult by the disruptions from COVID-19:

> For example, we have to discuss an accounting treatment, but the treatment I'd say is complex. If we meet face-to-face, it is easy to communicate and clarify. If I am remote, we are all remote, we need to first make sure everyone is on the same page, so it takes a lot of communication, alternatively I have to write everything down and first provide to the client prior to the meeting to make sure we are all on the same page and have one mindset. (P11)

The interviewee went on to give an example of a group structuring issue in their engagement, where the holding structure would have been drawn on a whiteboard in a meeting room where the auditor and the client team would gather and discuss based on the visual

illustration, but now it is "less efficient" because of the additional time needed for everyone to synchronize "until we each have a copy on our local drive." Here again, event when the "back and forth dialogue during the conversation is possible between clients and auditors" (Bennett and Hatfield 2018), the interviewee points out inherent limitations of computer-mediated communication to compensate for the lack of face-to-face interactions and the resulting lack of efficiency. Overall, the scale of disruptions to auditors' formal and informal work, and the challenges brought by the disruptions are aptly summarized by our interviewee:

> I should say no one has encountered an epidemic with such a broad-ranging impact before … How do we cope with this? These problems are unprecedented, so I believe that Big 4 are proceeding while exploring and navigating alone and together. (P20)

Before turning to auditors' responses to those disruptions – the "exploration" and "navigation" mentioned in the quote above – we note that not every aspect of the COVID-19 crisis is negative for auditors. For instance, most auditors indicated that their clients were "more understanding" this year (P4, P11, P15, P17), that their recurring clients were "having a more positive attitude" (P8, P9, P18), and "treated us more seriously" (P14) as all walks of life had to face and respond to the disruptions by COVID-19. A higher degree of cooperation and positive interactions may result in enhanced operational independence (Guénin-Paracini, Malsch, and Tremblay 2015).

Auditor Responses to Disruptions to Audit Process

We find that, in response to disruptions to both formal and informal aspects of audit work, auditors had to depart from planned procedures or planned modes of operation. Notably, auditors' responses differed from routine audit work in that auditors had few, if any at all, official guidelines or standards to refer to until March or April, yet audit work still had to be carried out with the goal of completion without delays. While firm guidelines were available and

timely (issued early February per most of our interviewees), those guidelines were not specific or at the engagement level. As such, consistent with the notion that improvisation is performed with available (as opposed to optimal) resources, auditors needed to improvise in order to ensure quality and timely audits:

> The [firm] guidelines are not on the practice level. Having a universal guideline for all the engagements and all actions taken by engagement teams – I don't think this would be appropriate. So what [guidelines] do is just to build some relatively macro or general guidance, such as during epidemic, which areas we should pay attention to, what (areas) cannot be overlooked. (P11)

In addition, informal aspects of the audit work not explicitly covered by auditing standards were also disrupted, prompting auditors' need to design and execute practical responses sometimes on the spot:

> Say based on this engagement team's capacity, at first, they had no idea how to deal with [COVID-19 disruptions]. Then you [as the partner] must remember to drive the meeting, drive the topic, to follow up, to discuss, how to devise new ways to complete the engagement. (P20)

Our analysis of the interview transcripts, along with our reading of the improvisation literature, shows that auditors improvise in multiple aspects, including modifying the sequence of the existing audit process, changing the format of existing audit procedures, and producing new behavior. We discuss each in turn.

Sequence of Behavior

In response to disruptions to planned audit procedures as a result of travel restrictions and quarantine, auditors reacted by switching sequence of planned audit procedures. For example, several interviewees mentioned that they adjusted when certain audit procedures were performed based on what was possible to execute at that time. Specifically, for original documents that auditors planned to vouch, review, or trace at client sites, our interviewees indicated that they would first get scanned copies from the client, document the evidence (scanned copies) in

working papers, and when travel restrictions were lifted, return to the field to ensure the original copies (at least a subsample of them) were still reviewed by the audit team:

> I'd say the way [of working] has changed – we used to prepare working papers onsite and collect evidence onsite in February, this year we changed it all to first prepare electronic working papers, and then fill in the evidence, like the sampled items, onsite later. (P15)

Other interviewees reported that they changed sequence of when confirmation-related procedures were performed by first documenting that "on this date, our colleague so-and-so communicated and confirmed the following matters by phone with the bank manager" (P7), then waiting for confirmations to come back and look for differences.

Since the reopening schedule differed across provinces, not all interviewees were able to defer disrupted procedures until work resumed and still issued audit reports on time. Other interviewees stated that the only way was to push the client to request confirmation responses (P8, P11, P17, and P18). When pushing the client was not an option (e.g., for banks located in Hubei province), our interviewees indicated that they would discuss with the client and delay the report rather than issuing the report without getting high-quality evidence. Thus, in terms of audit quality implications, it is noticeable and encouraging that auditors reported not skipping audit procedures disrupted by the crisis or settle on less reliable evidence such as scanned copies prepared by clients:

> If it's not material, this approach [using emails or online banking information] is okay, but if it's material, we still emphasized and communicated with the client that under this year's circumstances, we still need to wait for confirmations to come back just like prior years. (P13)

> For regions around Wuhan, when the epidemic was stabilized, to issue my audit report, I would push my clients to get the respective audit evidence, or we would go to the field to get the respective [audit evidence] before issuing my audit report. It is impossible for me to issue audit report without assurance. This is not allowed. Not a bit in my mind. (P21)

Format of Behavior

In response to disruptions by COVID-19, auditors changed the format of audit procedures: the planned audit procedures were still carried out, but in novel and unplanned methods, combining design and execution acts at the same time. Instead of engagement team members themselves traveling to client site, auditors came up with alternative ways to complete their planned onsite work, including asking local office auditors to perform and live stream fieldwork; asking the client to live stream IT walkthroughs; using video conference calls to review confidential material at client sites; using screen recorder to collect evidence on bank account information; hand-delivering confirmation requests to clients as opposed to mailing them out:

> I went to the client site instead of [the audit team located in another city] and communicated with their client, then dialed the audit team in, told them what I saw at the client's physical site, provided [the evidence] to them. So they could see it, saw that we looked over it at client site, they were comfortable. (P1)

> For accounts payable and receivable, if banks are not able to respond… as a last resort I would also obtain screenshots of the client's online banking page. I would record my screen in WhatsApp or WeChat, ask the client to take screenshots of their accounts and send to me [while I am recording]. (P21)

Another interviewee elaborated on how they responded to disruptions to receiving confirmations by modifying the mix of confirmations requested:

> Yes, the problem is that compared with last year, the response rate is much lower. For oversea [listed companies], we need to ensure the overall response rate. Our engagement has mainland [China] confirmation requests and oversea confirmations, with a ratio of about 6:4… To ensure an overall high response rate, we tried our best to increase the oversea response rate. The response rate of the oversea confirmations this year, because we asked our client to request scanned copies from their banks directly, reached as high as 80%-90%. (P7)

In contrast, in the past, oversea response rate was only 40% to 50% for this engagement. Faced with disruptions, auditors appeared to change not only the timing of the audit procedures,

but also their nature. Of course, auditors also had to adjust the means of communication from offline to online. However, the change was not always planned, and auditors had to react to each situation as it arose:

> We had a meeting scheduled on Friday in the client's office building. We agreed that some of us would go to the client's site for that meeting, but the client informed us last minute that no one from outside companies was allowed to enter that office building. In the end we had to change it into a con-call. (P4)

Production of New Behavior

In response to disruptions to audit work, auditors came up with alternative ways (sometimes referred to as "compensating procedures") that were not planned or even existed in professional guidelines. In the confirmation example where the CFO was not accessible, the audit team had to courier the confirmation requests to the CFO's residence in the U.S. for the CFO to sign, mail back, before eventually sending the confirmation requests to banks. For the statutory report that also needed to be signed by the CFO, the audit team arranged for the CFO to sign and email back scanned signature page.

In response to disruptions to team-based, face-to-face communication, auditors also came up with new behavior. Most notably, almost all of our interviewees mentioned they deliberately created structured, frequent communication within teams and with clients:

> One issue is that everyone works in their respective cities, and there is no way to supervise each staff's efficiency.[6] Personally, I ask them to send me a list of the work they have done each day. Then I will also briefly review whether it is true. This is to control engagement progress, that is they need to report what they accomplished every day, and then we communicate via a messaging app on areas they had questions. They may accumulate questions from that day or those two days, and then we may have a 20-30 minute group discussion. (P7)

[6] Because COVID-19 breakout coincided with Spring Festival holidays, which is when individuals visit their families back at home, travel bans meant that those individuals had to stay at home for extended period rather than returning to where their offices are.

Most interviewees described having daily meetings in a round-robin format to go over what the team planned to work on and to review their progress and the issues encountered. Such daily meetings were held even when little progress was possible (for example, because client office was shut down). Others reported using an Excel spreadsheet to track team progress. Our interviewees mentioned such responses as something new and unique this year:

> In the past, I would not have such daily meetings with all team members directly. I would only ask the in-charge about the progress. I wouldn't have two regular meetings, one in the morning and one closing meeting in the evening. In general, I would only have a group meeting with the team at the beginning of the week when we start fieldwork and a meeting when we close. In between, I would only communicate with the in-charge. (P14)

Similarly, auditors who worked with foreign group auditors created new structured communication:

> Because in the past, maybe you just send the deliverables and then they send you an email to answer some questions, but at the time as we cannot report, I have to send more email even for [foreign] firms whom I know quite well. For many of them, I have a short call maybe once a week, just to keep them informed about the progress and about the date when we will be able to report… It was a constant discussion with them to inform them and at least to provide them with an update of the key matters because once you have updated them with the key matters, even if you don't formally report, it's always a bit better. (P23)

Furthermore, the new behavior is a result of improvisation, rather than routine audit work, because auditors had to come up with their own ways. There was no specific guidance on how senior managers and managers should ensure team progress and audit quality:

> We don't have any written guidelines. Our partners held a short meeting with us managers and senior managers before the Spring Festival and noted that our communication format and frequency in the following period may be different from the past. We may need to increase the frequency to keep clients satisfied on one hand and ensure our teams' audit quality and efficiency on the other hand. But there's no specific guidance. (P14)

Several interviewees also described new behavior from audit partners, who "paid more detailed attention to the engagements than before" and "undertook a more granular function" from a project management perspective (P9, P14, P17).

In addition, faced with difficulty to make business trips to client sites, most of our interviewees described ways auditing firms responded by creating and coordinating "loan staff" across regional offices:

> For example, I had a project for XX Bank in City W. In this case, we turned to our colleagues from City W Office for a lot of onsite work. In fact, the firm supports coordination in this matter, that is, the firm collects information on engagements with fieldwork demands: When? How many people? What levels? At the same time, we also – we need to fill out a questionnaire on where we are physically located and what the [health] status is every day. As such the firm also has statistics, so once matched [with local staff] we don't need to travel, then the problem can be resolved. (P8)

Auditors also improvised in response to disruptions to their communication with clients:

> One good way is to communicate the O/S (outstanding) list with the client all the time, regularly. We send weekly reports to the client so we include the O/S list and our progress for the client, also as a reminder for the engagement team to monitor. We used to send weekly report but we would not send progress or O/S lists, the O/S is only used this year. In the past each location or sub-team approached the client by themselves, and there's no centralized action. Now we send the O/S list, progress report and progress statistics directly to the client, such as the finance head or others at client headquarter… In the past it was much more like a routine ceremonial thing. (P4)

Many interviewees also mentioned increased frequency in auditor-initiated communication with clients, such as every two days or even every day:

> Nobody had this kind of list or documentation [pre-COVID]. We would send the PBC (prepared by client) list before the fieldwork, but we don't have this strict follow-up by email. Here, given this situation, once we are supposed to start the fieldwork, even if we are doing remotely, we obtain that beyond what we have obtained [in the past] a lot… I think it's a regular thing we are doing. COVID-19 just pushes us to be more strict about following the status. (P23)

The new, structured communication with clients included but was not limited to: outstanding items to be provided by client (PBC); status of confirmation (both sending and receiving); what accounting adjustments have been agreed on, with whom the accounting

adjustments have been communicated; what other issues existed, whether they were still pending, and with whom them have been communicated.

Summary

COVID-19 brought about pervasive disruptions to audit work. In order to maintain audit quality and issue auditor's report on time to the extent possible, auditors had to improvise and come up with the design and execution of on-the-spot responses. Auditors' improvisation included changing sequence of planned audit procedures to work on what can be complete first; changing format of how audit procedures are carried out – not only moving in-person, onsite work to online, but also relying on local staff (sometimes even the client) to live stream the procedures with non-local clients; perhaps most notably, auditors also produced new behavior in response to disruptions to quality and/or efficiency of team-based audit work. Almost all interviewees created new structured and computer-mediated communications that did not exist before, such as regular team meetings – often on a daily basis – as well as regular meetings with the client, even if little progress was made. Furthermore, the improvised new behavior was both at the engagement team level and the office level, as collected health information was used to facilitate cross-region "loan staff" in response to disruptions to business trips. Despite the disruptions, and despite the limitations of visual and audio computer-mediated communications to compensate face-to-face interactions within teams and with clients, auditors still emphasized achieving high audit quality. To auditors, their improvisation was necessary to ensure audit quality and timely completion of their audits.

Antecedents of Auditors' Improvisation

Our analysis suggests that, consistent with prior literature on improvisation, auditors do not improvise out of the blue. Instead, they tap in their organizational memory as an important

source of improvisation. Auditors referred to both their procedural knowledge, which is memory for "how things are done" (Cohen and Bacdayan 1994), and declarative knowledge, which is memory for "facts, events, or propositions" (Anderson 1983). When interviewees described their improvised responses, they often referred to what used to take place in the audit process. In these instances, auditors' tacit, procedural knowledge of how audit work was usually done (without disruption) served as a template based on which improvisation took place:

> If the workload assigned to the staff is low, when working in person, you'd find out when they've finished with what you assigned, and you'd assign them additional work. But now, you probably don't know if he's finished or not… You don't know what he's doing in the day, so you probably need some daily update or summary. (P16)

> Before the epidemic, because the team worked together, we saw each other day in and day out, there was a lot of communication, a lot of communication on audit status, so we can control the status. Controlling the status implicitly ensures audit quality, because I know what you did, I know what you didn't do, and what was urgent. During the epidemic, basically our team makes a group call every day, makes an Excel spreadsheet to track everyone's progress to make communication easy, keep everyone on track. (P11)

As these quotes illustrate, auditors improvised based on their experience in staffing and communication: the new behavior they produced was often an attempt to imitate and keep performing what had happened pre-COVID-19, as opposed to creating something entirely new or borrowing analogously from practices in other industries. In addition to procedural knowledge about how audit work used to be carried out, our interviewees also drew on their procedural knowledge, accumulated over the years with their firms, about where they could find helpful resources:

> In addition to providing all the things I need to review, it [the firm's database] also offers all firm information, guidance, and instructions, very clear and easy to see. It's very good in [providing information] including accounting, auditing methodology, and risk management, and many templates. When you want to do something, you don't know how to do it, the firm has a standard template. So you just follow the template. It's good to institutionalize processes. (P8)

In terms of declarative knowledge, our interviewees drew on their knowledge of codified

audit standards, professional regulations, and company policies regarding what audit procedures were (not) permissible when they had to improvise:

> And for the fieldwork, some would ask now that I couldn't do my fieldwork, is it possible to issue the report simply by relying 100% on [scanned] copies? In fact, the firm made it clear on day one that it's unacceptable. (P8)

Another interviewee described how the team consulted the firm's legal department to decide whether a scanned signature from the remote CFO was permissible (P14). Based on the consultation, the team took different approaches to get the CFO's signature: hard copies for confirmation requests but a scanned soft copy for the statutory audit report. In sum, greater organizational memory informs improvisation and allows groups to gain access to a greater range of resources on which to improvise (Crossan et al. 2005). Our analysis suggests that auditors' improvisation is based on their procedural and declarative knowledge. However, we note that, as the improvisation literature suggests, the *occurrence* of improvisation in the audit process does not always equate *successful* improvisation outcomes (Vera and Crossan 2004) in terms of efficiency and/or quality output.

Consequences of Auditors' Improvisation

Improvisation allows the organization to fine-tune, and sometimes to alter dramatically the mental models it holds about itself and its surroundings (Weick and Westley 1996). As a result of their experience with COVID-19, our interviewees suggested that some long-held, "path-dependent," preconceived notions of organizational processes and work methods might be updated, most notably increased acceptance towards remote work:

> What one was used to do before, they are not used to breaking [the routine]…Yes, but I think because of the epidemic, this [remote work] will be more accepted. Because most people, in particular those like me who had barely worked remotely, who might otherwise consider it not easy to manage large engagements with remote work. But if the epidemic forced us to use it and we found it actually not so bad and it was actually all right, so, right? So, it [the adoption of remote work] is accelerated. (P16)

While the auditing firms allowed flexible work prior to COVID-19, it was perceived as "ceremonial," "to show humane management and to showcase firm culture" (P16). COVID-19 forced everyone to adjust to the new work format, and in the process, incidentally led auditors to update their mental model towards how work ought to be done. Many interviewees echoed this view and suggested that onsite fieldwork might be shortened (but not eliminated entirely); some interviewees also mentioned the resources – the amount of time and money associated with travel, the overhead in running the offices – that can be saved if more staff work from home on a flexible schedule. In addition to work format, interviewees updated their mental models about the audit methodology as a result of the experience this year:

> Despite having an effective internal control, the team, in our sample tool, still used risk of moderate…This is where you analyze it a bit data because you see that the internal control is good. You can rate your risk to low, then the sample will be almost decreased by 30% or 40%. This is the kind of things where we didn't recognize too much in detail and being forced by COVID-19, we thought, you'll revisit a bit your procedures to ensure that you are doing what is really necessary in order to be compliant and still be able to ensure the audit quality before issuing your audit opinion. (P23)

Prior experimental literature finds that auditors use analytical procedure results asymmetrically (Biggs et al. 1988; Cohen and Kida 1989), that is, they rely on results from analytical procedures to increase but not to decrease their testing. This quote suggests that the COVID-19 crisis may unintendedly prompt auditors to work both effectively and efficiently, two goals that are both acknowledged in international auditing standards (IAS 300.2, IAASB 2009). Similarly, another interviewee mentioned how audit confirmation procedures might be updated and streamlined as a result of their experience this year.

The updated mental models not only apply to codified declarative knowledge such as audit methodology and audit standards, but also tacit procedural knowledge such as how to

communicate with clients. For instance, one interviewee mentioned they had a "deeper understanding of the client and the market" (P17).

Another possible consequence of improvisation is organizational learning. Improvised processes are sometimes routinized by the organization to enhance future performance (Miner et al. 2001). Several interviewees suggested that they intend to keep their improvised responses going forward, such as "the format of providing regular accounts/reports" (P13) or the increased "frequency of communication with clients" (P14). Others also mentioned accelerated adoption of new technologies:

> [The pandemic] is also a trigger to push firms to develop more automated tools and reduce reliance on human… In fact the global team is developing a program to set up a comprehensive dashboard for clients based on big data, which performs integrative analyses of the whole account. They are launching it now and say when it goes alive, the most direct result is the ability to drastically reduce the amount of samples. I think, given the impact of the epidemic, likely the rollout will be more pressing now. (P11)

However, some aspects of the improvised responses also come at a cost. One consequence of improvisation is increased anxiety due to the uncertainty and the pressure to deliver real-time solutions to unexpected problems (Cunha et al. 1999):

> But at the time there was struggle and pain. For example, the lockdown began in January 22. At the time I had no idea when the engagements can be completed. You had to talk about the situation to all stakeholders, your clients, your foreign member firms, your internal teams, and different parties within the firm… It was a lot of pressure at that time, not knowing how to respond. (P20)

In addition, many interviewees seemed anxious about (loss of) control over the team:

> If it's remote work, I can't monitor 24 hours if they are working. They may be in front of the screen, sticking two eyes (in front of the camera to appear) to be working, and I don't know if they are working or gaming. (P21)

> Actually the epidemic should have nothing to do with it, whether the epidemic exists, the same work has to be done, right? The quality should be the same. But it's very strange, with the epidemic, you wouldn't feel comfort with what you review – not to say uncomfortable, but you just want to know more about everything, to double check to make sure there's no problem… the reports are more or less the same, the issues are more

> or less the same, theoretically speaking the quality can be guaranteed, but it's strange. With the epidemic, people would ask more and would be more meticulous. (P17)

New behavior such as structured communication, which was meant to mitigate the concern over lost control, took up what limited time remains during the busy season ("many colleagues spend a lot of time on the phone during the day", P21). As a result, most of our interviewees described working longer hours:

> Personally, it was horrible. I worked almost every weekend since February to cover the work of the team. Many team members also work at least one day during the weekend. (P23)

V. CONCLUSION

As Mangham and Pye summarize, "Much of the doing of organizing is either a matter of running through a script or an instance of improvisation" (Mangham and Pye 1991, 36). In this paper, we introduce the concept of "improvisation" to auditing literature, describe when and how auditors improvise, as well as some of the antecedents and consequences of auditors' improvisation. We do so through semi-structured interviews with auditors based in China, where the COVID-19 outbreak from the end of December 2019 to April 2020 coincided with auditors' busy season for year-end audit work. Whereas previous crises that auditors had to live through, notably the demise of Arthur Anderson, originated within the core activities of auditing firms, the COVID-19 crisis originated outside the core activities and professional responsibilities of auditing firms yet resulted in a profound impact on how auditors operate.

Informed by literature on crises, we find that the COVID-19 disrupted audit work, both the formal aspect of the audit, i.e., audit procedures documented in working papers and performed in accordance with audit standards, and informal aspect of the audit, i.e., those not covered by audit standards, such as internal and external communication. We find that to ensure audit quality and timely completion of audits, auditors had to improvise in response to the

disruptions. Auditors developed new sequence to perform audit procedures, changed format of how audit evidence is collected, and produced new behavior, notably structured, regular computer-mediated communication within the team and with clients. Consistent with the literature on improvisation, our analysis shows that auditors' improvisation was built on procedural knowledge and declarative knowledge about auditing. In addition, improvisation led to the consideration of new mental models and organizational learning, such as a better understanding of the market, greater acceptance of remote work, and accelerated adoption of technologies. On the other hand, some aspects of improvisation also had negative consequences, in particular heightened anxiety faced with the uncertainty and longer hours as a result of the improvised communication routines.

Our paper makes several contributions to audit literature. We are the first field study to examine the impact of the global COVID-19 crisis on audit work. As the pandemic is still ongoing in most parts of the world at the time of writing, and that hopes for the quick discovery of a fully efficient vaccine remain quite elusive, the impact of the crisis on audit work is likely to continue to be of concern to regulators and auditors (Teotia 2020). As our interviewees commented:

> The year 2020 is when we really create the history. We'll witness many extraordinary things this year. For sure. People say "you only find out who is swimming naked when the tide goes out." This year is when the tide goes out. Even the well-performing customers are having a hard time. What about those who were not performing well? (P8)

The comment applies to clients as well as to audit firms. Our interviewees note a "double whammy", where there is pressure on audit fees as clients experience difficulties, but at the same time the audit risk increases, putting pressure on audit quality. We encourage future studies to explore the ongoing impact of the COVID-19 on the audit profession, particularly on audit planning and audit quality.

Building on management literature on improvisation, we use the COVID-19 crisis as a unique angle to understand how auditors depart from their plans during the fieldwork, and the potential consequences of such departures for audit quality. As audit work is not performed linearly and new situations do arise during audit fieldwork, we contend that auditors must improvise to ensure audit quality and timely completion of audits by designing and executing tasks concomitantly. We encourage future studies to analyze how auditors improvise in less extreme settings, but we believe this study takes the crucial step in describing the existence and highlighting the importance of improvisation in substantive audit work.

Furthermore, our study extends prior audit literature on auditors' communication mode. Prior literature shows that computer-mediated communication could have a negative impact on audit quality (Bennett and Hatfield 2013, 2018; Saiewitz and Kida 2018). Our interview data suggests that a COVID-19 work environement is likely to exacerbate the mobilization of electronic communications, not only by junior staff but also senior managers and partners, resulting notably in fewer relationship-building occasions and less opportunities to exert or develop skepticism. In this respect, our study provides preliminary evidence on the impact of computer-mediated communication involving enhanced audio and visual channels of communication. Although Skype, WhatsApp or Zoom technologies mitigate the lack of face-to-face interactions in the audit process, they involve additional work and efforts to establish mutal understanding of files, status, and actions to be taken. These inefficiencies may reflect the initial cost of adjustment to a new work environement and diminish over time when the technological transformation becomes more integrated in day-to-day routines and interactions. If so, computer-mediated communications may then become an attractive alternative between face-to-face interactions and written electronic communications. While our interviewees believe such

improvised measures of communication help ensure audit quality and timely completion of audits, they also report unintended consequences such as longer hours and stress. We therefore encourage future studies to investigate whether the use of visual and audio channels is less likely to undermine auditors' skeptical behavior, and more generally, whether an "optimal" mix of computer-mediated versus in-person communication mode exists, and if so, what it is.

Our empirical data also highlights differentiated improvisation strategies between local and non-local clients. In essence, non-local clients require not only more extensive use of technologies, sometimes requiring livestream of an entire part of the audit process so that investigative work can be performed at a distance, but also the mobilization of firms' local teams to perform ad hoc tasks, or even entire procedures, on behalf of the home team. From this point of view, practical long-term implications of increased remote work may result in greater organizational agility and optimal allocation of resources within firms, but may also pose potentially challenges to main control over audit quality.

Our study is not without limitations. As with all field studies using semi-structured interviews, we have rich data set but our sample size is limited. The majority of interviewees are from Big 4 and are ranked as managers or senior managers. It is natural to think that responses of Big 4 versus non-Big 4 firms would vary since resources available for them to improvise are different. Similarly, aspects of audit work affected by COVID-19 might differ for staff auditors and managers due to their different job responsibilities, focuses, and access to resources that are antecedents to improvisation. Lastly, although beyond the scope of the current study, we do not provide evidence on whether the audit quality is indeed unaffected after auditors' improvisation. We report only the interviewees' self-assessed audit quality, rather than evidence of measurable audit quality. We leave this open empirical question for future research. Despite these limitations, our in-depth field study provides important initial evidence on the impact of a non-economic crisis on

auditors' work, and provides descriptive evidence on how improvisation is part of the audit process in a way that is impossible when relying on empirical or analytical methods alone (Soltes 2014).

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APPENDIX A

Interview Script

1. How has the COVID-19 outbreak affected you?*

2. What were the challenges of this year's year-end audits compared to last year's (or before)?
    - How did you work on year-end audits? **
        - How did you conduct substantive testing, e.g., procedures that are usually not done electronically such as confirmations, inquiries?
        - How did you conduct internal control testing, e.g., walkthroughs which are usually done at client sites?
        - Are there any "usual" or "regular" procedures that you were not able to perform this year because of the crisis?
    - How did you manage your team (communication, supervision, reviews)?
        - Did you see more presence/implication from partners?
        - If you worked on group audits, how did you work with group/component auditors oversea?
    - How did you manage your relationship with clients?
        - Did you find your clients to be more cooperative / more stressed?
        - Did it affect accessibility to required documents?
        - Did it affect the negotiation of findings?

3. How are you managing this challenge?

4. How is your firm managing this challenge?
    - How did it affect internal processes / work interactions?
        - Any internal guidelines, trainings (working from home)?
        - What resources, if any, did you wish to have, but didn't have?
    - Do you think the firm was prepared to address the crisis created by the pandemic?
    - Have internal performance measures be adjusted in one way or another?

5. What are the implications for audits going forward?
    - What changes, if any, are being retained, or you think will be retained?

* Note: to first allow participants to freely elaborate based on their most salient memory.
** Note: sub-points are used as prompts if the point is not touched by the interviewee previously.

FIGURE 1

Timeline of COVID-19 Outbreak

Dates	COVID-19 Timeline	Audit Timeline
December 31, 2019	WHO China Country Office informed of cases of pneumonia with unknown etiology	Inventory count; fiscal year-end for all Chinese companies
January 2 – January 23, 2020	January 7: Novel coronavirus identified and isolated January 23: City of Wuhan started lockdown, province declared Level 1 emergency	Onsite year-end audit work
January 24 – January 30, 2020	Level-1 emergency activated in multiple provinces, interprovincial travels banned January 27: National extension of Spring Festival statutory holidays until February 2 due to COVID-19 January 30: WHO declared the outbreak to be a public health emergency of international concern	Spring Festival statutory holidays
January 31 – February 2, 2020	Provincial shelter-in-place mandates (restriction on group gathering) until at least February 9	Extended statutory holidays (work from home)
February 3, 2020	Shelter-in-place and social distancing in enforcement	First public equity market trading day in China after extended statutory holidays; continue year-end audits while working from home
February 9, 2020 onwards	Gradual resumption of work; social distancing in enforcement	Continued year-end audits while working from home
March 2020	Gradual resumption of work; gradual going back to office and relaxation of shelter-in-place	March 20: the Chinese Institute of Certified Public Accountants (CICPA) issued guidance on completing audit work during Covid-19
April 2020	April 8: City of Wuhan released quarantine lockdown	April 7: China Security Regulatory Commission (CSRC) allowed delayed annual report disclosure for companies severely impacted

		by Covid-19; encouraged on-time annual report disclosure by April 30 deadline

Sources:
WHO's Coronavirus disease (COVID-2019) situation reports (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports);
CICPA (http://www.cicpa.org.cn/news/202003/t20200320_52507.html);
CSRC (http://www.csrc.gov.cn/pub/zjhpublic/zjh/202004/t20200407_373381.htm);
General Office of the State Council (http://www.gov.cn/zhengce/content/2020-01/27/content_5472352.htm).

Table 1

Improvisation and related constructs*

Construct	Contrast
Improvisation: The convergence of design and execution	
Adaptation: Adjustment of a system to external conditions	Adaptation can occur without the convergence of design and execution; adaptation may involve planning, or invoking routines.
Bricolage: Making due with the means or resources at hand	Bricolage may often occur during improvisation, especially when resources are limited. However, it may also occur in the implementation of pre-existing plans.
Creativity: Novelty or deviation from existing practice	Improvisation involves some degree of creation (design) but of a special sort. Many forms of creativity do not involve combining creation with execution concomitantly (e.g. an author may write a play or a composer may write a symphony that is not performed).
Intuition: Choices are made without formal analysis	Some improvisation may involve intuition. However, the design which converges with execution may include formal analysis and formal knowledge. Intuition is primarily an individual-level phenomenon.

*This table adapts Baker et al. (2003).

TABLE 2

Participants Descriptions

Number	Firm type	Function	Position	Industry	Length
1	Big 4	Audit / Transaction services[7]	Acting senior manager	Pharmaceutical	71 minutes
2	Industry	Internal audit	Staff	Financial institution	61 minutes
3	Big 4	Transaction services	Manager	Retail	28 minutes
4	Big 4	Audit	Manager	Real estate and energy	52 minutes
5	Big 4	Tax advisory	Manager	Various	57 minutes
6	Industry	Financial advisor	Advisor	Financial institution	25 minutes
7	Big 4	Audit	Senior	Financial institution	61 minutes
8	Big 4	Audit	Senior manager	Financial institution	68 minutes
9	Big 4	Audit	Senior	Financial institution	42 minutes
10	Industry	Compliance	Compliance manager	Pharmaceutical	45 minutes
11	Big 4	Audit	Senior manager	Technology	57 minutes
12	Medium local firm	IT audit	Staff	Various	55 minutes
13	Big 4	Audit	Senior manager	Financial institution	55 minutes
14	Big 4	Audit	Manager	Pharmaceutical	57 minutes
15	Small local firm	Audit	Partner	Various	40 minutes
16	Big 4	Audit	Manager	Financial institution	39 minutes
17	Big 4	Tax / Audit	Manager	Various	69 minutes
18	Big 4	Audit	Manager	Manufacturing	48 minutes
19	Big 4	Audit	Manager	Financial institution	49 minutes
20	Big 4	Audit	Partner	Various	48 minutes
21	Big 4	Audit	Senior manager	Pharmaceutical	40 minutes
22	Big 4	Audit	Senior manager	Manufacturing	50 minutes
23	Big 4	Audit	Senior manager	Industrial products	67 minutes
24	Big 4	Audit	Senior manager	Financial institution	60 minutes

[7] This participant recently left audit after about 9 years' experience to join transaction services before the interview was conducted.