## CEOs' Great Chinese Famine experience and accounting conservatism: Evidence from China

#### Abstract

This paper intends to link CEOs' adverse early-life experiences to accounting policy choice, by investigating whether a CEO's Great Chinese Famine experience impacted on corporate accounting conservatism. Our results show that companies whose CEOs had famine experience in their early life used more conservative accounting. We also find that the positive association between the CEO's famine experience and accounting conservatism is moderated by firm ownership structure and environmental uncertainties. Additional tests suggest that the CEOs who experienced famine during their youth had a greater impact on accounting conservatism. By using the exogenous variation in local severity of the famine, we confirm the causal relationship between CEOs' early-life famine experience and the level of accounting conservatism. Our study contributes to the accounting policy choice literature, and results are robust for several other robustness tests. We argue that the CEO will apply the risk sensitivity learned from the famine experience to the company's accounting policy decisions to meet the obligations of the contracting parties and other stakeholders.

#### 1. Introduction

This paper intends to contribute to two strands of literature on the determinants of accounting conservatism and the effect of managers' early-life experience on their behavioral choices. The first and older strand is to identify factors influencing accounting conservatism. Many studies (Huijgen and Lubberink 2005; Bushman and Piotroski 2006; Gassen and Fulbier 2006) have provided empirical evidence that contractual arrangements, litigation risk, taxation and regulation are four explanatory factors for accounting conservatism. In addition, studies have shown that firm-level factors such as corporate governance (Beekes et al. 2004; Lara et al. 2005), firm characteristics (Watts 2003), and corporate ownership structures (Xia and Zhu 2009), as well as external factors including economic development (Holthausen 2003; Klein and Marquardt 2006), play significant roles in determining accounting conservatism. However, the evidence from these early studies is mixed, and the topic on accounting policy choice is still debatable and controversial.

The second and the more recent strand of empirical studies investigate the effect of managers' early-life experiences on their vision and interpretation of environmental information, and ultimately their behavioral choices (Hambrick and Mason 1984). For example, prior research investigates whether the marital status of executives (Roussanov and Savor 2013), CEOs' political ties (Hutton et al. 2014), CEOs' career path (Schoar and Zuo 2013), CEOs' military experience (Malmendier et al. 2011), and CEOs' piloting experience (Cain and McKeon 2014), will affect their risk-taking behaviors. However, from the research design point of view, the executive early-life experiences tested in those studies generally have characteristics of endogeneity. That is, the research design of these studies may be inconsistent, which causes the mixed results<sup>1</sup>.

We intend to fill a critical gap in the accounting literature by directly linking CEOs' adverse life experience to accounting policy choice, by joining these two strands of literature. Research in the field of medicine, genetics and psychology suggests that

<sup>&</sup>lt;sup>1</sup> Recent studies examine the impact of managers' adversity experience of catastrophic exogenous events on corporate behavior, and these studies have largely solved the endogeneity problem. For example, Cronqvist et al. (2014) and Bernile et al. (2016) provide evidence that CEOs who experienced the Great Depression or who witnessed the extreme downside potential of natural disasters are often not risk-takers with regard to corporate policy and investment decisions. Meanwhile, Zhang (2017) documents that CEOs who experienced more intense famines during their childhood are more risk averse.

adversity experience affects individual behavior by creating permanent mental and physiological changes in the human brain (Holman and Silver 1998; Futuyma 1998; Lyoo et al. 2011). It is generally perceived that the decisions of a CEO, who is the most influential decision maker in the enterprise (Graham et al. 2013), are influenced by the CEO's personal attributes and traits (Kachelmeier 2010). Accounting conservatism is one of the most important properties of financial reporting, which refers to accounting policies where losses are recognized in a timely way. The literature suggests that CEO attributes are associated with accounting conservatism. For example, Ahmed and Duellman (2013) find that overconfidence is negatively associated with accounting conservatism. Therefore, the choice of accounting policy should be no exception, and influenced by CEOs' early-life experience.

We consider in this study that CEOs' Great Chinese Famine experience in their early-life will have a significant impact on accounting policy choices and influence the level of accounting conservatism. On one hand, CEOs' famine experience will increase their sensitivity to risks and decrease their tolerance for risks, leading to more conservative accounting policy choices. On the other hand, it is argued that the attention, learning, memory, problem-solving, and decision-making strategies would have been enhanced through exposure to the Great Chinese Famine, making them more resilient to potential risks. Thus, a lower level of accounting conservatism can be expected. Thus, it is an empirical question as to whether CEOs' famine experience affects corporate accounting conservatism.

To test our proposition, we focus our study on Chinese listed firms. There are several reasons why we employ Chinese data. The Great Chinese Famine (1958-1961) provides us with a rare opportunity to systematically examine the long-term effects of early-life trauma on CEOs' accounting policy choice. Firstly, it is estimated that almost all of the Chinese people aged over 49 experienced the Great Chinese Famine (Chen and Zhou 2007; Chen and Yang 2015). The Great Chinese Famine was clearly an exogenous shocking event that most individuals and families did not expect to happen. It is documented that the impacts of this natural disaster vary across different regions of China. Secondly, the Chinese unique household registration system (*hukou*) limited the mobility of Chinese citizens, which allows us to identify the severity of the Great Chinese Famine that CEOs experienced based on their birthplace (Feng and Johansson 2016). More importantly, from the research design point of view, the inability to

migrate potentially reduces the selection bias issues. Thirdly, the Chinese unique institutional settings also provide substantial cross-sectional variations which enable us to examine the moderating effect of factors on the relationship between CEOs' early-life experience and accounting conservatism. These unique settings include the co-existence of SOEs and non-SOEs, and the different types of environmental uncertainties. Therefore, combining variations across regions, age cohorts, ownership structure, and environmental uncertainties, we can construct a difference-in-difference estimator that captures the causal effects of CEOs' famine experience on accounting conservatism<sup>2</sup>.

Based on a sample of Chinese listed companies (23,962 firm-year observations) from 2000 to 2015, we investigate whether CEOs' Great Chinese Famine experience is associated with accounting conservatism. Our results show that companies whose CEO had famine experience use more conservative accounting. This result indicates that the CEOs' famine experience increases their sensitivity to risk and risk avoidance levels. Specifically, those CEOs with famine experience tend to report 'bad news' in a timely manner, while delaying the recognition of 'good news' (accounting conservatism). To confirm our finding about CEOs' famine experience and corporate accounting conservatism, we next explore several factors that would impact the relation between CEOs' famine experience and corporate accounting conservatism. Firstly, non-state-owned firms face more constraints on external contractors and supervisory forces, and their demand for their accounting conservatism is relatively high (Chen et al. 2010). Accordingly, we show that the mitigating effect of CEOs' famine experience on accounting conservatism is more pronounced in non-SOEs.

Secondly, companies faced with environmental uncertainties will increase their awareness of business risk and take cautious response to these uncertainties through accounting conservatism (FASB 1980). That is, the effect of CEOs' famine experiences on corporate accounting conservatism is expected to be more pronounced when the potential risks from environmental uncertainties are higher. Consistent with these predictions, we find that uncertainties caused by the change of core government officials, the adoption of IFRS, the global financial crisis, and the cross-listing of companies, strengthen the positive relationship between CEOs' famine experience and

 $<sup>^{2}</sup>$  The Dutch famine (1944-1945) and the Leningrad Battle (1941-1944) are similar events to the Great Chinese Famine. However, prior research based on the Dutch famine and Leningrad Battle settings primarily focus on the field of health. For example, studies investigated whether the food shortages during the natural disasters had a lifelong impact on human health (Noji, 1996)

accounting conservatism. The CEOs' famine experience can be an effective contractual guarantee in the presence of environmental uncertainties, thus enhancing accounting conservatism.

In addition, considering the differences in the age of the CEOs when they experienced the Great Chinese Famine, we perform several tests showing how the impact of the CEOs' famine experience on the conservatism varies according to their age when they experienced the Great Chinese Famine. We find that the CEOs who experienced famine during their youth have a greater impact on accounting conservatism. In addition, in order to test the impact of possible omitted variables on our results and address endogenous problems, we test the severity of the famine on accounting conservatism. Results are consistent with our previous expectations. Six robustness tests are conducted, including the fixed effect on CEO attributes, firm's fixed-effect models, different measurements of accounting conservatism (Basu 1997; Ball and Shivakumar 2005), propensity matching score tests based on firm characteristics, CEO duality, and impacts from confounding events. Results from robustness tests are quantitatively similar to our main results, suggesting that our results are robust to different model specifications and variable measurements.

Our study contributes the literature in several ways. Firstly, our results fill a critical gap in the accounting literature by directly linking CEOs' adverse life experience to accounting policy choice. In the finance literature, prior research provides evidence that exposure to natural disasters affects individuals' investment decisions (e.g. Healy, and von Kessler 2011; Bucciol and Zarri 2015) and firm performance (e.g. Ramirez and Altay 2011; Dessaint and Matray 2013). Prior studies in accounting show that contractual conditions, executive compensations and other factors determine the accounting policy choices. Therefore, our paper contributes to the literature by joining these literatures and empirically testing whether the CEO's experience of the Great Chinese Famine affects the company's accounting conservatism. Our study contributes to accounting choice literature and suggests that the corporate accounting policy is also influenced by CEOs' early-life experience.

Secondly, our results contribute to the literature that investigates how CEOs' earlylife experiences affect their decision making (Roussanov and Savor 2013; Cain and McKeon 2014; Hutton et al. 2014; Malmendier et al. 2011; Schoar and Zuo 2013). Most prior research has faced an identification challenge in establishing a causal relationship between CEOs' early-life experience and corporate decision making, because events examined in these studies are endogenous. The Great Chinese Famine provides an exogenous setting to study the relation between CEO life experience and risk-taking behaviors. Therefore, our paper is complementary to the recent studies by Cronqvist et al. (2014) and Bernile et al. (2017), which show that individuals' past exposure to early-life trauma affects their financial decision-making, and to Zhang (2017) and Feng and Hohansson (2016), which are the only recent papers which examine the effect of CEOs' famine experiences on corporate policies<sup>3</sup>.

Lastly, our paper relates to a growing subset of the literature that focuses on the effects of natural shocks on risk attitudes, risk perceptions, and risk-taking behavior. However, the evidence on the association between CEOs' early-life experience and risk attitudes is mixed. On the one hand, Cameron and Shah (2013) find that individuals who suffered from flood or earthquake-related losses are more risk averse. On the other hand, Bocciol and Zarri (2013) fail to find an association between retirees' natural disaster experience and their investment behavior. Therefore, our paper provides further empirical results to these studies.

The remainder of the paper is organised as follows. Section 2 reviews the related literature and develops the hypotheses of the study. Section 3 outlines the sample, and specifies the regression model and the variables used in the model. Section 4 presents the analysis of results. Sections 5 and 6 summarise the additional and robustness tests. Section 7 concludes.

#### 2. Literature Review and Hypothesis Development

#### **CEO** famine experience and accounting conservatism

The decisions and judgements made by CEOs incorporate a large amount of complex environmental information. It is considered that the early-life experience gained by CEOs largely determines their personal perceptions, personalities, preferences and values which affect their interpretation of environmental information. The interpretation of information will ultimately affect CEOs' decision-making processes. Prior studies find that factors such as CEO education background (Bantel and Jackson 1989; Wiersema and Bantel 1992), as well as life and work experience (Roussanov and Savor 2013; Hutton et al. 2014; Schoar and Zuo 2013; Malmendier et al. 2011; Cain and McKeon 2014), are associated with their decision making. The

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choice of accounting policy is no exception. Accounting information is regarded as a 'business language' that forms an important basis for business decision-making, with regard to whether or not to sign, execute or revise contracts between the business and stakeholders (Liberty and Zimmerman 1986; Schipper 1989). In the course of accounting policy choice, CEOs may choose the accounting policy that is beneficial from their own point of view based on their past experience. Thus, the level of accounting conservatism of companies' financial reports will be affected by their CEOs' experiences.

The specific events experienced by CEOs often bring a large memory impact, which constitutes one of the most important background experiences that affect their decision-making. These specific events can be divided into good experiences and adversity experiences. In general, good times tend to make people more radical, while adversity will make people more conservative. For example, several studies (e.g. Bertrand and Schoar 2003; Malmendier and Tate 2005; Bamber et al. 2010; Dittmar and Duchin 2013) provide evidence that CEOs who earned MBA degrees would prefer to adopt more aggressive investment policies. On the other hand, recent studies such as Malmendier and Nagel (2011) and Malmendier et al. (2011) find that CEOs who experienced the Great Depression use less debt financing. Dittmar and Duchin (2016) also find that CEOs who had experienced financial distress in previous workplaces are less like to rely on debt financing. However, they are more likely to save more cash and invest less. In addition, the literature also provides mixed evidence for when CEOs had war and military experiences. While studies by Elder (1986), Elder and Clipp (1989) and Graham and Narasimhan (2004) suggest that executives who had experienced the war in Vietnam would be more risk averse, Malmendier et al. (2011) find that executives with military service experience preferred radical external financing.

The Chinese Great Famine which occurred in 1958-1961 was a catastrophe that affected the whole Chinese generation in modern Chinese history. A large number of studies have confirmed that early famine experiences have a life-long impact on human health (Neugebauer et al. 1999; Song 2009; Chen and Zhou 2007; Gorgens et al. 2012; Huang et al. 2010; Luo et al. 2006; Almond et al. 2002). More importantly, during the Great Chinese Famine, there were 36 million deaths documented due to starvation, while a diminution in birth rate reached another 40 million. These memories will affect the individual's behaviors (Gluckman et al. 2005). For example, research suggests that the famine experience of Chinese is one of the most important contributing factors to

high savings rates in China. In other words, Chinese tend to increase savings to improve their sense of security because they no longer want to suffer from food shortages or hunger. These core attitudes, beliefs, and values formed during a period of great mental plasticity in childhood and juvenile periods, and are significantly unaltered afterward (Krosnick and Alwin 1989; Alwin and Krosnick 1991). Studies in the medical field, such as neuroscience, genetics and evolutionary biology, have also found that environmental factors permanently affect the human genome through an epigenetic mechanism (Labonte et al. 2012; Futuyma 1998).

Based on our previous discussions, we predict that the CEOs who had this earlylife experience of the Great Chinese Famine will tend to choose a relatively conservative or prudent accounting policy in order to avoid potential risks. Firstly, the famine experience left the psychological trauma for the CEOs. The experience of surviving hardship in the childhood period makes the CEOs more sensitive to risks (Bernile et al. 2017). In the case of information asymmetry, the CEO may make corporate decisions based on their own preferences and level of risk tolerance to an investment project (Wiersema and Bantel 1992; Tihanyi et al. 2000; Dyreng et al. 2010). Secondly, the CEOs' survival skills gained from the famine experience, such as thrifty spending habits and higher savings tendencies, will form part of the CEOs' management strategy and will be applied to corporate decision-making. It is considered that the Great Chinese Famine reflects the policy mistakes made by the Chinese government and misreporting on food production (Fan and Qian 2014). We predict that CEOs with famine experience may be able to report accounting information to confirm losses and to delay the recognition of income. That is, the CEOs will adopt relatively more conservative accounting policies to avoid risk.

On the other hand, some recent psychology studies, for instance, Ellis et al. (2017), propose an alternative, adaptation-based approach to resilience. They argue that attention, learning, memory, problem-solving, and decision-making strategies would have been enhanced through exposure to childhood adversity. Applying this approach, we could argue that exposure to the Great Chinese Famine enhanced CEOs' problem-solving and decision-making strategies, making them more resilient to potential risks. Thus, CEOs who have famine experience may be less likely to adopt conservative accounting policies. Accordingly, we propose two completing hypotheses, as follows:

HYPOTHESIS 1a. CEOs' Great Chinese Famine experience is positively associated with accounting conservatism.

HYPOTHESIS 1b. CEOs' Great Chinese Famine experience is negatively associated with accounting conservatism.

# Corporate ownership structure, CEO famine experience and accounting conservatism

Prior studies provide mixed evidence on the association between ownership structure and accounting conservatism. On the one hand, from the regulation pressure point of view, Gassen and Fulbier (2006) and Bushman and Piotroski (2006) argue that accounting standards makers who face political pressure and public criticism are more likely to adopt conservative accounting policies. In China, state-owned enterprises (SOE) are controlled by the government. Thus, the effects of government intervention on business operations and regulatory pressures faced by SOEs are far greater than for non-SOEs. Moreover, under the financial support of the local government, state-owned enterprises are less likely to face financing constraints. Thus, SOEs are less likely to manipulate accounting information to maximise their self-interest. However, non-stateowned enterprises receive less political and legal constraints and, therefore, are more likely to engage in earnings management to meet external financing needs. Consistent with these views, research shows that the level of accounting conservatism of stateowned enterprises is found to be much higher than that of non-SOEs (Xia and Zhu 2009).

On the other hand, from the information relevance point of view, accounting conservatism is an effective contractual guarantee mechanism (Basu 1997; Watts 2003). For example, debt covenants are used to promote accounting conservatism and to constrain the opportunistic behaviors from debtors. It is argued that state ownership can act as an alternative contractual guarantee, for a few reasons (Basu 1997). Firstly, the state-owned enterprises can easily access resources through their close ties with the government. Thus, SOEs do not rely entirely on accounting conservatism to reduce their risks (Bu et al. 2014). Secondly, the government can provide additional funds for state-owned enterprises in financial crisis to avoid social instability resulting from bankruptcy of state-owned enterprises. Creditors are less concerned about default risk from the state-owned enterprises, which will reduce the demand for accounting

conservatism. Prior research thus provides evidence that the state-owned enterprises have a comparatively lower level of accounting conservatism compared to that of non-state enterprises (Ball et al. 2000, 2003; Bushman and Piotroski 2006; Chen et al. 2010).

We argue that the relationship between CEOs' famine experience and accounting conservatism can be influenced by companies' ownership structure. On the one hand, state-owned enterprises are generally regarded as tools for the government to achieve its political and social goals, because managers of SOEs are appointed by the government (Xia and Zhu 2009). In state-owned enterprises, managers with great famine experience will understand the importance of meeting government regulation requirements and follow the government's regulatory requirements for accounting conservatism. On the other hand, from the information relevance point of view, nonstate-owned enterprises are more constrained by contractual and external supervision requirements, and thus the demand for accounting conservatism from external contractors is relatively higher (Chen et al. 2010). That is, in non-state-owned enterprises, in order to meet the requirements of operational legitimacy, managers with great famine experiences may be more likely to adopt conservative accounting policies. Thus, the relationship between CEO famine experience and accounting conservatism will be stronger in non-state owned enterprises. Accordingly, we propose two competing hypotheses:

HYPOTHESIS 2a. State ownership positively moderates the association between CEO famine experience and accounting conservatism.

HYPOTHESIS 2b. State ownership negatively moderates the association between CEO famine experience and accounting conservatism.

#### Environmental Uncertainty

Environmental uncertainty, also known as the uncertainty of the objective environment, generally refers to observable uncertainties associated with the physical environment. It has been shown that environmental uncertainty has a significant impact on a company's operational risk, earnings volatility, investment efficiency, financing costs, and financial reporting quality (Graham and Harvey 2001; Lemmon and Lins 2003; Bloom et al. 2007; Ghosh and Olsen 2009). This line of literature suggests that the environment places considerable constraints on firms. This requires CEOs to manage the firms in different ways. Although firms are constrained by the nature of their environment, managers do have opportunities to respond strategically, to manage the uncertainty dimension of their environment. We argue that the choice of accounting policy is one example of how managers respond to environmental uncertainties. We investigate how the CEOs' famine experience affects corporate accounting conservatism when the company faces four types of environmental uncertainty situation: core officials change; accounting standards change (e.g. adoption of IFRS); global financial crises (GFC); and AH share cross-listing.

#### Core official change

The political environment in which companies operate largely determines the survival of businesses. Business activities and government policies such as taxation, industry access, and financing are usually closely related. The implementation of these policies constitutes the external business environment for companies. Government core officials are representatives of government power, whose change will introduce political uncertainty. The political uncertainty can ultimately have a significant impact on business operations (Julio and Yook 2012; Gao and Qi 2012; Pastor and Veronesi 2012). For example, Juilo and Yook (2012) find that, before the officials were elected, the political uncertainty lead to an increased level of cash holdings and a lower level of investment. Bloom et al. (2012) find that the high degree of political uncertainty will encourage companies to significantly reduce their employment, investment and production.

Accounting conservatism promotes the timely disclosure of bad news, which can be regarded as an important mechanism to reduce business risk or uncertainty (Ahmed et al. 2002; Watts 2003; Ball and Shivakumar 2005; Lafond and Roychowdhury 2008). For example, Dai and Ngo (2013) find that the company's accounting conservatism increased by 20% before the election, and the association is moderated by the intensity of the election. These results indicate that the company improves accounting conservatism to deal with the political uncertainty. In China, the performance-based assessment model based on economic indicators reinforces championing of the promotion of local officials. The new officials have a strong motivation to adopt differentiated strategies to win future promotion. For example, in order to meet the needs of new officials, the local firms may choose aggressive accounting policies to boost their profits to obtain loans, subsidies, taxes and other preferential treatment. Consistent with this line of view, Bu, Hu, Lin and Zhang (2015), based on a sample Chinese firms from 2000 to 2013, provide evidence that political uncertainty significantly reduced accounting conservatism.

We expect that the political uncertainty associated with the change in core officials will further strengthen the positive association between the CEOs' famine experience and accounting conservatism. Besides the arguments presented above, in order to avoid possible political costs associated with political uncertainty, firms may be more likely to manipulate their accounting information which, to some extent, reduces the transparency of financial information (Kahn and Watts 2009) and intensifies the conflicts of interest between creditors and shareholders (Ahmed et al. 2002). Based on the signaling theory and information asymmetry perspective, the replacement of core officials may incentivise banks and other creditors to tighten their credit policies to reduce the default risks. We argue that CEOs with famine experiences are more sensitive to risks from the political uncertainty, and thus tend to adopt more conservative accounting policies to lower their cost of borrowing and obtain stable finance resources from the lenders. Accordingly, we propose Hypothesis 3a:

HYPOTHESIS 3a. Political uncertainty positively moderates the association between CEO famine experience and accounting conservatism.

#### Adoption of IFRS

During the past decade, China has followed the international convergence projects, and had four reforms on its accounting standards. Different from Western countries, Chinese accounting standards are developed and regulated by the Ministry of Finance. Therefore, accounting standards change is another example in which companies face political uncertainty from the government. In past reforms, the Chinese government increased the financial reporting requirements (e.g. assets impairment) to promote accounting conservatism and to reduce earnings management. In particular, in 2006, the Ministry of Finance specifically incorporated accounting conservatism into the 'basic accounting principle'.

We believe that the change in accounting standards will influence the association between CEOs' famine experience and accounting conservatism. First of all, creditors and other external stakeholders are aware of possible changes in the disclosure quality of accounting information, such as earnings growth and their correlation with stock returns, after changes in accounting standards. This reduces the information asymmetry between the firm and the creditor. As a result, creditors may consider adjusting their lending strategy. For example, a lower leverage ratio is required in the debt covenant, or debtors may require the firm to provide more collateral to avoid possible future default risks (Watts 2003). Furthermore, CEOs who have experienced adversity (e.g. famine) experience are more sensitive towards risks (Bernile et al. 2016) and have a lower level of risk tolerance in the presence of information asymmetry (Dyreng et al. 2010). We predict that, faced with uncertainties associated with accounting standard changes, CEOs with famine experience will choose a relatively conservative policy so that the accounting information disclosed will be perceived as being more reliable to the capital provider. Conservative accounting policies will help to enhance creditors' confidence and help to reduce a firm's cost of capital (Andre et al. 2015). Accordingly, we hypothesize the following:

# HYPOTHESIS 3b. Accounting standard changes positively moderate the association between CEO famine experience and accounting conservatism.

#### Global financial crisis

The global financial crisis is an extreme case of economic uncertainty, leading to bankruptcy for a large number of enterprises. Surviving companies may face a shortage of funds, and they will need to significantly reduce their investment levels to cope with such difficulties (Campello et al. 2010; Duchin et al. 2010; Ivashina and Scharfstein 2010). The financial crisis is another adversity event for a CEO who has had the Great Chinese Famine experience. As discussed earlier in this paper, research suggests that individuals' adversity experiences affect their behavioral choices (Gluckman et al. 2005; Bernile et al. 2017). We consider that CEOs' previous experience gained from the Great Chinese Famine will make them adopt more conservative accounting policies. Accounting conservatism will help firms to reduce the information asymmetry between them and their creditors, easing difficulties in maintaining or enhancing their financing capacity during the global financial crisis. For example, Watts (2003) and Ivashina and Scharfstein (2010) find that banks tend to require more reliable accounting information to assess the borrower's financial situation after the global financial crisis. Firms adopting conservative accounting policies enjoy better loan conditions. Accordingly, we hypothesise the following:

HYPOTHESIS 3c. The global financial crisis positively moderates the association between CEO famine experience and accounting conservatism.

#### Cross-listing

Unlike the companies listed only in the operated country, cross-listed companies face a different market environment. Firstly, cross-listed companies must be under the supervision of two capital markets, and meet the information needs of investors. Secondly, the legal environment faced by the cross-listed companies is relatively more stringent. For instance, companies listed only in China are bound by the Chinese civil law, whereas cross-listed companies, as both A shares in mainland China and H shares in Hong Kong (AH shares), are regulated also by the common law in Hong Kong. Thirdly, the litigation risk of cross-listed companies is relatively higher than that of companies listed only in China. For example, investors enjoy a higher level of protection as a result of the common law legal system in Hong Kong. Ke et al. (2015) find that, because of the relatively weak capital market environment in China, the Big4 audit firms tend to invest relatively less in auditing resources for companies listed only in China as compared to those cross-listed in Hong Kong and mainland China (AH shares). It is, therefore, expected that the association between CEO famine experience and accounting conservatism is stronger for cross-listed companies due to increased level of litigation risk. Accordingly, we propose our final hypothesis:

HYPOTHESIS 3d. Cross-listing positively moderates the association between CEO famine experience and accounting conservatism.

#### 3. Research Design

#### Sample Selection

Our original sample covers all companies listed on the Chinese A-share market, and financial data are downloaded from the CSMAR database. CSMAR contains the financial and corporate governance information (e.g. CEO duality and director independence) from 1999. However, our sample is from 2000 to 2015, because a large number of test variables in 1999 are missing from the CSMAR database.

Consistent with prior studies (Kato and Long 2006; Fan et al. 2007), we consider the post of General Manager (*Zongjingli or Zongcai*) as being equivalent to CEO (Chief Executive Officer) for Chinese listed companies. We obtained a list of executive information from RESSET and CSMAR. The personal information of CEOs (such as gender, age, and place of birth) were hand-collected from annual reports as well as from various online search engines including Sina, Baidu, Sougou, and 360. Then, we matched the CEO information with financial data downloaded from CSMAR. Sample size was reduced further for the following reasons: (1) companies from the financial industry were excluded because of their unique business structure; (2) special-treatment companies were deleted; (3) CEOs who are not Chinese citizens were excluded because we were not able to identify whether those CEOs experienced the Great Chinese Famine; and (4) companies with missing values were deleted. Lastly, we winsorise the variables at levels 1% and 99%. Thus, the financial sample consists of 23,962 firm-year observations with information for 5,709 individual CEOs. Table 1 (the first two columns) shows the place of birth of CEOs, and sample distribution by province.

#### [Insert Table 1]

#### Measurements of Variables

Referring to Malmendier et al. (2011) on the definition of the Great Depression, we match the birth year of the CEO with the three-year Great Chinese Famine period. If the CEO was born in 1961 or before, the CEO was considered to have experienced the Great Chinese Famine (Famine). Those who have famine experience are coded 1, and 0 otherwise. In order to better identify the impact of CEOs' famine experience on accounting conservatism, we also considered the age at which the CEO experienced the famine and the degree of influence of the disaster on the birthplace of the CEO. The last four columns of Table 1 report the impact of the famine in different provinces on the basis of mortality. It can be seen from Table 1 that the average mortality rate in the provinces between 1959 and 1961 increased sharply, especially in provinces such as Anhui and Sichuan, with a death rate of more than 30%. However, three years after the Great Chinese Famine, the impact of the famine declined rapidly, and the average death rate in the provinces returned to the level before the famine. In contrast to other disaster experiences, one of the potential advantages of using the Great Chinese Famine to identify the CEOs' disaster experience is that the Chinese famine has not only the features of long duration and a large area of influence but also a very rapid recovery after the famine, the impact of which is thus eliminated and controlled for after 3 years. This event thus helps us to better identify the impact of a disaster experience on CEO behavior, avoiding the existence of possible noise.

In the literature, the models for measuring accounting conservatism are the Basu (1997) model, the Ball and Shivakumar (2006) model, and the CScore model of Khan and Watts (2009). In this study, the CScore model of Khan and Watts (2009) is used in the main test section to calculate the *CScore* values; while in the sensitivity test section, the Basu (1997) and Ball and Shivakumar (2006) models are used to measure accounting conservatism.

Khan and Watts (2009) found that firm size, market-to-book ratio, and capital structure, are three important factors influencing accounting conservatism. They measure the company-based information on the basis of the Basu (1997) model, to confirm the timeliness asymmetry model:

$$\frac{EPS}{P} = \beta_0 + \beta_1 Dr + (\mu_1 + \mu_2 Size + \mu_3 MB + \mu_4 Lev)Return + (\lambda_1 + \lambda_2 Size + \lambda_3 MB + \lambda_4 Lev)Dr * Return + \beta_4 Size + \beta_5 MB + \beta_6 Lev + \beta_7 Dr * Size + \beta_8 Dr * MB + (1) \beta_9 Dr * Lev + \varepsilon$$

In which, 
$$Gscore = \beta_2 = \mu_0 + \mu_1 Size + \mu_2 MB + \mu_3 Lev$$
 (2)

$$Cscore = \beta_3 = \lambda_0 + \lambda_1 Size + \lambda_2 MB + \lambda_3 Lev$$
(3)

*EPS* is the basic earnings (deducted 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, *Dr* value is 1, otherwise the value is 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 defined as the company's leverage ratio; the *Gscore* represents the timeliness of good news; and *Cscore* represents the timeliness of bad news. The coefficients  $\lambda_{1-4}$  are obtained in model (1) and used in equation (3) to calculate the accounting conservatism score (*CScore*).

Furthermore, to test our hypotheses 3a-3d, a few test variables (*Turnover*, *IFRS*, *Crisis* and *AH*) are introduced. Following Balakrishnan (2016), Kravet (2014), Chen et al. (2010) and Tan (2013), we control the size of the company (*Size*), the market-to-book ratio (*MB*), the leverage ratio (*Lev*), the net cash flow (*CFO*), the stock return (*Dr*,) Growth in sales revenue (*Grow*), CEO duality (*Dual*), board independence (*Independent*), and management shareholding (*Manager*), as well as CEOs' personal information including gender (*Gender*), age (*Age*) and so on. As the vast majority of Chinese CEOs of the listed companies have at least a bachelor degree (many have an MBA), we do not control for CEO education level. In addition, we control for the

impact of the company's registration, including per capita income (*Per Capital GDP*), regional per capita income growth rate (*Income Grow*), and population density (*Population*). The definition and calculation of all variables are listed in Table 2.

#### **Research Models**

We use the following models to test our hypotheses:  $Cscore = \alpha_0 + \alpha_1 Famine + \alpha Ctrls + Year + Industry + \varepsilon$ (4)  $Cscore = \alpha_0 + \alpha_1 Famine + \alpha_2 Famine^* Keyvariables + \alpha_3 Keyvariables$ (5)

 $+ \alpha Ctrls + Year + Industry + \varepsilon$ 

In the formula, *Cscore* is based on Khan and Watts (2009) estimates of accounting conservatism, while *Famine* represents the CEO famine experience. Key variables include the ownership type of the company (*SEO*), officials change (*Turnover*), cross-listing (*AH*), accounting standards change (*IFRS*), and financial crisis (*Crisis*). *Ctrls* indicates the control variables mentioned earlier; and Year and Industry represent year- and industry-fixed effects, respectively.

#### [Insert Table 2]

#### **Descriptive Statistics**

Table 3 shows the descriptive statistics of test variables. The mean of *Cscore* is 0.039, which is comparable to the results reported in Rao and Jiang (2011). However, the mean *Cscore* is lower than those documented in Khan and Watts (2009), Kravet (2014) and Balakrishnan (2016), which are all based on a sample of US companies, suggesting that the accounting conservatism of Chinese companies is much lower than that of US listed companies. On average, the *Famine* is 0.425. That is, 42.5% of sample CEOs experienced the Chinese Famine between 1959 and 1961. The descriptive statistics also show that 58.6% of sample companies are state-owned businesses. The core official turnover, on average, is 32.1%. The mean of *AH* is 0.027, suggesting that 2.7% of companies cross-listed in both mainland China and Hong Kong. The averages of *IFRS* and *Crisis* are 0.691 and 0.056, respectively. The descriptive statistics of other control variables are consistent with those reported in prior studies.

#### [Insert Table 3]

#### **Univariate Test**

Panel A of Table 4 compares the mean and median of *Cscore* from two subsamples: CEOs who experienced the Great Chinese Famine; and those who did not. When the means of *Cscore* from the two sub-samples are compared, it is observed the mean (0.049) and median (0.036) of *Cscore* from companies with a CEO who experienced the Great Chinese Famine is significantly higher, at 1% level. This result is consistent with our Hypothesis 1a, that companies whose CEO experienced the Great Chinese Famine report more conservatively.

Panel B of Table 4 further tests whether CEOs' previous experience of the Great Chinese Famine significantly influences their accounting conservatism based on subsamples: (1) SOE and Non-SOE; (2) companies with and without core officials' turnover; (3) before and after the adoption of IFRS; (4) with and without financial crisis; and (5) AH and Non-AH listed. The difference-in-difference tests support our Hypotheses H2b, H3a, H3b, H3c and H3d. That is, the positive relationship between CEO famine experience and accounting conservatism is more pronounced in non-stateowned (non-SOEs) companies that had core officials' turnover, that have adopted IFRS, that have experienced GFC, and those cross-listed on AH.

#### [Insert Table 4]

#### 4. Empirical Results

#### **CEO's famine experience and accounting conservatism**

Table 5 contains the results of the estimation of Equation 4 which assesses the association between CEOs' experience in the Great Chinese Famine and accounting conservatism. Column 1 of Table 5 shows that the variable of interest (*Famine*) is positively associated with accounting conservatism. The coefficient on *Famine* is 0.0172, and it is significant at 1% level after controlling for firm-level factors such as size, leverage, and market-to-book ratio. In column 2, we further control the CEO characteristics such as CEO gender and CEO age, and regression results are consistent with those reported in Table 5 column 1, although the coefficient on *Famine* is slightly smaller. In column 3, we include a few variables such as *per capita GDP*, *income growth*, and *population*, to control for geographical characteristics. Results continue to show that *Famine* is positively associated with accounting conservatism and significant at 1% level. This result is consistent with our prediction that the CEOs who had an early life experience from the Great Chinese Famine will be more sensitive to risks. As a

result, they are more likely to choose a relatively conservative accounting policy to avoid potential risks.

Furthermore, the signs of the coefficients of the control variables are consistent with expectations. For example, *size* is negatively associated with accounting conservatism, suggesting that smaller companies report more conservatively (Dhaliwai et al. 2009; Kraver, 2014 and Balakrishnan et al. 2016). The coefficients on *MB* and *Grow* are both negative, implying that growth opportunities are negatively associated with accounting conservatism. Leverage (*Lev*) is found to be positively associated with accounting conservatism, which is consistent with the argument that companies prefer to report more conservatively to avoid the violation of debt covenants. Lastly, the coefficient on *SOE* is negative, suggesting that state-owned companies tend to have lower default risk and thus lower demand for accounting conservatism (Chen et al. 2010 and Tan 2013). Overall, results reported in Table 5 suggest that CEOs' previous experience of the Great Chinese Famine has a positive impact on accounting conservatism. Thus, our Hypothesis 1a is supported.

#### [Insert Table 5]

#### **Ownership** structure

In order to test Hypothesis 2, one interaction variable, *Famine*\* *Non-SOE*, is introduced, which aims to capture the moderating effect of a firm's ownership structure on the association between CEO famine experience and accounting conservatism. The results are presented in Table 6. The coefficient on *Non-SOE* is positive and significant at 5% level, suggesting that non-SOEs have a higher level of accounting conservatism. More importantly, the results show that the interaction term, *Famine*\**Non-SOE*, is positively associated with accounting conservatism (coefficient=0.0139, t-stat=2.98) and is significant at 1% level. This result suggests that non-state-owned enterprises are more constrained by contractual and external supervision requirements, and thus the demand for accounting conservatism from external contractors is relatively higher. Thus, Non-SOEs whose CEOs had famine experience are more likely to adopt a conservative accounting policy. Therefore, our Hypothesis 2b is supported.

#### [Insert Table 6]

#### **Environmental Uncertainties**

In order to test Hypothesis 3, we interact the main variable, *Famine*, with one uncertainty factor variable each time, in order to capture the moderating effect of the uncertainty factor on the association between CEO famine experience and accounting conservatism. Four types of environmental uncertainty situations are core officials change, accounting standards change (e.g. adoption of IFRS), global financial crisis, (GFC), and AH share cross-listing.

Table 7 reports the regression results for Hypothesis 3a which investigates the moderating effect of core official turnover on the association between CEO famine experience and accounting conservatism. It is shown in Table 7 that the dummy variable, *Famine*, is positive across the three columns. In other words, CEO famine experience enhances accounting conservatism during the years when there is no core official turnover. Furthermore, the interaction term, *Famine\*Turnover*, is positively associated with accounting conservatism and is significant at 5% level. These results suggest that core official changes introduce potential political uncertainties. As a result, the company whose CEO had famine experience is more likely to improve accounting conservatism to deal with the political uncertainty. Thus, our Hypothesis 3a is supported.

#### [Insert Table 7]

Table 8 reports the regression results for Hypothesis 3b which tests the impact of IFRS adoption on the associated between CEO famine experience and accounting conservatism. Results show that the coefficients on Famine and interaction term *Famine\*IFRS* are positive and significant at 1% level in all 3 columns of Table 8. We thus provide evidence that, faced with uncertainties associated with accounting standard changes, CEOs with famine experience will choose a relatively conservative policy, because the accounting information disclosed will be perceived to be more reliable to the capital provider, leading to a reduced cost of capital for those companies. Therefore, our Hypothesis H3b is supported. That is, the adoption of IFRS significantly enhances the association between CEO famine experience and accounting conservatism.

#### [Insert Table 8]

Table 9 reports the regression results for Hypothesis 3c which tests the impact of GFC on the association between CEO famine experience and accounting conservatism. It is shown in Table 9 that the dummy variable, *Famine*, is positive across the three columns. Furthermore, the variable of interest, *Famine\*Crisis*, is positively associated with accounting conservatism and is significant at 5% level. These results support our Hypothesis 3c. It is argued that the GFC has incentivized banks and other creditors to tighten their credit policies to reduce the default risks. Results from our test suggest that CEOs with famine experience tend to adopt more conservative accounting policies to lower their cost of borrowing from lenders during the GFC. That is, the GFC positively influences the relationship between CEO famine experience and accounting conservatism.

#### [Insert Table 9]

Lastly, Table 10 shows the results from the test of Hypothesis 3d. Results show that the coefficients on *Famine* and interaction term *Famine\*AH* are positive and significant at 5% level in all 3 columns of Table 10. This finding confirms our argument that cross-listing increases the capital market uncertainty and litigation risk, because of the common law system in Hong Kong. Consequently, CEOs with famine experience will choose a conservative accounting policy to cope with these risks. Therefore, our Hypothesis H3d is supported.

#### [Insert Table 10]

### 5. Additional Tests

#### Different birth cohorts

We examine how the impact of the CEOs' famine experience on their accounting conservatism varies according to the age when the CEOs experienced the Great Chinese Famine. We calculate the age of the CEOs when they experienced the Great Chinese Famine according to the birth year of the CEOs, and then divide the birth queue according to the human growth stage. Research (Piaget et al. 2013) shows that humans can understand the world, save a permanent memory, and start the formation of the most critical stage of their character, during the childhood and adolescence period. We divided the life stage of the CEO into 4 different periods: infants and young children (1-5), childhood (6-10), adolescence (11-15), and adult (> 15). Four dummy variables, Cohort1 ~ Cohort4, are then created to represent these 4 life stages at which the CEOs experienced the Great Chinese Famine.

Table 11 reports the regression results of the test on the association between the CEO famine experience and accounting conservatism for the four CEO birth cohorts.

It can be seen from the table that the coefficients on Cohort1 ~ Cohort4 are positive and statistically significant in all columns, indicating that the CEOs with the great famine experience are associated with a higher level of accounting conservatism than are those who did not experience the famine. When the coefficient on Cohort1 ~ Cohort4 in each column are compared, it is noted that the coefficients are relatively larger on Cohort 2 childhood (6-10) and Cohort 3 adolescent (11-15) than on adult (>15) and infants (1-5). These results provide evidence that is consistent with the findings from existing literature (e.g. Giedd et al 1999; Piaget et al. 2013). Thus, the past life experience during these periods of time have a greater impact on human behavior.

The test on coefficient differences, however, finds that only the coefficients on Cohort 1 and Cohort 2 are statistically different, indicating that the influence of the CEOs from different birth cohorts is similar on accounting conservatism. We speculate that the above conclusions may be due to the distribution of CEO birth cohorts in our sample. Infant and childhood cohorts account for approximately 80% of CEOs who experienced the Great Chinese Famine, which may have affected our results.

#### [Insert Table 11]

#### Local severity of famine

As discussed before, during the three-year famine period, the severity of famine in different parts of China was different. The unique Chinese *hukou* system allows us to identify the severity of the great famine that individuals experienced based on birthplace (Feng and Johansson 2016). More importantly, the inability to migrate alleviates the potential selection bias resulting from migration. It is shown in Table 1 that Anhui, Guizhou and Sichuan and other places had the most serious disaster, based on the death rate reported, whereas the impact of the Famine was relatively weak on Shanghai, Beijing and Tianjin. Following Lin and Yang (2000), Huang and Martorell (2009) and Chen and Zhou (2007), who use the abnormal death rate of the previous three years (the post three years) from 1959 to 1961 to determine the severity of the famine in each region, this setting provides us a rare opportunity to establish a causal relationship between CEO early-life famine experience and the use of accounting conservatism in later years by using difference-in-difference tests. The advantage of this treatment is that it largely avoids omitted variables and endogenous problems.

Firstly, we define the first difference, *Famine*, based on the CEO's birth year. If the CEO was born before the famine and during the period (before 1961), they are in

the 'treatment group'; otherwise, they are in the 'control group'. Secondly, we define the second difference, Highdeath, based on the birthplace of CEOs. If the death rate over 3 years in the region is larger than the national median, *highdeath* is coded 1, and 0 otherwise. The variable of interest is the interaction term, *Famine* \* *Highdeath*. Table 12 reports the regression results based on the difference-in-difference method. Results show that the coefficient on *Famine* in each column is positive, which is consistent with those reported in other tables, indicating that CEOs' famine experience increases the level of accounting conservatism. In terms of the coefficient of Highdeath, the coefficients in the first three columns of Table 12 are not significant, but the coefficient is positively associated with Cscore at 1% level after controlling for the CEO's birthplace. This result indicates that the greater the impact from the disaster in the regions where the CEO was born, the higher the level of accounting conservatism. The coefficient of the interaction term, Famine\*Highdeath, which is the main concern in the regression, is positively and significantly associated with Cscore at either 1% or 5% level in each column, suggesting that the firms whose CEO had a greater impact from the famine report more conservatively. These results support our main findings.

#### [Insert Table 12]

#### 6. Robustness Tests

#### **CEO** turnover

In order to control for the impact of the omitted company-level variables, we further examine the level of accounting conservatism before and after the CEO change. The average CEO tenure in our sample is 3.7 years, so we set the test window period to be two years before and two years after the CEO change (-2, + 2). We introduce two main test variables: (1) *NewCEOYes*, which is coded 1 if the newly appointed CEO has the Great Chinese Famine experience while the former CEO does not have the famine experience, and otherwise 0; and (2) *NewCEONo*, which is coded 1 if the new CEO does not have the famine experience but the former CEO has, and otherwise 0. At the same time, we add the variable *Post. Post* is coded as 1 in the year and the year after the CEO change. Two years before the CEO change is coded as 0.

Table 13 reports the results from the test of impact of CEO change on the association between famine experience and accounting conservatism. The coefficients of the interaction term (*NewCEOYes\*Post*) in the first three columns are positive and significant at 5% level, indicating that, if the CEO of the company changes from 'no

famine experience' (former CEO) to 'having a famine experience' (newly appointed CEO), the firm's level of accounting conservatism increases. Results also show that the coefficients of the *NewCEONo\*Post* in the columns (4-6) are negative and significant at 5% level, suggesting that, if the company's CEO was changed from one with famine experience to one without such experience, the accounting conservatism level decreases significantly. These results further support our previous findings. That is, after considering the possible effects of omitted variables, the conclusions of this paper are still valid.

#### [Insert Table 13]

#### Firm fixed effects

Although CEO change is considered to control the impact of the company-level omitted variable on the regression results, there are factors such as corporate culture that do not change with CEO change and time change. These factors may introduce biases into our results; so this robustness test was undertaken using the firm-fixed effect model. Table 14 reports the regression results. Results continue to show that the coefficient of *Famine* is positively associated with accounting conservatism and is statistically significant at 1% level. These results are consistent with those reported in Table 5.

#### [Insert Table 14]

#### Sensitivity of accounting conservatism measurements

#### Basu (1997) model

We recalculate accounting conservatism using the Basu (1997) model, as follows:

$$\frac{EPS}{P_{t-1}} = \alpha_0 + \alpha_1 Return + \alpha_2 Dr + \alpha_3 Return^* Dr + \alpha_4 Famine + \alpha_5 Famine^* Return + \alpha_6 Famine^* Dr + \alpha_7 Famine^* Return^* Dr + \alpha Ctrls + Year + Industry + \varepsilon$$
(6)

The variable definition in model (6) is consistent with those defined in the model (1), and we focus on the sign and the significance level of the coefficient on *Famine* \* *Return* \* *Dr*. Table 15 reports the regression results of the model (6). We first examine the validity of the Basu model in the Chinese setting. The results from the column (1)

show that the estimated coefficient of *Return* is positive, which indicates that earnings of Chinese listed companies reflect good news in a timely manner. The coefficient of *Return* \* *Dr* is positive, indicating that the company's earnings reflect bad news more quickly than good news. As a whole, the accounting information reports from Chinese listed companies are conservative. In column (2), we added *Famine* and its interaction with *Dr*, *Return* and *Return* \* *Dr*. We find that the coefficient on *Famine* \* *Return* \* *Dr* is positive and statistically significant. In columns (3) and (4), we further control for corporate characteristics, CEO gender and CEO age, and the company registration area. The results show that coefficients of the interaction term, *Famine* \* *Return* \* *Dr*, remain quantitatively similar. Thus, we support that using the Basu (1997) generates quantitatively similar results. That is, the CEO's famine experience increases the level of the firm's accounting conservatism.

#### [Insert Table 15]

#### Ball and Shivakumar (2005) model

We use the Ball and Shivakumar (2005) model to re-measure accounting conservatism. The Ball and Shivakumar model is as follows:

$$NI = \alpha_0 + \alpha_1 LNI + \alpha_2 DNI + \alpha_3 LNI * DNI + \alpha_4 Famine + \alpha_5 Famine^* LNI + \alpha_6 Famine^* DNI + \alpha_7 Famine^* LNI * DNI + \alpha Ctrls + Year + Industry + \varepsilon$$
(7)

In the formula, *NI* is the difference between the operating profit of the current year and the operating profit of the previous year, which is scaled by the total assets of the previous year. *LNI* is the one year lagged *NI*, and *DNI* is the dummy variable: that is, if LNI < 0, then DNI = 1, otherwise DNI = 0. It is expected that, if the firm recognizes the losses in a timelier way, the estimated coefficient of LNI \* DNI should be negative. We expect the coefficient of *Famine* \* *LNI* \* *DNI* to be negative. That is, the CEO's famine experience allows the firm to identify losses more quickly (i.e. a higher level of accounting conservatism).

Table 16 reports the regression results of the model (7). We examine the applicability of the Ball and Shivakumar (2005) model to the Chinese capital market. The results from column (1) show that the coefficient of LNI \* DNI is negative, which means that there is an accounting conservatism in Chinese listed companies. In column (2), we added *Famine* and its interaction with LNI, DNI and LNI \* DNI, and the results show that the coefficients of *Famine* \* LNI \* DNI are negative and statistically significant. In the column (3) and column (4), we control for the firm's characteristics,

CEO gender and age, and the company registration area. The coefficient of the interaction term *Famine* \*LNI \* DNI has no material change. Therefore, the results are quantitatively similar using the model of Ball and Shivakumar (2005) to re-measure the accounting conservatism. To sum up, results in this section suggest that our main results are not subject to the different measurements of accounting conservatism.

#### [Insert Table 16]

#### **Propensity Score Matching test (PSM)**

It is likely that, when a company chooses a CEO, this is based on the managerial style and management ability rather than focusing on the manager's early-life famine experience. However, it cannot be ruled out that the firm's characteristics can influence our test results. In order to address this problem, the propensity score matching method (PSM) is used in this robustness test. We define the companies whose CEO has the famine experience as the experimental group, and other companies as the control group. Based on the control variables in the model (1), including firm size, leverage ratio, market-to-book ratio and so on, the Pscore is matched based on the year and region. The results are reported in Panel A of Table 17. Results show that there is a significant difference in the mean distribution of variables before propensity score matching. However, there is no significant difference in the covariate characteristics between the experimental group and the control group after propensity score matching. Regression results using the after-matching sample reported in Panel B of Table 17 continue to show that CEOs' Great Chinese Famine experience is positively associated with accounting conservatism, and the results are statistically significant at 1% level. Thus, our main results are robust to the PSM test.

#### [Insert Table 17]

#### CEO duality

Following Zhang (2017), we further test whether CEO-duality has an impact on our main results. Compared to developed countries, the chairman of the board in Chinese firms may be more closely involved in day-to-day business decisions (Kato and Long, 2006). Descriptive statistics (untabulated) show that the CEO-duality ratio from our sample is 17.5%. To examine this issue, we divide our sample into two subsamples, with and without CEO-chairman duality, and we compare the coefficient on *Famine*. Results from the first two columns of Table 18 show that *Famine* is positively and statistically significantly associated with *Cscore*, consistent with our previous findings. In column 3, the coefficient on *Famine\*Dul* is positive and statistically significant at 5% level. This result provides further evidence that the influence of CEO famine experience on accounting conservatism is greater when the CEO is also the chairman, because CEO then has more power over decision making.

#### [Insert Table 18]

#### Confounding events during test periods

The CEOs in our sample might have also experienced other major events in their life. To rule out the possibility that our results may be biased because of CEOs' earlylife experiences of other confounding events, we conduct 3 sensitivity tests based on 3 subsamples. The major events that CEOs might have experienced are the War of Resistance Against Japan, the Chinese Civil War, and the Cultural Revolution. Accordingly, we exclude CEOs who experienced these 3 events from our test sample. Results are reported in Table 19. We continue to find that CEO famine experience is positively associated with accounting conservatism, suggesting that our results are not sensitive to confounding events.

#### [Insert Table 19]

#### 7. Conclusion

The Chief Executive Officer (CEO) is the most influential decision maker in any modern enterprise having the basic feature of separation of ownership and control. Prior studies have studied the influence of CEOs' individual characteristics on financial accounting quality and managerial behavior. A few recent studies extend the literature by examining the relationship between CEOs' early-life experience, and factors such as marital status, occupation type, military service experience, and corporate decisionmaking. However, it is argued that these personal experiences are usually not exogenous, and that it is difficult for researchers to completely eliminate the effects of endogenous problems. Cronqvist et al. (2014) and Bernile et al. (2017) used the Great Depression and natural disasters to capture CEOs' personal experience. Thus, results from these studies provide more reliable and robust evidence.

Following Cronqvist et al. (2014) and Bernile et al. (2017), we investigated whether CEOs' experience of the Great Chinese Famine (1959-1961) affects their

accounting conservatism. The results show that companies whose CEOs experienced the great famine tend to adopt more conservative accounting policies. Furthermore, we find that the positive association between the CEOs' famine experience and accounting conservatism is moderated by business ownership structure and environmental uncertainties. The results show that the CEO will apply the risk sensitivity learned from the famine experience to the company's accounting policy decisions, to meet the obligations of the contracting parties and other stakeholders. Moreover, results show that the higher the environmental uncertainty is, the stronger is the impact of the CEO's famine experience on accounting conservatism, indicating that the CEO's famine experience can serve as an effective alternative contractual guarantee mechanism. Our results are also robust to several robustness tests, suggesting that our results are not subject to model specifications and different variable measurements.

Our research results have important implications for academic research. Although the study of corporate behavior from the view of managerial heterogeneity is increasingly a concern for scholars, it is important for researchers to consider how to design more sophisticated research to mitigate endogenous problems. Our study is based on an exogenous adversity (disaster) event, and we consider different scenarios and conduct a variety of robustness tests to ensure the reliability of the results. Our study also extends the growing literature that investigates how individuals' early-life experiences affect their financial decisions, and the results suggest that the accounting policies made by companies are also influenced by their CEOs' early-life experiences. We consider our results to be relevant and timely, and that these results have practical implications for companies, boards and their CEOs.

#### **Reference List**

- Ahmed, A. S., Billings, B. K., Morton, R. M., and M. Stanford-Harris, M. 2002. The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs. *The Accounting Review* 77(4): 867-890.
- Ball, R., Robin, A., and J. S. Wu. 2003. Incentives versus standards: properties of accounting income in four East Asian countries. *Journal of accounting and economics* 36(1): 235-270.
- Ball, R., and L. Shivakumar. 2005. Earnings quality in UK private firms: comparative loss recognition timeliness. *Journal of accounting and economics* 39(1): 83-128.
- Basu, S. 1997. The conservatism principle and the asymmetric timeliness of earnings. *Journal of accounting and economics* 24(1): 3-37.
- Beekes, W., Pope, P., and S. Young. 2004. The link between earnings timeliness, earnings conservatism and board composition: evidence from the UK. *Corporate Governance: An International Review* 12(1): 47-59.
- Bernile, G., Bhagwat, V., and P. R. Rau. 2017. What Doesn't Kill You Will Only Make You More Risk-Loving: Early-Life Disasters and CEO Behavior. *The Journal of Finance* 72(1): 167-206.
- Bucciol, A., and L. Zarri. 2015. The shadow of the past: Financial risk taking and negative life events. *Journal of Economic Psychology* 48: 1-16.
- Bushman, R. M., and J. D. Piotroski. 2006. Financial reporting incentives for conservative accounting: The influence of legal and political institutions. *Journal of accounting and economics* 42(1): 107-148.
- Cassar, A., Healy, A., and C. Von Kessler. 2017. Trust, risk, and time preferences after a natural disaster: experimental evidence from Thailand. *World Development* 94: 90-105.
- Chen, H., Chen, J. Z., Lobo, G. J., and Y. Wang. 2010. Association between borrower and lender state ownership and accounting conservatism. *Journal of accounting research* 48(5): 973-1014.
- Chen, Y., and D. Y. Yang. 2015. Historical Traumas and the Roots of Political Distrust: Political Inference from the Great Chinese Famine. Available at <u>https://ssrn.com/abstract=2652587</u>
- Chen, Y., and L. A. Zhou. 2007. The long-term health and economic consequences of the 1959–1961 famine in China. *Journal of health economics* 26(4): 659-681.
- Dessaint, O., and A. Matray. 2017. Do managers overreact to salient risks? Evidence from hurricane strikes. *Journal of Financial Economics* 126(1): 97-121.
- Dittmar, A., and R. Duchin. 2016. Looking in the Rearview Mirror: The Effect of Managers' Professional Experience on Corporate Financial Policy. *The Review of Financial Studie*, 29(3): 565-602.
- Easton, P., and J. Pae. 2004. Accounting conservatism and the relation between returns and accounting data. *Review of accounting studies* 9(4): 495-521.
- Ellis, B. J., Bianchi, J., Griskevicius, V., and W. E. Frankenhuis. 2017. Beyond Risk and Protective Factors: An Adaptation-Based Approach to Resilience. *Perspectives on Psychological Science* 12(4): 561-587.
- Fan, W., and Y. Qian. 2015. Long-term health and socioeconomic consequences of early-life exposure to the 1959–1961 Chinese Famine. *Social science research* 49: 53-69.
- Feng, X., and A. Johansson. 2016. Living through the Great Chinese famine: Early-life experiences and managerial decisions. Working Paper No. 41, Stockholm School of Economics Asia.

- Francis, J., LaFond, R., Olsson, P. M., and K. Schipper. 2004. Costs of equity and earnings attributes. *The Accounting Review* 79(4): 967-1010.
- Futuyma, D. J. 1998. Wherefore and whither the naturalist? *The American Naturalist* 151(1): 1-6.
- Gassen, J., Uwe Fülbier, R., and T. Sellhorn. 2006. International differences in conditional conservatism-the role of unconditional conservatism and income smoothing. *European Accounting Review* 15(4): 527-564.
- Hambrick, D. C., and P. A. Mason. 1984. Upper echelons: The organization as a reflection of its top managers. *Academy of management review* 9(2): 193-206.
- Hitz, J. M. 2007. The Decision Usefulness of Fair Value Accounting A Theoretical Perspective. *European Accounting Review* 16(2): 323-362.
- Holman, E. A., and R. C. Silver. 1998. Getting" stuck" in the past: temporal orientation and coping with trauma. *Journal of personality and social psychology* 74(5): 1146.
- Holthausen, R. W. 2003. Testing the relative power of accounting standards versus incentives and other institutional features to influence the outcome of financial reporting in an international setting. *Journal of accounting and economics* 36(1): 271-283.
- Huang, C., Li, Z., Wang, M., and R. Martorell. 2010. Early life exposure to the 1959– 1961 Chinese famine has long-term health consequences. *The Journal of nutrition* 140(10): 1874-1878.
- Huijgen, C., and M. Lubberink. 2005. Earnings Conservatism, Litigation and Contracting: The Case of Cross-Listed Firms. *Journal of Business Finance & Accounting* 32(7-8): 1275-1309.
- Hutton, I., Jiang, D., and A. Kumar. 2014. Corporate policies of Republican managers. *Journal of Financial and Quantitative Analysis* 49(5-6): 1279-1310.
- Kachelmeier, S. J. 2010. Introduction to a forum on individual differences in accounting behavior. *The Accounting Review* 85(4): 1127-1128.
- Klein, A., and C. A. Marquardt. 2006. Fundamentals of accounting losses. *The Accounting Review* 81(1): 179-206.
- Kravet, T. D. 2014. Accounting conservatism and managerial risk-taking: Corporate acquisitions. *Journal of accounting and economics* 57(2): 218-240.
- Lafond, R., and S. Roychowdhury. 2008. Managerial ownership and accounting conservatism. *Journal of accounting research* 46(1): 101-135.
- LaFond, R., and R. L. Watts. 2008. The information role of conservatism. *The Accounting Review* 83(2): 447-478.
- Lara, J. M. G., Osma, B. G., and F. Penalva. 2009. Accounting conservatism and corporate governance. *Review of accounting studies* 14(1): 161-201.
- Luo, Z., Mu, R., and X. Zhang. 2006. Famine and overweight in China. *Review of Agricultural Economics* 28(3): 296-304.
- Lyoo, I. K., Kim, J. E., Yoon, S. J., Hwang, J., Bae, S., and D. J. Kim. 2011. The neurobiological role of the dorsolateral prefrontal cortex in recovery from trauma: longitudinal brain imaging study among survivors of the South Korean subway disaster. *Archives of general psychiatry* 68(7): 701-713.
- Malmendier, U., Tate, G., and J. Yan. 2011. Overconfidence and early-life experiences: the effect of managerial traits on corporate financial policies. *The Journal of Finance* 66(5): 1687-1733.
- Meng, X., and N. Qian. 2009. *The long term consequences of famine on survivors:* evidence from a unique natural experiment using China's great famine. NBER working paper No.14917.

- Nikolaev, V. V. 2010. Debt covenants and accounting conservatism. *Journal of accounting research* 48(1): 51-89.
- Noji, E. K. 1996. The public health consequences of disasters: Oxford University Press.
- Ramirez, A., and N. Altay. 2011. Risk and the multinational corporation revisited: The case of natural disasters and corporate cash holdings. Available at https://ssrn.com/abstract=1772969
- Roussanov, N., and P. Savor. 2014. Marriage and Managers' Attitudes to Risk. *Management Science* 60(10): 2496-2508.
- Roussanov, N., and P. G. Savor. 2014. Status, marriage, and managers' attitudes to risk. Management Science 60(10): 2496-2508.
- Schoar, A., and L. Zuo. 2017. Shaped by booms and busts: How the economy impacts CEO careers and management styles. *The Review of Financial Studies* 30(5): 1425-1456.
- Watts, R. L. 2003. Conservatism in Accounting Part I: Explanations and Implications. *Accounting Horizons* 17(3): 207-221.
- Xia, D., and S. Zhu. 2009. Corporate governance and accounting conservatism in China. *China Journal of Accounting Research* 2(2): 81-108.
- XIA, D.-l., and S. ZHU. 2009. A Study of Accounting Conservatism: Based on the Relation between Accruals and Cash Flow. *Contemporary Finance & Economics* 5: 98-102.
- Zhang, J. 2008. The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of accounting and economics* 45(1): 27-54.

The distribution of the place in which CEO was born and firm headquarters, and the summary statistics of death ratio during the Chinese Famine period

	# of firm year the s	observations in ample	Statistics of Mean death ratio from the Famine period (Pre: 1956- 1958; During: 1959-1961; Post: 1962-1964)				
Province	CEOs born	Firm	pre and pos	pre and post the famine		Difference	
	in	in in	From 1956 to 1958	From 1962 to 1964	From 1959 to 1961	Abnormal death ratio	
Anhui	941	772	0.119	0.083	0.311	0.210	
Beijing	907	1,714	0.081	0.083	0.099	0.017	
Chongqing	348	451	0.137	0.138	0.317	0.180	
Fujian	790	885	0.083	0.082	0.119	0.037	
Gansu	334	273	0.144	0.114	0.234	0.105	
Guangdong	2,090	3,013	0.096	0.084	0.125	0.035	
Guangxi	261	335	0.123	0.103	0.223	0.110	
Guizhou	200	276	0.135	0.165	0.320	0.170	
Hainan	185	342	0.096	0.084	0.125	0.035	
Hebei	744	537	0.113	0.100	0.126	0.020	
Henan	1,046	617	0.128	0.094	0.213	0.102	
Heilongjiang	452	399	0.099	0.096	0.115	0.017	
Hubei	1,250	969	0.100	0.098	0.149	0.050	
Hunan	1,618	699	0.111	0.111	0.199	0.088	
Jilin	560	480	0.086	0.107	0.119	0.022	
Jiangsu	2,055	1,906	0.107	0.098	0.154	0.052	
Jiangxi	654	383	0.118	0.105	0.135	0.024	
Liaoning	959	830	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	68	128	0.108	0.098	0.229	0.126	
Shandong	1,948	1,443	0.123	0.121	0.200	0.079	
Shanxi(山 西)	497	355	0.120	0.123	0.131	0.010	
Shaanxi(陕 西)	681	390	0.104	0.118	0.113	0.001	
Shanghai	1,116	2,123	0.063	0.068	0.075	0.009	
Sichuan	1,074	972	0.137	0.138	0.317	0.180	
Tianjin	331	401	0.073	0.065	0.083	0.014	
Tibet	23	130	-	-	-	-	
Xinjiang	205	416	0.137	0.118	0.154	0.026	
Yunnan	293	325	0.177	0.134	0.187	0.031	
Zhejiang	1,981	1,944	0.093	0.086	0.108	0.019	

## **TABLE 2**Definition of variables

Variable	Definitions
Famine	A dummy variable equals to 1 if CEO has experienced the Chinese Famine and 0 otherwise
Cscore	Accounting conservatism score, based on Khan and Watts (2009)
SOE	A dummy variable equals to 1 if the ultimate controller is a government agency and 0 otherwise
Turnover	A dummy variable equals to 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 defined the next year as to 1, and 0 otherwise
AH	A dummy variable equals to 1 if the stocks of a company have been trading publicly in both in A(China mainland) and H(Hong Kong) share market, and 0 otherwise
IFRS	A dummy variable equals to 1 in year 2007 and beyond, and 0 otherwise
Crisis	A dummy variable equals to 1 in year 2008, 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
Dr	A dummy variable, defined to 1 if return<0, 0 if return>0
Grow	Sales income growth
Dual	A dummy variable equals to 1 if the CEO and the Chairman are the same person, and 0 otherwise
Independent	The percentage of independent directors in the board
Manager	The percentage of the managers' stockholdings
Age	The age of CEO
Gender	The 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

TABLE 3
Descriptive statistics

Variable	Ν	Mean	Std.	P25	Median	P75
Cscore	23962	0.039	0.220	0.001	0.029	0.062
Famine	23962	0.425	0.494	0.000	0.000	1.000
SOE	23962	0.586	0.493	0.000	1.000	1.000
Turnover	23962	0.321	0.467	0.000	0.000	1.000
QFII	23962	0.002	0.013	0.000	0.000	0.000
AH	23962	0.027	0.163	0.000	0.000	0.000
IFRS	23962	0.691	0.462	0.000	1.000	1.000
Crisis	23962	0.056	0.230	0.000	0.000	0.000
Size	23962	21.666	1.226	20.816	21.515	22.329
Lev	23962	0.474	0.227	0.311	0.473	0.623
MB	23962	2.011	1.812	0.859	1.466	2.498
CFO	23962	0.056	0.250	0.005	0.051	0.101
Dr	23962	0.435	0.496	0.000	0.000	1.000
Grow	23962	0.168	0.380	0.001	0.094	0.225
Dual	23962	0.175	0.380	0.000	0.000	0.000
Independent	23962	0.334	0.105	0.333	0.333	0.375
Manager	23962	0.069	0.163	0.000	0.000	0.004
Age	23962	3.851	0.141	3.761	3.850	3.951
Gender	23962	0.052	0.222	0.000	0.000	0.000
Per Capital GDP	23962	10.372	0.785	9.833	10.520	11.017
Income Grow	23962	0.121	0.061	0.077	0.110	0.165
Population	23962	8.413	0.698	7.894	8.606	8.982

This table reports descriptive statistics on *Cscore*, *Famine*, and control variables for the sample in 2000-2015. All variables are defined in Table 2.

#### Univariate test

**Panel A.** This table reports the results of univariate analysis on the mean and median differences of Cscore, the accounting conservatism measure, between firms with and without a CEO who has experienced the Chinese Famine. Wilcoxon tests are conducted for the t-values and z-values for differences in means and medians respectively. \*, \*\*, \*\*\* represent the significance of both T value for mean and Z value of median at 10%, 5% and 1% level.

Mariah laa	Famine=1			Famine=0			Difference	
variables	Ν	Mean	Median	Ν	Mean	Median	T value	Z value
Cscore	10188	0.049	0.036	13774	0.031	0.025	0.018***	0.011***

**Panel B.** Difference in difference test for accounting conservatism between firms with and without a CEO who has experienced the Chinese Famine. This table presents the results of univariate tests for firms' Cscore in the following subsamples, SOE and Non-SOE, with and without core officials' turnover, before and after the introduction of IFRS, with and without financial crisis, and AH and Non-AH listed. The column of Difference reports the T value for mean and Z value of median. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level.

	Test Variable= <i>Cscore</i>						
	Famine=1		Fami	ine=0	Diffe	Difference	
	Mean	Median	Mean	Median	T value	Z value	
SOE=0	0.051	0.041	0.034	0.031	0.017***	0.010***	
SOE=1	0.039	0.028	0.028	0.020	0.011***	0.008***	
Differences	0.012***	0.013***	0.006*	0.011***	0.006***	-	
Turnover=1	0.051	0.037	0.028	0.018	0.023***	0.019***	
Turnover=0	0.049	0.036	0.033	0.025	0.016***	0.011***	
Differences	0.002	0.001	-0.005	-0.007*	0.007**	-	
IFRS=1	0.045	0.039	0.026	0.022	0.019***	0.017***	
IFRS=0	0.054	0.048	0.042	0.035	0.012***	0.013***	
Differences	-0.009***	-0.009***	-0.016***	-0.013***	0.007***	-	
Crisis=1	0.110	0.110	0.089	0.086	0.021***	0.024***	
Crisis=0	0.045	0.033	0.034	0.021	0.011***	0.012***	
Differences	0.065***	0.077***	0.055***	0.065***	0.010***	-	
AH=1	0.043	0.041	0.027	0.026	0.016***	0.015***	
AH=0	0.051	0.049	0.043	0.039	0.008***	0.010***	
Differences	-0.008***	-0.008***	-0.016***	-0.013***	0.008***	-	

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Famine	0.0172***	0.0157***	0.0157***
	(6.68)	(4.08)	(4.07)
Size	-0.0386***	-0.0386***	-0.0386***
	(-29.07)	(-29.07)	(-29.16)
Lev	0.0161***	0.0162***	0.0164***
	(2.76)	(2.77)	(2.78)
MB	-0.0072***	-0.0072***	-0.0072***
	(-7.31)	(-7.32)	(-7.26)
CFO	-0.0006	-0.0006	-0.0005
	(-0.14)	(-0.15)	(-0.14)
Dr	0.0159***	0.0159***	0.0157***
	(8.16)	(8.15)	(8.05)
Grow	-0.0055**	-0.0054**	-0.0054**
	(-2.03)	(-2.02)	(-2.00)
SOE	-0.0110***	-0.0111***	-0.0109***
	(-5.70)	(-5.70)	(-5.65)
Dual	0.0014	0.0012	0.0012
	(0.55)	(0.46)	(0.47)
Independent	-0.0160	-0.0158	-0.0153
	(-0.77)	(-0.76)	(-0.74)
Manager	-0.0297***	-0.0295***	-0.0298***
	(-4.56)	(-4.53)	(-4.56)
Age		0.0070	0.0070
		(0.62)	(0.61)
Gender		0.0005	0.0006
		(0.12)	(0.14)
Per Capital GDP			-0.0016
			(-0.70)
Income Grow			-0.0401
			(-1.19)
Population			0.0010
			(0.75)
Constant	0.8833***	0.8588***	0.8676***
	(30.46)	(17.31)	(15.18)
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Ν	23962	23962	23962
adj. R <sup>2</sup>	0.0925	0.0926	0.0926

## **TABLE 5**CEO famine experience and accounting conservatism

This table presents the results from the ordinary least squares regression of the impact of the CEO famine experience on the accounting conservatism. The dependent variable *Cscore* is based on 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 Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

CEO famine experience, firm ownership and accounting conservatism

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Famine	0.0117***	0.0104**	0.0103**
	(3.31)	(2.21)	(2.19)
Famine* Non-SOE	0.0139***	0.0139***	0.0140***
	(2.98)	(2.98)	(2.99)
Non-SOE	0.0056**	0.0057**	0.0055**
	(2.17)	(2.22)	(2.15)
Firm-level controls	Yes	Yes	Yes
CEO feature controls	No	Yes	Yes
Headquarter controls	No	No	Yes
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	23962	23962	23962
adj. R <sup>2</sup>	0.0927	0.0928	0.0928
Test (Famine+ Famine*Non-SOE)	0.0256***	0.0243***	0.0243***
F value	59.95	35.64	35.61

This table presents the results from the ordinary least squares regression of the moderating effect of owner's structure on the relationship between the CEO famine experience and the accounting conservatism. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variables are *Famine* and *Famine\*Non-SOE*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

CEO famine experience, core official turnover and accounting conservatism

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Famine	0.0135***	0.0120**	0.0120**
	(3.82)	(2.58)	(2.57)
Famine*Turnover	0.0113**	0.0113**	0.0113**
	(2.18)	(2.18)	(2.19)
Turnover	-0.0044	-0.0044	-0.0045
	(-1.55)	(-1.55)	(-1.59)
Firm-level controls	Yes	Yes	Yes
CEO feature controls	No	Yes	Yes
Headquarter controls	No	No	Yes
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Ν	23962	23962	23962
adj. R <sup>2</sup>	0.0927	0.0927	0.0927
Test (Famine+ Famine*Turnover)	0.0248***	0.0233***	0.0233***
F value	50.76	29.90	29.82

This table presents the results from the ordinary least squares regression of the moderating effect of core official turnover on the relationship between the CEO famine experience and the accounting conservatism. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variables are *Famine* and *Famine\*Turnover*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

CEO famine experience, change of accounting standards and accounting conservatism

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Famine	0.0145***	0.0113***	0.0114***
	(5.68)	(2.95)	(2.94)
Famine*IFRS	0.0117**	0.0123**	0.0122**
	(2.42)	(2.56)	(2.55)
IFRS	0.0384***	0.0350***	0.0359***
	(4.45)	(3.71)	(3.48)
Firm-level controls	Yes	Yes	Yes
CEO feature controls	No	Yes	Yes
Headquarter controls	No	No	Yes
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Ν	23962	23962	23962
adj. R <sup>2</sup>	0.092	0.092	0.092
Test (Famine+ Famine* IFRS)	0.0262	0.0236	0.0236
F value	43.20	24.10	24.00

This table presents the results from the ordinary least squares regression of the moderating effect of accounting standard change on the relationship between the CEO famine experience and the accounting conservatism. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variables are *Famine* and *Famine\*IFRS*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Famine	0.0160***	0.0145***	0.0145***
	(5.68)	(3.57)	(3.56)
Famine*Crisis	0.0177**	0.0178**	0.0178**
	(2.35)	(2.36)	(2.35)
Crisis	0.0371***	0.0362***	0.0406***
	(4.06)	(3.82)	(3.72)
Firm-level controls	Yes	Yes	Yes
CEO feature controls	No	Yes	Yes
Headquarter controls	No	No	Yes
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	23962	23962	23962
adj. R <sup>2</sup>	0.0926	0.0926	0.0926
Test (Famine+ Famine* Crisis)	0.0337***	0.0323***	0.0323***
F value	29.14	23.09	22.99

CEO famine experience, financial crisis and accounting conservatism

This table presents the results from the ordinary least squares regression of the moderating effect of financial crisis on the relationship between the CEO famine experience and the accounting conservatism. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variables are *Famine* and *Famine\*Crisis*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Famine	0.0148***	0.0128***	0.0127***
	(6.31)	(3.60)	(3.59)
Famine*AH	0.0801**	0.0805**	0.0806**
	(2.21)	(2.22)	(2.22)
AH	-0.0526**	-0.0529**	-0.0532**
	(-2.26)	(-2.27)	(-2.28)
Firm-level controls	Yes	Yes	Yes
CEO feature controls	No	Yes	Yes
Headquarter controls	No	No	Yes
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	23962	23962	23962
adj. R <sup>2</sup>	0.0934	0.0935	0.0935
Test (Famine+ Famine*AH)	0.0949***	0.0933**	0.0933**
F value	6.87	6.53	6.53

CEO famine experience, AH dual listing and accounting conservatism

This table presents the results from the ordinary least squares regression of the moderating effect of AH dual listing on the relationship of the CEO famine experience and the accounting conservatism. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variables are *Famine* and *Famine\*AH*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

Different birth cohorts, CEO famine experience and accounting conservatism

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Cohort <sub>1</sub> <sup>[1-5]</sup>	0.0145***	0.0149***	0.0149***
	(4.42)	(3.65)	(3.64)
$Cohort_2^{[6-10]}$	0.0195***	0.0202***	0.0203***
	(6.01)	(4.13)	(4.13)
<i>Cohort3</i> <sup>[11-15]</sup>	0.0211***	0.0219***	0.0220***
	(3.85)	(3.05)	(3.05)
$Cohort_4^{[>15]}$	0.0183***	0.0195**	0.0193**
	(3.70)	(2.46)	(2.45)
Firm-level controls	Yes	Yes	Yes
CEO feature controls	No	Yes	Yes
Headquarter controls	No	No	Yes
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	23962	23962	23962
adj. R <sup>2</sup>	0.0926	0.0926	0.0926
Test (Cohort <sub>1</sub> -Cohort <sub>2</sub> =0)	-0.0050 (1.69)	-0.0053 (1.71)	-0.0054 (1.81)
Test (Cohort <sub>1</sub> -Cohort <sub>3</sub> =0)	-0.0066 (1.30)	-0.0070 (1.33)	-0.0071 (1.35)
Test (Cohort <sub>1</sub> -Cohort <sub>4</sub> =0)	-0.0038 (0.52)	-0.0046 (0.50)	-0.0044 (0.48)
Test (Cohort2-Cohort3=0)	-0.0016 (0.08)	-0.0017 (0.10)	-0.0017 (0.09)
Test (Cohort2-Cohort4=0)	0.0012 (0.05)	0.0007 (0.01)	0.0010 (0.03)
Test (Cohort <sub>3</sub> -Cohort <sub>4</sub> =0)	0.0028 (0.17)	0.0024 (0.13)	0.0027 (0.15)

This table presents the results from the ordinary least squares regression of the impact of CEO famine experience on accounting conservatism in different birth cohorts. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variables are *Cohort1-Cohort4*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

	(1)			(4)
	(1)	(2)	(3)	(4)
	Cscore	Cscore	Cscore	Cscore
Famine	0.0096***	0.0080*	0.0080*	0.0122***
	(2.97)	(1.84)	(1.82)	(2.77)
Famine*Highdeath	0.0153***	0.0153***	0.0153***	0.0108**
	(3.31)	(3.31)	(3.31)	(2.40)
Highdeath	-0.0033	-0.0033	-0.0031	0.1853***
	(-1.17)	(-1.18)	(-1.10)	(5.30)
Firm-level controls	Yes	Yes	Yes	Yes
CEO feature controls	No	Yes	Yes	Yes
Headquarter controls	No	No	Yes	Yes
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Birthplace	No	No	No	Yes
Ν	23939	23939	23939	23939
adj. R <sup>2</sup>	0.0929	0.0929	0.0929	0.1325

CEO famine experience, severity of famine and accounting conservatism

This table presents the results from the ordinary least squares regression of the moderating effect of the severity of famine where the CEO was born, on the relationship of the CEO famine experience and the accounting conservatism. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variables are *Famine* and *Famine\*Highdeath*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Cscore	Cscore	Cscore	Cscore	Cscore	Cscore
NewCEOYes	-0.0406**	-0.0392**	-0.0392**			
	(-2.11)	(-2.04)	(-2.03)			
NewCEOYes*Post	0.0509**	0.0497**	0.0496**			
	(2.16)	(2.11)	(2.10)			
NewCEONo				0.0183	0.0168	0.0169
				(1.24)	(1.14)	(1.15)
NewCEONo*Post				-0.0463**	-0.0466**	-0.0465**
				(-2.44)	(-2.46)	(-2.45)
Post	-0.0152***	-0.0134***	-0.0134***	-0.0105**	-0.0086**	-0.0086**
	(-3.55)	(-3.14)	(-3.14)	(-2.45)	(-1.99)	(-2.00)
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO feature controls	No	Yes	Yes	No	Yes	Yes
Headquarter controls	No	No	Yes	No	No	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Ν	13324	13324	13324	13324	13324	13324
adj. R <sup>2</sup>	0.0901	0.0901	0.0901	0.0903	0.0903	0.0903

CEO turnover, famine experience and accounting conservatism

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. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variable is *NewCEOYes\*Post*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

Firm fixed effect on the relationship between CEO famine experience and accounting conservatism

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Famine	0.0233***	0.0211***	0.0210***
	(4.81)	(2.86)	(2.84)
Firm-level controls	Yes	Yes	Yes
CEO feature controls	No	Yes	Yes
Headquarter controls	No	No	Yes
Firm	Yes	Yes	Yes
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	23962	23962	23962
With. R <sup>2</sup>	0.0646	0.0647	0.0647

This table presents the results from the firm fixed effects on the relationship between the CEO famine experience and the accounting conservatism. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variable is *Famine*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size, Lev, MB, CFO, Dr, Grow, SOE, Dual, Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP, Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

Sensitivity of accounting conservatism indicator (Basu model)

	(1)	(2)	(3)	(4)
	EPS/P	EPS/P	EPS/P	EPS/P
Return	0.0055***	0.0054***	0.0097	0.0066
	(9.96)	(8.71)	(1.22)	(0.44)
Dr	0.0023**	0.0012	0.0468**	0.0961***
	(2.33)	(1.01)	(2.57)	(3.42)
Return*Dr	0.0720***	0.0656***	0.1407***	0.3752***
	(19.98)	(16.24)	(3.09)	(4.58)
Famine		0.0031***	0.0007	0.0020
		(2.63)	(0.64)	(1.45)
Famine*Return		0.0004	0.0004	0.0002
		(0.44)	(0.56)	(0.22)
Famine*Dr		0.0022	0.0010	0.0039*
		(1.27)	(0.63)	(1.84)
Famine*Return*Dr		0.0134***	0.0089**	0.0226***
		(2.83)	(2.14)	(3.80)
Firm-level controls	No	Yes	Yes	Yes
CEO feature controls	No	No	Yes	Yes
Headquarter controls	No	No	No	Yes
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Ν	23962	23962	23962	23962
adj. R <sup>2</sup>	0.0733	0.0744	0.2613	0.2625

This table presents the results from the ordinary least squares regression of the impact of CEO famine experience on accounting conservatism, by using the proxy of accounting conservatism from the Basu (1997) model. The test variable is *Famine\*Return\*Dr*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent*, *Manager* and it's interaction with *Dr*, *Return* and both two; CEO feature control variables include *Age*, *Gender* and it's interaction with *Dr*, *Return* and both two; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

Sensitivity of accounting conservatism indicator (Ball and Shivakumar model)

	(1)	(2)	(3)	(4)
	NI	NI	NI	NI
LNI	-0.1272***	-0.1310***	-0.2983	2.0947***
	(-6.82)	(-5.34)	(-0.97)	(3.57)
DNI	-0.0210***	-0.0205***	-0.0824***	-0.1109***
	(-20.70)	(-15.03)	(-3.72)	(-3.15)
LNI*DNI	-0.6313***	-0.5819***	-3.3665***	-7.0421***
	(-17.26)	(-12.34)	(-5.47)	(-6.42)
Famine		-0.0006	-0.0009	-0.0019
		(-0.50)	(-0.80)	(-1.19)
Famine*LNI		0.0097	0.0064	0.1503***
		(0.28)	(0.19)	(3.20)
Famine*DNI		-0.0017	-0.0024	-0.0039
		(-0.81)	(-1.20)	(-1.45)
Famine*LNI*DNI		-0.1435**	-0.1371**	-0.3619***
		(-2.07)	(-2.03)	(-4.16)
Firm-level controls	No	Yes	Yes	Yes
CEO feature controls	No	No	Yes	Yes
Headquarter controls	No	No	No	Yes
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
N	20892	20892	20892	20892
adi. R <sup>2</sup>	0.1634	0.1643	0.1954	0.1985

This table presents the results from the ordinary least squares regression of the impact of the CEO famine experience on the accounting conservatism, by using the proxy of accounting conservatism based on Ball and Shivakumar (2005) model. The test variable is *Famine\*LNI\*DNI*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size, Lev, MB, CFO, Dr, Grow, SOE, Dual, Independent, Manager* and it's interaction with *LNI, DNI* and both two; CEO feature control variables include *Age, Gender* and it's interaction with *LNI, DNI* and both two; Headquarter control variables include *Per Capital GDP, Income Grow* and *Population*. All variables are defined in Table 2.\*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

Propensity	Score	Matching	(PSM)	test	result
Panel A.		-			

Variables	Before Matching				After Matching		
v anabies –	Treat	Control	T-test	Treat	Control	T-test	
Size	21.670	21.662	0.008	21.770	21.786	-0.016	
Lev	0.484	0.467	0.017***	0.490	0.478	0.012	
MB	1.855	2.127	-0.272***	1.846	1.894	-0.048	
CFO	0.064	0.050	0.014***	0.062	0.060	0.002	
DR	0.487	0.397	0.090***	0.456	0.418	0.038	
Grow	0.148	0.182	-0.034***	0.151	0.156	-0.005	
SOE	0.679	0.517	0.162***	0.643	0.538	0.105*	
Dual	0.185	0.168	0.017***	0.159	0.099	0.060	
Independent	0.309	0.353	-0.044***	0.335	0.330	0.005	
Manager	0.038	0.092	-0.054***	0.046	0.072	-0.026*	
Age	3.950	3.777	0.173***	3.909	3.762	0.147***	
Gender	0.058	0.047	0.011***	0.056	0.055	0.001	
Per Capital GDP	10.188	10.508	-0.320***	10.369	10.376	-0.007	
Income Grow	0.125	0.118	0.007***	0.123	0.110	0.013**	
Population	8.347	8.462	-0.115***	8.373	8.521	-0.148**	

#### Panel B.

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Famine	0.0214***	0.0252***	0.0277***
	(5.09)	(2.60)	(2.67)
Size	-0.0488***	-0.0486***	-0.0486***
	(-20.23)	(-20.54)	(-20.49)
Lev	0.0365***	0.0362***	0.0370***
	(3.38)	(3.35)	(3.40)
MB	-0.0055***	-0.0055***	-0.0054***
	(-3.30)	(-3.23)	(-3.20)
CFO	-0.0097	-0.0098	-0.0095
	(-0.98)	(-0.98)	(-0.95)
Dr	0.0165***	0.0164***	0.0160***
	(4.80)	(4.69)	(4.56)
Grow	-0.0073	-0.0075*	-0.0073
	(-1.62)	(-1.66)	(-1.62)
SOE	-0.0127***	-0.0127***	-0.0128***
	(-3.87)	(-3.88)	(-3.90)
Dual	0.0021	0.0022	0.0022
	(0.50)	(0.53)	(0.52)
Independent	-0.0163	-0.0131	-0.0095
	(-0.52)	(-0.41)	(-0.30)
Manager	-0.0416***	-0.0410***	-0.0413***
	(-3.81)	(-3.74)	(-3.76)
Age		-0.0203	-0.0336
		(-0.51)	(-0.76)
Gender		0.0010	0.0009
		(0.13)	(0.13)
Per Capital GDP			0.0006
			(0.14)
Income Grow			-0.0829
			(-1.60)
Population			0.0009
			(0.35)
Constant	1.0696***	1.1369***	1.1805***
	(20.51)	(7.61)	(7.56)
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Ν	12212	12212	12212
adj. R <sup>2</sup>	0.087	0.087	0.087

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
_	Dual=0	Dual=1	All sample
Famine	0.0162***	0.0177***	0.0137***
	(3.63)	(2.73)	(3.31)
Famine*Dual			0.0120**
			(2.25)
Dual			-0.0005
			(-0.15)
Firm-level controls	Yes	Yes	Yes
CEO feature controls	Yes	Yes	Yes
Headquarter controls	Yes	Yes	Yes
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Ν	19776	4186	23962
adj. R <sup>2</sup>	0.085	0.369	0.091

CEO famine experience and accounting conservatism: CEO-chair duality

This table presents the results from the ordinary least squares regression of the moderating effect of CEO duality on the relationship of the CEO famine experience and the accounting conservatism. The dependent variable *Cscore* is based on Khan and Watts (2009) model. The test variables are *Famine* and *Famine\*Dual*. Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size*, *Lev*, *MB*, *CFO*, *Dr*, *Grow*, *SOE*, *Dual*, *Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP*, *Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.

CEO famine experience and accounting conservatism: effects from confounding events

	(1)	(2)	(3)
	Cscore	Cscore	Cscore
Famine	0.0169*** (4.29)	0.0175*** (4.4)	0.0155*** (3.77)
Firm-level controls	Yes	Yes	Yes
CEO feature controls	Yes	Yes	Yes
Headquarter controls	Yes	Yes	Yes
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	23484	22644	23528
adj. R <sup>2</sup>	0.0904	0.0833	0.0906

This table presents the results from the ordinary least squares regression on the relationship of the CEO famine experience and the accounting conservatism based on three subsamples. The dependent variable Cscore is based on Khan and Watt (2009) model. The test variable is *Famine*. Results from column 1 exclude CEOs who experienced the War of Resistance Against Japan Aggression (born before 1945). In column 2, CEOs who was born before 1949 are excluded because they might experience the Civil War. Column 3 reports results from a subsample that excludes CEO who had experienced the Cultural Revolution (born after 1976). Reported in parentheses are t values based on robust standard errors clustered by firm. Firm-level control variables include *Size, Lev, MB, CFO, Dr, Grow, SOE, Dual, Independent* and *Manager*; CEO feature control variables are *Age* and *Gender*; Headquarter control variables include *Per Capital GDP, Income Grow* and *Population*. All variables are defined in Table 2. \*, \*\*, \*\*\* represent the significance at 10%, 5% and 1% level respectively.