CEOs' experience of the Great Chinese Famine and accounting conservatism

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Abstract

This study investigates how a CEO's early-life experience of the Great Chinese Famine affects corporate accounting conservatism. We find that companies whose CEOs had experienced famines in early life adopted more conservative accounting policies. This famine experience effect is more pronounced in high uncertainty environments proxied by non-SOEs, politician turnovers, and the adoption of International Financial Reporting Standards (IFRS). Additional tests indicate that CEOs with famine experience tend to support conservative accounting practices for contingencies and accelerate the recognition of asset impairments in negative events. Overall, consistent with imprinting theory, our results highlight the role of early-life traumatic experiences in shaping CEOs' risk preferences and financial reporting policies.

1. INTRODUCTION

The CEOs are the most influential decision makers in the enterprise, and personal attributes or traits often influence their decisions. A growing body of literature examines the importance of heterogeneous CEO characteristics and their influence on firm policies and economic outcomes. Those studies provide empirical evidence that executives' marital status (Roussanov & Savor, 2014), political ties (Hutton et al., 2014), career path (Schoar & Zuo, 2017), military experience (Malmendier et al., 2011), and piloting experience (Cain & McKeon, 2016) affect their risk-taking behaviors.

In this study, we apply the organizational theory of imprinting to explain why and how an individual's traits and experience affect financial reporting policy decisions. The imprinting theory, introduced by Stinchcombe in 1965, describes how organizations take on elements of their founding environment and how these elements persist well beyond the founding phase. The notion of imprinting is that "history matters". Marquis and Tilcsik (2013, p. 199) define it 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 changes in subsequent periods." Empirical studies in psychology support the imprinting theory and indicate that adverse life experiences affect individuals' perception of risk in the environment, and such impact can be lifelong (Holman & Silver, 1998).

Based on the imprinting theory, this study links adverse life experiences of CEOs to the financial reporting policy choices of their companies. We propose that the adverse life experience of CEOs would increase their risk perception and aversion, leading to more conservative choices in accounting policy. This implies that CEOs with adverse life experiences are more sensitive to downside risk and tend to recognize bad news more promptly than good news. Therefore, we can expect a higher level of accounting conservatism from the companies managed by such CEOs.

To test our proposition, we examine the long-term effects of early-life experience in the Great Chinese Famine on CEOs' accounting policy choices.[1] The Great Chinese Famine occurred between 1959 and 1961 and affected an entire

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[1] The Dutch famine (1944–1945) and the Siege of Leningrad (1941–1944) bear similarities to the Great Chinese Famine. However, the focus of research on those events is on health. For example, Noji (1996) investigated whether food shortages during natural disasters had lifelong impacts on human health.

generation of Chinese (Chen & Zhou, 2007; Huang et al., 2010; Fan & Qian, 2015) with the effects varying across different regions of China. Because the mobility of Chinese citizens was limited by the Chinese household registration system, we are able to identify the degree of severity of the famine experienced by any individual CEO who was born in 1961 or earlier based on their birthplace (Feng & Johansson, 2018).

Using a sample of listed Chinese companies (23,864 firm-year observations) from 2000 to 2015, we investigate whether the Great Chinese Famine experience of CEOs is associated with their accounting conservatism.[2] Our results show that companies with CEOs that had famine experience have a higher level of accounting conservatism. These findings are consistent with the imprinting theory that the early-life famine experience increased CEOs perception to risk and risk-avoidance levels, leading to more conservative reporting choices. Thus, such companies tend to report bad news promptly, while delaying the announcement of good news.

The imprinting theory also suggests that effects of imprinting are likely to be contingent on the present conditions. We argue that companies are more likely to adopt more conservative accounting policies when operational environments become highly uncertain. Consistent with our argument, we show that the association between CEOs' famine experience and accounting conservatism is more pronounced in non-State-Owned Enterprises (non-SOEs), when politicians change, or when accounting standards change. Finally, the results of additional tests suggest that CEOs with famine experience tend to support conservative accounting practices for contingencies and accelerate the recognition of asset impairments in negative events. These financial reporting policies are consistent with accounting conservatism.

Our study contributes to the literature in three ways. First, it provides evidence that directly identifies and quantifies the effects of traumatic experiences in the early life of CEOs on accounting conservatism. Prior studies show that firm-level factors, such as firm characteristics, corporate governance, and ownership structures (e.g., Watts, 2003; Lara et al., 2009; Xia & Zhu, 2009; Bonetti et al., 2017; Li & Xu, 2018)

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[2] Studies conducted in the US (e.g., Francis et al., 2015) focus on the attributes of CFOs and accounting conservatism. In this study, we focus on CEOs rather than CFOs, because in China, the position of a CFO is a relatively new concept, and some companies have adopted this idea from developed countries only recently. Although some listed firms do have a CFO, they are nevertheless considered less powerful as decision makers, even in making accounting policy decisions. For example, recent news has reported that the Chinese firm Geeya Technology Co., Ltd. (SHE: 300028) was delisted because its CEO was involved in financial fraud and misreporting.

as well as external factors such as contractual arrangements, litigation risk, taxation and regulation can help explain accounting conservatism (e.g., Holthausen, 2003; Huijgen & Lubberink, 2005; Bushman & Piotroski, 2006; Khurana & Wang, 2015; Iwasaki et al., 2018). However, these studies assume that executives are homogenous. Our study contributes to the literature on accounting policy choice by expanding the view that accounting conservatism can be influenced by the early-life experiences of CEOs.

Second, we extend prior studies on imprinting theory and provide evidence that CEOs may carry an imprint of risk aversion preferences developed during an adverse life experience (e.g., famine), which could offset the incentive to hide bad news from outside investors, influencing their reporting policy (e.g., accounting conservatism). Further, Marquis and Tilcsik (2013) argue that the implications of imprints are likely to be contingent on the present conditions. Our empirical evidence supports this view and shows that environmental uncertainties moderate the association between CEO's famine experience and accounting conservatism. This result highlights the dynamic interplay between critical life experiences of CEOs and the context in which they operate in the present.

Third, our study is related to two recent studies (Zhang, 2017; Feng & Johansson, 2018) that focus on the role of early-life experiences of CEOs on real financial and investment decisions. Our study extends them further by providing evidence indicating both *whether* and *how* CEOs' famine experiences affect financial reporting policies.

The remainder of this paper is organized as follows. Section 2 reviews the related literature and develops the hypotheses. Section 3 outlines the sample and specifies the regression model and the variables used. Section 4 presents the analyses of the results. Sections 5 and 6 summarize the additional and robustness tests. Section 7 concludes the paper.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 CEO Famine Experience and Accounting Conservatism

The concept of imprinting describes how organizations take on elements of their founding environment, and how these elements persist well beyond the founding phase.

This idea is based on a sizeable behavioral economics literature on imprinting. Marquis and Tilcsik (2013) emphasize three important components that form the concept of imprinting. These include (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. Evidence from psychology literature supports the imprinting theory and indicates that traumatic experiences affect individuals' perception of risk in their environment. This impact can be lifelong (Holman & Silver, 1998). If a person has a traumatic experience, particularly in early childhood, it can increase their perception of the riskiness of their environment growing in adulthood (Zhang, 2017).

Consistent with this view, prior studies document empirical evidence suggesting that the early-life traumatic experiences of CEOs make them more risk-averse, as their perception of risk increases[3]. For example, Cronqvist et al. (2015) provide evidence that CEOs who have experienced an adverse and significant macroeconomic event (e.g., grew up during the Great Depression[4]) have stronger preferences for value investing. Thus, these CEOs take fewer risks in corporate policy and investment decisions. Bernile et al. (2017) document that firms whose CEOs have experienced extreme fatalities from natural disasters make more risk-averse financing choices. A few recent studies document famines as a traumatic event in childhood leading to more risk averse behavior later in life. Zhang (2017) finds that CEOs who have experienced the Great Chinese Famine use less debt, hold more cash, and perform fewer takeovers. Similarly, Feng and Johansson (2018) show that a CEO with famine experience has less aggressive financial, investment, and cash-holding policies.

In this study, we argue that CEOs who have experienced famine in their early life will adopt more conservative financial reporting polices. Imprinting theory suggests that individuals are particularly likely to adopt behaviors, cognitive models, and norms

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[3] Some other studies do not focus on CEOs and they investigate the long-term impact of early-life experiences on career choices of economists (Oyer, 2006), investment bankers' behaviour (Oyer, 2008), analysts' ability (Clement and Law, 2018), loan officers' interpretation bias (Campbell, Loumioti, and Wittenberg-Moerman, 2019), and the composition of available financial advisors in the financial advisory profession (Law and Zuo, 2020).

[4] He et al. (2018) do not focus on CEOs' early-life experiences. Instead, they examine how engagement auditor partners' experience of economic downturns affects their audit judgement. They find that auditors who started their career during economic downturns issue audit adjustments more frequently. That is, auditors are more skeptical in the presence of heightened uncertainty during economic downturns.

bearing the stamp of the environment they experienced during a sensitive period (Marquis and Tilcsik, 2013). When applying the imprinting theory at the individual level, we expect that CEOs will carry the imprint of risk perception, which they have developed through their famine experience, into their decisions. As business operations often face variety of uncertainties, CEOs with famine experience may be less likely to overestimate the probability and magnitude of positive returns to future cash flows from investment projects. Simultaneously, they may accelerate loss recognition to cash flows from adverse events, relative to their peers who have no famine experience (Ahmed & Duellman, 2013).

Moreover, consistent with the imprinting theory, CEOs who have experienced famine may have a higher−level perception towards downside risks and become more risk averse. They may be more sensitive to future losses, and therefore, may recognize loss contingencies before gain contingences. Alternatively, such CEOs may be more likely to recognize asset impairment, in which asset values are written down under adverse circumstances. These accounting practices lead to more timely disclosure of bad news and increase accounting conservatism. Thus, we hypothesize that the level of accounting conservatism in companies' financial reports are positively associated with their CEOs' early-life experiences of famine.

HYPOTHESIS 1. *Firms with CEOs who have experienced the Great Chinese Famine report more conservatively than firms with CEOs who did not experience the famine.*

2.2 Environmental Uncertainty, CEO Famine Experience and Accounting Conservatism

Prior studies show that environmental uncertainty has significant impact on a company's operational risk, earnings volatility, investment efficiency, financing costs, and quality of financial reporting (Graham & Harvey, 2001; Lemmon & Lins, 2003). Imprinting theory implies that organizational managers (e.g., CEOs) play an important role in making decisions that reflect their attempts to fit in with the environment to address uncertainty (Hannan & Freeman, 1977; DiMaggio & Powell, 1983). Therefore, in this section, we develop hypotheses on how the association between CEOs' famine experience and accounting conservatism is moderated by uncertainty of the

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environment. We argue that companies face a higher-level of environmental uncertainty when the company is a non-SOE, when the core government officials change, or when accounting standards change (e.g., adoption of International Financial Reporting Standards, thereafter IFRS).

2.2.1. State Ownership

There are two distinct types of firms in China: SOEs and non-SOEs. Prior studies (e.g., Shleifer & Vishny, 1994; Chen et al., 2010) suggest that state ownership can alleviate creditors' fear of default risk. The government has very strong incentives to keep SOEs financially sound and to prevent them from defaulting. This is the so-called government implicit guarantee (Chen et al., 2010). In other words, SOEs are politically favored firms that are well supported by the government in terms of easier access to finance, government subsidies, and tax reduction (Bushman & Piotroski, 2006; Xia & Zhu, 2009). Unlike SOEs, non-SOEs often face a higher level of environmental uncertainty because they are more constrained by difficult access to external financing. Also, these enterprises face higher costs for external financing. This means that the demand for accounting conservatism from external contractors is higher (Zhang, 2008; Chen et al., 2010). Therefore, we expect that CEOs in non-SOEs, who are imprinted with the Great Chinese Famine experience, may be more sensitive to default risks, and are risk-averse. Thus, they are more likely to adopt conservative financial reporting policies than their counterparts in SOEs. Accordingly, Hypothesis 2(a) is presented as follows.

HYPOTHESIS 2(a). *State ownership decreases the positive association between CEO famine experience and accounting conservatism.*

2.2.2. Core Official Turnover

It is well documented that political uncertainty significantly increases operational risks for businesses (Julio & Yook, 2012; Pastor & Veronesi, 2012; Gulen

& Ion, 2015; Kong, Radhakrishnan & Tsang, 2017).[5] Core government officials are representatives of government power. Turnover among these officials leads to political uncertainty. For Chinese firms, it is vital to deal with politicians and respond to the associated political risks. An et al. (2016) argue that the Chinese government often uses the so-called visible hand to directly control resources and allocate wealth. While local governments and core officials can provide extraordinary support for their cronies, they also expose local firms to considerable downside risk when they leave office.

We argue that the replacement of core officials increases the uncertainty of the political environment considerably. This leads to increased operational risks for businesses. Thus, CEOs imprinted with famine experience, who are more sensitive to the operational risks arising from political uncertainty, are expected to adopt more conservative accounting policies to reduce business risk or uncertainty (Ahmed et al., 2002; Watts, 2003; Ball & Shivakumar, 2005; Lafond & Roychowdhury, 2008). Accordingly, we propose the following hypothesis.

HYPOTHESIS 2(b). *Turnover among core officials positively moderates the association between a CEO's famine experience and accounting conservatism.*

2.2.3. Adoption of IFRS

In recent decades, China has joined the initiative to merge international accounting standards between the International Accounting Standard Board and the Financial Accounting Standard Board in the US. All Chinese listed companies are now required to use the 2006 Chinese Accounting Standards (CAS), beginning January 1, 2007.

There are significant risks stemming from the adoption of IFRS. First, uncertainty about the implementation and effects of IFRS may increase investor scrutiny of financial statements after the adoption of IFRS. This may increase litigation risk for listed companies, and a greater chance of regulatory interventions (Liu et al., 2011). Second, the Chinese capital market is less developed and liquid than developed markets. Thus, IFRS adoption may lead to volatile earnings because of increased use of

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[5] Some studies find that political uncertainty is an important contributing factor to stock price volatility (Nippani & Medlin, 2002; Nippani & Arize, 2005; Li & Born, 2006). More recently, several studies suggest that policy uncertainty and political connections affect stock returns and risk-taking behavior (Pastor & Veronesi, 2012; Kim, Pantzalia & Park, 2012; Jens, 2017).

fair value (Barth et al., 1995; Hodder et al., 2006; Yao et al., 2018). This in turn will affect the debt covenant conditions with creditors and increase companies' default risk. Consequently, CEOs who carry the imprint of risk sensitivity from the famine will choose a relatively conservative policy, resulting in accounting information that will be perceived as more reliable by the capital provider. Accordingly, we develop the following hypothesis.

HYPOTHESIS 2(c). *The adoption of IFRS positively moderates the association between CEO famine experience and accounting conservatism.*

3. RESEARCH DESIGN

3.1 Sample Selection

Our original sample includes all companies listed on the Chinese A-share market, and we obtained financial data from the CSMAR database. CSMAR contains financial and corporate governance information from 1999 to date. However, our sample was limited to 2000 to 2015 because observations for some test variables in 1999 are missing from the database.

As in prior studies (e.g., Kato & Long, 2006), we identified CEOs using the following strategy. Where the same individual was serving as both chairman and general manager (*zongjingli*) of the company, he or she was considered the CEO. However, if two individuals occupied the positions of chairman and general manager, we considered the chairman to be the CEO, so long as the chairman received the compensation from the listed firm. Otherwise, we considered the general manager, who is almost always on the payroll, the CEO.

We hand-collected personal information (such as gender, age, and place of birth) from annual reports and from online search engines, such as Sina, Baidu, Sougou, and 360 Search. We then matched this information to financial data downloaded from CSMAR. We excluded companies from the financial industry because of their unique business structure. We also exclude firms flagged with ST and *ST[6] as they are

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[6] ST stands for special treatment and refers to listed firms that have already had negative net profits for two consecutive years. *ST refers to listed firms that already had negative net profits for three consecutive years and thus have the probability of being delisted from the stock exchanges.

experiencing financial distress. Further, we remove CEOs who were not Chinese citizens from our sample because we were unable to identify whether they had experienced the Great Chinese Famine. Finally, companies with missing data are deleted and we winsorize the variables at the 1% and 99% levels. Thus, the final sample consisted of 23,864 firm-year observations, with information for 5,692 individual CEOs.

3.2 Measurement of CEO Famine Experience

We use *Famine* as our measure of early-life famine experience for CEOs in our sample. As the Great Chinese Famine occurred between 1959 and 1961, *Famine* is a dummy variable for famine CEOs that equals 1 if the CEO was born in 1961 or earlier[7] and their birth province was severely impacted by the famine, and 0 otherwise. Following prior studies (e.g., Zhang, 2017; Feng & Johansson, 2018), we use the abnormal death ratio[8] of a CEO's birth province to measure the severity of the famine. A province is severely impacted by the famine if its abnormal death ratio is larger than the median abnormal death ratio of all provinces during the Great Chinese Famine period.

We believe that our definition is more appropriate because it reflects not only the chronological effect of CEOs' birth, but also the severity of the famine these CEOs had experienced. We assume that the severity of famine determines how deeply the experience of famine is imprinted on CEOs. Thus, the magnitude and significance of the coefficient of *Famine* can identify the impact of CEOs' famine experience.

Table 1 shows the CEOs' birthplaces and the distribution of the sample by province. As shown in Table 1, the death rate varied between different provinces and the average death rates increased sharply between 1959 and 1961. This was particularly true in Anhui, Chongqing, Guizhou, and Sichuan, where death rates were more than 30% during the famine period. However, there was a very rapid recovery after the

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[7] For example, if a CEO was born in a famine sever province such as Sichuan in 1952, he was 7-9 years old during the Great Famine period and he could have imprinting of famine for his or her later life, so we label this CEO as a CEO who experienced famine. CEOs who were born after the famine would have no experience on the famine, and the famine should have no impact on their behavior later in life. We performed placebo tests (discussed under the section 4.1.2). Results shows that CEOs who were born after 1961 has no impact on accounting conservatism.

[8] Abnormal death ratio= [(average death ratio of 3 years during famine -average death ratio of 3 years before famine) +(average death ratio of 3 years during famine -average death ratio of 3 years after famine)]/2.

famine as shown in Table 1. Three years after the Great Chinese Famine, the average death rates in the provinces had returned to levels before the famine. Thus, in contrast to other disaster experiences, the Great Chines Famine helps us better identify the impact of experiencing a disaster on CEO behavior, avoiding possible noise effects.

[Insert Table 1]

3.3 Measurements of Accounting Conservatism

We use three measures of accounting conservatism in our main tests. Our first measure is the firm-specific asymmetric timeliness score developed by Khan and Watts (2009). Khan and Watts (2009) find that firm specific factors such as firm size, market-to-book ratio, and capital structure, influence accounting conservatism. They construct the C-score as follows.

$$EPS_{it} / P_{it-1} = \beta_0 + \beta_1 Dr_{it} + (\mu_1 + \mu_2 Size_{it} + \mu_3 MB_{it} + \mu_4 Lev_{it})Return_{it} + (\lambda_1 + \lambda_2 Size_{it} + \lambda_3 MB_{it} + \lambda_4 Lev_{it})Dr*Return_{it} + \beta_4 Size_{it} + \beta_5 MB_{it} + \beta_6 Lev_{it} + \beta_7 Dr*Size_{it} + \beta_8 Dr*MB_{it} + \beta_9 Dr*Lev_{it} + \varepsilon_{it} \tag{1}$$

in which
$$Gscore_{it} = \beta_2 = \mu_0 + \mu_1 Size_{it} + \mu_2 MB_{it} + \mu_3 Lev_{it} \tag{2}$$

$$Cscore_{it} = \beta_3 = \lambda_0 + \lambda_1 Size_{it} + \lambda_2 MB_{it} + \lambda_3 Lev_{it} \tag{3}$$

where *EPS* is the basic earnings (deducting the non-recurring gains and losses) per share in the year *t*; *P* is the stock price of the company in the year *t–1*; *Return* represents the company's stock return in the year *t* (12 months); and *Dr* is a dummy variable. When the return is negative, the *Dr* value is 1 (otherwise 0). *Size* is the natural logarithm of the company's total assets; *MB* is the market value of the equity divided by the book value of the equity; *Lev* is the company's leverage ratio; the *Gscore* represents the timeliness of reporting good news; and *Cscore* represents the timeliness of reporting bad news. The coefficients are obtained in Model (1) and used in Equation (3) to calculate the accounting conservatism score (*CScore*).

We test Hypothesis 1 by estimating the following.

$$Cscore_{it} = \alpha_0 + \alpha_1 Famine_{it} + \alpha \sum Ctrls_{it} + Year_t + Industry_j + Birthplace_c + Birthyear_c + Firm_i + \varepsilon_{it} \tag{4}$$

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Where *Famine* represent the famine experience of the CEO. Following Chen et al. (2010) and Kravet (2014), we control the size of the company (*Size*), its market-to-book ratio (*MB*), leverage ratio (*Lev*), net cash flow (*CFO*), stock return (*Dr*), growth in its sales revenue (*Grow*), CEO duality (*Dual*), board independence (*Independent*), management shareholding (*Manager*) and CEOs' demographic information, including gender (*Gender*), age (*Age*), and so on. Because the vast majority of Chinese CEOs of listed companies have at least a bachelor's degree (many have an MBA), we do not control for education level. In addition, we control for the impact of the company's registration location, including regional per capita income (*Per Capita GDP*), regional per capita income growth rate (*Income Grow*) and population density (*Population*).[9] To further control for time-invariant unobservable firm characteristics that could affect the accounting policies, we include firm and year fixed effects in our models. Since some of our sample companies' industry code changed during the sample period, we add the industry fixed effect. Further, following Zhang (2017), we include birthyear and birthplace fixed effects[10] to control for CEO cohort and CEO hometown effects.

Our second measure of accounting conservatism is Basu's (1997) asymmetric timeliness measure. To test our hypotheses, we estimate the regression using Model (5). The variable of interest is the three-way interaction term *Return*Dr*Famine*.

$$EPS_{it} / P_{it-1} = \alpha_0 + \alpha_1 Return_{it} + \alpha_2 Dr_{it} + \alpha_3 Return * Dr_{it} + \alpha_4 Famine_{it} + \alpha_5 Return *$$
$$Famine_{it} + \alpha_6 Dr * Famine_{it} + \alpha_7 Return * Dr * Famine_{it} + \alpha \sum Ctrls_{it}$$
$$+ Year_t + Industry_j + Birthplace_c + Birthyear_c + Firm_i + \varepsilon_{it} \tag{5}$$

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[9] Prior studies suggest that external factors such as contractual arrangements, litigation risk, taxation, and regulation can help explain accounting conservatism (e.g., Holthausen, 2003; Huijgen & Lubberink, 2005; Bushman & Piotroski, 2006). The literature also shows that macroeconomics is associated with tax reforms (Oueslati, 2014), market regulations (Cacciatore & Fiori, 2015), legal system and litigation risks (Listokin, 2019) and contractual arrangements (Moreira & Savov, 2017). As there are large differences in the level of economic development of various regions of China, it is perceived that the level of accounting conservatism will vary across companies located in different provinces. Therefore, we control reginal economic development by including per capital GDP, income growth and population.

[10] Malmendier and Nagel (2011) argue that CEOs born in the same year may have similar risk preference due to common social, environmental, and economic experiences. To address this cohort effect, we include the CEO birth year fixed effect following Zhang (2017). Prior studies (e.g., Chang at al., 2015) also suggest that CEOs born in the same area may have similar risk preferences due to the local culture. Thus, we include CEO birth province fixed effect to control for CEO hometown effects.

Our third measure of accounting conservatism is Ball and Shivakumar (2005) which assesses the timeliness of gains and losses by measuring the tendency for increases and decreases in reported income to reverse. Our test model is as follows (Model [6]):

$$NI_{it} = \alpha_0 + \alpha_1 LNI_{it} + \alpha_2 DNI_{it} + \alpha_3 LNI * DNI_{it} + \alpha_4 Famine_{it} + \alpha_5 LNI *$$
$$Famine_{it} + \alpha_6 DNI * Famine_{it} + \alpha_7 LNI * DNI * Famine_{it} + \alpha \sum Ctrls_{it}$$
$$+ Year_t + Industry_j + Birthplace_c + Birthyear_c + Firm_i + \varepsilon_{it}$$

(6)

In the formula, *NI* is the difference between the operating profit of the current year and the operating profit of the previous year, scaled by the total assets of the previous year. *LNI* is the 1-year lagged *NI*, and *DNI* is the dummy variable, that is, if *LNI* < 0, then *DNI* = 1, otherwise *DNI* = 0. Here, the variable of interest is *LNI*DNI*Famine.*

Control variables included in Models (5) and (6) are the same control variables including firm, CEO and demographic characteristics variables, as in Model (4). The definition and calculation of all variables are listed in Appendix 1.

3.4 Descriptive Statistics

Table 2 shows the descriptive statistics of the test variables. The mean *Cscore* is 0.042. It is lower than those documented in prior studies for the sample of US companies (Khan & Watts, 2009; Kravet, 2014; Balakrishnan et al., 2016) suggesting that the accounting conservatism of listed Chinese companies is much lower than the conservatism of US ones. On average, *Famine* is 0.209. That is, 20.9% of CEOs were born in 1961 or earlier and experienced the severe Great Chinese Famine (i.e., born in provinces with the abnormal death rate higher than the median abnormal death rate of all provinces during the famine period). The descriptive statistics also show that 58.4% of sample companies are SOEs. The core official turnover, on average, is 32.4%, and the average *IFRS* is 0.691.

[Insert Table 2]

4. EMPIRICAL RESULTS

4.1 Test of H₁: CEO's Famine Experience and Accounting Conservatism

4.1.1 Main results

Panel A in Table 3 presents the estimation of Model (4), using *CScore* as the dependent variable. This model tests for the association between CEOs' famine experience and the firm-specific measure of accounting conservatism. The baseline model (column 1 of Table 3, Panel A) shows that the variable of interest (*Famine*) is positively associated with accounting conservatism. The coefficient for *Famine* is 0.017 and is significant at the 1% level (column 1). Results (columns 2 and 3 of Table 3, Panel A) show that the coefficient of *Famine* is positively associated with accounting conservatism, even after controlling for firm characteristics, CEO information, and geographical characteristics. These results are consistent with our expectations. These results suggest that CEOs with early-life famine experienceare more sensitive to risks. As a result, the level of accounting conservatism of firms having CEOs with famine experience increases dramatically, as they attempt to evade potential risks.

The signs of the coefficients of control variables are consistent with expectations. For example, *size* is negatively associated with accounting conservatism, which suggests that smaller companies report more conservatively (Kraver, 2014; Balakrishnan et al., 2016). *Lev* is positively associated with accounting conservatism, which is consistent with the argument that greater conservatism is associated with higher degrees of financial leverage (debt) in the firm's capital structure. Finally, the coefficient for *SOE* is negative, which suggests that SOEs tend to have a lower default risk, and thus, require a lower degree of accounting conservatism (Chen et al., 2010).

Panel B in Table 3 presents the test results using the proxy of accounting conservatism based on models by Basu (1997), and Ball and Shivakumar (2005). The variables of interest are *Return*Dr*Famine* and *LNI*DNI*Famine*. Columns 1-3 in Panel B of Table 3 report the regression results of Model (5). For the full sample, results show that the coefficient of *Return*Dr*Famine* is positive, and statistically significant at the 1% level. Columns 4-6 in Panel B of Table 3 report the regression results of Model (6). The coefficient for the variable of interest *LNI*DNI*Famine* is negative, and statistically significant at the 1% level for the full sample.

Overall, the results reported in Table 3, Panel B are quantitatively similar to those reported in Table 3, Panel A. This suggests that our main results remain consistent

under different measurements of accounting conservatism. These results suggest that CEOs' experience of the Great Chinese Famine is positively associated with accounting conservatism. Thus, Hypothesis 1 is supported. To further assess the credibility of our findings, we conduct the following analyses.

[Insert Table 3]

4.1.2 Endogeneity Issues

To control for the impact of endogeneity issues arising from omitted company-level variables and reverse causality, we examine the level of accounting conservatism before and after a CEO change. These analyses assist in strengthening the proposition that it is the CEO's experience, and not the firm's decision, that affects reporting policy. The average CEO tenure in our sample is 3.7 years. Therefore, we set the test window period to two years before and after a CEO change (-2, + 2). We introduce a new test variable, *CEOChange.* We consider that this variable can change under two situations. Under the first situation, *CEOchange* equals 1 if the newly appointed CEO experienced the Great Chinese Famine, but the former CEO did not. For companies whose CEOs were not replaced and those whose CEOs did not experience the Great Chinese Famine, *CEOChange* equals 0 (No to Yes columns in Table 4). Under the second situation, *CEOchange* equals 1 if the new CEO did not experience the Great Chinese Famine, but the former CEO did (Yes to No columns in Table 4). The observations for which *CEOChange* equals 0 include companies whose CEOs were not replaced, but experienced the Great Chinese Famine.

Results in columns 1, 3, and 5 of Table 4 show that if the CEO of a company changes from a non-famine-experienced to a famine-experienced CEO (No to Yes), the firm's level of accounting conservatism increases in the years *t*, *t+1* and *t+2*. Results in columns 2, 4, and 6 also show that if a company's CEO changes from a famine-experienced to a non-famine-experienced CEO (Yes to No), the level of accounting conservatism level significantly decreases in the years *t*, *t+1* and *t+2*. These results support our previous findings.

[Insert Table 4]

Further, we use the Propensity Score Matching (PSM) test to examine if our results are subject to sample selection bias. We define companies having CEOs with famine experience as the experimental group, and other companies as the control group. The control variables in Model (1), including firm size, leverage ratio, market-to-book ratio, and so on, are used to match the *Pscore* based on year, industry, and region. The results (untabulated) of a regression computed using the after-matching sample show that famine experiences are positively associated with accounting conservatism in this case too. These results are statistically significant, at either the 1% or 5 % level, when different accounting conservatism measures are used. Thus, our main results are robust to the PSM test.

4.1.3 Placebo Tests

The main argument in our study is that CEOs' early-life famine experience leads to a higher level of accounting conservatism. As explained earlier, our definition of *Famine* considers two factors: whether a CEO is born in 1961 or earlier and how severely the CEO's birth province is impacted. To further validate our results, we perform placebo tests. First, we test whether the association between CEOs' experience and accounting conservatism holds if they are born in a time interval after the famine ended in 1961. Specifically, we introduce two variables. *Famine1* equals 1, if the CEO is born in the 1962-1964 period, and the abnormal death ratio of the CEO's birth province is higher than the median of all provinces during the 3 years of the famine, otherwise it equals 0. *Famine2* equals 1, if the CEO is born in the 1965-1967 period, and the abnormal death ratio of the CEO's birth province is higher than the median of all provinces during the 3 years of the famine, otherwise it equals 0. We expect the coefficients of both *Famine1* and *Famine2* to be statistically insignificant, as CEOs born during these periods (1962-1964 or 1965-1967) have no actual famine experience.

Second, we examine whether our main results still hold if we use the abnormal death ratios over different periods of time other than that over the famine period (1959-1961), when defining the variable of interest, *Famine*. We introduce two alternative *Famine* variables in Table 5. *Famine3* equals 1, if the CEO is born in 1961 or earlier, and the abnormal death ratio, based on the 1953-1955 abnormal death rates, of the CEO's birth province is bigger than the median of all provinces, and 0 otherwise.

Famine4 equals 1, if the CEO is born in 1961 or earlier, and the abnormal death ratio, based on the 1965-1967 abnormal death rates, of the CEOs' birth provinces is bigger than the median of all provinces, and 0 otherwise.[11] As both *Famine3* and *Famine4* do not truly reflect the severity of the famine, we expect the results to not show a positive association between famine experience and accounting conservatism.

Column 1 reports the results when *Famine1* and *Famine2* are added in the model, while columns 2 and 3 report the results when *Famine3* and *Famine4* are used to replace the variable of interest *Famine,* previously defined in the main analysis. Overall, placebo results from the first 3 columns show that *Famine1, Famine2, Famine 3,* and *Famine 4* are all not associated with accounting conservatism, confirming our main observation that accounting conservatism is influenced by a CEO's experience of the Great Chinese Famine. These results also hold when we use two alternative accounting conservatism measures (see columns 4-6 and 7-9 of Table 5).

[Insert Table 5]

4.2 Test of H₂: Environmental Uncertainty, CEOs' Famine Experience, and Accounting Conservatism

To test Hypothesis 2(a), we re-estimate our regression on two subsamples, SOEs ($SOE = 1$) and non-SOEs ($SOE = 0$). We do this to capture the moderating effects of a firm's ownership structure on the association between a CEO's famine experience and accounting conservatism. The results are presented in columns 1 and 2 of Table 6, Panel A. For non-SOEs, the coefficient of *Famine* is positive and significant at the 1% level, while the coefficient of *Famine* is not statistically significant for the SOEs subsample. The chi-squared test shows that the coefficients of *Famine* in non-SOEs are significantly larger than that of SOEs. This suggests that CEOs' famine experience has a greater impact on accounting conservatism in non-SOEs. Columns 1 and 2 of Table 6, in both Panel B and Panel C, report similar results when the Basu (1997) model and the Ball and Shivakumar (2005) model are respectively used to measure accounting conservatism. Specifically, the results show that *Return*Dr*Famine* and

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[11] Our calculation of abnormal death rate considers the death rate 3 years before and after the famine (that is, death rate between 1956 and 1964). To avoid the impact from the famine period, in these placebo tests, we used 1953-1955 and 1965-1967 to recalculate the abnormal death rate.

*LNI*DNI*Famine* are associated with accounting conservatism only in the non-SOEs subsample. Together, these results suggest that non-SOEs having CEOs with famine experience are more likely to adopt a conservative accounting policy to mitigate default risks. Therefore, Hypothesis 2(a) is supported.

Columns 3 and 4 of Table 6 (Panels A, B, and C) report the regression results for testing Hypothesis 2(b), which concerns the moderating effects of core official turnover on the association between CEO famine experience and accounting conservatism. We divide our sample into two groups based on a new variable *Official*, which is a dummy variable that equals 1 if the governor or secretary of a province in which the company is located has been replaced, and 0 otherwise. The results show that when there is a change in government official (*Official* = 1), our variable of interests (*Famine* in Panel A, *Return*Dr*Famine* in Panel B, and *LNI*DNI*Famine* in Panel C, of Table 6) are associated with accounting conservatism, and are significant at either the 1% or 5% level. However, these variables are not significantly related to accounting conservatism when there is no change in government officials (*Official* = 0). The chi-squared test further shows that these coefficients are statistically significantly different between subsamples. These results suggest that since core official changes introduce political uncertainty, companies having CEOs with famine experience are more likely to resort to accounting conservatism to deal with political uncertainty. Thus, Hypothesis 2(b) is supported.

Columns 5 and 6 of Table 6 (Panels A, B and C) report the regression results for testing Hypothesis 2(c), which concerns the impact of IFRS adoption on the association between CEO famine experience and accounting conservatism. We introduced a new variable *IFRS*, which is a dummy variable that equals 1 in 2007 and beyond, and 0 otherwise. We then partition our sample into two groups (*IFRS* = 1 and *IFRS* = 0). The results show that our variable of interests (*Famine* in Panel A, *Return*Dr*Famine* in Panel B, and *LNI*DNI*Famine* in Panel C, of Table 6) are associated with different accounting conservatism measures in both subsamples. The chi-squared test further shows that CEOs' famine experience has a greater impact on accounting conservatism since the adoption of IFRS (that is, the coefficients of variables of interest are larger for the *IFRS* = 1 subsample, as compared to that of the *IFRS* = 0 subsample). This suggests that when facing uncertainty from changes in accounting standards and associated risks from the adoption of IFRS, CEOs with famine

experience are likely to choose a more conservative policy. Therefore, Hypothesis 2(c) is supported.

[Insert Table 6]

5. ADDITIONAL ANALYSES AND ROBUSTNESS TESTS

5.1 Methods adopted for Conservative Accounting

In the hypotheses development section, we argue that the risk perception of the CEO potentially links the Great China Famine and accounting conservatism. However, how does CEOs' famine experience lead to conservative accounting practices in a company? To achieve a higher level of accounting conservatism, some accounting policies and practices can be adopted. One possible example of such an accounting practice is asset impairment. Here, asset values are written down under adverse circumstances, while they are not written up under favorable circumstances. In addition, firms may report the highest possible value of contingencies (e.g., warranties, customer refunds, guarantees or undecided lawsuits). These accounting policy decisions enable the company to recognize bad news more promptly than it does good news, leading to asymmetric timeliness of earnings (Beaver & Ryan, 2005). Thus, in this additional test, we investigate whether CEOs' famine experience is associated with provisions for liabilities and asset impairment, by performing regression with asset impairment (measured by total asset impairments divided by total assets) and provisions (measured by total provisions over total assets) using our variable of interest, *Famine,* and a series of controls.

Table 7 reports the results of the regression analyses. The variable of interest, *Famine*, is positively associated with provisions for liabilities and asset impairment. These results provide further evidence for how a CEO's famine experience leads to conservative financial reporting policies.

[Insert Table 7]

5.2 Robustness Tests

Several robustness tests are performed to examine whether our results are robust for different model specifications and variable measurements.

5.2.1 Control for the Real Decision

One may argue that accounting conservatism can be influenced by cross-sectional variations in firm size or a function of firms' investment and financial policies. Prior studies, such as Zhang (2017) and Feng and Johansson (2018), suggest that the famine experience of CEOs is associated with firms' leverage (e.g., level of debt) and investment policies. This sensitivity test examines whether the CEO's famine experience is associated with firm' reporting policies, while holding real decisions constant. Specifically, we re-run our main regression controlling varies of investment decisions, including capital expenditures, cash and dividend payouts, merge and acquisitions (M&A) and research and development (R&D) expenditures. Untabulated results show that the coefficient on the variable of interests (*Famine*) is positive and statistically significant at either the 1% or 5% level, suggesting that our results are not influenced by cross-sectional variations in firms' real decisions.

5.2.2 Confounding Events during Test Periods

The CEOs in our sample might have also experienced some other major events (e.g., the War of Resistance against Japanese Aggression, the Civil War, and the Cultural Revolution) apart from the Great Chinese Famine in their life. First, to rule out the possibility that our results may be biased due to CEOs' early-life experiences of these confounding events, we conduct three sensitivity tests based on three subsamples, excluding one event each time. To mitigate the impact of the War of Resistance against Japanese Aggression on our results, subsample 1 excludes CEOs who are born in 1945 or earlier, ensuring that CEOs in the sample have not experienced this war. Similarly, CEOs who are born in 1949 or earlier are excluded from subsample 2, because they have experienced the Civil War. To mitigate the impact of the Cultural Revolution on accounting conservatism, we exclude CEOs born after 1976 for subsample 3. Thus, as all CEOs in subsample 3 have experienced the Culture Revolution so we can conclude that observed differences in the level of accounting conservatism is not derived from

whether CEOs experienced the Culture Revolution, and rather, from their experience of famine. In other words, by excluding CEOs born after 1976, the impact of the Culture Revolution on accounting conservatism is controlled.

Second, we perform another test controlling for the potential impacts from all three events. Specifically, subsample 4 includes CEOs born between 1949 to 1976. Overall, we find that CEO famine experience, measured by *Famine*, is positively associated with accounting conservatism (results untabulated), which suggests that our results are not sensitive to confounding events.

5.2.3 Different age cohort effect

Research (Piaget & Inhelder, 2013) shows that humans can understand the world, store permanent memories, and begin to form the most critical part of their character during childhood and adolescence. In this section, we further examine how the impact of CEOs' famine experience on accounting conservatism varies according to the age when the CEOs experienced the Great Chinese Famine. We divided our sample CEOs into four groups based on the sample quartile of CEO age at which a given CEO experience the Great Chinese Famine. The untabulated summary statistics show that 25th percentile, median, and 75th percentile of sample CEO age at which CEOs experienced famine is 3-years old, 6-years old and 9-years old. Four dummy variables are introduced. $Cohort_1Famine$, $Cohort_2Famine$, $Cohort_3Famine$, $Cohort_4Famine$ equals one if CEOs who experienced the severe famine (e.g. CEO birth province's abnormal death ratio is larger than the median abnormal death ratio of all provinces during the Great Famine period) at the age between 0 and 3, 4 and 6, 7 and 9, above 10-years old, respectively, otherwise it equals zero.

Results (untabulated) show that, among the 4 cohorts, the coefficient of *Cohort1Famine* is positive but not statistically significant. The coefficients of *Cohort2Famine* and *Cohort3Famine* are positive and statistically significant, suggesting that CEOs who experienced severe famine at an age between 4 and 9 years old are positively associated with accounting conservatism. These results are consistent with the literature (Giedd et al., 1999; Piaget & Inhelder, 2013) that suggests early life experiences imprinted during these periods have a greater impact on human behavior than later experiences.

6. CONCLUSION

The CEO is the most influential decision maker in any modern enterprise that has the basic feature of separation of ownership and control. Previous studies investigate the influence of CEOs' individual characteristics on the quality of financial accounting and managerial behavior. Some recent studies extend the literature by examining the relationship between corporate decision-making and CEOs' early-life experience, marital status, occupation type, and military service experience.

Using the imprinting theory as a theoretical framework, we investigate whether CEOs' early-life experience of the Great Chinese Famine affects the accounting conservatism of their companies. The results show that companies having CEOs with famine experience tend to adopt more conservative accounting policies than companies that do not have such CEOs. Furthermore, we find that the positive association between famine experience and accounting conservatism is moderated by environmental uncertainties. Overall, our findings suggest that imprinting from the famine experience contributes to a CEO's risk preferences and their documented financial reporting policy choices. That is, there is a link (but not necessarily a causal relationship) between a CEO's early-life experience and accounting conservatism.

Our study extends the growing literature that investigates how individuals' early-life experiences affect their financial decisions. Results of this study highlight the role of early-life traumatic experiences in shaping CEOs' risk perceptions and financial reporting policies. Further, our empirical evidence shows that environmental uncertainties moderate the association between CEOs' famine experience and their financial reporting policies. These results highlight the dynamic interplay between CEOs' early-life experiences and the context in which they operate in the present. Traumatic and adverse events are often unexpected and can happen anytime during the life of an individual. These events can take various forms (e.g., natural disasters, economic downturns and recessions, and public health issues such as the COVID-19 pandemic) and bring significant amount of risks and uncertainties to individuals and corporations. Thus, the findings of our study have important practical implications for corporate boards who should consider CEOs' adverse life experiences as an effective

mechanism through which risks are controlled and managed. Although adverse life experiences of CEOs can be helpful in reducing risks, it is noted that a mismatch between imprints from CEOs' life experience and current institutional environment can lead to negative consequences. For example, CEOs with imprints from their early-life adverse experiences may be too "conservative" and "risk-averse," and thus, less proactive to engage with exploratory and high-risk profile projects. Consequently, the long-term growth of the company could be compromised.

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TABLE 1 Sample Distributions

Province	# of firm year observations in the sample		Statistics of Mean death ratio from the Famine period (Pre: 1956-1958; During: 1959-1961; Post: 1962-1964)			
	CEOs born in	Firms located in	Pre	Post	During	Abnormal death rate
Anhui	934	772	0.119	0.083	0.311	0.210
Beijing	907	1,709	0.081	0.083	0.099	0.017
Chongqing	348	450	0.137	0.138	0.317	0.180
Fujian	790	884	0.083	0.082	0.119	0.037
Gansu	332	273	0.144	0.114	0.234	0.105
Guangdong	2,090	3,007	0.096	0.084	0.125	0.035
Guangxi	261	334	0.123	0.103	0.223	0.110
Guizhou	198	275	0.135	0.165	0.320	0.170
Hainan	185	341	0.096	0.084	0.125	0.035
Hebei	744	537	0.113	0.100	0.126	0.020
Henan	1,039	615	0.128	0.094	0.213	0.102
Heilongjiang	452	398	0.099	0.096	0.115	0.017
Hubei	1,246	967	0.100	0.098	0.149	0.050
Hunan	1,607	694	0.111	0.111	0.199	0.088
Jilin	560	478	0.086	0.107	0.119	0.022
Jiangsu	2,045	1,898	0.107	0.098	0.154	0.052
Jiangxi	654	383	0.118	0.105	0.135	0.024
Liaoning	951	827	0.083	0.086	0.136	0.052
Inner Mongolia	252	301	0.091	0.102	0.104	0.008
Ningxia	99	153	0.141	0.107	0.135	0.011
Qinghai	67	127	0.108	0.098	0.229	0.126
Shandong	1,931	1,432	0.123	0.121	0.200	0.079
Shanxi	497	351	0.120	0.123	0.131	0.010
Shaanxi	681	390	0.104	0.118	0.113	0.001
Shanghai	1,116	2,114	0.063	0.068	0.075	0.009
Sichuan	1,068	968	0.137	0.138	0.317	0.180
Tianjin	331	399	0.073	0.065	0.083	0.014
Tibet	-	-	-	-	-	-
Xinjiang	205	415	0.137	0.118	0.154	0.026
Yunnan	293	325	0.177	0.134	0.187	0.031
Zhejiang	1,981	1,943	0.093	0.086	0.108	0.019

This table presents the distribution of CEOs' birthplaces and firm headquarters, and the summary of statistics of the death ratio during the Great Chinese Famine period. CEO information is obtained from CSMAR. The death ratio is available from the China Statistical Yearbook. Following Feng and Johansson (2018), the abnormal death rate is calculated as the [(death rate during famine - death rate before the famine) + (death rate during famine - death rate after the famine)]/2.

TABLE 2 Descriptive statistics

Variable	N	Mean	S.D.	P25	Median	P75
Cscore	23864	0.042	0.208	0.001	0.029	0.062
EPS	23864	0.011	0.041	0.002	0.014	0.029
Return	23864	0.300	0.767	-0.221	0.097	0.579
Dr	23864	0.436	0.496	0.000	0.000	1.000
NI	23864	0.006	0.064	-0.012	0.003	0.021
LNI	20802	0.007	0.061	-0.011	0.003	0.021
DNI	20802	0.363	0.481	0.000	0.000	1.000
Famine	23864	0.209	0.406	0.000	0.000	0.000
SOE	23864	0.584	0.493	0.000	1.000	1.000
OFFICIAL	23864	0.324	0.468	0.000	0.000	1.000
IFRS	23864	0.691	0.462	0.000	1.000	1.000
Size	23864	21.666	1.223	20.816	21.515	22.329
Lev	23864	0.474	0.227	0.311	0.473	0.623
MB	23864	2.011	1.813	0.859	1.466	2.498
CFO	23864	0.055	0.250	0.005	0.051	0.101
Grow	23864	0.167	0.380	0.001	0.094	0.225
Dual	23864	0.176	0.381	0.000	0.000	0.000
Independent	23864	0.334	0.105	0.333	0.333	0.375
Manager	23864	0.069	0.163	0.000	0.000	0.040
Age	23864	3.851	0.141	3.761	3.850	3.951
Gender	23864	0.052	0.222	0.000	0.000	0.000
Per Capital GDP	23864	10.372	0.785	9.833	10.520	11.017
Income Grow	23864	0.121	0.061	0.077	0.110	0.165
Population	23864	8.416	0.693	7.894	8.606	8.982

This table reports the descriptive statistics of variables of the sample for 2000-2015. All variables are defined in Appendix 1.

TABLE 3 CEO famine experience and accounting conservatism

Panel A Based on the Khan and Watts (2009) model

Khan and Watts (2009) model	(2) Cscore	(3) Cscore	(4) Cscore
Famine	**0.017*** **	**0.019*** **	**0.015*** **
	(3.58)	**(4.40)**	**(2.63)**
Size		-0.031***	-0.026***
		(-21.24)	(-9.69)
Lev		0.016***	0.047***
		(2.93)	(5.14)
MB		-0.005***	0.000
		(-5.68)	(0.06)
CFO		0.002	-0.001
		(0.54)	(-0.11)
Dr		0.017***	0.020***
		(10.19)	(10.32)
Grow		-0.004	-0.002
		(-1.55)	(-0.82)
SOE		-0.013***	-0.023***
		(-6.28)	(-7.45)
Dual		0.007***	0.015***
		(2.59)	(3.27)
Independent		-0.028	-0.010
		(-1.39)	(-0.39)
Manager		-0.029***	-0.034
		(-4.68)	(-1.42)
Age		-0.049	-0.198*
		(-0.75)	(-1.93)
Gender		0.003	0.005
		(0.79)	(0.68)
Per Capital GDP		-0.004	-0.014
		(-1.38)	(-1.18)
Income Grow		-0.056*	-0.064*
		(-1.65)	(-1.70)
Population		0.002	0.028
		(1.22)	(1.07)
Year and industry	Yes	Yes	Yes
Birthplace and birth year	Yes	Yes	Yes
Firm	No	No	Yes
N	23864	23864	23864
Adj. R^2	0.089	0.114	0.157

This table presents the results from the ordinary least squares regression of the impact of the CEOs' famine experience on accounting conservatism. The dependent variable *Cscore* is based on the Khan and Watts (2009) model. The test variable is *Famine*. Reported in parentheses are t values, based on robust standard errors clustered by firm. All variables are defined in Appendix 1. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

Panel B Based on the Basu (1997), and the Ball and Shivakumar (2005) models

Basu (1997) Model	(1)	(2)	Ball and Shivakumar	(3)	(4)
	EPS	EPS	(2005) model	CNI	CNI
Return	0.005***	0.006***	LNI	-0.116***	-0.091***
	(9.60)	(9.80)		(-5.67)	(-4.00)
Dr	0.001	0.002**	DNI	-0.016***	-0.014***
	(1.33)	(2.20)		(-14.47)	(-12.10)
Return*Dr	0.050***	0.039***	LNI*DNI	-0.663***	-0.772***
	(15.19)	(11.95)		(-15.70)	(-15.44)
Famine	0.001	0.001	Famine	-0.003*	-0.006**
	(0.79)	(0.67)		(-1.89)	(-2.00)
Return*Famine	0.000	0.000	LNI*Famine	0.000	0.003
	(0.32)	(0.45)		(0.01)	(0.08)
Dr*Famine	0.004**	0.003*	DNI*Famine	-0.007***	-0.009***
	(2.05)	(1.78)		(-3.22)	(-3.70)
Return*Dr*Famine	**0.028***	**0.025***	**LNI*DNI*Famine**	**-0.526***	**-0.528***
	(5.47)	**(4.95)**		**(-6.57)**	**(-6.11)**
Controls	Yes	Yes	Controls	Yes	Yes
Year and industry	Yes	Yes	Year	Yes	Yes
Birthplace and birth year	Yes	Yes	Birthplace and birth year	Yes	Yes
Firm	No	Yes	Firm	No	Yes
N	23864	11837	N	20802	10311
Adj. R^2	0.279	0.459	Adj. R^2	0.274	0.335

This table presents the results from the ordinary least squares regression of the impact of the CEOs' famine experience on the accounting conservatism, using the proxy of accounting conservatism based on the Basu (1997) model, and the Ball and Shivakumar (2005) model. The test variables are *Return*Dr*Famine* and *LNI*DNI* Famine*. Reported in parentheses are t values, based on robust standard errors clustered by firm. Control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent*, *Manager*, *Age*, *Gender*, *Per Capital GDP*, *Income Grow* and *Population*, and interaction variables between *Return*, *Dr* and *Famine* in the columns 1 and 2, and interaction variables between *LNI*, *DNI* and *Famine*. All variables are defined in Appendix 1. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

TABLE 4 CEO change, famine experience and accounting conservatism

Khan and Watts (2009) model	(1) Cscore	(2) Cscore	Basu (1997) model	(3) EPS	(4) EPS	Ball and Shivakumar (2005) model	(5) NI	(6) NI
	No to Yes	*Yes to No*		*No to Yes*	*Yes to No*		*No to Yes*	*Yes to No*
$CEOChange_{t-2}$	-0.017	-0.015	$Return*Dr*CEOChange_{t-2}$	-0.033	-0.008	$LNI*DNI*CEOChange_{t-2}$	-0.163	0.825
	(-0.46)	(-0.47)		(-0.66)	(-0.13)		(-0.20)	(1.01)
$CEOChange_{t-1}$	-0.013	-0.030	$Return*Dr*CEOChange_{t-1}$	0.048	0.077	$LNI*DNI*CEOChange_{t-1}$	-0.626	-0.748
	(-0.28)	(-0.87)		(1.14)	(1.28)		(-0.88)	(-0.71)
$CEOChange$	0.163***	-0.114***	$Return*Dr*CEOChange$	0.095	-0.193*	$LNI*DNI*CEOChange$	-1.995**	1.269
	(2.92)	(-2.81)		(1.64)	(-1.88)		(-2.23)	(1.55)
$CEOChange_{t+1}$	0.178***	-0.198**	$Return*Dr*CEOChange_{t+1}$	0.173**	-0.241**	$LNI*DNI*CEOChange_{t+1}$	-1.387**	2.138**
	(2.91)	(-2.52)		(2.05)	(-2.38)		(-1.99)	(2.31)
$CEOChange_{t+2}$	0.306***	-0.174***	$Return*Dr*CEOChange_{t+2}$	0.145*	-0.176*	$LNI*DNI*CEOChange_{t+2}$	-2.586***	3.258***
	(2.72)	(-3.04)		(1.70)	(-1.75)		(-2.69)	(2.95)
Controls	Yes	Yes	Controls	Yes	Yes	Controls	Yes	Yes
Year and industry	Yes	Yes	Year and industry	Yes	Yes	Year and industry	Yes	Yes
Birthplace and birth year	Yes	Yes	Birthplace and birth year	Yes	Yes	Birthplace and birth year	Yes	Yes
Firm	Yes	Yes	Firm	Yes	Yes	Firm	Yes	Yes
N	1874	1662	N	1874	1662	N	1874	1662
Adj. R^2	0.222	0.283	Adj. R^2	0.459	0.411	Adj. R^2	0.296	0.278

This table presents the results from the ordinary least squares regression of the moderating effect of CEO turnover on the relationship between CEO famine experience and accounting conservatism based on the Khan and Watts (2009), Basu (1997), and Ball and Shivakumar (2005) models. Under columns 1, 3 and 5, *CEOChange* equals 1 if the newly appointed CEO experienced the Great Chinese Famine but the former CEO did not. For the companies whose CEOs were not replaced, and those whose CEOs did not experience the Great Chinese Famine, *CEOChange* equals 0. Under columns 2, 4 and 6, *CEOChange* equals 1 if the new CEO did not experience the Great Chinese Famine but the former CEO did. The observations with *CEOChange* equal to 0 include companies whose CEOs were not replaced but experienced the Great Chinese Famine. Reported in parentheses are t values, based on robust standard errors clustered by firm. Control variables include *Size, Lev, MB, CFO, Dr, Grow, SOE, Dual, Independent, Manager, Age, Gender, Per Capital GDP, Income Growth and Population*. All variables are defined in Appendix 1. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

Table 5 CEO famine experience and accounting conservatism: a placebo test

Khan and Watts (2009) model	(1)	(2)	(3)	Basu (1997) model	(4)	(5)	(6)	Ball and Shivakumar (2005) model	(7)	(8)	(9)
	Cscore	Cscore	Cscore		EPS	EPS	EPS		NI	NI	NI
Famine	0.024***			*Return*Dr*Famine*	0.025***			*LNI*DNI*Famine*	-0.520***		
	(2.59)				(4.56)				(-5.35)		
Famine$_1$	0.010			*Return*Dr*Famine$_1$*	0.003			*LNI*DNI*Famine$_1$*	0.009		
	(0.87)				(0.51)				(0.08)		
Famine$_2$	-0.009			*Return*Dr*Famine$_2$*	-0.006			*LNI*DNI*Famine$_2$*	0.073		
	(-0.76)				(-0.78)				(0.41)		
Famine$_3$		0.005		*Return*Dr*Famine$_3$*		-0.001		*LNI*DNI*Famine$_3$*		-0.107	
		(0.66)				(-0.23)				(-0.79)	
Famine$_4$			-0.002	*Return*Dr*Famine$_4$*			0.007	*LNI*DNI*Famine$_4$*			-0.081
			(-0.54)				(0.84)				(-0.49)
Controls	Yes	Yes	Yes	Controls	Yes	Yes	Yes	Controls	Yes	Yes	Yes
Year and industry	Yes	Yes	Yes	Year and industry	Yes	Yes	Yes	Year and industry	Yes	Yes	Yes
Birthplace and birth year	Yes	Yes	Yes	Birthplace and birth year	Yes	Yes	Yes	Birthplace and birth year	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Firm	Yes	Yes	Yes	Firm	Yes	Yes	Yes
N	23864	23864	23864	N	23864	23864	23864	N	20802	20802	20802
Adj. R^2	0.155	0.156	0.156	Adj. R^2	0.394	0.288	0.288	Adj. R^2	0.251	0.247	0.248

This table presents the results from the ordinary least squares regression of a placebo test on the relationship between the CEOs' famine experience and accounting conservatism. *Famine$_1$* equals 1 if the CEO is born in the 1962-1964 period and the abnormal death rate of the CEO's birth province is bigger than the median of all provinces during 3 years of famine, otherwise it equals 0. *Famine$_2$* equals 1 if the CEO is born in the 1965-1967 period and the abnormal death rate of the CEO's birth province is bigger than the median of all provinces during 3 years of famine, otherwise it equals 0. *Famine$_3$* equals 1 if the CEO is born in 1961 or earlier and the death ratio, based on the 1953-1955 abnormal death rate, of the CEO's birth province is bigger than the median of all provinces, and 0 otherwise. *Famine$_4$* equals 1 if the CEO is born in 1961 or earlier and the death ratio, based on the 1965-1967 abnormal death rate, of the CEOs' birth provinces is bigger than the median of all provinces, and 0 otherwise. Reported in parentheses are t values, based on robust standard errors clustered by firm. Control variables include *Size, Lev, MB, CFO, Dr, Grow, SOE, Dual, Independent, Manager, Age, Gender, Per Capital GDP, Income Grow and Population*. All variables are defined in Appendix 1. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

TABLE 6 Moderating effect of SOE, government officials' turnover and adoption of IFRS

Panel A Based on Khan and Watts (2009) model

Khan and Watts (2009 model	(1) Cscore	(2) Cscore	(3) Cscore	(4) Cscore	(5) Cscore	(6) Cscore
	SOE=0	SOE=1	Official=0	Official=1	IFRS=0	IFRS=1
Famine	0.036***	-0.001	-0.001	0.021**	0.008**	0.032***
	(2.72)	(-0.10)	(-0.12)	(1.98)	(2.06)	(3.03)
Difference	(Chi^2=8.31***)		(Chi^2=6.65***)		(Chi^2=4.77**)	
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year and industry	Yes	Yes	Yes	Yes	Yes	Yes
Birthplace and birth year	Yes	Yes	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Yes	Yes	Yes
N	9925	13939	16122	7742	7382	16482
Adj. R^2	0.281	0.146	0.159	0.199	0.776	0.161

Panel B Based on Basu (1997) Model

Basu (1997) Model	(1) EPS	(2) EPS	(3) EPS	(4) EPS	(5) EPS	(6) EPS
	SOE=0	SOE=1	Official=0	Official=1	IFRS=0	IFRS=1
Return*Dr*Famine	0.025***	0.008	0.005	0.034***	0.001	0.024***
	(4.10)	(1.44)	(1.17)	(4.23)	(0.09)	(4.15)
Difference	(Chi^2=4.74**)		(Chi^2=4.48**)		(Chi^2=9.88***)	
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year and industry	Yes	Yes	Yes	Yes	Yes	Yes
Birthplace and birth year	Yes	Yes	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Yes	Yes	Yes
N	9925	13939	16122	7742	7382	16482
Adj. R^2	0.444	0.424	0.382	0.355	0.537	0.466

Panel C Based on Ball and Shivakumar (2005) Model

Ball and Shivakumar (2005 Model	(1) NI	(2) NI	(3) NI	(4) NI	(5) NI	(6) NI
	SOE=0	SOE=1	Official=0	Official=1	IFRS=0	IFRS=1
LNI*DNI*Famine	-0.492***	-0.117	-0.203*	-0.667***	-0.132	-0.698***
	(-4.26)	(-1.13)	(-1.81)	(-5.08)	(-1.03)	(-5.64)
Difference	(Chi^2=4.07**)		(Chi^2=2.85*)		(Chi^2=3.91**)	
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year and industry	Yes	Yes	Yes	Yes	Yes	Yes
Birthplace and birth year	Yes	Yes	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes	Yes	Yes	Yes
N	8432	12370	13890	6912	5975	14827
Adj. R^2	0.215	0.287	0.245	0.256	0.294	0.245

This table presents the results from the ordinary least squares regression of the impact of the CEOs' famine experience on accounting conservatism, using the proxy of accounting conservatism based on the Khan and Watts (2009), Basu (1997), and Ball and Shivakumar (2005) models. Reported in parentheses are t values, based on robust standard errors clustered by firm. Control variables are the same as in Table 3. All variables are defined in Appendix 1. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

TABLE 7 Additional evidence: (1) CEO famine experience and provisions for liabilities; (2) CEO famine experience and provisions for the impairment of assets.

	(1) Liabilities	(2) Liabilities	(3) Impairment	(4) Impairment
Famine	**0.002*****	**0.002*****	**0.001****	**0.002*****
	(2.70)	**(3.26)**	**(2.27)**	**(2.94)**
Controls	Yes	Yes	Yes	Yes
Year and industry	Yes	Yes	Yes	Yes
Birthplace and birth year	Yes	Yes	Yes	Yes
Firm	No	Yes	No	Yes
N	23864	23864	23864	23864
Adj. R^2	0.152	0.440	0.138	0.187

This table presents the results from the ordinary least squares regression between the CEOs' famine experience, and provisions for liabilities and assets impairment. The dependent variables are Liabilities and Impairment. The test variable is *Famine*. Reported in parentheses are t values, based on robust standard errors clustered by firm. Control variables include *Size, Lev, MB, CFO, Dr, Grow, SOE, Dual, Independent, Manager, Age, Gender, Per Capital GDP, Income Grow and Population*. All variables are defined in Appendix 1. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

Appendix 1 Definition of variables

Variable	Definitions
Cscore	Accounting conservatism score, based on Khan and Watts (2009)
EPS	Net income before extraordinary items, scaled by lagged market value of equity
Return	Annual buy and hold return beginning four months after the prior fiscal year end
Dr	A dummy variable, equals 1 if return < 0, and 0 if return > 0
NI	Change in earnings scaled by beginning total assets
LNI	Lag of NI
DNI	A dummy variable, equals 1 if LNI < 0, and 0 if LNI > 0
Famine	A dummy variable that equals 1 if the CEO was born in 1961 or earlier, as well as his or her birth province was severely impacted by the Great Chinese Famine, 0 otherwise.
SOE	A dummy variable, equals 1 if the ultimate controller is a government agency and 0 otherwise
Official	A dummy variable equals 1 if the governor or secretary of a province in which the corporate is located has been replaced, and 0 otherwise. If the replacement takes place after July, we define the next year (t+1) as 1, and 0 otherwise
IFRS	A dummy variable, equals 1 in year 2007 and beyond, and 0 otherwise
Size	Natural logarithm of total assets
Lev	Sum of long-term debt plus debt in current liabilities, divided by total assets
MB	Market to Book ratio
CFO	Cash from operations, scaled by total assets
Grow	Growth in sales income
Dual	A dummy variable, equals 1 if the CEO and the Chairman are the same person, and 0 otherwise
Independent	Percentage of independent directors in the board
Manager	Percentage of the managers' stockholdings
Age	Age of CEO
Gender	Gender of CEO
Per Capital GDP	GDP per capita of the province in which the firm is located
Income Grow	Growth of income per capita of the province in which the firm is located
Population	Natural logarithm of province population
Impairment	Total asset impairments divided by total assets
Liability	Total provisions divided by total assets
Capex	Capital expenditures deflated by total assets
Cash	Sum of cash and cash equivalents divided by total assets
Payout	Dividends paid to shareholders divided by net profit
M&A	A dummy variable, equals 1 if a firm announced at least one M&A in one year, and 0 otherwise
R&D	Total research and development expense deflated by total assets