

Long-Term Impact of Economic Conditions on Auditors' Judgment*

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Abstract

We find that economic conditions at the time an auditor enters the labor market have a long-term impact on her judgment and decision making. Specifically, engagement partners who started their career during economic downturns issue audit adjustments more frequently. For the subsample of company-years with no audit adjustments, downturn auditors are more likely to issue a modified audit opinion. In addition, companies audited by downturn auditors are less likely to violate financial reporting and disclosure regulations. Together, our findings suggest that early-career stage is a critical formative period for auditors, and that the macroeconomic conditions prevailing at the time of an auditor's labor market entry sear her judgment permanently.

Keywords: Professional Skepticism; Audit Adjustment; Downturn; Imprinting.

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1. Introduction

Auditors' judgment and technical competence are central to the quality of audits (see Libby and Luft (1993) for an early framework). The Public Company Accounting Oversight Board (PCAOB) in the United States and other regulators around the world (e.g., the Financial Reporting Council in the United Kingdom) conclude that auditors' insufficient exercise of professional skepticism leads to many audit deficiencies they identify in their inspections. Several academic studies seek to identify characteristics underlying auditor skepticism and explore factors influencing the degree of skepticism manifested in auditors' decisions or actions (see Nelson (2009) for a thorough review and references). However, due to lack of data on actual audit engagements and absence of data on the identity and personal characteristics of individual auditors responsible for an audit engagement, prior research in this area either uses surveys to test hypothetical case examples or relies on laboratory experiments to gather data. The unique feature of our study lies in our use of two newly-available archival datasets on auditors' personal information and their audit adjustment decisions as an engagement partner. We provide large-sample evidence on whether and how the economic conditions prevailing at the time of an auditor's entry into the labor market affect her professional judgment years later when she works as an engagement partner (due to a phenomenon known as imprinting in the behavioral economics literature, see below).

We focus on an auditor's professional skepticism as "indicated by auditor judgments and decisions that reflect a heightened assessment of the risk that an assertion is incorrect, conditional on the information available to the auditor" (Nelson 2009, p. 1). To measure auditors' judgment and decisions, we use a proprietary dataset of audit adjustments obtained from the Ministry of Finance (MOF) in China. Starting in 2006, Chinese audit firms are required to privately report to the MOF the pre-audit earnings of all publicly-traded clients. This dataset has been used in recent

studies (e.g., Lennox, Wu and Zhang 2014, 2016) and suits well the purpose of our study. Conditional on a client's pre-audit financial statement information, an auditor with a higher degree of skepticism is more likely to detect a misstatement and require the client to correct this misstatement through an adjustment. Thus, an auditor's adjustment decision reveals her degree of professional skepticism.

An auditor's personality characteristics influencing her professional skepticism are obviously unobservable. In the United States, even the identity of the audit engagement partner is not publicly disclosed.¹ Fortunately, in China, the names of the engagement partners are disclosed in audit reports. We also collect from the China Securities Regulatory Commission (CSRC) and the Chinese Institute of Certified Public Accountants (CICPA) demographic information of the auditors, which informs us of the year in which they entered the labor market. We hypothesize that an individual auditor's professional skepticism characteristic is influenced by the economic conditions prevailing at the time she entered the labor market. In particular, adverse economic conditions (or "economic downturns" as defined by a decline in economic growth, described in Section 3.1) are likely to make auditors professionally more skeptical.²

Our hypothesis that an auditor's professional skepticism is shaped by her experiences at the early stage of her career is grounded in a large literature in behavioral economics on imprinting. Marquis and Tilcsik (2013, p. 199) define imprinting as "a process whereby, during a brief period of susceptibility, a focal entity develops characteristics that reflect prominent features of the environment, and these characteristics continue to persist despite significant environmental

¹ The PCAOB recently adopted rules requiring disclosure of the name of the engagement partner starting in 2017 (PCAOB 2015).

² Anecdotal evidence suggests that auditors become more skeptical after they have been personally involved in an audit failure investigation (FRC 2010). The empirical challenge here is that the specific audit experience that an auditor has early in her career might also reflect the individual's quality and characteristics. By looking at economic conditions at labor market entry, we are able to identify an exogenous shock to an auditor's career that does not suffer from this omitted variable bias.

changes in subsequent periods.” Prior research strongly suggests that the early-career stage is a sensitive period of imprinting for individuals (e.g., Higgins 2005; Oyer 2006, 2008; McEvily, Jaffee and Tortoriello 2012; Schoar and Zuo 2016, 2017). For example, Schoar and Zuo (2017) find that CEOs who entered the labor market during U.S. economic downturns adopt more conservative management styles.

We hypothesize that a higher degree of professional skepticism is imprinted on auditors who enter the labor market during economic downturns. An auditor can be passively imprinted since the environment determines the type of initial training or exposure that she receives (e.g., Baron, Burton and Hannan 1999). Alternatively, an auditor might actively build a certain type of human capital in an environment that highlights its value (e.g., Gibbons and Waldman 2004, 2006; Dessein and Santos 2016). It is well-known that there is greater uncertainty in economic downturns, which makes it harder for outsiders to assess a company’s financial performance (e.g., Bloom 2009; Loh and Stulz 2017). In addition, economic downturns adversely affect corporate earnings and executives often face pressure to embellish their financial performance in those periods (Hawkins 2009). To the extent that the role of auditors is “to obtain reasonable assurance about whether the financial statements are free of material misstatement” (PCAOB 2017), auditors should be more skeptical in the presence of heightened risks of misstatements during economic downturns.

Consistent with this argument, anecdotal evidence suggests that in response to the increased risk of accounting misstatements and audit failure, audit firms in economic downturns usually issue additional technical guidance, require additional training, develop new audit tools, require additional audit procedures, increase the monitoring of audit engagement personnel, and strengthen their quality control systems (Baker 2016; Moussalli, Karahan and Islam 2016). Therefore, auditors who join the profession in economic downturns (we label them as “downturn

auditors”) are likely to face different work environments, receive different training, and ultimately have different initial job experience than their peers who start in prosperous periods. In addition, downturn auditors might view skepticism as a critical attribute of the profession and actively develop a skeptical mindset. We hypothesize that those auditors carry the imprint of their initial environment throughout their careers.

We test our hypothesis using a sample of 8,163 audits conducted over the period 2006–2011. We find that audit adjustments happen more often for engagement partners who started their career in economic downturns. In terms of economic significance, the marginal effect of starting in economic downturns on audit adjustments (4.8 percent) is more than half as big as the effect of mandatory partner rotation documented in Lennox, Wu and Zhang (2014). In addition, we find that starting during longer or more severe economic downturns has a greater effect on an auditor’s adjustment decisions. Furthermore, using a smaller sample, we find evidence that auditors who entered the labor market during a period with heightened exposure to audit failure investigations develop a higher degree of professional skepticism than their peers. Together, these results suggest that an auditor’s initial mindset developed at job market entry affects her audit work even years later when she becomes an engagement partner.

We perform a battery of additional tests and analyses to ascertain the robustness of our findings. The results are as follows. First, for the subsample of company-years with no audit adjustments, downturn auditors are more likely to issue a modified audit opinion. This result is consistent with the idea that a downturn auditor’s professional skepticism will be reflected in her proclivity to issue a modified audit opinion in the absence of an audit adjustment. Second, companies audited by downturn auditors are less likely to misstate their financial reports or face

enforcement actions from the regulator. This finding is consistent with other auditors (versus downturn auditors) being insufficiently skeptical.

Third, our results hold for downward and upward adjustments, as well as for large and small adjustments. Fourth, our inferences on audit outcomes are robust to the type of the first job an auditor holds, suggesting an incremental impact of the general economic environment at the start of an auditor's career in shaping her professional judgment (skepticism). Fifth, downturn auditors bill slightly more audit hours but do not charge higher audit fees, and our results are robust to controlling for audit hours and audit fees. Sixth, big audit firms do not appear to mute the difference between downturn auditors and other auditors. This result suggests that auditors' cognitive features are unlikely to be countervailed by strong governance (Libby 1981; Gibbins and Swieringa 1995; Bonner 2008), which resonates with the recent findings in the literature that engagement partners' own style leaves an imprint despite the standardization of audit procedures in big audit firms (e.g., Gul, Wu and Yang 2013; Aobdia, Lin and Petacchi 2015).

Our hypothesis is that imprinting and/or learning contributes to auditors' professional skepticism and the documented audit outcomes. Auditor selection is a potential alternative explanation for our findings, which we also test for. Audit firms might choose to hire more skeptical or talented job applicants as junior staff during economic downturns. However, a person's degree of skepticism or talent is unobservable to outsiders, and employers have to rely on a person's observable characteristics to determine whether to hire her. A common criterion used by audit firms for the hiring decisions is success at university, which is viewed as requiring curiosity and an inquiring mind (FRC 2010). To test whether the selection channel plays an important role in our setting, we compare the observable characteristics of downturn auditors and other auditors at labor market entry, i.e., whether the auditor has a college or higher degree, the

reputation of the auditor's undergraduate university, whether the auditor's college major is accounting, whether the auditor is a Chinese Communist Party (CCP) member, and the auditor's gender. Because we do not observe systematic differences between downturn auditors and other auditors on these *ex-ante* observable characteristics, we conclude that selection is unlikely to explain the documented phenomena.³

Our findings suggest a link (but not necessarily a causal relation) between an auditor's early career experience and audit outcomes. Audit partners are not randomly assigned to clients, and clients can actively engage in partner-level opinion shopping (Chen, Peng, Xue, Yang and Ye 2016). Risky clients might press audit firms to assign less skeptical auditors (e.g., auditors who started their career during economic good times) as their engagement partners. If this were true, we would expect to observe that companies audited by these auditors are less likely to make an audit adjustment or receive a modified opinion, but are more likely to commit accounting fraud. While this self-selection story presents a complication in interpreting our results, interestingly, it still supports our hypothesis that an engagement partner's initial mindset for an audit carries the imprint of the economic environment at her job market entry, which risky clients take into account when engaging in opinion shopping.

Our study makes three main contributions. First, we offer large-sample evidence of the determinants of professional skepticism using archival data. This approach complements prior studies relying on surveys or laboratory experiments (Libby, Bloomfield and Nelson 2002; Bloomfield, Nelson and Soltes 2016). Second, our study responds to the call of DeFond and Zhang (2014) for more research on "individual auditor characteristics, such as professional skepticism,

³ We acknowledge that there could be selection on unobservables. However, independent of the specific channel (imprinting or selection), our results suggest that economic conditions can impose an important constraint on the type of auditors that are ultimately available in the auditing profession.

personality traits, gender, the complex audit team interactions, and the socio-economic characteristics” (p. 304), and contributes to a growing literature that emphasizes the importance of individual auditors in affecting audit outcomes. Finally, we contribute to the literature on imprinting by providing evidence that the early-career stage is a sensitive period of imprinting for auditors.⁴ Our findings corroborate prior research that studies a variety of populations, including economists, scientists, lawyers, investment bankers, and corporate managers.

Section 2 reviews related literature. Section 3 explains our sample and research design. Section 4 presents the main results and Section 5 provides some supplemental analyses. We conclude in Section 6.

2. Related Literature

The analysis in the paper is predicated on three key links: (i) an auditor’s adjustment decision reveals her degree of professional skepticism; (ii) individual engagement partners matter to audit outcomes; and (iii) economic conditions at the early stages of an individual’s career shape her mindset through imprinting and learning. All of these links are extensively researched and well established in the literature. We briefly review the three bodies of research, which leads to the main hypothesis of the paper.

2.1. Professional Skepticism and Audit Quality

Auditing is essential to the well-functioning of capital markets and the protection of investors (Watts and Zimmerman 1986; Kothari, Ramanna and Skinner 2010; DeFond and Zhang 2014). Regulatory pronouncements and academic literature all stress a connection between professional skepticism and audit quality. Auditors’ willingness to challenge their clients is

⁴ It is important to note that we do not argue that an auditor’s early career stage is the only sensitive period of imprinting. As noted in Marquis and Tilcsik (2013), imprinting can also occur at other major transition periods (e.g., promotions), which we do not test for in this paper.

essential to deterring corporate fraud and in their ability to credibly certify that a company's financial statements are free of material misstatements.

Auditing standards define professional skepticism as “an attitude that includes a questioning mind and a critical assessment of audit evidence. The auditor uses the knowledge, skill, and ability called for by the profession of public accounting to diligently perform, in good faith and with integrity, the gathering and objective evaluation of evidence” (PCAOB 2006a, AU 230.07–09). Auditing standards emphasize that professional skepticism is fundamental to the performance of auditors and should be applied throughout the audit (e.g., FRC 2010; PCAOB 2012, 2015a). Lack of professional skepticism has been identified as a primary contributor to audit failure (Carmichael and Craig 1996), the SEC enforcement actions (Beasley, Carcello and Hermanson 2001), and malpractice claims against auditors (Anderson and Wolfe 2002). Recognizing the crucial role of professional skepticism in determining auditor performance, SAS No. 99 (AICPA 2002) states that “because of the characteristics of fraud, the auditor’s exercise of professional skepticism is important when considering the risk of material misstatement due to fraud ... The auditor should conduct the engagement with a mindset that recognizes the possibility that a material misstatement due to fraud could be present, regardless of any past experience with the entity and regardless of the auditor’s belief about management’s honesty and integrity. Furthermore, professional skepticism requires an ongoing questioning of whether the information and evidence obtained suggests that a material misstatement due to fraud has occurred” (PCAOB 2006b, AU 316.13).

2.2. Determinants of Professional Skepticism

A large academic literature with antecedents in psychology sheds light on the determinants of professional skepticism. Nelson (2009) integrates this line of academic work and develops a

model of professional skepticism. In his model, an auditor's professional skepticism is generated by her judgment, revealed by her skeptical behavior, and reflected in her performance. Similar to Libby and Luft (1993) and Nelson and Tan (2005), Nelson (2009) identifies auditor knowledge, traits, and incentives as important inputs to an auditor's judgment process and action. In this paper, we look at the economic environment at the time of an auditor's labor market entry and argue that it affects the auditor's initial mindset for an audit even years later when she becomes an engagement partner. Since our focus is on engagement partners, we view this auditor characteristic as a trait because it is pre-determined by the time when the auditor becomes an engagement partner and leads an audit.

Due to lack of data on actual audit engagements, prior studies on the relation between auditor traits and professional skepticism commonly rely on surveys or laboratory experiments to gather data. For example, Libby and Tan (1994) assess problem-solving ability using responses to GRE questions and find that problem-solving ability significantly affects performance of audit tasks that require exercise of professional skepticism. Jones, Massey and Thorne (2003) review a set of papers that assess auditors' ethics or moral reasoning via instruments such as Rest's (1986) Defining Issues Test (DIT). Hurtt (2007) develops and tests an auditing-focused skepticism scale using a 30-question instrument, and Fullerton and Durtschi (2005) and Hurtt, Eining and Plumlee (2008) provide evidence that the Hurtt score predicts skeptical behavior. In contrast, we gather archival data on individual characteristics for a large sample of auditors and study the effect of initial labor market conditions on auditor behavior.

In his model, Nelson (2009) differentiates between skeptical judgment and skeptical action and notes that skeptical judgment needs to reach a threshold to create action (Shaub and Lawrence 2002). Much prior audit research draws on foundational work in psychology (e.g., Tversky and

Kahneman 1974) to study how cognitive features affect auditor judgment. For example, Libby (1985) provides evidence that differential availability of memories affect assessed probability of errors and non-errors. In this paper, we cannot directly test the effect of the initial economic condition on an auditor's judgment, which is unobservable. Instead, we test its effect on an auditor's actions (output). Prior research studies at least two actions that reflect the degree of auditor skepticism: audit-planning decisions (e.g., Libby, Artman and Willingham 1985) and adjustment decisions (e.g., Kinney and Martin 1994; Nelson, Elliott and Tarpley 2002; Ng and Tan 2003; Tan and Trotman 2010). In this paper, we analyze newly-available archival data on audit adjustments for a large sample of actual audits to test for the influence of an auditor's early career experiences on those adjustments.

2.3. Engagement Partner Effects

The premise underlying our study is that individual engagement partners affect audit outcomes because they exhibit variation in professional skepticism. A premise of individual effects in itself is not new to the literature (see Lennox and Wu (2016) for a recent review). Evidence of individual effects on audit outcomes is demonstrated in several studies using archival data from China. The individual effects are due to skill, talent, and experience, as well as conflict of interest. For example, Gul, Wu and Yang (2013) adopt Bertrand and Schoar's (2003) methodology in documenting economically significant individual partner effects. The differences attributable to the quality of engagement partners are rewarded by capital market participants (see Aobdia, Lin and Petacchi 2015).⁵ Experience of audit engagement partners also generates detectable

⁵ Knechel, Vanstraelen, and Zerni (2015) find similar evidence for Sweden. See Kinney (2015) for a discussion of this latter study. Carcello and Li (2013) provide evidence of improved audit quality in U.K. firms after the engagement partner signature requirement was adopted. Amir, Kallunki and Nilsson (2014) analyze a dataset on Swedish auditors' criminal convictions and find that audit partners with criminal convictions have a riskier client portfolio than those without criminal convictions.

differences in the quality of the audits, as seen from Ke, Lennox and Xin (2015) who find that the audits are of a lower quality for the relatively inexperienced partners that Big 4 audit firms assign to companies listed only in China (compared with companies cross-listed in Hong Kong). Li, Qi, Tian and Zhang (2017) find that partners who have performed failed audits also deliver lower quality audits on other audit engagements.

Evidence of conflict of interest is found in Chen, Peng, Xue, Yang and Ye (2016), who adopt the methodology of Lennox (2000) and show that companies successfully engage in partner-level opinion shopping. Guan, Su, Wu and Yang (2016) and He, Pittman, Rui and Wu (2017) document that social ties between partners and client executives or audit committee members impair audit quality. Lennox, Wu and Zhang (2014) find that audit adjustments are more frequent during the years immediately surrounding rotation of engagement partners, which is consistent with rotations breaking up the cozy relationships between auditors and management.⁶ Alternatively, in the U.S. setting, Laurion, Lawrence and Ryans (2017) utilize SEC comment letters to identify audit partner rotations to suggest that partner rotations support a fresh look at the audit engagement.

We build on this stream of literature and document that the economic condition at the time of an auditor's entry into the labor market affects her judgment and decision making even years later when she becomes an engagement partner.

2.4. Imprinting

The importance of the early stage of an auditor's career has origins in a nascent literature on imprinting. Marquis and Tilcsik (2013) offer a thorough review of this literature and advance a

⁶ Using audit data from Taiwan, Chi, Huang, Liao and Xie (2009) find no evidence that abnormal accruals and earnings response coefficients are affected by mandatory partner rotation. Bamber and Bamber (2009, p. 397 and p. 399) point out that “[P]roxies such as abnormal accruals and earnings response coefficients may be among the more popular measures used to date, but they are nonetheless noisy measures of earnings quality, much less audit quality.”

three-part definition of imprinting that emphasizes “(1) brief sensitive periods of transition during which the focal entity exhibits high susceptibility to external influences; (2) a process whereby the focal entity comes to reflect elements of its environment during a sensitive period; and (3) the persistence of imprints despite subsequent environmental changes” (p. 195). Marquis and Tilcsik (2013) state that the beginning of an individual’s career marks a major transition from the world of education to the world of work and hence constitutes a critical sensitive period. Individuals often experience anxiety and cognitive unfreezing at their labor market entry, and are particularly open to environmental stimuli over this period (Schein 1971). As a result, an individual is especially likely to develop her professional mindset during this formative period, causing her subsequent actions to bear the stamp of this initial environment. The long-term endurance of imprints beyond the sensitive period has been documented for a variety of populations, including economists, scientists, lawyers, investment bankers, and corporate managers (Higgins 2005; Azoulay, Liu and Stuart 2011; McEvily, Jaffee and Tortoriello 2012; Tilcsik 2012).

Long-term effects attributable to the economic conditions at an individual’s labor market entry have been well-documented. For example, initial macroeconomic conditions have a large causal impact on economists’ long-run research productivity (Oyer 2006), and stock market conditions at MBA students’ graduation affect whether they directly go to Wall Street and their lifetime income (Oyer 2008). Imprinting effect in the corporate sector is presented in Schoar and Zuo (2017), who find that managers who started their careers during economic downturns adopt more conservative management styles even decades later as CEOs. Interestingly, the announcement return around the appointment of a downturn CEO is reliably positive, suggesting that there is a limited supply of these types of CEOs in the executive labor market (see Schoar and Zuo 2016).

In this paper, we hypothesize that, given the importance of professional skepticism in the presence of heightened risks of misstatements during economic downturns, auditors who join the profession during those periods are more likely to be exposed to an environment that highlights the value of professional skepticism, and those auditors carry the imprint of their initial environment throughout their careers. We form the following hypothesis:

Hypothesis: Engagement partners who started their career during economic downturns exhibit a higher degree of professional skepticism compared to their peers.

3. Research Methods

3.1. Sample and Data

We gather data on audit adjustments, engagement partners, and companies in China from a variety of sources. We obtain a proprietary dataset on audit adjustments from China's Ministry of Finance (MOF). Since 2006, audit firms in China have been required to report their clients' pre-audit earnings privately to the Ministry. The Inspection Bureau of the Ministry uses this information to identify inspection targets.

We hand collect the names of the engagement and review partners from annual reports. Following Lennox, Wu and Zhang (2014), we use the term "partner" to describe the signing auditor. In China, auditors with a CPA license and work at an audit firm authorized by the China Securities Regulatory Commission (CSRC) to audit publicly listed companies are qualified to sign audit reports of their clients. The two signing auditors' signatures appear on the audit report, with the top signature from the review partner, and the bottom signature from the engagement partner. The review partner is usually more senior than the engagement partner. In our analysis, we focus on engagement partners because the engagement partner plays a more important role in the audit field work (Lennox, Wu and Zhang 2014; Aobdia, Lin and Petacchi 2015; PCAOB 2015b).⁷ We

⁷ We repeat our main tests for review partners and do not find a significant effect of review partners on audit outcomes.

compile data on auditors' individual characteristics from the auditor resumes provided by CSRC and auditors' demographic information provided by the CICPA.

We collect data on CSRC enforcement actions from the CSRC website, and earnings restatement data from annual reports. In addition, we obtain other company-level data from the China Stock Market and Accounting Research (CSMAR) database. Our sample period is from 2006 to 2011. We start our sample in 2006 when audit adjustment data first became available.

Our final sample includes 8,163 company-year observations for 2,486 engagement partners across 2,205 client companies over the six-year period 2006–2011.⁸ Our sample size and distribution by year and industry are quite similar to those reported in Lennox, Wu and Zhang (2014, 2016). Table 1 presents the sample breakdown by year (Panel A) and industry (Panel B). For the whole sample, 56.39 percent of engagements are conducted by partners who started their career in economic downturns. We label them as “downturn auditors.” Audit adjustments occur in 65.56 percent of the engagements. In addition, the rates of downturn auditors and audit adjustments are relatively stable over the sample period and across industries.

Panel C of Table 1 presents the sample breakdown by an auditor's year of entry into the labor market. We follow Liu (2009) in defining China's economic downturn years, and a year is classified as a downturn when there is a decline in economic growth (measured by real GDP growth).⁹ Specifically, the following 22 years over the period 1964–2008 are classified as

⁸ In our sample, 1,344 engagement partners (54 percent) audit one company over the six-year period, 585 (23.5 percent) audit two companies, 265 (10.7 percent) audit three companies, and 292 (12 percent) audit four or more companies. Out of 2,205 client companies, 702 (23.6 percent) are only audited by downturn auditors, and 521 (31.8 percent) are only audited by other (as opposed to downturn) auditors. Our sample includes 42 audit firms in 2006, 47 in 2007, and 48 in each year from 2008 to 2011. Due to audit market consolidation (Gong, Li, Lin and Wu 2016), the number of clients for an average (median) audit firm increases steadily from 21 (16) in 2006 to 39 (25) in 2011, and the number of engagement partners in an average (median) audit firm increases from 16 (12) in 2006 to 28 (17) in 2011.

⁹ Shucheng Liu is a former director of the Institute of Economics of the Chinese Academy of Social Sciences (CASS). The CASS is “the premier academic organization and comprehensive research center of the People's Republic of China in the fields of philosophy and social sciences” (<http://casseng.cassn.cn/>). Liu's analysis of economic conditions in China parallels the U.S. analysis conducted by the National Bureau of Economic Research (NBER).

downturn years: 1967, 1968, 1971, 1972, 1974, 1975, 1976, 1979, 1980, 1981, 1985, 1986, 1989, 1990, 1993, 1994, 1995, 1996, 1997, 1998, 1999, and 2008. Most of the engagement partners included in our sample started their career in the 1990s or 2000s.

3.2. Research Design

To test our hypothesis that macroeconomic environment at an auditor's career start affects her mindset and hence her adjustment decisions, we estimate the following logistic model of audit adjustments:¹⁰

$$Adjustment_{it} = \alpha_0 + \alpha_1 Downturn_{it} + Controls + \varepsilon_{it}. \quad (1)$$

The dependent variable ($Adjustment_{it}$) equals one if there is an audit adjustment to company i profits in year t , and zero otherwise. Our variable of interest, $Downturn_{it}$, equals one if the engagement partner for company i in year t started her career in an economic downturn. We predict that α_1 is positive, suggesting that downturn auditors exhibit a higher degree of professional skepticism than other auditors and thus more frequently require audit adjustments.

We include three sets of control variables. Our first set of control variables captures salient auditor characteristics identified in Chen, He and Ke (2016), such as whether the auditor has a college or higher degree (*College Degree*), the reputation of the auditor's undergraduate university (*College Rep*), whether the auditor obtained her CPA license by passing the CPA exam or not (*License*),¹¹ the proportion of the audit firm's clients (measured in total assets) audited by the auditor in the past five years (*Client Pct*), whether the auditor's college major is accounting (*Major*), whether the auditor is an industry specialist (*Specialist*), the number of years an auditor has served as an engagement partner (*Experience*), whether the auditor is a Chinese Communist

¹⁰ This model follows Lennox, Wu and Zhang (2014). All our results are robust with linear probability models (untabulated).

¹¹ Due to a grandfather clause, a significant percentage of Chinese (typically older) auditors obtained their CPA license without passing the formal CPA exam.

Party member (*CCP*), and the auditor's gender (*Female*) and age (*Age*). This first set of control variables is included in the model to control for potential intrinsic differences between downturn auditors and other auditors.

Following Lennox, Wu and Zhang (2014), we control for two sets of variables that explain the occurrence of an audit adjustment. An audit adjustment happens when two conditions are met: (1) a misstatement exists, and (2) the auditor detects a misstatement and requires the client to correct the misstatement. Our second set of control variables relates to company characteristics that explain the existence of a misstatement (condition #1). Specifically, we control for company size (*Size*), profitability (*ROS*) and leverage (*Lev*), which are associated with the incidence of misstatements (Kinney and McDaniel 1989; DeFond and Jiambalvo 1994). We control for whether the company engages in an M&A transaction (*M&A*) and the number of consolidated subsidiaries (*Subsidiaries*) as M&A transactions and complicated accounting issues in large corporate groups increase the likelihood of misstatements (Kinney, Palmrose and Scholz 2004). Four corporate governance variables are also included (Klein 2002; Keune and Johnstone 2012): board size (*Board Size*), the number of board meetings (*Board Meetings*), whether the CEO concurrently serves as the chair of the board (*Duality*), and whether an audit committee exists (*Audit Com*).¹²

Our third set of control variables represents audit characteristics that are related to the probability that the auditor detects a misstatement and requires the client to correct the misstatement (condition #2).¹³ Specifically, we control for the size of the audit firm (*Big4*) and audit firm tenure (*Tenure*). We also control for whether the incumbent audit firm merges with

¹² Lennox, Wu and Zhang (2014) also control for whether the company receives a modified audit opinion (*MAO*) in the audit adjustment regression. It is not included in our regressions because an auditor's audit opinion is also likely affected by her early career experience (i.e., *Downturn*). Our results are virtually unchanged when we include this additional control in the audit adjustment regression.

¹³ This joint probability is defined by DeAngelo (1981) as the level of audit quality.

another audit firm (*Auditor M&A*) as Chan and Wu (2011) find an increase in audit quality after audit firm mergers in China. Keune and Johnstone (2012) find that for clients with higher audit fees and lower analyst following, auditors are less likely to allow managers to waive audit adjustments. Therefore, we control for the audit fee (*Fee*) and analyst following (*Analyst*).

Finally, we include industry and year fixed effects in all regressions. We cluster standard errors by client given multiple yearly observations for each client (Petersen 2009).¹⁴

3.3. Summary Statistics

Table 2 presents summary statistics for the control variables. Detailed definitions of these variables appear in the Appendix. All continuous variables are winsorized at the top and bottom one percent to mitigate the influence of extreme values. Panel A lists five auditor characteristics that are pre-determined at labor market entry (at the auditor level): *College Degree*, *College Rep*, *Major*, *CCP*, and *Female*.¹⁵ Our sample includes 2,486 engagement partners, equally distributed between downturn and other starters (1,250 versus 1,236). Most of the differences between downturn and other auditors are statistically insignificant, except for the difference of *Major*, which is marginally significant at the 10 percent level. This set of results suggests that audit firms do not proactively hire certain types of individuals during downturns versus other periods.

Panel B lists other variables at the company-year level. The first set of variables relates to auditor characteristics. The results generally suggest that downturn auditors are more competent

¹⁴ Our inferences are unchanged when standard errors are clustered by auditor. Our results are also robust when we include audit firm fixed effects. We do not include client fixed effects due to limited time-series (i.e., six-year) data. Controlling for client fixed effects would address concerns that unobserved client characteristics confound our estimates. With industry fixed effects, we cannot rule out that the relation between downturn auditors and audit outcomes are due to endogenous matching between clients and auditors within industries. For example, risky clients may pick less skeptical auditors as their engagement partners. Therefore, our results suggest a relation (instead of a causal link) between downturn auditors and audit outcomes. This caveat is common to other studies (e.g., Benmelech and Frydman 2015).

¹⁵ We do not have data on the specific year when an individual joins the CCP. Given that it is normal for an individual to join the CCP while in college, we assume that this variable is pre-determined at job market entry.

and experienced than other auditors. For example, downturn auditors audit a larger proportion of the audit firm's clients, and are more likely to be industry specialists. They are also more experienced as an engagement partner and older.

The second set of variables relates to client characteristics that explain the existence of a misstatement. Compared with companies audited by their peers, companies audited by downturn auditors are smaller, less profitable, have a larger board, hold fewer board meetings, and are less likely to have an audit committee. This set of results suggests that companies audited by downturn auditors seem more risky than other companies.

The last set of variables includes audit characteristics that are related to the probability that the auditor detects a misstatement and requires the client to correct the misstatement. The audit firm that a downturn auditor works at is less likely to be a Big 4 firm, charges a lower audit fee, and has a longer tenure with the client. In addition, companies audited by downturn auditors are less likely to be followed by an analyst. These results suggest that downtown auditors are more likely to work in audit firms that allow clients to waive audit adjustments.

Overall, the statistics in Table 2 suggest that there are systematic differences in individual/client characteristics between downturn auditors and other auditors, and that controlling for these observable characteristics in the regressions helps identify the direct effect of an auditor's early career experiences on her adjustment decisions when she works as an engagement partner.

4. Main Results

4.1. Univariate Results on Audit Adjustments

Panel A of Table 3 reports the frequency of audit adjustments for the full sample. There are 2,811 audits with no adjustments (34.44 percent), 3,608 audits with net downward adjustments (44.20 percent), and 1,744 audits with net upward adjustments (21.36 percent). These statistics are

similar to those reported in Lennox, Wu and Zhang (2014), and also consistent with findings in Kinney and Martin (1994) and Nelson, Elliott and Tarpley (2002) that adjustments occur for 60–90 percent of U.S. audits and downward adjustments are more frequent than upward adjustments.

Panel B of Table 3 presents univariate tests on the hypothesis that audit adjustments occur more often for audits led by downturn auditors than for audits led by other auditors. The audit adjustment frequencies are 68.50 percent for downturn auditors, and 61.77 percent for other auditors, and this difference is significant (p -value < 0.001). In addition, both downward and upward adjustments occur significantly more often for downturn auditors.

4.2. Regression Results on Audit Adjustments

Table 4 reports the regression results of estimating Equation (1). In column 1, we follow Lennox, Wu and Zhang (2014) by adding *Downturn* as an additional explanatory variable. In column 2, we include control variables related to auditor characteristics. In column 3, we restrict the sample to auditors who entered the labor market in the 1990s or thereafter. Consistent with our prediction, in all three columns, the coefficient on *Downturn* significantly and positively predicts audit adjustments. That is, audit adjustments occur more often when the engagement partner started her career in an economic downturn, consistent with early career experiences shaping an auditor’s initial mindset even years later as an engagement partner.¹⁶

The economic magnitude of the results is gauged from the effect of *Downturn* on the likelihood of an audit adjustment, holding constant all other determinants at their mean values. Based on the coefficient estimates in column 2, the mean predicted audit adjustment probability is

¹⁶ Throughout the paper, we compare downturn auditors with auditors who entered the labor market during economic expansions. In additional analysis, we include in the model an indicator variable for auditors who entered the labor market during the peak of an economic expansion (we label them as “peak auditors”). We use those auditors who started their career in neither downturns nor peaks as the benchmark group. Consistent with our prediction, we find that audit adjustments occur more often for downturn auditors and less often for peak auditors (compared with the benchmark group).

67.69 percent when the engagement partner is a downturn auditor and 62.88 percent when the engagement partner is not a downturn auditor. This marginal effect of *Downturn* (4.78 percent) is more than half as big as the effect of mandatory partner rotation (6.5 to 9.3 percent) documented in Lennox, Wu and Zhang (2014). Thus, the impact of early career experience on an auditor's adjustment decision is both economically and statistically significant.

The behavior of the control variables is as predicted. For example, audit adjustments are more frequent for auditors who majored in accounting at college and have more years of experience serving as an engagement partner. These results suggest that more competent auditors with stronger accounting knowledge exhibit a higher degree of professional skepticism. Interestingly, we find that industry specialist auditors require fewer adjustments than other auditors, which is consistent with the idea that knowledge might not always enhance professional skepticism (Nelson 2009): industry specialists might be more likely to assume non-errors as the explanations for audit findings (Solomon, Shields and Whittington 1999). We also find that female auditors are more skeptical than male auditors.

In addition, audit adjustments occur less often for larger companies, companies with higher leverage, and companies audited by Big 4 accounting firms. Audit adjustments occur more often for companies with more board meetings or when the incumbent audit firm has a longer tenure, engages in an M&A transaction, or charges a higher audit fee.

4.3. Intensity of Treatment

The results in Table 4 support our hypothesis that auditors who started their career in an economic downturn are more skeptical and thus more frequently require audit adjustments. The coefficient on the dummy variable *Downturn* captures the average treatment effect. In Table 5, we investigate the intensity of the treatment effect with three continuous variables (rescaled to range

from zero to one). In column 1, we replace *Downturn* in Equation (1) with the number of years that an economic downturn lasts (*Downturn Length*). In column 2, we replace *Downturn* with *Downturn Depth*, which is defined as the magnitude of the cumulative drop in GDP growth rates over an economic downturn. Consistent with our prediction, the coefficient on *Downturn Length* or *Downturn Depth* is positive and statistically significant, suggesting that starting during longer or more severe economic downturns has a greater effect on an auditor's judgement.

In column 3, we replace *Downturn* with *Sanction*, which is defined as the percentage of auditors (of public firms) sanctioned by the CSRC or the MOF over the year when the engagement partner entered the labor market. For this analysis, our sample is restricted to auditors who entered the labor market during 2001–2008, the period over which the CSRC sanctions related to problematic audits are publicly announced on its website.¹⁷ We supplement the CSRC data with the MOF sanctions based on its “Accounting Inspection” bulletins and related news reports. Over the eight-year period, the number of sanctioned auditors varies from 4 (in 2006) to 22 (in 2001 and 2005). As a percentage of the total number of auditors of public firms, sanctioned auditors account for 0.28 percent (in 2006) to 2.65 percent (in 2001). Our sample size in this analysis is reduced to 2,166 company-year observations.¹⁸ Nevertheless, the coefficient on *Sanction* is positive and statistically significant, as predicted. This result suggests that auditors who entered the labor market during a period with heightened exposure to audit failure investigations develop a higher degree of professional skepticism than their peers.

¹⁷ See <http://www.csrc.gov.cn/pub/zjhpublic/index.htm?channel=3300/3313>.

¹⁸ Due to the limited number of observations, we replace year fixed effects with period fixed effects in this analysis where the years 2006–2008 are coded as one period.

5. Supplementary Analyses

5.1. Results on Audit Opinion

In the above analysis, we focus on an auditor's adjustment decisions, which reflect her degree of skepticism. In this section, we investigate whether early career experiences affect an auditor's reporting decisions. For less risky clients, an audit adjustment can be sufficient to correct misstatements. However, for more risky clients (with a significant amount of potential misstatements), a more skeptical auditor is more likely to issue a modified opinion instead of requiring an audit adjustment. To test this prediction, we estimate the following model of audit opinion:

$$MAO_{it} = \alpha_0 + \alpha_1 Downturn_{it} + Controls + \varepsilon_{it}. \quad (2)$$

The dependent variable (MAO_{it}) equals one if company i receives a modified audit opinion in year t , and zero otherwise. Following Wang, Wong and Xia (2008), we classify unqualified opinions with an explanatory paragraph, qualified opinions, disclaimers, and adverse opinions as modified opinions. Our prediction is that downturn auditors are more likely to issue a modified audit opinion in the absence of an audit adjustment. Thus, we predict that α_1 is positive for the subsample of company-years with no audit adjustments.¹⁹

Besides controlling for the basic auditor characteristics described in Section 3.2, we include a set of control variables following prior research on auditors' reporting decisions (Dopuch, Holthausen and Leftwich 1987; Bell and Tabor 1991; DeFond, Wong and Li 2000; Chen, Chen and Su 2001; Chan and Wu 2011). We control for client size, profitability (return on sales, asset turnover, and the incurrence of loss) and leverage because large, profitable clients with low

¹⁹ This subsample consists of three cases: (1) no adjustment is needed, (2) a proposed adjustment is declined by management, and (3) the client is so risky that no adjustment can alleviate the auditor's concern. We cannot empirically separate these three cases. Our prediction holds for the second and third cases.

leverage usually impose less risk for auditors. Firm age is included as a control as older Chinese firms are more likely to suffer financial distress after exhausting the proceeds from the initial public offering (DeFond, Wong and Li 2000). We control for the client's current ratio (which indicates a lower degree of audit risk) and the amount of accounts receivable and inventory (which indicates a higher degree of audit risk). To control for the effect of earnings management, we use a dummy variable that equals one if the client's return on equity is between zero and one percent (Chen, Chen and Su 2001; Haw, Qi, Wu and Wu 2005; Chan and Wu 2011). Two stock market variables related to audit risk are included in the model: audit risk is expected to be lower for clients with higher market-adjusted stock returns and lower stock return volatility (Ali, Hwang and Trombley 2003). We follow Chan and Wu (2011) in computing this set of control variables. Finally, industry and year fixed effects are included in the model.²⁰

Table 6 reports the results on audit opinion. Panel A presents the univariate tests. For the subsample of company-years with no audit adjustments, downturn auditors are more likely to issue a modified audit opinion than other auditors (6.76 percent versus 3.97 percent, p -value = 0.001). For the subsample of company-years with audit adjustments, there is no difference between downturn and other auditors in terms of the likelihood of issuing a modified audit opinion (5.80 percent versus 5.50 percent, p -value = 0.639). Panel B presents the regression results of estimating Equation (2). Consistent with our prediction, we find a significant positive coefficient on *Downturn* for the subsample of company-years with no audit adjustments (z -stat. = 2.33 in column 1), and an insignificant coefficient on *Downturn* for the subsample of company-years with audit adjustments (z -stat. = -0.08 in column 2). In terms of economic significance, the marginal effect of *Downturn* for the non-adjustment subsample is 1.51 percent (holding constant all other

²⁰ Our inferences are unchanged when we include the full set of control variables listed in Section 3.2 in this model.

independent variables at their mean values). The behavior of the control variables is generally consistent with prior literature. For example, we find that larger, more profitable, younger clients with lower leverage are less likely to receive a modified audit opinion.

We conduct two robustness checks to address the issue that unqualified opinions with an explanatory paragraph are intrinsically different from other modified opinions (untabulated). First, we drop clients whose audit reports contain unqualified opinions with an explanatory paragraph. Second, we perform a multinomial logistic regression in which we differentiate between unqualified opinions with an explanatory paragraph and other opinions (qualified opinions, disclaimers, and adverse opinions). In both cases, we find that downturn auditors are more likely to issue a qualified opinion, disclaimer, or adverse opinion in the absence of an audit adjustment.

Together, these results suggest that a downturn auditor's higher degree of professional skepticism is reflected in both her adjustment decisions and audit opinions.

5.2. Results on Accounting Manipulation

To test whether downturn auditors dampen clients' financial reporting manipulation, we estimate the following model:

$$Manipulation_{it} = \alpha_0 + \alpha_1 Downturn_{it} + Controls + \varepsilon_{it}. \quad (3)$$

The dependent variable ($Manipulation_{it}$) equals one for company i that violates financial reporting and disclosure regulation in year t , and zero otherwise. The financial reporting and disclosure regulation violations include the following types: (a) company i misstates earnings during year t which results in a subsequent earnings restatement; or (b) company i or its auditors are subject to a CSRC enforcement action due to violating financial reporting or disclosure regulation in year t . Given the criticism that auditors often lack sufficient professional skepticism (FRC 2010; PCAOB 2012; Watts and Zuo 2016) and are unwilling to blow the whistle on corporate

fraud (Dyck, Morse and Zingales 2010), we predict that α_I is negative, indicating that downturn auditors' professional skepticism reduces accounting manipulation and enhances audit quality. We control for salient auditor characteristics, company characteristics that explain the existence of a misstatement, and audit characteristics that are related to the probability that the auditor detects a misstatement and requires the client to correct the misstatement. The details of the control variables are described in Section 3.2.

Table 7 reports the results on material accounting manipulation. Panel A presents the univariate tests. The frequencies that the client company violates financial reporting and disclosure regulations are 12.77 percent for downturn auditors, and 14.75 percent for other auditors, and this difference is statistically significant (p -value = 0.011). Panel B presents the regression results of estimating Equation (3). Consistent with our prediction, we find a significant negative coefficient on *Downturn* (z -stat. = -2.44). In terms of economic significance, the marginal effect of *Downturn* is -2.32 percent (holding constant all other independent variables at their mean values). The behavior of the control variables is consistent with prior literature. For example, we find that larger, more profitable clients with lower leverage and fewer subsidiaries are less likely to violate the financial reporting and disclosure regulations. In addition, companies with an audit committee and audited by Big 4 audit firms are less likely to commit financial fraud.

These results in Table 7 suggest that downturn auditors' higher degree of skepticism improves audit quality and deters accounting manipulation.

5.3. Upward and Downward Adjustments

In this section, we test whether downturn auditors are more likely to require audit adjustments for both overstatements and understatements than other auditors. Following Lennox, Wu and Zhang (2014), we construct a trichotomous variable (*Adjust Sign*) that equals zero when

there is no adjustment, one when there is a net upward adjustment, and two when there is a net downward adjustment. Our sample contains 2,811 no-adjustment observations, 1,744 net upward adjustments, and 3,608 net downward adjustments.

Panel A of Table 8 presents the results of a multinomial logistic model with the no-adjustment observations as the benchmark. We find a significant positive coefficient on *Downturn* in both models (z -stat. = 3.13, 3.29), indicating that downturn auditors require both more upward adjustments and more downward adjustments. This result also suggests that a higher degree of professional skepticism is not equivalent to a higher degree of pessimism – downturn auditors appear to be equally skeptical about “big bath” behavior and require more upward adjustments than other auditors.

5.4. Large and Small Adjustments

Next, we test whether downturn auditors are more likely to require both large adjustments and small adjustments than other auditors. Following Lennox, Wu and Zhang (2014), we construct a trichotomous variable (*Adjust Size*) that equals zero when there is no adjustment, one when there is a small adjustment, and two when there is a large adjustment, where a large adjustment is defined as one that changes pre-audit profits by more than five percent. Our sample contains 2,811 no-adjustment observations, 2,899 small adjustments, and 2,453 large adjustments.

Panel B of Table 8 presents the results of a multinomial logistic model with the no-adjustment observations as the benchmark. We find a significant positive coefficient on *Downturn* in both models (z -stat. = 3.44, 2.86), indicating that downturn auditors require both more small adjustments and more large adjustments.

5.5. Auditors' Career Path and Audit Adjustments

In this section, we analyze whether an auditor's career path is a potential channel through which economic conditions at labor market entry affects her professional judgment when she works as an engagement partner. Panel A of Table 9 presents some summary statistics on an auditor's career path. An average downturn auditor (other auditor) enters the labor market at age 24 (25) and takes about 9.5 (7) years to become an engagement partner at age 33.5 (32).²¹ Compared with their peers, downturn auditors are less likely to start at a big audit firm (30.2 percent versus 45.1 percent, $p < 0.001$),²² and also less likely to become an engagement partner at a big audit firm (44.2 percent versus 57.3 percent, $p < 0.001$). These results suggest that an auditor's career path depends on the economic condition at her labor market entry.

To investigate whether a downturn auditor's different career path (compared with other auditors) is a potential channel through which the economic condition at labor market entry affects her professional judgment when working as an engagement partner, we repeat our main analyses of audit adjustments by controlling for *First Job in Big Audit Firm*, *Signing in Big Audit Firm*, and *Time to Engagement Partner*. Panel B of Table 9 presents the results. In columns 1 and 2, both the magnitude and statistical significance of the coefficient on *Downturn* are quite similar to those reported in our main analyses. These results suggest that the general economic environment at an auditor's career start shapes her mindset irrespective of the type of the firm that she starts in or becomes an engagement partner. In column 3, the coefficient on *Downturn* is reduced by about 20 percent when *Time to Engagement Partner* is included as a control, suggesting that downturn auditors are more skeptical than other auditors partly due to their different career path. In column

²¹ As noted in footnote 6, the term "partner" is used to describe "signing auditor" in China.

²² We define an international Big 4 or Chinese domestic Big 10 audit firm as a big audit firm. Around 85 percent of all auditors in our sample start their career in an audit firm.

4, we control for *First Job in Big Audit Firm*, *Signing in Big Audit Firm*, and *Time to Engagement Partner* together, and the coefficient on *Downturn* is quite similar to that in column 3. Overall, these results suggest that an auditor's career path can partly explain her professional judgment, and that economic conditions at labor market entry affect her judgment irrespective of her career path.

We conduct two additional analyses related to an auditor's career path (untabulated). First, we restrict the sample to auditors who started in a big audit firm and became an engagement partner at a big audit firm. The effect of starting in an economic downturn on audit adjustments becomes stronger for this subset of auditors who share a more homogeneous career path. Second, we test whether starting an individual's career or becoming an engagement partner in a big audit firm mitigate or magnify the downturn effect we document. To that end, we create two interaction terms: *Downturn*×*First Job in Big Audit Firm* and *Downturn*×*Signing in Big Audit Firm*, and include these terms in the regressions. Neither of the interaction terms is statistically significant.

5.6. Audit Effort

A well-known judicial view is that an auditor should be “a watchdog not a bloodhound” (FRC 2010). Our main analyses suggest that downturn auditors exhibit a higher degree of professional skepticism by requiring more audit adjustments. A natural follow-up question is whether a downturn auditor's skepticism is taken too far, which can risk unnecessary costs. In this section, we investigate whether audits led by downturn auditors bill more audit hours and charge a higher audit fee. To that end, we obtain a proprietary dataset on audit hours (measured as the number of days spent on auditing the client firm) from the CICPA. Similar datasets on audit hours have been used in prior studies, including Caramanis and Lennox (2008) and Gong, Li, Lin and Wu (2016).

Panel A of Table 10 presents summary statistics. An average audit takes about 37 days for downturn auditors and 35 days for other auditors. The average audit fee is ¥887,000 for downturn auditors and ¥1,006,000 for other auditors. Panel B presents the regression results. We include the full set of control variables as in our main analysis (except audit fee). The results show that the effect of *Downturn* on audit hours is economically small (0.0383, statistically significant at the five percent level), and that *Downturn* has no effects on the audit fee or the audit fee per day. These findings suggest that downturn auditors do not impose significantly more costs (in terms of time and money) on clients. In Panel C, we repeat our main analyses of audit adjustments by controlling for audit hours. The coefficient on audit hours is positive and statistically significant at the one percent level, suggesting a positive association between audit effort and audit adjustments. Importantly, the effect of *Downturn* on audit adjustments remains intact in this model.

5.7. The Constraining Effect of Big Audit Firms

In this section, we investigate the possibility that the strong governance structure in big audit firms can constrain an engagement partner's idiosyncratic behavior in an audit. We create an interaction term between *Downturn* and *Big4*, and test whether this interaction term is statistically significant in our regressions of audit adjustments. A statistically significant coefficient on the interaction term, with a marginal effect opposite to that of *Downturn*, would suggest that audits conducted by big audit firms are relatively standardized and the role played by the engagement partner in big audit firms is relatively limited. Table 11 presents the results. In column 1 of Panel A, the coefficient on *Downturn*×*Big4* is not statistically significant, nor is the marginal effect for the interaction term computed following Ai and Norton (2003).²³ These results suggest that big audit firms do not reduce the idiosyncratic effect of an engagement partner on an audit. Column 2

²³ Ai and Norton (2003) note that the magnitude of the interaction effect in a logistic model does not equal the marginal effect of the interaction term and can be of opposite sign.

repeats the analysis by replacing *Big4* and its interaction with *Big Audit Firm* and its interaction in the regression. Our inferences are unchanged. We also repeat the analyses with linear probability models and the coefficient on the interaction term remains statistically insignificant. Overall, these findings suggest that the idiosyncratic effect of downturn auditors reflects their cognitive features (rather than purely incentives) and that strong governance is unlikely to countervail this individual effect.

5.8. Mandatory Rotation of Audit Partners

Lennox, Wu and Zhang (2014) find that audit adjustments are more likely during the departing partner's final year of tenure prior to mandatory rotation and during the incoming partner's first year of tenure following mandatory rotation. To control for this effect, we create two variables following Lennox, Wu and Zhang (2014), *Rotation Final* and *Rotation First*. *Rotation Final_{it}* equals one when the engagement partner is in the final year of tenure in year t because the partner is scheduled for mandatory rotation at the end of the audit, and zero otherwise. *Rotation First_{it}* equals one when the engagement partner is in the first year of tenure in year t due to mandatory rotation of the former partner at the end of year $t-1$.

Table 12 presents the results. In this table, we add *MAO* as an additional control variable following Lennox, Wu and Zhang (2014). Column 1 replicates the results of Lennox, Wu and Zhang (2014) with our sample. Both the magnitude and statistical significance of the coefficients on *Rotation Final*, *Rotation First*, and other variables are quite similar to those reported in Lennox, Wu and Zhang (2014). Column 2 adds *Downturn* and other auditor characteristics as explanatory variables. In both columns, the coefficient on *Downturn* remains positive and statistically significant.

6. Conclusions

We show that economic environment at the start of an auditor's career has a lasting impact on her judgment and decision making even years later when she becomes an engagement partner. We identify early career experience as one factor that shapes an auditor's degree of professional skepticism as reflected in her audit adjustment decisions. Specifically, we find that downturn auditors are more likely to require an audit adjustment, and more likely to issue a modified audit opinion in the absence of an adjustment. In addition, we find that companies audited by downturn auditors are less likely to misstate their financial reports or face enforcement actions from the regulator. Our research highlights that early-career stage is a critical formative period for auditors, which is consistent with prior research that looks at a variety of populations, including economists, scientists, lawyers, investment bankers, and corporate managers.

Our findings potentially have broad implications for the auditing profession. Whether economic downturns affect an auditor's level of professional skepticism through imprinting or selection, these cohort effects seem to change the composition of available auditors at a future point in time. Our results suggest that after extended periods of economic expansions, there could be a limited supply of skeptical auditors. Our study represents an initial step towards better understanding the formation and selection of auditors in the labor market.

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Appendix: Variable Definitions

Variable	Variable Definition
<i>Dependent variable:</i>	
<i>Adjustment</i>	Equals one if there is an audit adjustment to company <i>i</i> profits in year <i>t</i> , and zero otherwise.
<i>Independent variables:</i>	
<u><i>Auditor characteristics</i></u>	
<i>Downturn</i>	Equals one if the engagement partner started her career in an economic downturn, and zero otherwise.
<i>College Degree</i>	Equals one if an auditor's highest degree is bachelor or higher, and zero otherwise.
<i>College Rep</i>	Equals one if an auditor received her undergraduate education from one of the Project 211 universities, and zero otherwise. The 211 Project is a strategic cross-century project formulated by the Chinese government for the implementation of the strategy of invigorating the country through science technology and education.
<i>License</i>	Equals one if an auditor received her CPA license through China's CPA exam, and zero otherwise. Due to a grandfather clause, a significant percentage of Chinese (typically older) auditors obtained their CPA license without passing the formal CPA exam.
<i>Client Pct</i>	The mean fraction of an audit firm's total clients, measured in total assets, audited by an auditor over the past five years <i>t</i> -5 to <i>t</i> -1.
<i>Major</i>	Equals one if an auditor's college major is accounting, and zero otherwise.
<i>Specialist</i>	The mean value of <i>SPEC</i> over the past five years <i>t</i> -5 to <i>t</i> -1. <i>SPEC</i> is a dummy variable indicating audit partner specialization in one or more economically important industry sectors. An industry sector is considered economically important if it represents at least 1% of total assets of all Chinese listed companies. An auditor is designated as an industry specialist if the size of her within-industry clientele in terms of audited total assets belongs to the highest decile of its annual distribution (Knechel, Vanstraelen and Zerni 2015).
<i>Experience</i>	The natural logarithm of the number of years since the first year when an auditor served as an engagement partner of a publicly listed company.
<i>CCP</i>	Equals one if an auditor is a Chinese Communist Party member, and zero otherwise.
<i>Female</i>	Equals one if an auditor is a female, and zero otherwise.
<i>Age</i>	The natural logarithm of an auditor's age.
<u><i>Company characteristics</i></u>	
<i>Size</i>	The natural logarithm of total sales for company <i>i</i> in year <i>t</i> .
<i>ROS</i>	Return on sales for company <i>i</i> in year <i>t</i> .
<i>Lev</i>	Total liabilities divided by total assets for company <i>i</i> in year <i>t</i> .
<i>M&A</i>	Equals one if company <i>i</i> has a merger or acquisition transaction that involves the purchase of more than 20 percent of the target company in year <i>t</i> , and zero otherwise.
<i>Subsidiaries</i>	The natural logarithm of (one plus) the total number of consolidated subsidiaries.
<i>Board Size</i>	The natural logarithm of the number of board directors at company <i>i</i> in year <i>t</i> .
<i>Board Meetings</i>	The natural logarithm of the number of board meetings held by company <i>i</i> in year <i>t</i> .

(The table continues on the next page.)

Variable Definitions (Cont.)

Duality Equals one if company i 's CEO in year t concurrently serves as chair of the board, and zero otherwise.

Audit Com Equals one if company i has an audit committee in year t , and zero otherwise.

Audit characteristics

Big4 Equals one if company i is audited by a Big 4 firm in year t , and zero otherwise.

Tenure The natural logarithm of audit firm tenure at company i in year t .

Auditor M&A Equals one if company i 's audit firm merges with another audit firm in year t , and zero otherwise

Fee The natural logarithm of the audit fee paid by company i in year t .

Analyst Equals one if there is at least one analyst following company i in year t , and zero otherwise.

TABLE 1: Sample Distribution

Panel A: By Year					
Year	n	Downturn Auditors (<i>Downturn=1</i>)		Audit Adjustments (<i>Adjustment=1</i>)	
		n	%	n	%
2006	899	649	72.19%	569	63.29%
2007	1162	756	65.06%	808	69.54%
2008	1252	757	60.46%	850	67.89%
2009	1374	771	56.11%	910	66.23%
2010	1615	800	49.54%	1111	68.79%
2011	1861	870	46.75%	1104	59.32%
Total	8163	4603	56.39%	5352	65.56%
Panel B: By Industry					
Industry	n	Downturn Auditors (<i>Downturn=1</i>)		Audit Adjustments (<i>Adjustment=1</i>)	
		n	%	n	%
Agriculture	138	84	60.87%	96	69.57%
Mining	225	127	56.44%	115	51.11%
Manufacturing	4677	2662	56.92%	3194	68.29%
Energy and Water	341	193	56.60%	173	50.73%
Construction	166	72	43.37%	100	60.24%
Transportation	305	167	54.75%	161	52.79%
IT and Computing	492	253	51.42%	317	64.43%
Wholesale and Retail Trade	531	327	61.58%	367	69.11%
Finance	160	72	45.00%	87	54.38%
Real Estate	534	292	54.68%	340	63.67%
Public Utilities	244	148	60.66%	152	62.30%
Entertainment	100	54	54.00%	58	58.00%
Conglomerates	250	152	60.80%	192	76.80%
Total	8163	4603	56.39%	5352	65.56%
Panel C: By Year of Entry into the Labor Market					
Year of Entry into Labor Market	Downturn Year	Auditor Level		Company-Year Level	
		n	%	n	%
1964	0	1	0.04%	16	0.20%
1969	0	1	0.04%	3	0.04%
1970	0	2	0.08%	2	0.02%
1971	1	4	0.16%	8	0.10%
1972	1	3	0.12%	4	0.05%
1973	0	2	0.08%	4	0.05%
1974	1	3	0.12%	16	0.20%
1975	1	5	0.20%	13	0.16%
1976	1	4	0.16%	13	0.16%
1978	0	2	0.08%	14	0.17%
1979	1	2	0.08%	2	0.02%

(The table continues on the next page.)

TABLE 1 (Cont.)

1980	1	3	0.12%	11	0.13%
1981	1	16	0.64%	63	0.77%
1982	0	11	0.44%	35	0.43%
1983	0	11	0.44%	57	0.70%
1984	0	20	0.80%	60	0.74%
1985	1	21	0.84%	82	1.00%
1986	1	18	0.72%	101	1.24%
1987	0	18	0.72%	71	0.87%
1988	0	31	1.25%	123	1.51%
1989	1	30	1.21%	150	1.84%
1990	1	40	1.61%	167	2.05%
1991	0	45	1.81%	183	2.24%
1992	0	108	4.34%	469	5.75%
1993	1	122	4.91%	516	6.32%
1994	1	145	5.83%	505	6.19%
1995	1	124	4.99%	484	5.93%
1996	1	172	6.92%	699	8.56%
1997	1	179	7.20%	635	7.78%
1998	1	145	5.83%	538	6.59%
1999	1	145	5.83%	482	5.90%
2000	0	134	5.39%	471	5.77%
2001	0	137	5.51%	370	4.53%
2002	0	126	5.07%	350	4.29%
2003	0	153	6.15%	414	5.07%
2004	0	128	5.15%	330	4.04%
2005	0	123	4.95%	279	3.42%
2006	0	99	3.98%	192	2.35%
2007	0	84	3.38%	117	1.43%
2008	1	69	2.78%	114	1.40%
Total	/	2486	100.0%	8163	100.0%

Notes: *Downturn* equals one if the engagement partner started her career in an economic downturn, and zero otherwise. *Adjustment* equals one if there is an audit adjustment to company *i* profits in year *t*, and zero otherwise.

TABLE 2: Summary Statistics

Panel A: Auditor Demographic Characteristics (<i>Auditor-Level</i>)								
Variables	Downturn Auditors (n=1250)			Other Auditors (n=1236)			Difference in Means	
	Mean	Std.	Median	Mean	Std.	Median	Diff.	[<i>p</i> -value]
<i>College Degree</i>	0.672	0.470	1.000	0.701	0.458	1.000	-0.029	[0.124]
<i>College Rep</i>	0.383	0.486	0.000	0.364	0.481	0.000	0.019	[0.325]
<i>Major</i>	0.507	0.500	1.000	0.541	0.499	1.000	-0.034	[0.089]
<i>CCP</i>	0.211	0.408	0.000	0.212	0.409	0.000	-0.001	[0.962]
<i>Female</i>	0.350	0.477	0.000	0.348	0.477	0.000	0.002	[0.896]
Panel B: <i>Company-Year Level</i>								
Variables	Downturn Auditors (n=4603)			Other Auditors (n=3560)			Difference in Means	
	Mean	Std.	Median	Mean	Std.	Median	Diff.	[<i>p</i> -value]
<u><i>Auditor characteristics</i></u>								
<i>License</i>	0.980	0.141	1.000	0.986	0.118	1.000	-0.006	[0.031]
<i>Client Pct</i>	0.069	0.110	0.031	0.042	0.089	0.010	0.027	[0.000]
<i>Specialist</i>	0.089	0.234	0.000	0.056	0.201	0.000	0.033	[0.000]
<i>Experience</i>	5.396	3.492	5.000	4.053	3.715	3.000	1.343	[0.000]
<i>Age</i>	37.18	4.585	37.00	34.93	5.944	33.00	2.246	[0.000]
<u><i>Company characteristics</i></u>								
<i>Size (¥m)</i>	5124	14128	1269	5670	14927	1236	-546	[0.094]
<i>ROS</i>	0.079	0.230	0.065	0.087	0.225	0.069	-0.008	[0.093]
<i>Lev</i>	0.503	0.277	0.492	0.496	0.273	0.493	0.007	[0.274]
<i>M&A</i>	0.232	0.422	0.000	0.233	0.423	0.000	-0.001	[0.947]
<i>Subsidiaries</i>	9.880	11.95	6.000	10.187	13.485	6.000	-0.307	[0.284]
<i>Board Size</i>	9.247	1.969	9.000	9.120	1.896	9.000	0.127	[0.003]
<i>Board Meetings</i>	8.984	3.311	8.000	9.115	3.350	9.000	-0.131	[0.079]
<i>Duality</i>	0.178	0.383	0.000	0.191	0.393	0.000	-0.013	[0.123]
<i>Audit Com</i>	0.913	0.282	1.000	0.951	0.216	1.000	-0.038	[0.000]
<u><i>Audit characteristics</i></u>								
<i>Big4</i>	0.065	0.247	0.000	0.085	0.280	0.000	-0.020	[0.000]
<i>Tenure</i>	5.945	4.535	5.000	5.723	4.484	4.000	0.223	[0.027]
<i>Auditor M&A</i>	0.160	0.367	0.000	0.167	0.373	0.000	-0.007	[0.380]
<i>Fee (¥000)</i>	888	1756	500	1012	1995	500	-124	[0.003]
<i>Analyst</i>	0.730	0.444	1.000	0.755	0.430	1.000	-0.025	[0.011]

Notes: Panel A presents the summary statistics of the pre-determined auditor characteristics at labor market entry based on the auditor-level dataset. Panel B presents the summary statistics of other auditor characteristics, company characteristics, and audit characteristics based on the company-year level dataset. For *Experience*, *Age*, *Size*, *Subsidiaries*, *Board Size*, *Board Meetings*, *Fee* and *Tenure*, we report their raw values (instead of log-transformed values). The *p*-values of mean differences are reported in brackets. The continuous variables are winsorized at the top and bottom one percent to mitigate the influence of extreme values. Details on the definition and construction of the variables reported in the table are available in the Appendix.

TABLE 3: Economic Downturns and the Frequency of Audit Adjustments

Panel A: Full Sample										
	Total		No Adjustments		Adjustments		Downward Adjustments		Upward Adjustments	
	n	%	n	%	n	%	n	%	n	%
Full	8163	100.0%	2811	34.44%	5352	65.56%	3608	44.20%	1744	21.36%
Panel B: By Auditor Type										
			No Adjustments		Adjustments		Downward Adjustments		Upward Adjustments	
	n	%	n	%	n	%	n	%	n	%
Downturn Auditors			1450	31.50%	3153	68.50%	2117	45.99%	1036	22.51%
Other Auditors			1361	38.23%	2199	61.77%	1491	41.88%	708	19.89%
Difference			/		6.73%		4.11%		2.62%	
<i>p</i> -value			/		[<i>p</i> <0.001]		[<i>p</i> <0.001]		[<i>p</i> =0.004]	

Notes: The no adjustment sample comprises observations where there is no audit adjustment to reported profits (i.e., *pre-audit profits* = *post-audit profits*). The downward adjustment sample comprises observations where the audit results in lower reported profits (i.e., *pre-audit profits* > *post-audit profits*). The upward adjustment sample comprises observations where the audit results in higher reported profits (i.e., *pre-audit profits* < *post-audit profits*). The *p*-values of mean differences are reported in brackets.

TABLE 4: Economic Downturns and Audit Adjustments

Dependent Variable: <i>Adjustment</i>	(1)	(2)	(3)
<u>Auditor characteristics</u>			
<i>Downturn</i>	0.2762^{***} (4.50)	0.2354^{***} (3.60)	0.2975^{***} (4.17)
<i>College Degree</i>		-0.0359 (-0.52)	-0.0073 (-0.10)
<i>College Rep</i>		0.0524 (0.83)	0.0493 (0.74)
<i>License</i>		0.2805 (1.20)	0.7833 [*] (1.96)
<i>Client Pct</i>		0.5196 (1.59)	0.3968 (1.04)
<i>Major</i>		0.3393 ^{***} (5.69)	0.3627 ^{***} (5.78)
<i>Specialist</i>		-0.5483 ^{***} (-3.81)	-0.4563 ^{***} (-3.02)
<i>Experience</i>		0.2105 ^{***} (5.02)	0.2063 ^{***} (4.71)
<i>CCP</i>		0.1119 (1.47)	0.0803 (0.97)
<i>Female</i>		0.1255 [*] (1.88)	0.1453 ^{**} (2.06)
<i>Age</i>		-0.3702 (-1.41)	-0.7869 ^{**} (-2.51)
<u>Company characteristics</u>			
<i>Size</i>	-0.1290 ^{***} (-3.83)	-0.1265 ^{***} (-3.76)	-0.1384 ^{***} (-4.01)
<i>ROS</i>	0.0502 (0.38)	0.0301 (0.23)	-0.0835 (-0.58)
<i>Lev</i>	-0.3929 ^{***} (-2.89)	-0.3886 ^{***} (-2.90)	-0.4590 ^{***} (-3.20)
<i>M&A</i>	-0.0254 (-0.41)	-0.0236 (-0.38)	-0.0057 (-0.09)
<i>Subsidiaries</i>	0.0295 (0.75)	0.0274 (0.70)	0.0262 (0.65)
<i>Board Size</i>	-0.2310 (-1.30)	-0.2457 (-1.38)	-0.2386 (-1.29)
<i>Board Meetings</i>	0.1736 [*] (1.94)	0.1833 ^{**} (2.07)	0.1486 (1.60)
<i>Duality</i>	0.0488 (0.54)	0.0338 (0.38)	0.0357 (0.38)
<i>Audit Com</i>	0.1264 (1.03)	0.0964 (0.79)	0.1058 (0.82)

(The table continues on the next page.)

TABLE 4 (Cont.)

<u><i>Audit characteristics</i></u>			
<i>Big4</i>	-1.5669*** (-7.93)	-1.4077*** (-7.08)	-1.4075*** (-6.99)
<i>Tenure</i>	0.2946*** (7.69)	0.2677*** (6.97)	0.2466*** (6.10)
<i>Auditor M&A</i>	0.3216*** (4.07)	0.3393*** (4.28)	0.3814*** (4.54)
<i>Fee</i>	0.1245 (1.58)	0.1424* (1.83)	0.1656** (2.06)
<i>Analyst</i>	0.0968 (1.28)	0.1116 (1.48)	0.1338* (1.68)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	8163	8163	7315
Pseudo-R ²	0.0676	0.0787	0.0805
Wald-Chi ²	343.42	442.86	426.88

Notes: This table presents the logistic regression results of using *Adjustment* as the dependent variable. Columns 1 and 2 report the results for the full sample. Column 3 reports the results for a restricted sample in which we drop engagement partners who entered the labor market before 1990. Details on the definition and construction of the variables reported in the table are available in the Appendix. z-statistics shown in parentheses are adjusted for clustering by client. *, **, *** indicate significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

TABLE 5: Intensity of Treatment

Dependent Variable: <i>Adjustment</i>	(1)	(2)	(3)
<i>Downturn Length</i>	0.1500** (2.27)		
<i>Downturn Depth</i>		0.4007*** (2.69)	
<i>Sanction</i>			0.4273** (1.97)
Controls	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	8163	8163	2166
Pseudo-R ²	0.0775	0.0778	0.0879
Wald-Chi ²	428.54	433.66	178.56

Notes: This table presents the logistic regression results of using *Adjustment* as the dependent variable. The full set of controls (as in column 2 of Table 4) are included but not reported for brevity. Columns 1 and 2 report the results for the full sample. Column 3 reports the results for a restricted sample in which the sanction data are publicly available. *Downturn Length* is defined as the number of years that an economic downturn lasts. *Downturn Depth* is defined as the magnitude of the cumulative drop in GDP growth rates over an economic downturn. *Sanction* is defined as the percentage of auditors sanctioned by the CSRC or the MOF over the year when the engagement partner entered the labor market. *Downturn Length*, *Downturn Depth*, and *Sanction* are rescaled to range from zero to one. z-statistics shown in parentheses are adjusted for clustering by client. *, **, *** indicate significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

TABLE 6: Economic Downturns and Audit Opinions

Panel A: Descriptive Statistic of MAO				
	Downturn Auditor	Other Auditor	Difference in Means	
			Diff.	[p-value]
Full Sample	6.10%	4.92%	1.18%	[0.019]
	(n=4603)	(n=3560)		
<i>Subsample:</i>				
- No Adjustments	6.76%	3.97%	2.79%	[0.001]
	(n=1450)	(n=1361)		
- Adjustments	5.80%	5.50%	0.30%	[0.639]
	(n=3153)	(n=2199)		
Panel B: Logit Regression Results				
Dependent Variable:			(1)	(2)
MAO			No Adjustments	Adjustments
<u><i>Auditor characteristics</i></u>				
<i>Downturn</i>			0.6231**	-0.0148
			(2.33)	(-0.08)
<i>College Degree</i>			0.7726**	-0.3027
			(2.54)	(-1.49)
<i>College Rep</i>			-0.4594	-0.3068
			(-1.60)	(-1.42)
<i>License</i>			-0.5482	1.0277*
			(-0.84)	(1.66)
<i>Client Pct</i>			-2.3908	0.7314
			(-1.20)	(0.69)
<i>Major</i>			-0.4143	-0.2737
			(-1.54)	(-1.44)
<i>Specialist</i>			1.7079***	0.4760
			(2.65)	(1.08)
<i>Experience</i>			0.0856	-0.0314
			(0.42)	(-0.22)
<i>CCP</i>			0.4215	0.4110*
			(1.48)	(1.81)
<i>Female</i>			0.2051	-0.0780
			(0.70)	(-0.39)
<i>Age</i>			1.1307	-0.8669
			(1.11)	(-1.14)
<u><i>Company characteristics</i></u>				
<i>Size</i>			-1.0153***	-0.7366***
			(-6.97)	(-7.91)
<i>ROS</i>			-0.5036	-0.8197**
			(-1.00)	(-2.43)
<i>Turnover</i>			1.4968***	0.5241*
			(3.68)	(1.90)
<i>Loss</i>			1.4474***	1.2111***

(The table continues on the next page.)

TABLE 6 (Cont.)

	(3.98)	(4.91)
<i>Lev</i>	0.9017***	0.6018***
	(3.18)	(2.59)
<i>Firm Age</i>	3.9745***	3.9229***
	(6.51)	(7.87)
<i>Current Ratio</i>	0.0720	-0.1376
	(1.47)	(-1.02)
<i>AR & Inventory</i>	-2.7454**	-1.1674*
	(-2.40)	(-1.75)
<i>EM</i>	0.9393*	0.5425
	(1.76)	(1.46)
<i>Stock Return</i>	-0.0793	-0.2375**
	(-0.39)	(-1.98)
<i>Return Vol</i>	15.9301**	-2.1804
	(1.98)	(-0.39)
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
N	2811	5352
Pseudo-R ²	0.5548	0.4691
Wald-Chi ²	255.80	510.04

Notes: This table examines the effect of economic downturns on audit opinion. *MAO* equals one if company *i* receives a modified audit opinion in year *t*, and zero otherwise. We classify unqualified opinions with explanatory notes, qualified opinions, disclaimed, and adverse opinions as modified opinions. Panel A reports the descriptive statistics of *MAO*. The *p*-values of mean differences are reported in brackets. Panel B reports the logistic regression results of using *MAO* as the dependent variable. *Turnover* is computed as total sales divided by total assets for company *i* in year *t*. *Loss* is a dummy variable that equals one if company *i* has reported a net loss in year *t*, and zero otherwise. *Firm Age* is computed as the natural logarithm of the number of years that company *i* has been listed. *Current Ratio* is computed as current assets divided by current liabilities for company *i* in year *t*. *AR & Inventory* is computed as sum of accounts receivable and inventory divided by total assets for company *i* in year *t*. *EM* is dummy variable that equals one if company *i* has reported ROE between zero and one percent in year *t*, and zero otherwise. *Stock Return* is computed as the annual market-adjusted stock return for company *i* in year *t*. *Return Vol* is computed as the standard deviation of residuals from the market model estimated by weekly return data during year *t* for company *i*. Details on the definition and construction of other variables reported in the table are available in the Appendix. *z*-statistics shown in parentheses are adjusted for clustering by client. *, **, *** indicate significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

TABLE 7: Economic Downturns and Material Accounting Manipulation

Panel A: Descriptive Statistic of <i>Manipulation</i>			
Downturn Auditor	Other Auditor	Difference in Means	
		Diff.	[<i>p</i> -value]
12.77%	14.75%	-1.98%	[0.011]
(n=4603)	(n=3560)		
Panel B: Logit Regression Results			
Dependent Variable:		(1)	
<i>Manipulation</i>			
<u><i>Auditor characteristics</i></u>			
<i>Downturn</i>		-0.2075**	
		(-2.44)	
<i>College Degree</i>		0.0257	
		(0.28)	
<i>College Rep</i>		0.0630	
		(0.72)	
<i>License</i>		-0.1358	
		(-0.47)	
<i>Client Pct</i>		0.8441*	
		(1.96)	
<i>Major</i>		-0.0071	
		(-0.08)	
<i>Specialist</i>		-0.4351*	
		(-1.88)	
<i>Experience</i>		-0.0958	
		(-1.64)	
<i>CCP</i>		0.0939	
		(0.93)	
<i>Female</i>		-0.1081	
		(-1.18)	
<i>Age</i>		0.2085	
		(0.60)	
<u><i>Company characteristics</i></u>			
<i>Size</i>		-0.1570***	
		(-3.47)	
<i>ROS</i>		-0.8490***	
		(-6.07)	
<i>Lev</i>		0.7242***	
		(4.82)	
<i>M&A</i>		0.0366	
		(0.42)	
<i>Subsidiaries</i>		0.1407**	
		(2.31)	
<i>Board Size</i>		0.3386	
		(1.35)	

(The table continues on the next page.)

TABLE 7 (Cont.)

<i>Board Meetings</i>	0.3569*** (2.68)
<i>Duality</i>	0.1383 (1.21)
<i>Audit Com</i>	-0.3444** (-2.15)
<u>Audit characteristics</u>	
<i>Big4</i>	-0.9862*** (-2.98)
<i>Tenure</i>	-0.0371 (-0.71)
<i>Auditor M&A</i>	0.0275 (0.27)
<i>Fee</i>	-0.1709 (-1.53)
<i>Analyst</i>	-0.0828 (-0.82)
Industry fixed effects	Yes
Year fixed effects	Yes
N	8163
Pseudo-R ²	0.0576
Wald-Chi ²	217.31

Notes: This table examines the effect of economic downturns on material accounting manipulation. *Manipulation* equals one for company *i* that violate financial reporting and disclosure regulation in year *t*, and zero otherwise. The financial reporting and disclosure regulation violations include the following types: (a) company *i* misstates earnings during year *t* which results in a subsequent earnings restatement; (b) company *i* or its auditors are subject to a CSRC enforcement action due to violating financial reporting or disclosure regulation in year *t*. Panel A reports the descriptive statistics of *Manipulation*. The *p*-value of the mean difference is reported in bracket. Panel B reports the logistic regression results of using *Manipulation* as the dependent variable. Details on the definition and construction of the variables reported in the table are available in the Appendix. *z*-statistics shown in parentheses are adjusted for clustering by client. *, **, *** indicate significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

TABLE 8: Direction and Magnitude of Audit Adjustments

Panel A: The Incidence of Upward and Downward Audit Adjustments		
Dependent Variable: <i>Adjust Sign</i>	Upward Adjustment (<i>Adjust Sign</i> = 1)	Downward Adjustment (<i>Adjust Sign</i> = 2)
<i>Downturn</i>	0.2464*** (3.13)	0.2277*** (3.29)
Controls		Yes
Industry fixed effects		Yes
Year fixed effects		Yes
N		8163
Pseudo-R ²		0.0566
Wald-Chi ²		585.30
Panel B: The Incidence of Small and Large Audit Adjustments		
Dependent Variable: <i>Adjust Size</i>	Small Adjustment (<i>Adjust Size</i> = 1)	Large Adjustment (<i>Adjust Size</i> = 2)
<i>Downturn</i>	0.2465*** (3.44)	0.2173*** (2.86)
Controls		Yes
Industry fixed effects		Yes
Year fixed effects		Yes
N		8163
Pseudo-R ²		0.0845
Wald-Chi ²		834.04

Notes: This table reports the multinomial logit results (with the no-adjustment case as the benchmark). The full set of controls (as in column 2 of Table 4) are included but not reported for brevity. In Panel A, *Adjust Sign* equals zero when there is no audit adjustment, one when there is an upward adjustment, and two when there is a downward adjustment. In Panel B, *Adjust Size* equals zero when there is no audit adjustment, one when there is a small adjustment, and two when there is a large adjustment. An adjustment is coded as large if it causes pre-audit profits to change by more than 5 percent. That is, the adjustment is large if $|Post-Audit Profit - Pre-Audit Profit| > 0.05 \times |Pre-Audit Profit|$. The adjustment is small if $|Post-Audit Profit - Pre-Audit Profit| \leq 0.05 \times |Pre-Audit Profit|$. Other variables are defined as in the Appendix. z-statistics shown in parentheses are adjusted for clustering by client. *, **, *** indicate significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

TABLE 9: Auditors' Career Path and Audit Adjustments

Panel A: Economic Downturns and Auditors' Career Path								
Variables	Downturn Auditors (n=1250)			Other Auditors (n=1236)			Difference in Means	
	Mean	Std.	Median	Mean	Std.	Median	Diff.	[p-value]
<i>Age at Labor Market Entry</i>	23.81	2.966	23.00	24.84	2.825	25.00	-1.029	[<0.001]
<i>First Job in Big Audit Firm</i>	0.302	0.459	0.000	0.451	0.498	0.000	-0.149	[<0.001]
<i>Time to Engagement Partner</i>	9.589	4.582	9.000	7.056	4.256	6.000	2.533	[<0.001]
<i>Age to Engagement Partner</i>	33.40	4.632	33.00	31.90	4.009	31.00	1.504	[<0.001]
<i>Signing in Big Audit Firm</i>	0.442	0.497	0.000	0.573	0.495	1.000	-0.131	[<0.001]
Panel B: Controlling for the Effects of Career Path								
Dependent Variable:								
<i>Adjustment</i>		(1)	(2)	(3)	(4)			
<i>Downturn</i>		0.2484^{***} (3.79)	0.2408^{***} (3.68)	0.1925^{***} (2.91)	0.1954^{**} (2.20)			
<i>First Job in Big Audit Firm</i>		0.3590^{***} (4.73)			0.3768^{***} (3.52)			
<i>Signing in Big Audit Firm</i>			0.1891^{***} (2.72)				0.0633 (0.65)	
<i>Time to Engagement Partner</i>					0.2722^{***} (2.76)		0.3502^{***} (2.74)	
Controls		Yes	Yes	Yes	Yes		Yes	
Industry fixed effects		Yes	Yes	Yes	Yes		Yes	
Year fixed effects		Yes	Yes	Yes	Yes		Yes	
N		8163	8163	8163	8163		8163	
Pseudo-R ²		0.0819	0.0798	0.0798	0.0798		0.0838	
Wald-Chi ²		454.91	456.06	462.60	433.82			

Notes: Panel A reports the descriptive statistics of auditors' career path based on the auditor-level dataset. The *p*-values of mean differences are reported in brackets. *Age at Labor Market Entry* is the age at which the auditor joins the labor market. *First Job in Big Audit Firm* equals one if the auditor starts her career in an international Big 4 or Chinese domestic Big 10 audit firm, and zero otherwise. *Time to Engagement Partner* is the number of years between the start of an auditor's career and her first becoming an engagement partner. *Age to Engagement Partner* is the age at which the auditor first becomes an engagement partner. *Signing in Big Audit Firm* equals one if the auditor first becomes an engagement partner in an international Big 4 or Chinese domestic Big 10 audit firm, and zero otherwise. Panel B examines the effect of auditors' career path on audit adjustment using firm-year level dataset. The full set of controls (as in column 2 of Table 4) are included but not reported for brevity. Other variables are defined as in the Appendix. *z*-statistics shown in parentheses are adjusted for clustering by client. *, **, *** indicate significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

TABLE 10: Economic Downturns and Audit Effort

Panel A: Descriptive Statistics								
Variables	Downturn Auditors (n=4546)			Other Auditors (n=3492)			Difference in Means	
	Mean	Std.	Median	Mean	Std.	Median	Diff.	[p-value]
<i>Audit Hours</i> (Days)	37.1	44.9	26.0	35.4	38.7	25.0	1.74	[0.062]
<i>Fee</i> (¥000)	887	1752	500	1006	1983	500	-119	[0.005]
<i>Fee per Day</i> (¥000)	36.2	52.5	20.7	39.8	56.4	22.0	-3.60	[0.004]
Panel B: OLS Regression Results								
	(1)			(2)			(3)	
	<i>Audit Hours</i>			<i>Fee</i>			<i>Fee per Day</i>	
<i>Downturn</i>	0.0383** (2.15)			0.0057 (0.40)			-0.0267 (-1.22)	
Controls	Yes			Yes			Yes	
Industry fixed effects	Yes			Yes			Yes	
Year fixed effects	Yes			Yes			Yes	
N	8038			8038			8038	
Adj-R ²	0.2537			0.6577			0.2058	
Panel C: Controlling for Audit Hours								
Dependent Variable:							(1)	
<i>Adjustment</i>								
<i>Downturn</i>	0.2391*** (3.57)							
<i>Audit Hours</i>	0.1571*** (4.17)							
Controls	Yes							
Industry fixed effects	Yes							
Year fixed effects	Yes							
N	8038							
Pseudo-R ²	0.0809							
Wald-Chi ²	431.83							

Notes: This table examines the effect of economic downturns on audit effort. *Audit Hours* is defined as the natural logarithm of the number of days spent on auditing the client firm. *Fee* is defined as the natural logarithm of the audit fee paid by the client. *Fee per Day* is defined as the natural logarithm of the audit fee per day. Panel A reports these three variables' raw values (instead of log-transformed values). Panel B presents the OLS regression results. The full set of controls (as in column 2 of Table 4 except for *Fee*) are included but not reported for brevity. Panel C presents the logistic regression results after controlling for audit hours. The full set of controls (as in column 2 of Table 4) are included but not reported for brevity. *t*-statistics / *z*-statistics shown in parentheses are adjusted for clustering by client. *, **, *** indicate significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

TABLE 11: The Constraining Effect of Big Audit Firms

Dependent Variable: <i>Adjustment</i>	(1)	(2)
<i>Downturn</i>	0.2339*** (3.47)	0.2406*** (2.60)
<i>Downturn</i> × <i>Big4</i>	0.0212 (0.09)	
<i>Big4</i>	-1.4187*** (-6.04)	
<i>Downturn</i> × <i>Big Audit Firm</i>		-0.0228 (-0.20)
<i>Big Audit Firm</i>		0.0424 (0.46)
Ai and Norton Marginal Effect		
<i>Downturn</i> × <i>Big4</i>	0.0070 (0.08)	
<i>Downturn</i> × <i>Big Audit Firm</i>		-0.0051 (-0.26)
Controls	Yes	Yes
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
N	8163	8163
Pseudo-R ²	0.0787	0.0663
Wald-Chi ²	442.82	430.29

Notes: This table examines the constraining effect of big audit firms using logistic model. The full set of controls (as in column 2 of Table 4) are included but not reported for brevity. *Big4* equals one if company *i* is audited by an international Big 4 audit firm in year *t*, and zero otherwise. *Big Audit Firm* equals one if company *i* is audited by an international Big 4 or Chinese domestic Big 10 audit firm in year *t*, and zero otherwise. Details on the definition and construction of other variables reported in the table are available in the Appendix. *z*-statistics shown in parentheses are adjusted for clustering by client. *, **, *** indicate significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

TABLE 12: The Effect of Mandatory Partner Rotation

Dependent Variable: <i>Adjustment</i>	(1)	(2)
<i>Rotation Final</i>	0.3343^{***} (3.18)	0.2193^{**} (2.05)
<i>Rotation First</i>	0.4428^{***} (3.47)	0.4459^{***} (3.44)
<i>Downturn</i>		0.2334^{***} (3.57)
<i>MAO</i>	0.0422 (0.26)	0.0442 (0.27)
Controls	Yes	Yes
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
N	8163	8163
Pseudo-R ²	0.0666	0.0801
Wald-Chi ²	344.02	458.03

Notes: This table presents the logistic regression results of using *Adjustment* as the dependent variable. *Rotation Final* equals one when the engagement partner is in the final year of tenure in year t because the partner is scheduled for mandatory rotation at the end of the audit, and zero otherwise. *Rotation First* equals one when the engagement partner is in the first year of tenure in year t due to mandatory rotation of the former partner at the end of year $t-1$. Column 1 includes the full set of controls (including *MAO*) as in Lennox, Wu and Zhang (2014). Column 2 adds *Downturn* and other auditor characteristics as explanatory variables. z -statistics shown in parentheses are adjusted for clustering by client. *, **, *** indicate significance at the 10%, 5%, and 1% levels (two-tailed), respectively.