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## Great Chinese famine, corporate social responsibility and firm value

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## ABSTRACT

We conceptualize that CEOs who endure traumatic experiences stemming from man-made disasters practice less corporate social responsibility. We exploit a natural experiment—the Great Chinese Famine—to empirically test this hypothesis. We find that (i) firms with CEOs who experienced the Great Chinese Famine score lower in corporate social responsibility ratings than a comparison group; (ii) this relationship is mainly driven by prosocial practices tied to employee relations, environmental protection, supplier relations, and community contributions; and (iii) this negative relationship is more pronounced in firms whose CEOs were younger when they experienced the famine, (iv) the positive relationship between CSR scores and firm value is more pronounced in firms with CEO without famine experiences. These results are robust in the face of several sources of endogeneity. Our study contributes to ongoing research regarding how top executives' early experiences affect their managerial decisions. It also enriches work surrounding corporate social responsibility and the plausibly exogenous determinants of prosocial preferences.

"I knew that suffering did not ennoble; it degraded. It made men selfish, mean, petty and suspicious. It absorbed them in small things. It did not make them more than men; it made them less than men; and I wrote ferociously that we learn resignation not by our own suffering, but by the suffering of others."

Somerset W. Maugham (1874–1965)

## 1. Introduction

Disasters have consequences. Earthquakes, famines, and widespread epidemics do not only threaten mankind physically but also leave traumatic stamps on survivors. Traumatic experiences additionally color people's personality development and value systems

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(Cook et al., 2004; Jordan et al., 1992; Price, 2000; Riggs et al., 1998; Schaefer and Moos, 1998; Tedeschi et al., 1998). These outcomes are intuitive when considering the far-reaching coronavirus pandemic that has altered people's perceptions of themselves and others. On one hand, people need to "stand shoulder to shoulder" to combat the pandemic—but on the other, the pandemic has unleashed waves of anger and recrimination. A crucial task in a post-pandemic world will be to understand whether this trauma has led people to be more sympathetic or more selfish. Driven by both theoretical interests and practical concerns, we examine the association between people's traumatic experiences and social preferences by exploiting a natural experimental setting in China.

Exactly how traumatic experiences might change people's social preferences has long been a target of academic fascination. A large body of work suggests that traumatic experiences can positively influence people's prosocial preferences. Based on self-reported data from interviews and questionnaires, psychologists have argued trauma leads to virtue that makes people more sympathetic and community-conscious (Price, 2000; Schaefer and Moos, 1998; Tedeschi et al., 1998). These studies have covered an array of traumas. Rieker et al. (1985) used questionnaires and discovered that participants who experienced cancer treatments had a better outlook on life, which led to greater intimacy with family and friends. Similarly, based on a content analysis of 87 interviews, Zemore et al. (1990) observed that women who had breast cancer developed closer interpersonal ties with friends. Many clinical studies on bereavement, illness, and natural disasters have painted a similar picture (see Tedeschi et al., 1998, for a detailed discussion). Scholars contend that people can gain a clearer understanding of others' pain and sorrow via personal experience and hence commiserate more with them. However, research indicates that the effects of traumatic experiences may be negative. Frueh et al. (2001) found that veterans who experienced war exhibited significantly less altruism than a normative comparison group. Moreover, Kashdan et al. (2006) noted that veterans who had endured significant hardship displayed lower levels of gratitude. Many studies have also shown that hardship adversely affects social relationships (Cook et al., 2004; Jordan et al., 1992; Riggs et al., 1998): traumatic experiences might spark anger against society and trigger hostility toward others. Micro-level impacts can in turn transfigure macro-level collective values, leading to systemic effects. Some authors have pointed out that the age cohort in Western countries who experienced war and poverty in the 1930s and 1940s were highly materialistic and less empathetic than others; in addition, the later generation (i.e., individuals born after 1945) was more apt to express postmodern values and prioritized life's purpose over material wealth (Inglehart, 1997; Inglehart and Baker, 2000; Inglehart and Welzel, 2005).

Our research adds evidence to the persistent debate around the roles of traumatic experiences in mankind's social preferences via a novel lens, namely the practice of corporate social responsibility (CSR) by top executives. Management scholars view CSR as firms' ethical pursuits, motivated by more than simply monetary interests (see McWilliams and Siegel, 2001, for a review). We exploit the Great Chinese Famine to assess the effects of traumatic experiences on top executives' CSR investment in Chinese non-state-owned listed companies. We hypothesize that CEOs who experienced the Great Chinese Famine invest less in CSR. In line with our prediction, we find that (i) top executives who experienced the Great Chinese Famine invest significantly less in CSR than a comparison group; (ii) this difference is mainly driven by prosocial practices tied to employee relations, environmental protection, supplier relations, and community contributions; and (iii) the relationship is negatively moderated by the age at which top executives experienced the famine. In addition, we also conduct analysis on the economic significance of our main findings. We demonstrate the positive effects of CSR scores on return of equity is more pronounced for firms with CEO having no famine experiences.

Our method alleviates endogeneity concerns in several respects. It is empirically challenging to measure the impacts of traumatic experiences on decisions, such that trauma is often associated with personal characteristics that can produce severe selection bias in a sample (e.g., children from lower social classes generally face more traumatic experiences through poverty and are more likely to be included in a treatment sample than upper-class children). The Great Chinese Famine is an exogenous shock and thus is immune to this issue. Moreover, the Great Chinese Famine affected all of China because the government had strictly constrained migration through a special household registration system (the *hukou* system). This factor allows us to establish a pseudo-laboratory environment to remove the self-selection concern. By adopting a fixed-effect model containing numerous control variables, we eliminate the possibility that our results might be explained away by firms with certain characteristics potentially holding endogenous preferences for CEOs with or without famine experience. We also exploit variations in regional famine severity (i.e., based on where CEOs were born) to further establish a causal relationship. Additionally, we mitigate possible effects from unobservable factors by identifying and estimating a local average treatment effect (LATE) in our robustness checks.

This study contributes to several strands of literature. First, we expand the growing work on CSR and upper executives. Relevant research has addressed many variables that affect firms' CSR practices (Bandura, 1982; Diener et al., 1984). Some scholars have endeavored to explore CSR determinants by moving beyond standard neoclassical models to scrutinize a host of psychological factors (e.g., personality traits). A series of studies by Snyder and colleagues convincingly demonstrated that individuals might make decisions that divulge their personality traits and values (Ickes et al., 1997; Snyder, 1983; Snyder and Ickes, 1985). Later, Petrenko et al. (2016) indicated that organizations whose CEOs possess a strong need for attention and who are preoccupied with having their positive self-views reinforced engage in higher levels of CSR. Cronqvist and Yu (2017) noticed that CEOs' investment in CSR increased after parenting a daughter, as this experience may enhance CEOs' social preferences. To the best of our knowledge, our study is the first to illuminate the negative association between CEOs' traumatic experiences and CSR decisions. This effort thus establishes a link between top management traits and organizations' CSR practices and adds fresh evidence to the research agenda accompanying upper echelons theory. This theory proposes that an organization is a reflection of its top managers (Hambrick, 2007; Hambrick and Mason, 1984).

Second, our research enriches the scholarly conversation between empirical corporate finance and psychology. Much work on empirical corporate finance has revealed significant and systematic influences of CEOs' early experiences on their managerial decisions. Malmendier et al. (2010) showed that CEOs who grew up during the Great Depression tend to be averse to debt and to lean excessively on internal financing. Benmelech and Frydman (2015) uncovered that CEOs with military experience pursue lower corporate investment, are less likely to be involved in fraudulent corporate activity, and perform better during industry downturns.

Further, [Bernile et al. \(2017\)](#) stated that CEOs who experience fatal disasters without extremely negative consequences lead firms to behave more aggressively, whereas CEOs who witness the extreme downside of disasters behave more conservatively. Following these explorative studies, we unveil a link between a newly emerging paradigm, behavioral corporate finance, and CSR. More importantly, we propose a holistic conceptual framework to explain our main empirical findings. We postulate that the causal attributions of the victims of traumatic events significantly moderate these events' effects on their managerial decisions. This framework builds a foundation for deeper exploration of behavioral corporate finance and CEO-related studies.

Finally, in a broader sense, we examine the driving forces behind people's prosocial preferences. The psychology field features a plethora of investigations into how traumatic experiences shape social preferences, although findings have been fairly inconsistent. Different from a strictly controlled laboratory experiment involving hypothetical scenarios, we establish a pseudo-laboratory based on Chinese listed firms' financial data to address the association of interest. We do not intend to declare either approach superior. However, as the great psychologist Carl [Jung \(1992\)](#) noted, "Anyone who wants to know the human psyche... in the Stock Exchanges... he would reap richer stores of knowledge than text-books a foot thick could give him..." We argue that our study yields intriguing scenarios in which people's behavior can be discerned. In so doing, we offer evidence to help answer a long-debated question: how does trauma affect mankind's social preferences?

In contrast with [Feng and Johansson \(2018\)](#) evaluate the relationship between board directors' famine experience and corporate fraud (as reported by the China Security Regulatory Commission or the Shanghai or Shenzhen stock exchanges), our dependent variable includes a variety of dimensions of a company's corporate social responsibility practice, including employee welfare, charitable contributions, and environmental stewardship, among others, which are usually under charge of the CEOs. As a result, similar to [Xu and Ma \(2021\)](#), we employ the CEOs' famine experience as our independent variable.

This study differs from [Xu and Ma's \(2021\)](#) analysis of a favorable relationship between CEOs' hunger experiences and CSR activity. The primary discrepancy may stem from the utilization of different research samples. [Xu and Ma \(2021\)](#) utilized a research sample comprised of both state-owned and privately owned companies. We select non-state-owned listed enterprises as our research sample because, as argued in the main body of this paper, Chinese state-owned firms suffer with especially complex CSR issues.

CSR activities in privately held companies may be affected by strategic company determinants and executive behavioral characteristics. However, the political mission influences the CSR policies of state-owned corporations. According to the State-owned Assets Supervision and Administration Commission of the State Council (2021), "economic efficiency is not the primary purpose of Chinese state-owned enterprises. The 'great rejuvenation of the Chinese country' is the ultimate objective and major requirement of state-owned enterprises, which are supported by the state. State-owned firms should prioritize generating shared prosperity in order to enhance the quality of life for citizens. Due to these unequal positions, it is difficult to compare the CSR practices of state-owned and non-state-owned enterprises."

In addition, the distribution of authority among individuals responsible for CSR concerns in state-owned companies is more complex. The Secretary of the Party Committee of state-owned businesses has unique power over social responsibility concerns in a typical state-owned enterprise. These conditions impose significant restraints on CEOs (See [Tang-Lee, 2016](#)). Therefore, we propose to select non-SOEs as our research sample in order to more precisely evaluate the CEOs' behavioral characteristics in relation to their CSR decisions. Finally, this research differs from [Xu and Ma \(2022\)](#) in calculating overall CSR ratings and identification strategies.

## 2. Hypothesis development

### 2.1. Background: great Chinese famine (1959–1961)

We exploit the Great Chinese Famine to construct an empirical analysis. Lasting from 1959 to 1961, the famine precipitated the deaths of 17–45 million people ([Ebrey, 2009](#); [Gráda, 2011](#); [Peng, 1987](#); [Smil, 1999](#)). Scholars generally agree that political radicalism was the root cause of the famine ([Kung and Chen, 2011](#); [Kung and Lin, 2003](#); [Yang et al., 2014](#); [Yang and Su, 1998](#)). Although the Chinese government frowns on detailed discussion, they concede that this disaster can be largely attributed to the Great Leap Forward. In an officially published book entitled *History of Chinese Communist Party*, the writers state: "the Great Chinese Famine and its severe impacts originate from [the] Great Leap Forward (*dayuejin*) and the movement to establish people's communes (*renminggongshe*). We should summarize and remember the deeply-grieved lessons" ([Party History Research Center of the CPC Central Committee, 2011](#)).

The effects of the famine were pervasive in China. In market-oriented economies, regions can cope with famine by procuring food from other areas. However, China's inflexible centrally planned grain procurement policy hindered cross-regional grain allocation. Under this policy, unsurprisingly, the famine even infiltrated regions with high food productivity ([Meng et al., 2015](#)).<sup>2</sup> Owing to its exogeneity and ubiquity, the Great Chinese Famine provides a suitable setting to investigate the association between traumatic experiences and people's social preferences. The strict household registration system (*hukou*) from 1949 to 1978 also prohibited people from migrating freely, a circumstance which alleviates experimental concerns about self-selection (i.e., people with more abundant social resources might migrate to evade the famine's disastrous effects).

Moreover, the central government's measures to tackle the famine were disappointing. The excess death rate soared in most regions across China after 1959, while radical agriculture policies were stubbornly persistent. The government covered up related reports and punished local officers who resisted the collective grain procurement policies ([Kung and Chen, 2011](#)). Political rigidity and arrogance

<sup>2</sup> [Carraro and Ferrone \(2019\)](#) presented solid evidence that local governments could not mitigate the famine: in 1958, the quotas of aggregate food handed over to the central government were under governmental control, and local officers could only increase these quotas.

worsened an already dire situation. In sum, this bleak historical backdrop contributed to shared memories among those who experienced this trauma and came to play a key part in their collective values.

## 2.2. Literature review

Current evidence on the relationship between traumatic experiences and social preferences is inconclusive.

On one hand, research from both psychology, sociology, and recent relevant empirical studies suggest that traumatic experiences will improve human beings' social preferences. For example, [Li et al. \(2013\)](#) found that experiencing a natural disaster can increase children's altruism. Specifically, A disaster is related to less access to food and material goods and increased vulnerability to dangers. This type of adversity stimulates a person's empathy, which has both cognitive and emotional components. ([Perren et al., 2012](#); [Smith, 2006](#)) and can lead to increased prosocial motivations and actions ([Li et al., 2013](#); [Piff et al., 2010](#)). Further, [Lamm et al. \(2011\)](#) and [Decety \(2015\)](#) have found that certain brain regions connected with empathy are active when individuals experience grief and sadness, allowing them to emotionally share the agony of others during a crisis. Additionally, studies have demonstrated that people act more altruistically when they have fewer material possessions ([Kraus and Keltner, 2009](#); [Piff et al., 2010](#)). This suggests that a disaster leads to a lack of access to food and material goods, as well as increased vulnerability to danger, which can result in heightened empathy.

Based on this evidence, CEOs who experienced the Great Famine are more likely than those who did not exhibit higher levels of empathy. This heightened empathy can result in altruistic conduct, such as corporate giving, with the aim of enhancing the well-being of others ([Batson et al., 1991, 1995](#); [Campbell et al., 2002](#); [Du, 2015](#)) Moreover, according to notion of the upper echelons, CEOs' propensity to empathize can significantly influence their organizations' strategic decisions ([Hambrick, 2007](#); [Hambrick and Mason, 1984](#)). Therefore, we anticipate that CEOs who lived through the Great Famine will demonstrate a higher level of responsible engagement.

However, there is also mixed evidence. [Knutson \(1995\)](#) found that the link between maltreatment and adverse outcomes is not always clear and that some children from maltreating backgrounds do not evidence apparent adverse outcomes. This suggests that early trauma experience does not always result in negative social preferences in adulthood.

On the other hand, some evidence suggests a negative association between early traumatic experience and later prosocial preference. For example, [Prior et al. \(2021\)](#) found that experiencing one or more trauma types was negatively associated with the cognitive domain of altruism, experiencing physical neglect was associated with the affective domain, and having a family member involved in domestic violence was associated with the behavioral domain. [Campbell et al. \(2016\)](#) found that children exposed to increased non-family-based traumatic events had a greater likelihood of being a member of the moderate-risk group, whereas children exposed to increased family-based traumatic events had a greater likelihood of being a member of the high-risk group. [Armstrong and Kelley \(2008\)](#) found that 69% of criminal offenders reported childhood trauma and maltreatment antecedents.

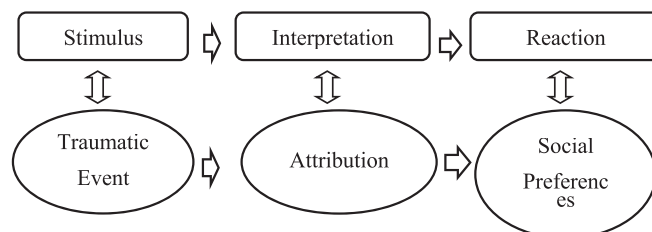
Moreover, a series of studies found victims of disasters often experience a significant decline in their interpersonal trust level, community attachments, and the ability to feel compassion for others' agony ([Gill and Picou, 1998](#); [Ritchie and Gill, 2006](#)). As a result, they prioritize their individual survival over the well-being of others ([Dirks et al., 1980](#)). For example, [Lipscomb \(1945\)](#) observed in the Bergen-Belsen concentration camp that victims' selfishness is positively associated with human-induced suffering. This suggests that CEOs who experienced trauma experience will disregard the interests of others and may reflect their social preferences on their firms' CSR activities, particularly if such activities do not directly benefit themselves (e.g., [Edmans, 2012](#); [Hubbard et al., 2017](#)).

In sum, theoretical and empirical evidence on the relationship between early trauma experiences and later social preference is mixed. This brings confusion when we investigate the relationship between CEOs' famine experience and firms' CSR engagement.

## 2.3. Conceptual framework and hypotheses

To reconcile these contradictory theoretical and empirical evidence, we propose it is essential to consider nature of traumatic experiences (man-made vs natural) when examining the relationship between famine experiences and social preferences. Drawing on [Anderson \(2000\)](#) simplified cognitive model, we first construct a model to explain the mechanism whereby traumatic experiences influence CEOs' CSR practices. Our model is depicted in [Fig. 1](#).

Layer 1 in [Fig. 1](#) portrays how people process stimuli. After encountering a stimulus, a person forms interpretations of it (e.g., why



**Fig. 1.** Association between trauma and prosocial preferences.

This figure illustrates the association between traumatic events and social preferences. The first layer outlines a general cognitive model in which human beings process stimulus events. In the second layer, traumatic events are mapped onto this simplified model, which shows that the causal attribution of trauma plays a dominant role in victims' social preferences.

the stimulus occurred, whether natural or man-made) and reacts accordingly.

We map traumatic events onto this simplified cognitive model to create the second layer of Fig. 1. Following the pictured mechanism, we propose a conceptual framework that explains the effects of the famine experience on CSR practices. Our conceptual framework is presented in Fig. 2.

Personality psychology indicates the causal attribution of a trauma plays an important role in fuelling victims' post-traumatic reactions (see Gray and Lombardo, 2004; Joseph et al., 1993; Mikulincer and Solomon, 1989). We apply this insight to collective trauma. In particular, we propose that people undergoing both mental and material pain will form their own interpretations of their suffering. The effects of man-made disasters are distinct from natural disasters in terms of community attachment and other social preference-related indices (Gill and Picou, 1998). If suffering is conceived as the outcome of a natural disaster, victims recognize its inevitability and express profound sympathy for others who have shared their experiences (Price, 2000; Tedeschi et al., 1998). Some empirical research has shown that disasters positively influence prosocial preferences. For example, Veszteg et al. (2015) took the Japanese Tohoku earthquake and tsunami as a natural experimental setting to conduct field trust games. They found that trust increased after the disaster.

Many studies have substantiated the assumption that man-made disasters erode trust and community connections. Ritchie (2004) delved into the effects of man-made disasters on community corrosiveness. Referring to qualitative data from in-depth interviews and participant observations, he saw that trust and community attachment declined significantly in the aftermath of a man-made disaster. Further, Ritchie and Gill (2006) determined that man-made disasters impose extensive negative effects on various forms of social capital. They systematically reviewed empirical findings and devised a conceptual framework in which communities affected by man-made disasters experienced lower trust, disrupted community attachment and affiliation, reduced goodwill and sympathy, and low reciprocity. Eroded social capital leads victims to demonstrate more solitary attitudes and less prosocial preferences (Edelstein, 1988, 2000; Greenwald, 2002; Okello et al., 2013).

According to Meng et al. (2015), national food production remained well above per-capita subsistence needs from 1959 to 1961. The Noble laureate Amartya Sen (1999) referred to the Great Chinese Famine thusly: "In the terrible history of famines in the world, no substantial famine has ever occurred in any independent and democratic country with a relatively free press." With the reason for the Great Chinese Famine made clear, people who withstood it came to attribute the catastrophe to political policies. Some even delivered radically harsh critiques of the top echelons of the Chinese government (see Qi, 2020). Attribution of the Great Chinese Famine in fact generated significant *moral injury*, a concept which Shay (2012) defined as the psychological consequence of a betrayal of what is right by someone who holds legitimate authority in a high-stakes situation. Put simply, the Great Chinese Famine tarnished President Mao's spotless image and spurred victims' resistance to Mao's unwavering drumbeats of contribution and collectivism (Chen and Yang, 2015). Thus, the causal attribution of the Great Chinese Famine created breaches in social moral contracts and damaged victims' belief systems (Bernstein, 2005; Janoff-Bulman and Morgan, 1994; Walker, 2006).

Prosocial preferences are inherently tied to CSR behavior. Prosocial attitudes involve "voluntary actions undertaken to benefit others, such as sharing, donating, caring, comforting, and helping" (Caprara et al., 2012). CSR, as a firm practice, partly conveys firms' ethical responsibilities and can reflect the prosocial preferences of top management as argued by upper echelons theory (Hambrick, 2007; Hambrick and Mason, 1984). Empirical evidence also indicates that firm leaders' prosocial preferences will affect firms' CSR practices (Tekleab et al., 2021). As such, CEOs' prosocial preferences are apparent in their CSR decisions (Marquis and Tilcsik, 2013). We propose Hypothesis 1 as follows:

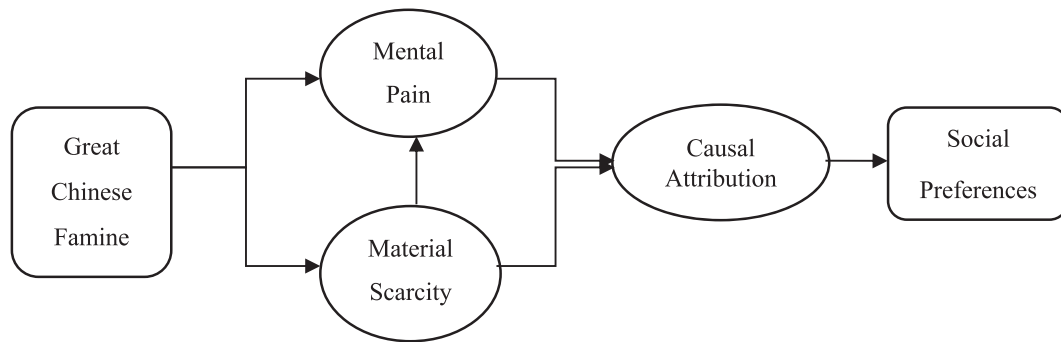
**H1.** CEOs who experienced the Great Chinese Famine invest less in CSR than a comparison group.

### 3. Data

We obtain firm and CEO characteristics from the China Stock Market & Accounting Research (CSMAR) database. In this study, we mainly focus on 1043 Chinese non-state-owned companies for the period spanning 2010–2016. We choose this period because CSR data began to be gathered in 2010. From 2010 to 2016, Chinese listed companies' CSR engagement was typically voluntary, whereas in 2017, the Morgan Stanley Capital International Index (MSCI) officially included Chinese listed firms (MSCI Index, 2017). The MSCI required a detailed and specific framework in CSR disclosures and instituted more stringent criteria for CSR engagement. Since the MSCI opened its doors to Chinese listed firms, most Chinese firms have adjusted their CSR engagement and established associated strategic plans (Guo, 2018). This shock (i.e., inclusion in the MSCI) has profoundly affected firms' CSR engagement (Kim et al., 2013), hence our focus on the pre-shock period.

Notably, in state-owned companies, the government essentially constrains CEOs' decision-making power (Feng and Johansson, 2017)—particularly for decisions related to highly complex social issues.<sup>3</sup> To retain consistency and comparability, we further exclude observations from financial industry firms because these firms are subject to unique accounting criteria, such as the leverage ratio and

<sup>3</sup> In typical Chinese state-owned-companies, CEOs share decision-making power with Party secretaries. In most cases, CEOs are responsible for operations while Party secretaries wield decision-making influence on issues such as employee well-being (*sanzhongyida* in Chinese); see Chang and Wong (2004) for a detailed discussion of political control in Chinese state-owned enterprises. A list of specific issues over which Party secretaries in these enterprises hold decision-making power appears in the Bulletin of the Sixth Plenary Session of the 14th Central Commission for Discipline Inspection (available at <http://www.ccdi.gov.cn/xxgk/hyzt/>) and "Opinions on further promoting the implementation of the 'sanzhongyida' decision-making system in state-owned enterprises" (available at <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c4260827/content.html>).



**Fig. 2.** Conceptual framework explaining the association between the great Chinese famine and CSR practices.

This figure illustrates the association between the Great Chinese Famine and CSR practices. The famine imposed its effects on victims via two channels: mental and material. Material scarcity exacerbated victims' mental pain.

operations–cash ratio.

### 3.1. Data on CEOs' traumatic experiences

We construct a dummy variable *Famine* that is equal to 1 if the CEOs experienced the Great Chinese Famine and 0 otherwise (all CEOs included in our sample were born in China). No current data exist on CEOs' experiences during the Great Chinese Famine. We collect information on CEOs' birth cohorts from the CSMAR dataset for the sample period between 1942 and 1988. We split the sample into a treatment group (CEOs born in and before 1961) and a control group (those born after 1961). Parenthetically, due to the limitations of natural data, a reasonable question is whether the famine showed a sharp cut-off point (i.e., historians claimed the famine's effects might briefly persist after 1962). For robustness, we later exclude observations for people born in 1961 to construct subsamples to relieve this concern.

Another birth-year issue is worth clarifying: our sample includes CEOs who were very young (e.g., 3 years old) when experiencing the Great Chinese Famine. Can these CEOs remember it? The psychology literature has shown that children who suffered extreme trauma early in life retain accurate memories of the event (Terr, 1988). More importantly, extreme trauma can strongly influence victims' personalities, even if the victims cannot remember the traumatic experience specifically (see Bogat et al., 2006).

### 3.2. Data on corporate social responsibility

We use CSR ratings from Hexun (the earliest-established internet service provider for vertical financial information in China) to measure CSR. Hexun rates companies' CSR using one overall score based on five components: employee relations, supplier relations, shareholders,<sup>4</sup> communities, and environmental protection (see variable definitions in the Appendix). The CSR score on each dimension consists of 13 subtopics and 37 tertiary indicators. Hexun.com aggregates all scores for strengths and concerns, adjusting their weights according to industry type. A higher CSR score indicates greater CSR engagement.

Taking environmental CSR as an example, the score is composed of five sub-items: environment-protection consciousness, environment-management system certification, environment-protection investments, pollutant categories, and energy-saving categories. Some are measured with quantitative data from annual CSR reports, and others are based on qualitative information acquired through public channels. Hexun integrates these items and assigns them corresponding weights to compute a final rating. In some cases, the weights of the same items vary by industry. Many researchers have used Hexun's CSR score to investigate CSR practices in China (An, 2021; Hu et al., 2021; Su, 2019; Yi et al., 2021; Zhao and Xiao, 2019). We acknowledge that no evaluation system is perfect. However, Hexun provides a well-structured system to evaluate firms' prosocial policies. Meng et al. (2014) found that actual CSR engagement is incongruent with firm-disclosed information. Referring to an institutional CSR measurement not only avoids the above problems but also ensures that the data are more objective. Following Cronqvist and Yu (2017), we normalize CSR scores between 0 and 1 for a more straightforward examination of the estimated analyst coverage effect.

### 3.3. Control variables

Following the literature, we use firm-level variables as controls: asset size, return ratio of assets (ratio of return/assets at the end of

<sup>4</sup> Many CSR studies do not address the shareholder dimension (see Liang and Renneboog, 2017, for a review); however, it is reasonable that Hexun includes this dimension in the Chinese context. China's capital market is far from mature and well-regulated. Some scholars have argued that listed companies use the capital market to benefit themselves rather than to protect stakeholders' interests (Feng and Stewart, 2015). Hexun's shareholder CSR dimension contains more than financial metrics (e.g., credit approval and innovation), which are based on qualitative evidence collected by Hexun. These facets are highly informative of firms' CSR practices in the Chinese context.

**Table 1**  
Summary statistics.

Panel A: Frequency of CEOs of various birth-cohorts								
1942– 1947: Famine <sup>14–21</sup>								61
1948– 1954: Famine <sup>7–13</sup>								290
1955– 1957: Famine <sup>4–6</sup>								310
1958– 1961: Famine <sup>0–3</sup>								707
Born after 1962								3888
Total								5256

Panel B: Firm characteristics								
Variables	Listed firms with CEOs who did not experience the famine				Listed firms with CEOs who experienced the famine			
	N	Mean	Median	StD	N	Mean	Median	StD
ROA (Return/Assets)	3888	0.052	0.047	0.46	1368	0.053	0.04	0.05
Leverage (Debt-to-assets ratio)	3888	0.37	0.36	0.2	1368	0.37	0.35	0.21
Company Set Year	3888	1997	1998	4	1368	1996	1998	4
Market-to-Book Ratio	3888	0.68	0.49	0.65	1368	0.73	0.52	0.71
Size (Natural logarithm of a company's equity market capitalization)	3888	21.9	21.75	1.08	1368	21.83	21.61	1.16
Cash/Assets	3888	0.04	0.03	0.07	1368	0.04	0.04	0.07
Fixed Asset/Total Assets	3888	0.18	0.16	0.13	1368	0.18	0.2	0.14

Panel C: CEO characteristics								
Variables	Listed firms with CEOs who did not experience the famine				Listed firms with CEOs who experienced the famine			
	N	Mean	Median	StD	N	Mean	Median	StD
Female CEOs	3888	6.70%			1368	7.60%		
Age	3888	45.37	46	4.97	1368	55.86	55	4.83
College (or above) CEOs	3888	75%				70%		
Annual Income (RMB)	3876	739,136	500,000		1365	827,515	522,000	

Panel D: CSR scores								
Variables	Listed firms with CEOs who did not experience the famine				Listed firms with CEOs who experienced the famine			
	N	Mean	Median	StD	N	Mean	Median	StD
CSR Score	3888	28.9	22.91	17.53	1368	27.89	22.67	17.14
CSR_shareholder	3888	15.38	15.59	4.94	1368	15.5	15.805	5
CSR_employee	3888	3.1	1.68	3.54	1368	2.82	1.43	3.57
CSR_product	3888	2.6	0	5.73	1368	2.2	0	5.28
CSR_enviroment	3888	2.39	0	5.61	1368	2.03	0	5.24
CSR_community	3888	5.38	4.54	3.79	1368	5.24	4.31	3.87

The table presents the summary statistics for the datasets used in this study. The data are from Chinese non-state-owned firms for the period 20,010–2016. The data on corporate social responsibility (CSR) is from the Hexun CSR Rating database. The data on firms' and CEOs' characteristics are from the CSMAR databases. Fifteen observations of CEOs' income are missing. The unit of income is RMB. See the appendix for definitions of variable.

each year), debt ratio (ratio of debt/assets at the end of each year), cash holdings (ratio of cash/assets at the end of each year), founding year (natural logarithm of a company's founding year), market-to-book ratio (ratio of market value/book value at the end of each year), and fixed asset ratio (ratio of fixed assets/total assets at the end of each year) (Chih et al., 2010; Reverte, 2009). We also control for CEO-specific variables: gender, age, educational background, and income. We obtain these data from CSMAR.

### 3.4. Summary statistics

Panel A in Table 1 presents the summary statistics for CEOs who did and did not experience the Great Chinese Famine. Our sample contains 1368 observations; CEOs affected by the famine constitute about 26% of cases. Panel B displays the summary statistics for firm characteristics. We list information for firms whose CEOs did not and did experience the famine, respectively. In line with Panel B, Panel C includes a comparison of CEO characteristics between the two groups. Panel D contains summary statistics related to the CSR

**Table 2**  
Pairwise correlation of main variables.

	CSR_Score	famine	SetYear	Distance	Size	Leverage	ROA	MB	Cash	Fixed_asset	CEO_age	Bachelor	Female	Income
CSR_Score	1	-0.02	0.10***	-0.01	0.28***	-0.01	0.46***	0.06***	0.25***	-0.14***	0.01	0.09***	-0.01	0.35***
famine	-0.03**	1	-0.00	-0.76***	-0.04***	-0.00	0.00	0.04***	0.02	0.08***	0.71***	-0.14***	-0.02	0.03**
SetYear	0.10***	0.00	1	0.03*	0.35***	0.32***	-0.13***	0.16***	0.08***	0.03**	0.11***	0.03*	0.01	0.20***
Distance	-0.01	-0.73***	0.03*	1	0.06***	0.02	-0.02*	-0.04***	-0.00	-0.06***	-0.94***	0.08***	-0.02*	-0.04***
Size	0.34***	-0.03**	0.35***	0.04***	1	0.60***	-0.12***	0.52***	0.02	-0.04***	0.05***	0.07***	0.02	0.43***
Leverage	0.05***	-0.00	0.32***	0.01	0.61***	1	-0.40***	0.57***	-0.11***	0.05***	0.02*	0.04**	0.00	0.22***
ROA	0.42***	0.01	-0.09***	-0.03*	-0.08***	-0.36***	1	-0.42***	0.39***	-0.05***	-0.02	0.01	-0.01	0.13***
MB	0.16***	0.04**	0.19***	-0.04***	0.60***	0.60***	-0.32***	1	-0.17***	0.10***	0.02*	-0.05***	0.01	0.15***
Cash	0.19***	0.01	0.09***	-0.01	-0.01	-0.13***	0.42***	-0.15***	1	0.29***	0.04***	0.00	0.00	0.13***
Fixed_asset	-0.09***	0.07***	0.06***	-0.05***	-0.04***	0.06***	-0.07***	0.02	0.28***	1	0.06***	-0.11***	0.03**	-0.06***
CEO_age	0.00	0.69***	0.11***	-0.95***	0.06***	0.03**	-0.01	0.03*	0.04***	0.06***	1	-0.06***	0.03**	0.12***
Bachelor	0.07***	-0.14***	0.04***	0.10***	0.09***	0.03**	0.01	-0.00	-0.02	-0.11***	-0.08***	1	-0.00	0.12***
Female	-0.00	-0.02	0.01	-0.03*	0.02	0.00	-0.02	0.01	0.01	0.03*	0.03**	-0.00	1	0.01
Income	0.19***	0.02	0.09***	-0.04***	0.25***	0.12***	0.06***	0.12***	0.06***	-0.05***	0.06***	0.05***	-0.01	1



rating from the Hexun CSR dataset.

In Table 1, we present statistics on the demographics of CEOs who did and did not experience the Great Chinese Famine. All variables apart from age are not significantly different by any conventional metric. It is noteworthy that CEOs who encountered the famine are naturally older than those who did not. As a result, we discuss possible age cohort effects in Section 4. We calculate mean CSR scores by industry; results appear in Table A3 of Appendix A.

We also present the correlation matrix for all variables in Table 2.

## 4. Empirical analysis

### 4.1. Baseline analysis

#### 4.1.1. Specification

Experts generally agree that the age at which victims face trauma will have differential effects. Yet psychologists have not reached a consensus on how to formulate various developmental stages by age. For instance, Krause (2005) outlined six age groups or developmental periods (before age 6, 6–11, 12–17, 18–30, 31–64, and age 65 or above) to examine the association between trauma and age. Others have used completely different cohorts. To alleviate this arbitrariness, our study includes a variable based on whether CEOs encountered trauma rather than using age cohorts in our specification. We therefore construct a variable *Dist*, defined as the value of the birth year of a CEO minus the cut-off year (1961), to capture age cohort effects.

We estimate the following specification:

$$CSR_{i,t} = \beta_0 + \beta_1 Famine + \beta_2 Dist + X^T \beta_4 + \phi_i + \gamma_t + \varepsilon_{i,t} \quad (1)$$

Results are provided in Table 3.

Even when controlling age cohorts (by including *Dist*), famine experiences still produce significant negative effects on CSR scores. As such, H1 is supported.

We also construct a set of nominal variables: *Famine*<sup>14–21</sup> (CEOs born between 1940 and 1947), *Famine*<sup>7–13</sup> (CEOs born between 1948 and 1954), *Famine*<sup>0–6</sup> (CEOs born between 1955 and 1961), and *Non-Famine* (CEOs born after 1962). The superscripts of these variables denote the age when CEOs in different birth cohorts experienced the Great Chinese Famine. We construct the following specification accordingly:

$$CSR_{i,t} = \beta_0 + \sum_c \beta_c Cohort_{c,i,t} + X^T \beta_4 + \phi_i + \gamma_t + \varepsilon_{i,t} \quad (2)$$

*Cohort*<sub>c, i, t=1</sub> represents the CEO of company *i* who belongs to cohort *c*. Results are displayed in Table 4.

The coefficients for *Famine*<sup>14–21</sup>, *Famine*<sup>7–13</sup>, and *Famine*<sup>0–6</sup> are all negative and statistically significant at the 1% level.<sup>5</sup> These results show that compared with the baseline cohort (CEOs born after 1961), CEOs who experienced the Great Chinese Famine during different developmental stages all invest less in CSR practices. This finding is consistent with our main results and supports psychological theories asserting that one's personality and values are significantly affected by traumatic events experienced before age 30 (McCrae and Costa, 2003).

### 4.2. Moderating role of age at which CEOs encountered famine

Personality development is dynamic. According to the well-known life-stage theory of (Erikson and Erikson, 1998; Maree, 2021), people's mentality and psychological maturity differ across the life span. For example, the extreme feeling of starvation remains in infants' memories (Wang, 2001). Many studies have verified that people's perceptions of trauma at different ages can generate distinctive psychological outcomes. Krause (1993) identified that the loss of a parent through death or divorce produces a more detrimental effect on psychological health if it occurs before the child is 16. Ogle et al. (2013) found that older adults who experienced their currently most distressing traumatic event during childhood exhibited more severe symptoms of PTSD and lower subjective happiness compared with older adults who experienced their most distressing trauma after the transition to adulthood, this indicates that trauma experienced in childhood has more severe consequences than trauma experienced in adulthood. This inference that exposure to various traumatic events is especially deleterious if encountered during the early stages of life not only echoes classical

<sup>5</sup> The point of estimate of *Famine*<sup>7–13</sup> in Column 1 is not significant. It is noteworthy that the *Famine*<sup>7–13</sup> is negatively significant, which should be relied more on for COE-level characteristics controlled in Column 2. Nonetheless, we also offer possible explanations for why the insignificance in column 1 emerged. In 1949, after years of civil war, the Communist Party of China (CPC) emerged victorious and established the People's Republic of China, with Mao Zedong as its first Chairman. This marked the end of the rule of the Nationalist government in 1912, which was replaced by the People's Republic of China in 1949 (Wang, 2008). This event may have had an impact on the attitudes of Chinese CEOs born between 1948 and 1954 toward corporate social responsibility (Benson, 2011; Dreyer, 1995; Li, 1994). Those born close to a historical event, like the establishment of the PRC, may have a stronger connection to it and feel a sense of national pride and responsibility to contribute to the growth and development of their country. Additionally, they may have a greater understanding of the occurrence of great famine, which relieves the extent of trauma caused by it. Therefore, the Great Chinese Famine did not deeply imprint the characters of CEOs born during the country's founding period to drive their firms' conservative CSR investment policy.

**Table 3**  
Famine-experience effect and corporate social responsibility.

Variables	CSR_Score	CSR_Score
Famine	-0.0711*** (0.0182)	-0.056*** (0.0194)
Distance	-0.003** (0.0012)	0.009 (0.0091)
SetYear	0.106*** (0.0249)	0.108*** (0.0256)
Size	0.203*** (0.0119)	0.189*** (0.0115)
Leverage	-0.301*** (0.0474)	-0.284*** (0.0468)
ROA	4.454*** (0.441)	4.410*** (0.441)
MB	0.006 (0.0207)	0.007 (0.0208)
Cash	0.199** (0.100)	0.182* (0.100)
Fixed_asset	-0.062 (0.0597)	-0.056 (0.0587)
CEO age		0.503 (0.407)
Bachelor		0.0393*** (0.0129)
Female		-0.0280 (0.0251)
Income		0.001*** (0.0000)
Constant	-1.649*** (0.228)	-3.368** (1.636)
Observations	5256	5241
R-squared	0.380	0.385

The table presents the regressions on the corporate social responsibility ratings. The data are from Chinese listed non-state-owned firms for the period 2010–2016. The CSR score is the dependent variable. We construct a variables *DIST* equals the CEO' birth year minus 1961. Firm characteristics and CEO characteristics are the firm-level and CEO-level controls included in Table 1. Standard errors are reported within parentheses and are White (1980) heteroskedasticity-robust and clustered at the industry-level and year-level. The number of observations in Column 2 is 5241 with some values of CEO-characteristic variables missing. The \*\*\*, \*\*, and \* mean that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

investigation (e.g., Wheaton et al., 1997), but also is replicated by many recent studies (e.g. Sizemore et al., 2022; Wojciechowski, 2022). Thus, we conclude that older victims might therefore be more resilient to the shock of a famine than younger ones (e.g., older victims are more capable of finding alternative foods to relieve starvation). Likewise, the role of the causal attribution of famine experiences in ethical behavior suggests that older victims are often more reluctant to attribute the cause of the Great Chinese Famine to political radicalism; they have received more education on communism. They might then be more willing to persuade themselves that this disaster was a natural one. To test the above predictions, we estimate the following specification:

$$CSR_{i,t} = \beta_0 + \beta_1 Famine + \beta_2 Dist + \beta_3 Famine * Dist + X^T \beta_4 + \varphi_i + \gamma_t + \varepsilon_{i,t} \quad (3)$$

where *CSR* represents a CSR rating, *i* indexes firms, and *t* indexes the year. *Famine* is a binary variable equal to 1 if a CEO experienced the Great Chinese Famine and 0 otherwise. *Dist* is a variable defined as the value of the birth year of a CEO minus the cut-off year (1961). The interactive variable, *Famine \* Dist*, is constructed to capture the moderating effect of CEOs' age when experiencing the famine on the association between famine experiences and CSR practices. By including *Dist* and *Famine \* Dist*, our approach mirrors the psychological theory positing that experiencing trauma at different ages affects people differently (O'connor, 2003) while eliminating cohort effects (i.e., birth cohorts might yield a general tendency on CSR practices). The variable *Dist* can also be seen as the normalized birth-year value. Therefore, by including it, we can allay the concern that a significant association between famine experience and CSR practices originates from birth-year effects.  $X^T$  is a vector of control variables for both firm features (return/assets, leverage [debt-to-assets ratio], year of firm establishment, market-to-book ratio, equity market capitalization, cash/assets, fixed assets/total assets) and CEO characteristics (gender, education level, salary, and age when becoming CEO).  $\gamma$  are sets of fixed effects (industry and year) through which we conduct a homogenous comparison between firms whose CEO experienced the famine or not within the same industry and same year.  $\varepsilon$  is the error term. We report White (1980) heteroskedasticity-robust standard error, which is clustered at the industry level and year level. Results are presented in Table 5. Column 1 includes firm characteristics along with industry- and year-level fixed effects. The coefficient for the treatment variable, *Famine*, is -0.07 and statistically significant at the 1% level.

**Table 4**  
Famine-experience effect in different cohorts and corporate social responsibility.

Variables	(1)	(2)
	CSR_Score	CSR_Score
Famine <sup>14–21</sup>	−0.140*** (0.0490)	−0.196*** (0.0547)
Famine <sup>7–13</sup>	−0.024 (0.0280)	−0.056* (0.0321)
Famine <sup>0–6</sup>	−0.043*** (0.0150)	−0.068*** (0.0179)
SetYear	0.106*** (0.0249)	0.107*** (0.0256)
Size	0.203*** (0.0119)	0.189*** (0.0115)
Leverage	−0.296*** (0.0475)	−0.279*** (0.0468)
ROA	4.459*** (0.442)	4.412*** (0.441)
MB	0.006 (0.0208)	0.006 (0.0208)
Cash	0.200** (0.101)	0.184* (0.100)
Fixed_asset	−0.062 (0.0602)	−0.056 (0.0591)
CEOage		0.122** (0.0592)
Income		0.001*** (0.0000)
Female		−0.027 (0.0251)
Bachelor		0.041*** (0.0130)
Constant	−1.661*** (0.228)	−1.869*** (0.338)
Observations	5256	5241
R-squared	0.380	0.386

The table presents the regressions on the corporate social responsibility ratings. The data are from Chinese listed non-state-owned firms for the period 2010–2016. The CSR score is the dependent variable. We construct four dummy variables: *Famine*<sup>14–21</sup> (CEOs born between 1940 and 1947), *Famine*<sup>7–13</sup> (CEOs born between 1948 and 1954), *Famine*<sup>0–6</sup> (CEOs born between 1955 and 1961) and *Non-Famine* (CEOs born after 1962). The *Non-Famine* is the baseline variable. Firm characteristics and CEO characteristics are the firm-level and CEO-level controls included in Table 1. Standard errors are reported within parentheses and are White (1980) heteroskedasticity-robust and clustered at the industry-level and year-level. The number of observations in Column 2 is 5241 with some values of CEO-characteristic variables missing. The \*\*\*, \*\*, and \* mean that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

Table 5 highlights several important findings. First, the negative effects of famine experience on CSR practices are statistically significant at the 1% level across all specifications. These results indicate that CEOs' experience with the Great Chinese Famine statistically and significantly mitigate their CSR practices. Second, the coefficients for *Distance* are positive and statistically significant at the 5% level; moreover, the coefficients for the interactive variable, *Famine* × *Distance*, are negative and statistically significant at the 1% level at least. Thus, the adverse effects of CEOs' famine experience are moderated by the age at which CEOs experienced the famine. Specifically, the negative impacts of famine experience on CSR investment are more pronounced for CEOs who experienced the famine at a younger age, which supports Hypothesis 2.

## 5. Endogeneity discussions and robustness checks

### 5.1. Discussion of empirical challenges

A prime concern is whether CEOs who lived through the Great Chinese Famine bear features that might produce serious bias in our estimations. For example, those who endured the famine may have been born to families of higher socioeconomic status. This concern is less important upon considering the context of China in the 1960s: the country's Gini coefficient was around 0.16 (Chinese Academy of Social Science, 2002), close to the level of absolute equality.

A review of history in the 1950s and 1960s shows that serial movements such as Land Reform, the Movement of Three Antis & Five Antis, and the anti-rightist movement indeed diminished the wealth and privilege of individuals or families. In other words, in terms of

**Table 5**  
Famine-experience effect and corporate social responsibility.

Variables	CSR_Score
Famine	−0.071*** (0.0204)
Distance	0.023** (0.0098)
Famine_x_Distance	−0.011*** (0.0037)
SetYear	0.105*** (0.0255)
Size	0.188*** (0.0115)
Leverage	−0.279*** (0.0472)
ROA	4.406*** (0.440)
MB	0.006 (0.0208)
Cash	0.178* (0.100)
Fixed_asset	−0.056 (0.0590)
Female	−0.027 (0.0251)
Bachelor	0.043*** (0.0130)
Income	0.001*** (0.0000)
AgeCEO	1.076** (0.441)
Constant	−5.594*** (1.769)
Observations	5241
R-squared	0.386

The table presents the regressions on the corporate social responsibility ratings. The data are from Chinese listed non-state-owned firms for the period 2010–2016. The CSR score is the dependent variable. Famine is an indicator variable that equals one if a CEO experienced the Great Chinese Famine, and zero otherwise. Firm and CEO characteristics are the firm-level and CEO-level controls included in Table 1. Standard errors are reported within parentheses and are White (1980) heteroskedasticity-robust and clustered at the industry-level and year-level. \*\*\*, \*\*, and \* mean that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

socioeconomic status, Chinese society was highly homogeneous in the 1950s and 1960s.

Moreover, urban residents could have lived through the famine. Two points are worth mentioning here. First, before the Great Chinese Famine, the urbanization ratio (urban population/total population) was only 12.84% (National Bureau of Statistics of China, 1954). The bulk of the population lived in rural areas. Second, in 1953, China began to implement a state monopoly on purchasing grain that inflicted grain quotas on rural and urban families strictly according to the number of family members. Although rural residents might have been more vulnerable to the famine, most upper executives lived in cities. Whether an essential difference exists between rural and urban populations remains to be seen. As Yang (2012) remarked, “...there might be a time-lag of the starvation between the urban and rural areas, whereas to stop the spreading from the rural to the urban is impossible under the grain procurement system.”

## 5.2. Addressing endogeneity using evidence from excess death rate

In this subsection, we exploit different degrees of severity across regions to conduct a robustness check. Scholars usually measure region-specific severity with the excess death rate (EDR) of the Great Chinese Famine.

A handful of calculations are available for the EDR. Chen and Zhou (2007) calculated the EDR as the difference between the death rate in 1960 and the average death rate from 1956 to 1958. Taking mortality in 1957 as the benchmark, the calculated average

mortality rate across 1956–1958 might be more robust to random factors of a specific year; however, the difference across calculations is negligible. As a result, we follow [Feng and Johansson \(2018\)](#) and calculate the EDR by subtracting the average death rate during 1956–1958 from the death rate in 1960. The EDR for these years is obtained from the Chinese National Bureau of Statistics, reprinted in [Lin and Yang \(2000\)](#).

We then match provincial variations in EDR with the birthplaces of CEOs born in or before 1961. No current dataset reports Chinese CEOs' birthplaces because the Chinese Security Equity Commission does not require their disclosure. We collect these data manually by searching the internet for published biographies and by sending inquiries to listed companies' Investor Relations departments. We use the EDR as a substitute for the *Famine* variable when re-estimating our specification; results appear in [Table 6](#). The EDR is negatively significantly correlated with the CSR index. The EDR measures famine severity (i.e., the higher the EDR, the more severe the famine). This finding echoes our main results that CEOs who encountered the Great Chinese Famine demonstrate lower CSR

**Table 6**

Excess death rate in the great Chinese famine and corporate social responsibility.

Variables	CSR_Score
EDR	−3.570*** (0.969)
Distance	0.0270*** (0.00884)
EDR_x_Distance	−0.443*** (0.168)
SetYear	0.101*** (0.0253)
Size	0.191*** (0.0117)
Leverage	−0.304*** (0.0478)
ROA	4.399*** (0.455)
MB	0.006 (0.0212)
Cash	0.174* (0.101)
Fixed_asset	−0.0427 (0.0590)
AgeCEO	1.243*** (0.408)
Bachelor	0.0460*** (0.0126)
Female	−0.0215 (0.0254)
Income	0.001*** (0.0000)
Constant	−6.313*** (1.657)
Observations	5123
R-squared	0.387

The table presents regressions on the corporate social responsibility ratings. The data are from Chinese listed non-state-owned firms for the period 2010–2016. The CSR score is the dependent variable. We follow [Feng and Johansson \(2018\)](#) to use the estimated death rate (EDR) to represent the local variations in the severity of the Great Chinese Famine. The EDR is a continuous variable that represents the death rate for the famine years at the province-level. We manually collect the birthplace information of CEOs and then match the information with the EDR data. We exclude the observations of CEOs who were born in Macao, Tibet, and foreign countries. Thus, the number of observations is 5123. Firm and CEO characteristics are the firm-level and CEO-level controls included in [Table 1](#). Standard errors are reported within parentheses and are [White \(1980\)](#) heteroskedasticity-robust and clustered at the industry-level and year-level. \*\*\*, \*\*, and \* mean that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

engagement.

### 5.3. Evidence adding polynomial variables into specification

Moreover, to control for the nonlinear relationship, we include polynomial variables— $Distance^2$  (square of *Distance*) and  $Distance^3$  (cubic of *Distance*)—to re-estimate our specifications; see Table 7. These results also coincide with our main findings.

### 5.4. Local average treatment effect (LATE)

Our sample is not entirely immune to endogeneity related to unobserved factors. As Elder (2018) noted, “Each generation is distinguished by the historical logic and shared experience of growing up in a different time period ... individuals are thought to

**Table 7**

Famine-experience effect and corporate social responsibility including polynomial variables.

Variables	CSR_Score
Famine	−0.069*** (0.0229)
Distance	−0.004 (0.0190)
Famine_x_Distance	−0.011*** (0.00377)
Dist <sup>2</sup>	−0.000 (0.0001)
Dist <sup>3</sup>	−0.000 (0.0001)
SetYear	0.102*** (0.0249)
Size	0.191*** (0.0117)
Leverage	−0.300*** (0.0476)
ROA	4.398*** (0.449)
MB	0.00573 (0.0211)
Cash	0.173* (0.101)
Fixed_asset	−0.0389 (0.0596)
Female	−0.0198 (0.0256)
Bachelor	0.0491*** (0.0128)
Income	0.001*** (0.000)
AgeCEO	−0.419 (0.9791)
Constant	0.195 (3.8631)
Observations	5123
R-squared	0.388

The table presents the regressions on the corporate social responsibility ratings including polynomial variables. The data are from Chinese listed non-state-owned firms for the period 2010–2016. CSR score is the dependent variable. Famine is an indicator variable that equals one if a CEO experienced the Great Chinese Famine, and zero otherwise.  $Distance^2$  equals the square of *Distance*, and  $Distance^3$  equals the cubic of *Distance*. Firm and CEO characteristics are the firm-level and CEO-level controls included in Table 1. Standard errors are reported within parentheses and are White (1980) heteroskedasticity-robust and clustered at the industry-level and year-level. The \*\*\*, \*\*, and \* mean that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

acquire a distinct outlook and philosophy from the historical world, defined by their birth date, an outlook that reflects lives lived interdependently in a particular historical context.” It is unfortunately difficult to include unobservable but meaningful factors (e.g., shared social values and generation-specific historical outlooks) that might correlate with CEOs’ social preferences.

To assuage these concerns as much as possible, we construct subsamples to acquire a LATE estimation. We propose that people might share similar social values and historical outlooks with peers of the same generation. We therefore construct subsamples for CEOs’ birth cohorts (1958–1963, 1959–1964, and 1959–1964) to re-examine the association between famine experience and CSR practices. Because we narrowed the time windows, our sample size decreased substantially. Smaller samples might be highly sensitive to ambiguity in discontinuity, although most historians agree that the Great Chinese Famine lasted from 1959 until 1961. However, 1961 might not represent sharp discontinuity. We thus also present the results of these subsamples but exclude observations for 1961; see Table 8.

Before we conduct LATE analysis, we examine whether the other control variables (except for the treatment variables) do not exhibit discontinuity around the cut-off point (Lee and Lemieux, 2010). This approach can offer reassurance that unobservable factors are likely also not discontinuous. Corresponding evidence appears in Figs. B1 and B2 of Appendix B.

In Table 8, the 1st, 3rd, and 5th columns present the results of various time windows. The 2nd, 4th, and 6th columns show the results when we drop observations related to CEOs born in 1961. The coefficients for *Famine* are all negative and statistically significant at the 5% level at least. These results validate our main findings.

### 5.5. Using exogenous shock

Both the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) began requiring CSR disclosure for a subset of corporations listed on their respective exchanges in December 2008. Specifically, for equities listed on the SSE, the mandatory list includes companies that are also listed abroad and financial companies; and for stocks listed on the SZSE, the list includes all companies in the “Shenzhen 100 Index” (see Chen et al., 2018). The adoption of forced CSR disclosures helps reduce the selection bias associated with voluntary CSR disclosures.

As a result, we run the same regression using the mandatory disclosure sample. The results are presented in Table 9. The point estimate of Famine is  $-0.1$ , and is negatively significant at a 5%-level, which keeps consistent with our main findings.

### 5.6. Additional analysis: decomposing CSR ratings

The Hexun CSR dataset is composed of several categories: employee, shareholder, environment, supplier, and community. Table A2 of the Appendix lists specific definitions for these indicators. Each category contains subcategories, which Hexun evaluates on the basis of publicly available information. Hexun then sums the scores based on corresponding weights (weights vary across industries).

We are keenly interested in which categories drive the negative association between famine experiences and CSR practices. Hexun’s ratings differ from the CSR ratings of Kinder, Lydenberg, and Domini et al. (KLD, a social choice investment advisory firm), which many studies have used to investigate CSR ratings in Western economies. Hexun’s scoring includes an additional index that measures shareholder-related CSR. Hexun maintains that CSR should include firms’ responsibility to shareholders, especially to minority

**Table 8**  
Famine-experience effect and corporate social responsibility using subsamples.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	CSR Score (1958–1963)	CSR Score (1958– 1960 & 1962–1963)	CSR Score (1959–1963)	CSR Score (1959– 1960 & 1962–1963)	CSR Score (1959–1964)	CSR Score (1959– 1960 & 1962–1964)
Famine	−0.159*** (0.0540)	−0.207*** (0.0594)	−0.151*** (0.0559)	−0.219*** (0.0713)	−0.0900** (0.0383)	−0.171** (0.0676)
Distance	0.141 (0.179)	0.142 (0.178)	0.224 (0.224)	0.225 (0.229)	0.236* (0.142)	0.220 (0.149)
Famine_x_Distance	−0.0243 (0.0385)	−0.0536 (0.0471)	−0.0118 (0.0411)	−0.0622 (0.0636)	−0.0525* (0.0281)	−0.102** (0.0506)
Firm Characteristics	YES	YES	YES	YES	YES	YES
CEO Characteristics	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Constant	−36.94 (35.28)	−36.54 (35.14)	−53.80 (44.26)	−53.13 (45.30)	−48.21* (28.55)	−45.17 (29.86)
Observations	1588	1346	1472	1230	1918	1676
R-squared	0.370	0.389	0.370	0.390	0.392	0.410

The table presents the regressions on the corporate social responsibility ratings using subsamples. The data are from Chinese listed non-state-owned firms for the period 2010–2016. CSR scores in different periods are the dependent variable. Famine is an indicator variable that equals one if a CEO experienced the Great Chinese Famine, and zero otherwise. Firm and CEO characteristics are the firm-level and CEO-level controls included in Table 1. Standard errors are reported within parentheses and are White (1980) heteroskedasticity-robust and clustered at the industry-level and year-level. The \*\*\*, \*\*, and \* mean that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

**Table 9**  
Great Chinese famine and CSR (mandatory disclosure sample).

	(1)
	CSR_Score
Famine	-0.100** (0.0491)
SetYear	0.043 (0.0579)
Distance	-0.014 (0.0959)
Size	0.029 (0.0186)
Leverage	-0.297** (0.1211)
ROA	0.591* (0.3345)
MB	0.040* (0.0233)
Cash	0.416** (0.2075)
Fixed_asset	0.158 (0.1339)
CEO_age	-0.014 (0.0968)
Bachelor	0.006 (0.0157)
Female	0.010 (0.0652)
Income	-0.010 (0.0080)
Industry FE	YES
Year FE	YES
Constant	4.020 (4.8026)
Observations	512
R-squared	0.33

The table presents the regressions on the corporate social responsibility ratings. The data are from Chinese listed non-state-owned firms for the period 2010–2016 which belong to those mandatory disclosure firms. The CSR score is the dependent variable. We construct a variables *DIST* equals the CEO' birth year minus 1961. Firm characteristics and CEO characteristics are the firm-level and CEO-level controls included in Table 1. Standard errors are reported within parentheses and are White (1980) heteroskedasticity-robust and clustered at the industry-level and year-level. The number of observations in Column 2 is 5241 with some values of CEO-characteristic variables missing. The \*\*\*, \*\*, and \* mean that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

shareholders. Table 10 presents our evidence from decomposing the CSR ratings.

First, Table 10 shows that all point estimates of the effect of *Famine* on other categories are negative and statistically significant at the 1% level except for shareholder CSR. These estimates indicate that the famine-experience effect is not driven by a single type of CSR. Second, the coefficient for shareholder CSR is not statistically significant at any conventional level, suggesting that famine experience does not influence CEOs' decisions about shareholder-related issues.

### 5.7. Economic significance

We have investigated the impact of CEOs' hunger experience on the CSR performance of their companies. In this part, we discuss the economic ramifications of our main finding. Prior research has demonstrated that CSR can positively influence corporate value. Using our research data, we replicate the same results, which are provided in Table 11. It implies that a one-unit rise in the firm's CSR



**Table 10**  
Famine-experience effect and categories of corporate social responsibility.

Variables	(1)	(2)	(3)	(4)	(5)
	Employee	Shareholder	Environment	Supplier	Community
Famine	-0.102*** (0.0301)	0.000376 (0.0225)	-0.129*** (0.0453)	-0.144*** (0.0459)	-0.108*** (0.0290)
Distance	0.0534*** (0.0118)	0.0109 (0.0180)	0.0345** (0.0173)	0.0311* (0.0176)	0.00312 (0.0117)
Famine_x_Distance	-0.0148*** (0.00515)	-0.00339 (0.00538)	-0.0156** (0.00713)	-0.0168** (0.00766)	-0.0110** (0.00529)
Firm Characteristics	YES	YES	YES	YES	YES
CEO Characteristics	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Constant	-13.50*** (2.175)	-1.569 (3.137)	-14.09*** (3.188)	-14.00*** (3.246)	-1.461 (2.085)
Observations	5241	5241	5241	5241	5241
R-squared	0.233	0.466	0.185	0.201	0.274

The table presents the regressions on the corporate social responsibility ratings. The data are from Chinese listed non-state-owned firms for the period 2010–2016. Different categories of CSR scores are the dependent variable. Famine is an indicator variable that equals one if a CEO experienced the Great Chinese Famine, and zero otherwise. Firm and CEO characteristics are the firm-level and CEO-level controls included in Table 1. Standard errors are reported within parentheses and are White (1980) heteroskedasticity-robust and clustered at the industry-level and year-level. \*\*\*, \*\*, and \* mean that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively. The number of observations of Column 2 is 5241 with some values of CEO-characteristic variables missing.

score results in a 0.7% increase in ROE A. (Return of Equity adjusted by industry). In addition, we divide our sample into two groups: enterprises with famine-experienced CEOs and those that did not, and we find that this effect is more pronounced in the firms whose CEOs did not experience the Great Famine. The examination of economic significance demonstrates that CEOs' famine experiences reduce the positive effects of CSR score on firm value.

## 6. Discussion and conclusion

In this study, we examine the association between CEOs' famine experience and their CSR practices. We find that (i) firms whose CEOs experienced the Great Chinese Famine score lower on CSR ratings than the comparison group; (ii) this relationship is mainly driven by prosocial practices related to employee relations, environmental protection, supplier relations, and community contributions; and (iii) this relationship is moderated by the age at which CEOs experienced the famine.

We propose a conceptual framework (Fig. 2) to explain our empirical findings. Under this framework, we point out that victims' causal attributions of the Great Chinese Famine moderate the effects of traumatic experiences on social preferences. Specifically, the famine brought both mental pain and material scarcity to victims, but how these hardships shaped victims' social preferences is conditioned on their causal attributions. We propose that the attribution of suffering can predict which direction CEOs' social preferences take. As discussed earlier, the Great Chinese Famine arose from political radicalism that led victims to feel that the catastrophe was undeserved. As a result, their memories of suffering translated into heightened selfishness and materialism.

A few competing arguments related to the justification of our empirical results should be clarified. First, China's birth rate declined drastically between 1958 and 1961. People who were born during the famine therefore had fewer contemporary competitors, enabling them to succeed more readily. This population might have become more selfish as a result. However, the birth years of our observations cover 1942–1988. CEOs born between 1959 and 1961 account for <10% of our sample and are not expected to produce systematic bias. Moreover, although those who were born during the Great Chinese Famine have fewer contemporaries, this circumstance did not lessen their competition intensity. In 1979 (when CEOs born between 1959 and 1961 were expected to attend college), the Chinese government re-established the University Entry Examination (*gaokao*) without age restrictions. Consequently, besides high school graduates, persons of various ages could take the exam and go to college. This participation meant that children born during the Great Chinese Famine still faced severe competition from their seniors and their contemporaries.

Second, in our baseline specification, we do not control for the impact of parenting due to data limitations. In the robustness checks, we narrow the time window to address variation in parenting style before or after 1961. However, a reasonable concern remains based on traditional Chinese culture: in China, parents conventionally believe that children who are born after disasters symbolize luck and prosperity.<sup>6</sup> Children born after the Great Chinese Famine might therefore receive special attention from their parents. These children may in turn internalize their parents' exaggerated views (e.g., "I am superior"). Studies have shown that parents' inflated care can trigger children's narcissism (Brummelman et al., 2015). According to Petrenko et al. (2016), narcissistic CEOs invest more in CSR to

<sup>6</sup> In China, the timing of birth is endowed with symbolism. Chinese people deem marriage and birth to be indicators of luck during tumultuous times. Children born after disasters are called "children bringing luck" (*chongxier* in Chinese). If a disaster ends after a child is born, the child will be given inflated love; see Li (2006) for a detailed discussion.

**Table 11**  
Great Chinese famine, CSR score, and firm value.

	(1)	(2)	(3)
	ROE_A	ROE_A	ROE_A
	Full sample	Famine = 1	Famine = 0
CSR_Score	0.007*** (0.0021)	0.005 (0.0033)	0.008*** (0.0028)
SetYear	0.001 (0.0021)	0.007* (0.0039)	-0.000 (0.0025)
Distance	0.004 (0.0030)	0.004 (0.0050)	0.004 (0.0035)
Size	0.000 (0.0011)	-0.001 (0.0019)	0.001 (0.0013)
Leverage	0.135*** (0.0061)	0.143*** (0.0124)	0.132*** (0.0071)
ROA	1.810*** (0.0401)	1.789*** (0.0669)	1.812*** (0.0467)
Cash	-0.045*** (0.0162)	-0.038* (0.0216)	-0.047** (0.0189)
Fixed_asset	-0.025*** (0.0065)	-0.019* (0.0098)	-0.027*** (0.0079)
CEO_age	0.004 (0.0029)	0.004 (0.0047)	0.004 (0.0035)
Bachelor	-0.001 (0.0007)	0.001 (0.0013)	-0.002* (0.0009)
Female	0.002 (0.0031)	0.012 (0.0088)	-0.001 (0.0022)
Income	-0.000 (0.0004)	-0.001 (0.0008)	0.000 (0.0004)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Constant	-0.336** (0.1462)	-0.350 (0.2353)	-0.388** (0.1964)
Observations	5256	1368	3888
R-squared	0.82	0.80	0.82

The table presents the regressions on the corporate social responsibility ratings using subsamples. The data are from Chinese listed non-state-owned firms for the period 2010–2016. CSR scores in different periods are the dependent variable. Famine is an indicator variable that equals one if a CEO experienced the Great Chinese Famine, and zero otherwise. ROE\_A is the return of equity adjusted by industries. Firm and CEO characteristics are the firm-level and CEO-level controls included in Table 1. Standard errors are reported within parentheses and are White (1980) heteroskedasticity-robust and clustered at the industry-level and year-level. The \*\*\*, \*\*, and \* mean that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

garner public attention. However, we claim that narcissism might not explain why CEOs born after the famine invest more in CSR. Despite the façade of narcissism, people who occupy higher positions tend to care less about others (Campbell and Foster, 2002; Kernberg, 1998). By contrast, CSR practices require empathy for others, although such care is not free and can sometimes be costly. To disentangle the effects of narcissism on CSR practices, Al-Shammari et al. (2019) classified these practices as either internally oriented (e.g., employee well-being) or externally oriented (e.g., donations). They argued that narcissistic CEOs boost their investment in externally oriented CSR (i.e., initiatives with high public visibility). However, these CEOs are apt to be more selfish and hence pay less attention to CSR initiatives with low public visibility. The authors' empirical findings support these theoretical suppositions. However, our evidence from decomposing CSR initiatives does not show similar patterns: all CSR components are negatively related to CEOs' famine experience. If the results were driven by narcissism, we would predict that CEOs born after the famine should display less interest in (or at least not devote more attention to) CSR initiatives related to employees' well-being; such efforts are internally oriented and have low public visibility. However, our results did not support this prediction.

Third, do the effects of CEOs' traumatic experiences on firms' CSR reflect changes in CEOs' risk preferences? By conducting lottery games in the field, Said et al. (2015) observed that individuals who experience disasters are more risk-averse than others. Some studies have shown that CSR boosts firm value, whereas others have found that this principle does not always apply; instead, CSR can be costly (Cavaco and Crifo, 2014; Flammer, 2015; Lin et al., 2009; McWilliams and Siegel, 2000; Wang and Sarkis, 2017). Although CSR practices share similarities with risky investments, wherein highly risk-averse CEOs might avoid these types of investments, we find this argument unpersuasive. Risky investments generally involve a measurable probability of gain or loss under different scenarios, but the association between CSR and financial performance is inconsistent and nonlinear. No decisive evidence conveys whether CSR can positively influence a firm's value. CSR practices are thus not fully comparable to corporations' risky investments. Furthermore, although the relationship between CSR and firm value is inconclusive, that between CSR and reputation is significant. If CEOs who experienced the Great Chinese Famine expressed higher risk aversion, they would engage in other risk-reducing activities according to the behavioral consistency theory (Epstein, 1980; Funder and Colvin, 1991). This theory postulates that people's behavioral traits will

exert similar effects over different decision scenarios. Research indicates that CSR partially functions as reputation insurance (Minor and Morgan, 2011); that is, by using CSR, firms lose significantly less value following adverse events. Therefore, if CEOs are risk-averse, they should at least engage in high-publicity CSR initiatives to manage risk and to increase their reputation. Our results can hardly support this argument.

Fourth, is the association between CSR practices and CEOs' famine experience driven by unobservable firm factors or by board members' preferences? We admit that these unobservable factors are hard to control, but we doubt that they influence CEOs' hiring. Our sample consists of CEOs from non-state-owned companies, whose decisions to hire CEOs are usually based on considerations such as past performance. Scant evidence suggests that boards have preferences for CEOs with or without famine experience from rational or behavioral perspectives. Firms in traditional production industries may favor older CEOs who are less prone to risky decisions (Serfling, 2014). To control for this bias, we account for CEOs' age and industry dummies in our baseline specification. However, even if a hidden association exists between firms that engage in more CSR and their preference for CEOs with no famine experience, the statistically significant association between EDR and CEOs' famine experience can still not be resolved. It is difficult to believe that board members will collect and compute different regions' EDRs and match these data with CEOs when making hiring decisions.

This paper examines the relationship between CEOs' famine experience and their firms' engagement in CSR. We found that famine-experienced CEOs tend to engage less in CSR, and this negative effect is more pronounced in firms whose CEOs were younger when they experienced the famine, and the positive relationship between CSR scores and firm value is more pronounced in firms with CEO without famine experiences. To conclude, our study connects the paradigm of behavioral corporate finance to CSR. More importantly, we propose a holistic conceptual framework to elucidate the association between traumatic experiences and CSR-related decisions. Our framework indicates that victims' attribution of the experience forms the basis for understanding this relationship. Future studies could explore the effects of traumatic experiences by including measurable variables that reflect victims' causal attributions of traumatic events.

**Declaration of Competing Interest**

We declare that we have no financial and personal relationships with other people or organization's that can inappropriately influence our work, there is no professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript entitled.

**Appendix A**

**Table A1**  
Variable definitions.

1. Corporate social responsibility variables	
CSR Score	Hexun scores the overall performances of listed companies on CSR; Natural logarithm of the original score
CSR_shareholder	HX shareholder equity responsibility score with sub-indicators; Natural logarithm of the original score
CSR_employee	HX shareholder employee relationship score with sub-indicators; Natural logarithm of the original score
CSR_supplier	HX shareholder supplier and customer score with sub-indicators; Natural logarithm of the original score
CSR_environment	HX shareholder employee relationship score with sub-indicators; Natural logarithm of the original score
CSR_community	HX shareholder employee relationship score with sub-indicators; Natural logarithm of the original score
2. Firm characteristics	
ROA	Ratio of Return/Assets at the end of each year
Leverage	Ratio of Debt/Assets at the end of each year
Company Year	Natural logarithm of a company's foundation year
Market to Book	Ratio of Market Value/ Book Value at the end of each year
Size	Natural logarithm of equity market capitalization at the end of each year
Cash	Ratio of Cash/Assets at the end of each year
Fixed Assets	Ratio of Fixed Asset/Total Assets at the end of each year
3. CEO characteristics	
Female CEOs	Ratio of Female CEOs
CEO Age	Natural logarithm of age when a person takes the position as a CEO at the end of each year;
CEO college	Bivariate variable that equals one if CEO has a college degree or above, and zero otherwise
Annual Income	Natural logarithm of annual income of CEO in each year; RMB

**Table A2**  
Evaluation system of Hexun CSR.

First-level indicators	Second-level indicators	Third-level indicators
Shareholder Responsibility (A) Weights: 30%	Profit (Aa) 10%	Return on Equity (2%) Return on Total Assets (2%)

(continued on next page)

Table A2 (continued)

First-level indicators	Second-level indicators	Third-level indicators
Employee Responsibility(B) Weight: 15% Weight for consumption industry: 10%	Liquidity (Ab) 3%  Return (Ac) 8%  Credit Approval (Ad) 5%  Innovation (Ae) 4%  Performance (Ba) 5% Safety (Bb) 5%  Employee Caring (Bc) 5%  Product Quality (Ca) 7% Aftersales Service (Cb) 3% Credibility and Reciprocity (Cc) 5%  Environment Governance (Dd) 20%  Contribution (Ee) 20%	Main operation margins (2%)
		The cost profit margins (1%)
		Earnings per share (2%)
		Undistributed profit per share (1%)
		Quick ratio (0.5%)
		Current ratio (0.5%)
		Cash ratio(0.5%)
		Equity ratio (0.5%)
		Assets liabilities ratio (1%)
		Dividend financing ratio (2%)
		Dividend Yield Ratio (3%)
		Ratio of dividends to distributable profits (3%)
		Number of penalties imposed by the Exchanges on the company and relevant responsible persons (5%)
		Product development expenditure (1%)
		Firm value in technological innovation (1%)
Number of technological innovation projects (2%)		
Average income of employees (4%) (3%)		
Quantity and quality of employee training (1%) (1%)		
Frequency of safety check (2%) (1%)		
Safety training (3%) (2%)		
Firm value on Consolation (1%) (1%)		
The levels of the person delivering consolation in the organization (2%) (1%)		
Amount of money of consolation for employees in server illness or injured incurred while working (2%) (1%)		
Firm value in product quality management (3%) (5%)		
Certification of quality management system (4%) (4%)		
Supplier, Client and Consumer Responsibility (C) Weight: 15% Weight for consumption industry: 20%	Aftersales Service (Cb) 3% Credibility and Reciprocity (Cc) 5%	Surveyed consumer satisfaction (3%) (4%)
		Equal competition of suppliers (3%) (4%)
		Trainings for anti-commercial-bribery (2%) (3%)
Environment Responsibility (D) Weight: 20% Weight for production industry 30% Weight for service industry 10%	Environment Governance (Dd) 20%	Firm values in environmental protection (2%) (4%) (2%)
		Certification of environmental protection management (3%) (5%) (2%)
		Investment in environmental protection(5%) (7%) (2%)
Community Responsibility (E) Weight: 20% Weight for production industry 10% Weight for service industry 30%	Contribution (Ee) 20%	Numbers of sewages (5%) (7%) (2%)
		Numbers of energy saved (5%) (7%) (2%)
		Ratio of income tax to total profit (10%) (5%)(15%)
		Amount of public donation (10%) (5%)(15%)

## Notes:

1.The original version of the evaluation system is in Chinese and available at <http://stock.hexun.com/2013/gsshzr/index.html> and the English version is translated by the author.

2. On some CSR initiatives, this value system gives different weights for firms from different industries. On Employee Responsibility(B)and Supplier, Client, and Consumer Responsibility (C), the values in the second bracket of the third column represent the weights distributed among the third-level indicators of the firms of the consumption industry; on Environment Responsibility (D) and Community Responsibility (E), the values in the second bracket of the third column represent the weights distributed among the third-level indicators of the firms in the production industry while the values in the third bracket of the third column represent the weights distributed among the third-level indicators of the firms in the service industry.

Table A3

Summary statistics of CSR scores by industry.

Industry	N	mean	SD	min	max	Median	Kurtosis	Skewness
Transportation	75	24.685	13.140	10.73	69.28	21.44	8.64	2.549
Leisure Services	43	29.131	17.682	3.49	75.05	26.01	4.449	1.528
Media	236	25.219	13.358	2.1	73.53	22.15	6.995	2.023
Utilities	162	24.926	14.773	1.3	77.16	21.345	5.755	1.735
Agriculture	204	28.365	17.937	1.3	71.52	22.595	2.827	1.025
Chemicals	472	26.963	16.390	1.3	77.16	21.625	4.697	1.671
Pharmaceutical Biology	544	31.558	17.112	1.3	77.16	25.63	3.661	1.332
Commercial Trade	174	31.323	16.225	1.32	76.79	25.56	3.403	1.188
Defense Industry	53	20.331	6.611	1.3	31.62	21.12	3.786	-0.771
Household Appliances	133	31.02	19.686	2.89	77.16	24.21	3.192	1.224
Building Materials	123	31.74	22.036	1.58	77.16	21.23	2.504	1.062
Architectural Decoration	118	26.567	16.273	4.76	77.16	20.715	4.079	1.557
Real Estate	251	39.848	18.105	2.37	77.16	34.2	2.601	0.814
Nonferrous Metals	201	25.218	16.539	1.39	70.57	20.1	3.782	1.369

(continued on next page)

Table A3 (continued)

Industry	N	mean	SD	min	max	Median	Kurtosis	Skewness
Machinery	425	26.906	17.801	1.3	77.16	19.87	3.998	1.505
Auto	193	27.241	15.082	4.84	77.16	23.02	5.852	1.976
Electronics	387	27.113	16.963	2.28	77.16	21.15	4.412	1.597
Electrical Equipment	402	26.511	17.143	1.3	77.16	21.245	5.462	1.891
Textile and Apparel	170	34.251	19.497	1.3	77.16	26.615	2.718	0.959
General	55	28.532	15.779	1.36	64.85	22.44	2.705	0.831
Computer	359	28.35	12.687	1.3	72.94	25.35	4.858	1.579
Light Manufacturing	187	29.414	17.253	3.27	73.88	21.85	2.844	1.108
Communications	175	25.911	13.909	1.3	75.49	23.82	5.25	1.457
Mining	47	19.687	5.249	4.6	31.83	20.08	3.612	-0.437
steel	37	32.865	21.191	1.3	77.16	21.25	2.077	0.751
Non-bank Financials	120	48.91	20.277	4.6	77.16	55.82	1.609	-0.251
Food and Beverages	83	33.596	20.854	3.34	77.16	25.05	2.64	1.029

Appendix B

Evidence of presuppositions to identify LATE

Figs. B1 and B2 present the distribution of control variables around the cut-off point (the birth-year 1961). The results show that except for the Famine variable, the other control variables, except the gender variable, show no sign of discontinuity around the cut-off points that satisfies the presuppositions of conducting a regression discontinuity design. In regards to the plausible discontinuity of gender, we look at a large number of variables, and only one is significant, which is not very surprising when running a large number of significance tests (i.e. can happen just by chance), and therefore we lack strong evidence of a general tendency for discontinuities.

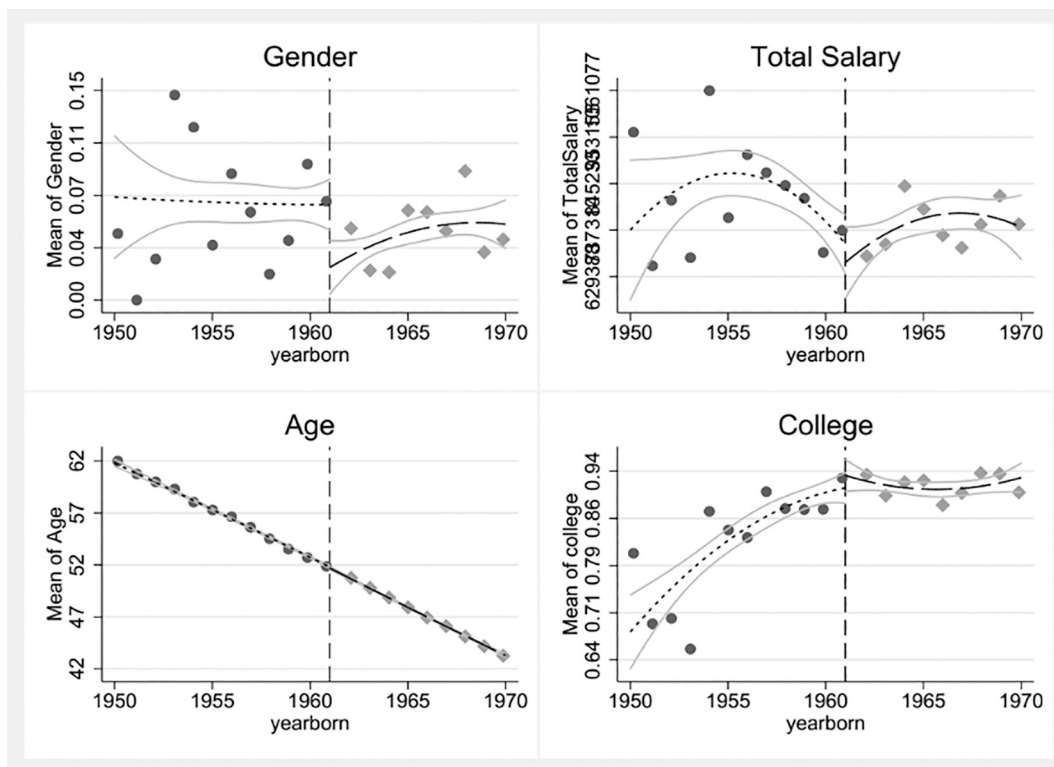


Fig. B1. Distribution of CEO characteristics around the year 1961.

Note: The dotted and dashed lines represented the trend values of each variable, and the outer lines are 95% confidence intervals.

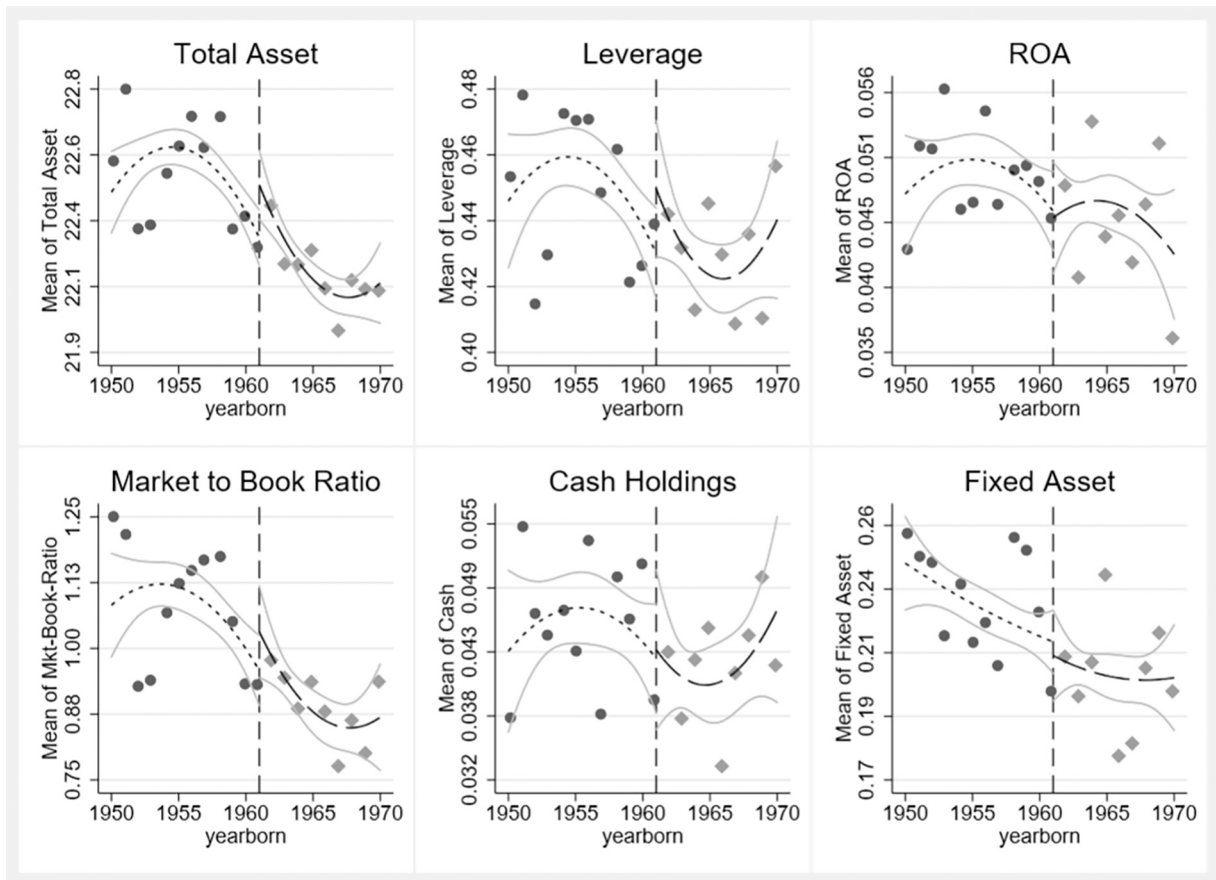


Fig. B2. Distribution of firm characteristics around 1961.

Note: The dotted and dashed lines represented the trend values of each variable, and the outer lines are 95% confidence intervals.

## References

- Al-Shammari, M., Rasheed, A., Al-Shammari, H.A., 2019. CEO narcissism and corporate social responsibility: does CEO narcissism affect CSR focus? *J. Bus. Res.* 104, 106–117. <https://doi.org/10.1016/j.jbusres.2019.07.005>.
- An, Y., 2021. Corporate social responsibility and overseas income. *Financ. Res. Lett.* 39, 101594 <https://doi.org/10.1016/j.frl.2020.101594>.
- Anderson, J.R., 2000. *Cognitive Psychology and its Implications*, 5th Ed, Cognitive Psychology and its Implications, 5th ed. Worth Publishers, New York, NY, US.
- Armstrong, G.J., Kelley, S.D., 2008. Early trauma and subsequent antisocial behavior in adults. *Brief Treat. Crisis Interv.* 8 (4), 294.
- Bandura, A., 1982. The psychology of chance encounters and life paths. *Am. Psychol.* 37, 747–755. <https://doi.org/10.1037/0003-066X.37.7.747>.
- Batson, C.D., Batson, J.G., Slingsby, J.K., Harrell, K.L., Peekna, H.M., Todd, R.M., 1991. Empathic joy and the empathy-altruism hypothesis. *J. Pers. Soc. Psychol.* 61 (3), 413.
- Batson, C.D., Klein, T.R., Highberger, L., Shaw, L.L., 1995. Immorality from empathy-induced altruism: when compassion and justice conflict. *J. Pers. Soc. Psychol.* 68 (6), 1042.
- Benmelech, E., Frydman, C., 2015. Military CEOs. *J. Financ. Econ.* 117, 43–59. <https://doi.org/10.1016/j.jfineco.2014.04.009>. NBER Conference on the Causes and Consequences of Corporate Culture.
- Benson, L., 2011. *China Since 1949*, 2nd ed. Routledge. <https://doi.org/10.4324/9781315833408>.
- Bernile, G., Bhagwat, V., Rau, P.R., 2017. What doesn't kill you will only make you more risk-loving: early-life disasters and CEO behavior. *J. Financ.* 72, 167–206. <https://doi.org/10.1111/jofi.12432>.
- Bernstein, J.M., 2005. Suffering injustice: misrecognition as moral injury in critical theory. *Int. J. Philos. Stud.* 13, 303–324. <https://doi.org/10.1080/09672550500169117>.
- Bogat, G.A., DeJonghe, E., Levendosky, A.A., Davidson, W.S., von Eye, A., 2006. Trauma symptoms among infants exposed to intimate partner violence. *Child Abuse Negl.* 30, 109–125. <https://doi.org/10.1016/j.chiabu.2005.09.002>.
- Brummelman, E., Thomaes, S., Nelemans, S.A., de Castro, B.O., Overbeek, G., Bushman, B.J., 2015. Origins of narcissism in children. *Proc. Natl. Acad. Sci. U. S. A.* 112, 3659–3662. <https://doi.org/10.1073/pnas.1420870112>.
- Campbell, W.K., Foster, C.A., 2002. Narcissism and commitment in romantic relationships: an investment model analysis. *Personal. Soc. Psychol. Bull.* 28, 484–495. <https://doi.org/10.1177/0146167202287006>.
- Campbell, D., Moore, G., Metzger, M., 2002. Corporate philanthropy in the UK 1985–2000 some empirical findings. *J. Bus. Ethics* 39, 29–41.
- Campbell, C., Roberts, Y., Synder, F., Papp, J., Strambler, M., Crusto, C., 2016. The assessment of early trauma exposure on social-emotional health of young children. *Child Youth Serv. Rev.* 71, 308–314.
- Caprara, G.V., Alessandri, G., Eisenberg, N., 2012. Prosociality: the contribution of traits, values, and self-efficacy beliefs. *J. Pers. Soc. Psychol.* 102, 1289.
- Carraro, A., Ferrone, L., 2019. Feed Thy Neighbour: How Social Ties Shape Spillover Effects of Cash Transfers on Food Security and Nutrition, p. 36.

- Cavaco, S., Crifo, P., 2014. CSR and financial performance: complementarity between environmental, social and business behaviours. *Appl. Econ.* 46, 3323–3338. <https://doi.org/10.1080/00036846.2014.927572>.
- Chang, E.C., Wong, S.M.L., 2004. Political control and performance in China's listed firms. *J. Comp. Econ.* 32, 617–636. <https://doi.org/10.1016/j.jce.2004.08.001>.
- Chen, Y.C., Hung, M., Wang, Y., 2018. The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China. *J. Account. Econ.* 65 (1), 169–190.
- Chen, Y., Yang, D., 2015. Historical Traumas and the Roots of Political Distrust: Political Inference from the Great Chinese Famine (SSRN Scholarly Paper No. ID 2652587). Social Science Research Network, Rochester, NY. <https://doi.org/10.2139/ssrn.2652587>.
- Chen, Y., Zhou, L.-A., 2007. The long-term health and economic consequences of the 1959–1961 famine in China. *J. Health Econ.* 26, 659–681.
- Chih, H.-L., Chih, H.-H., Chen, T.-Y., 2010. On the determinants of corporate social responsibility: international evidence on the financial industry. *J. Bus. Ethics* 93, 115–135. <https://doi.org/10.1007/s10551-009-0186-x>.
- Chinese Academy of Social Science, 2002. 2002–2003: General Report on China's Economic Situation Analysis and Forecast. Beijing.
- Cook, J.M., Riggs, D.S., Thompson, R., Coyne, J.C., Sheikh, J.I., 2004. Posttraumatic stress disorder and current relationship functioning among world war II ex-prisoners of war. *J. Fam. Psychol.* 18, 36–45. <https://doi.org/10.1037/0893-3200.18.1.36>.
- Cronqvist, H., Yu, F., 2017. Shaped by their daughters: executives, female socialization, and corporate social responsibility. *J. Financ. Econ.* 126, 543–562. <https://doi.org/10.1016/j.jfineco.2017.09.003>.
- Decety, J., 2015. The neural pathways, development and functions of empathy. *Curr. Opin. Behav. Sci.* 3, 1–6.
- Diener, E., Larsen, R.J., Emmons, R.A., 1984. Person × situation interactions: choice of situations and congruence response models. *J. Pers. Soc. Psychol.* 47, 580–592. <https://doi.org/10.1037/0022-3514.47.3.580>.
- Dirks, R., Armelagos, G.J., Bishop, C.A., Brady, I.A., Brun, T., Copans, J., Doherty, V.S., Fraňková, S., Greene, L.S., Jelliffe, D.B., 1980. Social responses during severe food shortages and famine [and comments and reply]. *Curr. Anthropol.* 21 (1), 21–44.
- Dreyer, E.L., 1995. China at War 1901–1949, 1st ed. Routledge. <https://doi.org/10.4324/9781315846095>.
- Du, X., 2015. Is corporate philanthropy used as environmental misconduct dressing? Evidence from Chinese family-owned firms. *J. Bus. Ethics* 129, 341–361.
- Ebrey, P.B., 2009. Chinese Civilization: A Sourcebook, 2nd ed. Simon and Schuster.
- Edelstein, M.R., 1988. Contaminated communities: the social and psychological impacts of residential toxic exposure. In: *Contaminated Communities: The Social and Psychological Impacts of Residential Toxic Exposure*. Westview Press, Boulder, CO, US.
- Edelstein, M.R., 2000. 'Outsiders just don't understand': personalization of risk and the boundary between modernity and postmodernity. In: Cohen, M.J. (Ed.), *Risk in the Modern Age: Social Theory, Science and Environmental Decision-Making*. Palgrave Macmillan UK, London, pp. 123–142. [https://doi.org/10.1007/978-1-349-62201-6\\_6](https://doi.org/10.1007/978-1-349-62201-6_6).
- Edmans, A., 2012. The link between job satisfaction and firm value, with implications for corporate social responsibility. *Acad. Manag. Perspect.* 26 (4), 1–19. <https://doi.org/10.5465/amp.2012.0046>.
- Elder, G.H., 2018. *Children of the Great Depression: 25th Anniversary Edition*. Routledge.
- Epstein, S., 1980. The stability of behavior: II. Implications for psychological research. *Am. Psychol.* 35, 790–806. <https://doi.org/10.1037/0003-066X.35.9.790>.
- Erikson, E.H., Erikson, J.M., 1998. *The Life Cycle Completed (Extended Version)*. W. W. Norton & Company.
- Feng, X., Johansson, A.C., 2017. CEO incentives in Chinese state-controlled firms. *Econ. Dev. Cult. Chang.* 65, 223–264. <https://doi.org/10.1086/688905>.
- Feng, X., Johansson, A.C., 2018. Living through the great Chinese famine: early-life experiences and managerial decisions. *J. Corp. Finan.* 48, 638–657. <https://doi.org/10.1016/j.jcorpfin.2017.11.012>.
- Feng, S., Stewart, J., 2015. A review of market segmentation and inefficiencies of the Chinese stock market. *Int. J. Financ. Bank. Stud.* 4 (2147–4486), 18–28. <https://doi.org/10.20525/ijfbs.v4i4.36>.
- Flammer, C., 2015. Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Manag. Sci.* 61, 2549–2568. <https://doi.org/10.1287/mnsc.2014.2038>.
- Frueh, B.C., Turner, S.M., Beidel, D.C., Cahill, S.P., 2001. Assessment of social functioning in combat veterans with PTSD. *Aggress. Violent Behav.* 6, 79–90. [https://doi.org/10.1016/S1359-1789\(99\)00012-9](https://doi.org/10.1016/S1359-1789(99)00012-9).
- Funder, D.C., Colvin, C.R., 1991. Explorations in behavioral consistency: properties of persons, situations, and behaviors. *J. Pers. Soc. Psychol.* 60, 773–794. <https://doi.org/10.1037//0022-3514.60.5.773>.
- Gill, D.A., Picou, J.S., 1998. Technological disaster and chronic community stress. *Soc. Nat. Resour.* 11, 795–815. <https://doi.org/10.1080/08941929809381119>.
- Gráda, C., 2011. Great leap into famine: a review essay\*. *Popul. Dev. Rev.* 37, 191–202. <https://doi.org/10.1111/j.1728-4457.2011.00398.x>.
- Gray, M.J., Lombardo, T.W., 2004. Life event attributions as a potential source of vulnerability following exposure to a traumatic event. *J. Loss Trauma* 9, 59–72. <https://doi.org/10.1080/15325020490255313>.
- Greenwald, R., 2002. The role of trauma in conduct disorder. *J. Aggress. Maltreat. Trauma* 6, 5–23. [https://doi.org/10.1300/J146v06n01\\_02](https://doi.org/10.1300/J146v06n01_02).
- Guo, P., 2018. Why does MSCI Make ESG Assessments for Index Companies? [WWW Document]. URL: <https://opinion.caixin.com/2018-05-23/101254782.html> (accessed 3.1.22).
- Hambrick, D.C., 2007. *Upper Echelons Theory: An Update*, *Academy of Management Review*. Academy of Management Briarcliff Manor, NY, p. 10510.
- Hambrick, D.C., Mason, P.A., 1984. Upper echelons: the organization as a reflection of its top managers. *AMR* 9, 193–206. <https://doi.org/10.5465/amr.1984.4277628>.
- Hu, M., Xiong, W., Xu, C., 2021. Analyst coverage, corporate social responsibility, and firm value: evidence from China. *Glob. Financ. J.* 50, 100671 <https://doi.org/10.1016/j.gfj.2021.100671>.
- Hubbard, T.D., Christensen, D.M., Graffin, S.D., 2017. Higher highs and lower lows: the role of corporate social responsibility in CEO dismissal. *Strateg. Manag. J.* 38 (11), 2255–2265. <https://doi.org/10.1002/smj.2646>.
- Ickes, W., Snyder, M., Garcia, S., 1997. Chapter 7 - personality influences on the choice of situations. In: Hogan, R., Johnson, J., Briggs, S. (Eds.), *Handbook of Personality Psychology*. Academic Press, San Diego, pp. 165–195. <https://doi.org/10.1016/B978-012134645-4/50008-1>.
- Inglehart, R., 1997. *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies*. Princeton University Press.
- Inglehart, R., Baker, W.E., 2000. Modernization, cultural change, and the persistence of traditional values. *Am. Sociol. Rev.* 65, 19–51. <https://doi.org/10.2307/2657288>.
- Inglehart, R., Welzel, C., 2005. *Modernization, Cultural Change, and Democracy: The Human Development Sequence*. Cambridge University Press.
- Janoff-Bulman, R., Morgan, H.J., 1994. Victims' responses to traumatic life events: an unjust world or an uncaring world? *Soc. Justice Res* 7, 47–68. <https://doi.org/10.1007/BF02333822>.
- Jordan, B.K., Marmar, C.R., Fairbank, J.A., Schlenger, W.E., Kulka, R.A., Hough, R.L., Weiss, D.S., 1992. Problems in families of male Vietnam veterans with posttraumatic stress disorder. *J. Consult. Clin. Psychol.* 60, 916–926. <https://doi.org/10.1037/0022-006X.60.6.916>.
- Joseph, S.A., Brewington, C.R., Yule, W., Williams, R., 1993. Causal attributions and post-traumatic stress in adolescents. *J. Child Psychol. Psychiatry* 34, 247–253. <https://doi.org/10.1111/j.1469-7610.1993.tb00982.x>.
- Jung, C.G., 1992. *Two Essays on Analytical Psychology*. Psychology Press.
- Kashdan, T.B., Julian, T., Merritt, K., Uswatte, G., 2006. Social anxiety and posttraumatic stress in combat veterans: relations to well-being and character strengths. *Behav. Res. Ther.* 44, 561–583. <https://doi.org/10.1016/j.brat.2005.03.010>.
- Kernberg, P.F., 1998. Developmental aspects of normal and pathological narcissism. In: *Disorders of Narcissism: Diagnostic, Clinical, and Empirical Implications*. American Psychiatric Association, Arlington, VA, US, pp. 103–120.
- Kim, J., Chung, S., Park, C., 2013. Corporate social responsibility and financial performance: the impact of the MSCI ESG ratings on Korean firms. *J. Korea Acad. Ind. Coop. Soc.* 14, 5586–5593.
- Knutson, J.F., 1995. Psychological characteristics of maltreated children: putative risk factors and consequences. *Annu. Rev. Psychol.* 46 (1), 401–431.
- Kraus, M.W., Keltner, D., 2009. Signs of socioeconomic status: a thin-slicing approach. *Psychol. Sci.* 20 (1), 99–106.

- Krause, N., 1993. Early parental loss and personal control in later life. *J. Gerontol.* 48, P117–P126. <https://doi.org/10.1093/geronj/48.3.P117>.
- Krause, N., 2005. Traumatic events and meaning in life: exploring variations in three age cohorts. *Ageing Soc.* 25, 501–524. <https://doi.org/10.1017/S0144686X0500382X>.
- Kung, J.K.-S., Chen, S., 2011. The tragedy of the Nomenklatura: career incentives and political radicalism during China's great leap famine. *Am. Polit. Sci. Rev.* 105, 27–45. <https://doi.org/10.1017/S0003055410000626>.
- Kung, J.K.S., Chen, S., 2011. The tragedy of the nomenklatura: Career incentives and political radicalism during China's Great Leap famine. *Am. Political Sci. Rev* 105 (1), 27–45.
- Kung, J.K., Lin, J.Y., 2003. The causes of China's great leap famine, 1959–1961. *Econ. Dev. Cult. Chang.* 52, 51–73. <https://doi.org/10.1086/380584>.
- Lamm, C., Decety, J., Singer, T., 2011. Meta-analytic evidence for common and distinct neural networks associated with directly experienced pain and empathy for pain. *Neuroimage* 54 (3), 2492–2502.
- Lee, D.S., Lemieux, T., 2010. Regression discontinuity designs in economics. *J. Econ. Lit.* 48, 281–355. <https://doi.org/10.1257/jel.48.2.281>.
- Li, L., 1994. *Student Nationalism in China, 1924–1949*. SUNY Press.
- Li, S., 2006. *Chinese Folk Culture*. Beijing Book Co. Inc.
- Li, Y., Li, H., Decety, J., Lee, K., 2013. Experiencing a natural disaster alters children's altruistic giving. *Psychol. Sci.* 24 (9), 1686–1695.
- Liang, H., Renneboog, L., 2017. On the foundations of corporate social responsibility. *J. Financ.* 72, 853–910.
- Lin, J.Y., Yang, D.T., 2000. Food availability, entitlements and the Chinese famine of 1959–61. *Econ. J.* 110, 136–158.
- Lin, C.-H., Yang, H.-L., Liou, D.-Y., 2009. The impact of corporate social responsibility on financial performance: evidence from business in Taiwan. *Technol. Soc.* 31, 56–63. <https://doi.org/10.1016/j.techsoc.2008.10.004>.
- Lipscomb, F.M., 1945. Medical aspects of Belsen concentration camp. *Lancet* 249, 313–315.
- Malmendier, U., Tate, G., Yan, J., 2010. *Overconfidence and Early-Life Experiences: The Impact of Managerial Traits on Corporate Financial Policies* (No. 15659), NBER Working Papers. National Bureau of Economic Research, Inc.
- Maree, J.G., 2021. The psychosocial development theory of Erik Erikson: critical overview. *Early Child Dev. Care* 191 (7–8), 1107–1121. <https://doi.org/10.1080/03004430.2020.1845163>.
- Marquis, C., Tilcsik, A., 2013. Imprinting: toward a multilevel theory. *Acad. Manag. Ann.* 7, 195–245.
- McCrae, R.R., Costa, P.T., 2003. *Personality in Adulthood: A Five-Factor Theory Perspective*. Guilford Press.
- McWilliams, A., Siegel, D., 2000. Corporate social responsibility and financial performance: correlation or misspecification? *Strateg. Manag. J.* 21, 603–609. [https://doi.org/10.1002/\(SICI\)1097-0266\(200005\)21:5<603::AID-SMJ101>3.0.CO;2-3](https://doi.org/10.1002/(SICI)1097-0266(200005)21:5<603::AID-SMJ101>3.0.CO;2-3).
- McWilliams, A., Siegel, D., 2001. Corporate social responsibility: a theory of the firm perspective. *AMR* 26, 117–127. <https://doi.org/10.5465/amr.2001.4011987>.
- Meng, X., Qian, N., Yared, P., 2015. The institutional causes of China's great famine, 1959–1961. *Rev. Econ. Stud.* 82, 1568–1611. <https://doi.org/10.1093/restud/rdv016>.
- Meng, X.H., Zeng, S.X., Shi, J.J., Qi, G.Y., Zhang, Z.B., 2014. The relationship between corporate environmental performance and environmental disclosure: An empirical study in China. *J. Environ. Manage.* 145, 357–367.
- Mikulincer, M., Solomon, Z., 1989. Causal attribution, coping strategies, and combat-related post-traumatic stress disorder. *Eur. J. Personal.* 3, 269–284. <https://doi.org/10.1002/per.2410030404>.
- Minor, D., Morgan, J., 2011. CSR as reputation insurance: primum non nocere. *Calif. Manag. Rev.* 53, 40–59. <https://doi.org/10.1525/cmr.2011.53.3.40>.
- MSCI Index, 2017. *MSCI China All Shares* [WWW Document]. URL: <https://www.msci.com/msci-china-all-shares> (accessed 3.1.22).
- National Bureau of Statistics of China, 1954. *Bulletin of the First National Census*.
- O'Connor, T.G., 2003. Early experiences and psychological development: conceptual questions, empirical illustrations, and implications for intervention. *Dev. Psychopathol.* 15, 671–690. <https://doi.org/10.1017/S0954579403000336>.
- Ogle, C.M., Rubin, D.C., Siegler, I.C., 2013. The impact of the developmental timing of trauma exposure on PTSD symptoms and psychosocial functioning among older adults. *Dev. Psychol.* 49 (11), 2191.
- Okello, J., Nakimuli-Mpungu, E., Musisi, S., Broekaert, E., Derluyn, I., 2013. War-related trauma exposure and multiple risk behaviors among school-going adolescents in northern Uganda: the mediating role of depression symptoms. *J. Affect. Disord.* 151, 715–721. <https://doi.org/10.1016/j.jad.2013.07.030>.
- Party History Research Center of the CPC Central Committee, 2011. *History of the Communist Party of China*. Communist Party of China History press, Beijing.
- Peng, X., 1987. Demographic consequences of the great leap forward in China's provinces. *Popul. Dev.* 13, 639–670. <https://doi.org/10.2307/1973026>.
- Perren, S., Gutzwiller-Helfenfinger, E., Malti, T., Hymel, S., 2012. Moral reasoning and emotion attributions of adolescent bullies, victims, and bully-victims. *Br. J. Dev. Psychol.* 30 (4), 511–530.
- Petrenko, O.V., Aime, F., Ridge, J., Hill, A., 2016. Corporate social responsibility or CEO narcissism? CSR motivations and organizational performance. *Strateg. Manag. J.* 37, 262–279. <https://doi.org/10.1002/smj.2348>.
- Piff, P.K., Kraus, M.W., Côté, S., Cheng, B.H., Keltner, D., 2010. Having less, giving more: the influence of social class on prosocial behavior. *J. Pers. Soc. Psychol.* 99 (5), 771.
- Price, R., 2000. *A Whole New Life*. Simon and Schuster.
- Prior, K., Carvalho, M., Lawler, S., Stąpinski, L.A., Newton, N.C., Mooney-Somers, J., Basto-Pereira, M., Barrett, E., 2021. Early trauma and associations with altruistic attitudes and behaviours among young adults. *Child Abuse Negl.* 117, 105091.
- Qi, Z., 2020. *Remembrance: 2020*, 2 (1). Lulu.com.
- Reverte, C., 2009. Determinants of corporate social responsibility disclosure ratings by Spanish listed firms. *J. Bus. Ethics* 88, 351–366. <https://doi.org/10.1007/s10551-008-9968-9>.
- Rieker, P.P., Edbril, S.D., Garnick, M.B., 1985. Curative testis cancer therapy: psychosocial sequelae. *JCO* 3, 1117–1126. <https://doi.org/10.1200/JCO.1985.3.8.1117>.
- Riggs, D.S., Byrne, C.A., Weathers, F.W., Litz, B.T., 1998. The quality of the intimate relationships of male Vietnam veterans: problems associated with posttraumatic stress disorder. *J. Trauma. Stress.* 11, 87–101. <https://doi.org/10.1023/A:1024409200155>.
- Ritchie, L.A., 2004. *Voices of Cordova: Social Capital in the Wake of the Exxon Valdez Oil Spill* (Ph.D.).
- Ritchie, L.A., Gill, D.A., 2006. Social capital theory as an integrating theoretical framework in technological disaster research. *Sociol. Spectr.* <https://doi.org/10.1080/02732170601001037>.
- Said, F., Afzal, U., Turner, G., 2015. Risk taking and risk learning after a rare event: evidence from a field experiment in Pakistan. *J. Econ. Behav. Organ.* 118, 167–183. <https://doi.org/10.1016/j.jebo.2015.03.001>.
- Schaefer, J.A., Moos, R.H., 1998. The context for posttraumatic growth: life crises, individual and social resources, and coping. In: *Posttraumatic Growth: Positive Changes in the Aftermath of Crisis*, The LEA Series in Personality and Clinical Psychology. Lawrence Erlbaum Associates Publishers, Mahwah, NJ, US, pp. 99–125.
- Sen, A.K., 1999. Democracy as a universal value. *J. Democr.* 10, 3–17. <https://doi.org/10.1353/jod.1999.0055>.
- Serfling, M.A., 2014. CEO age and the riskiness of corporate policies. *J. Corp. Finan.* 25, 251–273. <https://doi.org/10.1016/j.jcorpfin.2013.12.013>.
- Shay, J., 2012. Moral injury. *Intertexts* 16, 57–66. <https://doi.org/10.1353/itx.2012.0000>.
- Sizemore, K.M., Talan, A., Gray, S., Forbes, N., Park, H.H., Rendina, H.J., 2022. Attachment buffers against the association between childhood sexual abuse, depression, and substance use problems among transgender women: a moderated-mediation model. *Psychol. Sex.* 13 (5), 1319–1335. <https://doi.org/10.1080/19419899.2021.2019095>.
- Smil, V., 1999. China's great famine: 40 years later. *BMJ* 319, 1619–1621.
- Smith, A., 2006. Cognitive empathy and emotional empathy in human behavior and evolution. *Psychol. Rec.* 56 (1), 3–21.
- Snyder, M., 1983. The influence of individuals on situations: implications for understanding the links between personality and social behavior. *J. Pers.* 51, 497–516. <https://doi.org/10.1111/j.1467-6494.1983.tb00342.x>.
- Snyder, M., Ickes, W., 1985. *Personality and social behavior*. In: *Handbook of Social Psychology*, pp. 883–948.



- Su, K., 2019. Does religion benefit corporate social responsibility (CSR)? Evidence from China. *Corp. Soc. Responsib. Environ. Manag.* 26, 1206–1221.
- Tang-Lee, D., 2016. Corporate social responsibility (CSR) and public engagement for a Chinese state-backed mining project in Myanmar—Challenges and prospects. *Resour. Policy* 47, 28–37.
- Tedeschi, R.G., Park, C.L., Calhoun, L.G., 1998. *Posttraumatic Growth: Positive Changes in the Aftermath of Crisis*. Routledge.
- Tekleab, A.G., Reagan, P.M., Do, B., Levi, A., Lichtman, C., 2021. Translating corporate social responsibility into action: a social learning perspective. *J. Bus. Ethics* 171, 741–756. <https://doi.org/10.1007/s10551-020-04447-y>.
- Terr, L., 1988. What happens to early memories of trauma? A study of twenty children under age five at the time of documented traumatic events. *J. Am. Acad. Child Adolesc. Psychiatry* 27, 96–104. <https://doi.org/10.1097/00004583-198801000-00015>.
- Veszteg, R.F., Funaki, Y., Tanaka, A., 2015. The impact of the Tohoku earthquake and tsunami on social capital in Japan: trust before and after the disaster. *Int. Polit. Sci. Rev.* 36, 119–138. <https://doi.org/10.1177/0192512113509501>.
- Walker, M.U., 2006. *Moral Repair: Reconstructing Moral Relations after Wrongdoing*. Cambridge University Press.
- Wang, Q., 2001. Culture effects on adults' earliest childhood recollection and self-description: implications for the relation between memory and the self. *J. Pers. Soc. Psychol.* 81, 220–233. <https://doi.org/10.1037/0022-3514.81.2.220>.
- Wang, Z., 2008. National humiliation, history education, and the politics of historical memory: patriotic education campaign in China. *Int. Stud. Q.* 52 (4), 783–806.
- Wang, Z., Sarkis, J., 2017. Corporate social responsibility governance, outcomes, and financial performance. *J. Clean. Prod.* 162, 1607–1616. <https://doi.org/10.1016/j.jclepro.2017.06.142>.
- Wheaton, B., Roszell, P., Hall, K., 1997. The impact of twenty childhood and adult traumatic stressors on the risk of psychiatric disorder. In: *Stress and Adversity over the Life Course: Trajectories and Turning Points*. Cambridge University Press, New York, NY, US, pp. 50–72. <https://doi.org/10.1017/CBO9780511527623.003>.
- White, H., 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48, 817–838. <https://doi.org/10.2307/1912934>.
- Wojciechowski, T., 2022. Age-graded salience of exposure to violence as predictive of dual systems model development: examining direct victimization vs. witnessed violence. *J. Dev. Life-Course Criminol.* 8 (2), 275–297. <https://doi.org/10.1007/s40865-022-00196-w>.
- Xu, S., Ma, P., 2021. CEOs' poverty experience and corporate social responsibility: Are CEOs who have experienced poverty more generous? *J. Bus. Ethics* 1–30.
- Yang, J., 2012. *Urban and Rural Time Lag in the Famine Era*. Tongzhongongjin.
- Yang, D.L., Su, F., 1998. The politics of famine and reform in rural China. *China Econ. Rev.* 9, 141–155. [https://doi.org/10.1016/S1043-951X\(99\)80011-X](https://doi.org/10.1016/S1043-951X(99)80011-X). China's Great Famine.
- Yang, D.L., Xu, H., Tao, R., 2014. A tragedy of the Nomenklatura? Career incentives, political loyalty and political radicalism during China's great leap forward. *J. Contemp. China* 23, 864–883. <https://doi.org/10.1080/13603116.2014.882560>.
- Yi, Y., Zhang, Z., Yan, Y., 2021. Kindness is rewarded! The impact of corporate social responsibility on Chinese market reactions to the COVID-19 pandemic. *Econ. Lett.* 208, 110066 <https://doi.org/10.1016/j.econlet.2021.110066>.
- Zemore, R., Rinholm, J., Shepel, L.F., Richards, M., 1990. Some social and emotional consequences of breast cancer and mastectomy. *J. Psychosoc. Oncol.* 7, 33–45. [https://doi.org/10.1300/J077v07n04\\_03](https://doi.org/10.1300/J077v07n04_03).
- Zhao, T., Xiao, X., 2019. The impact of corporate social responsibility on financial constraints: does the life cycle stage of a firm matter? *Int. Rev. Econ. Financ.* 63, 76–93. <https://doi.org/10.1016/j.iref.2018.08.010>.