

# **China’s Corporate Social Credit System and the Dawn of Surveillance State Capitalism**

**Lauren Yu-Hsin Lin  
Curtis J. Milhaupt\***

## **Abstract**

Chinese state capitalism is transitioning toward a panoptic, technology-assisted variant we call “surveillance state capitalism.” The mechanism driving this variant is China’s corporate social credit system (CSCS) – a data-driven project to evaluate the “trustworthiness” of all business entities in the country. We provide the first empirical analysis of CSCS scores in Zhejiang Province, to date the only local government to publish them. We find that while the CSCS is ostensibly a means of measuring legal compliance, politically connected firms receive higher scores. This result is driven by a “social responsibility” category in the scoring system that valorizes awards from the government and contributions to Chinese Communist Party sanctioned causes. Our analysis underscores the potential of the CSCS to nudge corporate fealty to party-state policy and provides an early window into the far-reaching implications of the CSCS for the country as a whole.

**Key Words:** State Capitalism, Chinese Communist Party, Corporate Compliance, Regtech, Social Credit System

**JEL Classifications:** K22, P21, O21

---

\* Lin is an Associate Professor at City University of Hong Kong School of Law. Milhaupt is the William F. Baxter – Visa International Professor of Law, Stanford Law School and Senior Fellow, by courtesy, Freeman Spogli Institute for International Studies, Stanford University. Member, ECGI. We thank Larry Backer, Felix Chang, Yun-chien Chang, Yu-Jie Chen, Virginia Ho, Colleen Honigsberg, Jamie Horsley, Jyh-An Lee, Wendy Leutert, Sida Liu, Julian Nyarko, Alex Yang, Angela Zhang, and participants at the Stanford Public Policy Workshop and the Asia Pacific Research Center of the Freeman Spogli Institute for helpful comments on an earlier draft.

## Introduction

China emerged as a global economic power under a system of state capitalism, a twenty-first century addition to the varieties of capitalism taxonomy.<sup>1</sup> No variety of capitalism is static, however, and Chinese state capitalism is currently transitioning toward a panoptic, technology-assisted variant, what we call “surveillance state capitalism.” The mechanism driving the emergence of this variant is China’s corporate social credit system (CSCS) (*qiye shehui xinyong tixi*, 企业社会信用体系) a data-driven project to evaluate the “trustworthiness” (*xinyong*, 信用) of all business entities registered in the country, running parallel to a similar social credit system of evaluation for individuals.<sup>2</sup> The CSCS is linked to a regime of rewards and punishments for compliant and non-compliant firms. It was originally conceived as a self-enforcing mechanism to discipline market behavior in the absence of a functional legal system in the period of economic transition; today, the CSCS represents a strategy of automated screening to determine which enterprises are allowed market access and benefits.<sup>3</sup>

Impressive in its ambition, the social credit system is “a complex, sweeping, government-wide initiative that reaches into every sector of the economy and touches on such issues as data collection, corporate regulation, finance, consumer advocacy, and geopolitics.”<sup>4</sup> In this respect, the social credit system, of which the CSCS is a central but relatively understudied component, is an attempt to create a new operating system for society underpinned by notions of socialist legality rooted in compliance with state-led norms, detached from Western rule of law ideologies and practices.<sup>5</sup> Viewed in a darker light, it is one of the key mechanisms by which the Chinese Communist Party (CCP) seeks to achieve its objective of “leverag[ing] big data analytic capabilities to strictly and comprehensively monitor and control China’s population.”<sup>6</sup>

In this paper, we explore the role of the CSCS in China’s impending transition to surveillance state capitalism – a project using massive quantities of corporate behavioral data, not for private profit, but in service of party-state-orchestrated economic management. To gain insight into the operation and implications of the CSCS, we provide the first empirical analysis of CSCS scores from Zhejiang Province, to date the only local government to publish them. We find that, all else being equal, politically connected firms receive higher overall scores in Zhejiang. The channel for this result is a “social responsibility” category that valorizes awards from the government and contributions to CCP-sanctioned causes. We find no significant evidence that

---

<sup>1</sup> Hall and Soskice (2001, vi) identify a binary taxonomy between “liberal market economies” and “coordinated market economies” at the end of the twentieth century.

<sup>2</sup> With a few notable exceptions, most media, scholarly, and policy attention to date has focused on a parallel social credit system for individuals. The most detailed analyses of the CSCS to date are Trivium (2020) and ECCC (2019). Notwithstanding greater public attention devoted to the social credit system for individuals, a recent report by MERICS (2021) indicates that corporations have been the primary focus of government attention to date.

<sup>3</sup> Chen, Lin and Liu 2018, 9 (“Chinese policymakers view social credit as a strategic plan for the ‘socialist market economy system and the social governance system,’” quoting a government planning document); See also, ECCC 2019.

<sup>4</sup> Trivium 2020, 3.

<sup>5</sup> Backer 2019, 209.

<sup>6</sup> RAND 2020, viii.

better-governed firms or more profitable firms receive higher overall scores. However, highly leveraged firms, subject to higher default risks, are associated with lower total scores. These results underscore the enormous potential of the CSCS to nudge corporate fealty to the CCP's industrial and social policies. While our findings, based on the first available scores from a single province, have clear limitations, they provide an early window into the design characteristics, operation, and potential implications of the CSCS for the country as a whole.

The paper proceeds as follows. Part I describes the principal features of the CSCS and situates them at the intersection of three contemporary phenomena in the global political economy: the surveillance state, surveillance capitalism, and state capitalism. Part II discusses the national administration of the CSCS and its local implementation in Zhejiang Province. Part III presents an empirical analysis of the scoring system in Zhejiang. Part IV explores the potential implications of the CSCS for the Chinese political economy and corporate governance.

## I Corporate Social Credit and Surveillance State Capitalism

### A. Overview

The corporate social credit system is a program to amass data on regulatory compliance, inspections, payments of taxes and court judgments, and civic conduct of every business entity registered in China, and to generate publicly-available social credit profiles that can be relied upon by government agencies or market participants to decide rewards and punishments. “Social credit” in this context connotes “trustworthiness” or “compliance with obligations,” rather than loyalty to the CCP.<sup>7</sup> But the line between law and politics in China is blurred by the omnipresence of the CCP in all institutions and facets of society. The CSCS thus represents a futuristic survival of the fittest market regime in which only trustworthy enterprises survive, and trustworthiness is determined on the basis of data amassed and analyzed by the party-state.<sup>8</sup>

Planning for a comprehensive social credit program to supplement China's weak legal system began in the 1990s, to address widespread fraud and corporate malfeasance as the country transitioned from central planning to a fledgling market economy.<sup>9</sup> Those efforts culminated in 2014 with the release of a Planning Outline for the Construction of a Social Credit System (2014-2020) (*shehui xinyong tixi jianshe guihua gangyao (2014-2020)*, 社会信用体系建设规划纲要 (2014-2020)), a comprehensive program to evaluate the social credit of individuals and businesses. Today, the social credit system is also the centerpiece of China's digital governance strategy, marking a shift in its market access regime to a self-regulating marketplace – that is, a marketplace in which actors are coerced and/or incentivized to conform their behavior to norms established by the party-state beyond the ordinary channels of law and regulation.

---

<sup>7</sup> Trivium 2020, 16; ECCC (2019, 13) reports that most ratings are concerned with strict compliance with market rules and regulations.

<sup>8</sup> ECCC 2019, 7. See Krause and Fischer 2020 (hypothesizing that the social credit system will produce economic benefits by increasing trust among Chinese market actors).

<sup>9</sup> Trivium 2020.

The CSCS has two principal features. The first is nationwide data collection covering every company registered in China.<sup>10</sup> The data are drawn from a wide range of regulatory agencies, central and local governments, the judiciary, and private platforms. Two basic types of information will be collected in the CSCS when it is fully operational: (1) public credit information, which is generated by a company's interactions with governmental organs and regulatory agencies, such as fines, judgments, and business licenses; and (2) market credit information, which is generated by a company's interactions with other market actors, such as consumer complaints and data generated by credit rating agencies and industry associations. This information will be compiled in a social credit file tied to a Unified Social Credit Identifier, which is issued to each entity registered in China. The data will be used in local-government-administered scoring systems, most of which are still under construction, to produce a searchable public credit score for every enterprise registered in the locality – from the largest publicly listed firm to the corner barbershop.

The second principal element of the CSCS is a regime of rewards and punishments (“red lists” and “black lists” maintained by government agencies.<sup>11</sup> Some lists have broad reach in areas such as e-commerce fraud or environmental damage, while others apply only to specific sectors of the economy, such as food or medicine.<sup>12</sup> Agencies at the national level stipulate the criteria for inclusion in a red or black list, but an entity is placed on a list by the local branch of the agency where the entity is registered. An entity's inclusion in a red or black list becomes part of its CSCS file and is a matter of public record. Black and red list information is centralized and may trigger rewards or punishments by other agencies—the “joint rewards and punishments mechanism” (*lianhe jiangcheng jizhi*, 联合奖惩机制), increasing the system's behavior modification potential.<sup>13</sup>

Inclusion in a red list can confer a variety of benefits, ranging from expansion of access to loans to a reduction in the frequency of inspections. Redlisting also raises the entity's CSCS score in the locally administered system, which increases opportunities in public procurement processes and access to financing, particularly for small and medium-sized entities. Inclusion in a black list triggers market barriers such as restrictions on obtaining government approvals, greater frequency of inspections, and prohibitions on obtaining credit or issuing stock. Blacklisting also lowers an entity's CSCS score in the locally administered system. When an entity is placed on a black list, its legal representative and those individuals directly responsible for the infraction will also be blacklisted.<sup>14</sup> In some situations, the CSCS will require that businesses monitor the social credit files of their suppliers and business partners.<sup>15</sup>

The CSCS is not only directed at monitoring and modifying the behavior of market actors. It is also a major advance in Beijing's longstanding objective of using technology to increase the

---

<sup>10</sup> Foreign enterprises registered in China are also subject to the CSCS.

<sup>11</sup> Trivium 2020, 26-27. Red and black lists have a long history of use in China. Ibid, 26, n. 8.

<sup>12</sup> Ibid.

<sup>13</sup> As of September 2021, 44 joint reward and punishment memorandums have been signed by various central government agencies. There are also numerous joint memos signed at the local level. See Credit China. “Joint Rewards and Punishments Mechanism,” <https://www.creditchina.gov.cn/lianhejiangcheng/lingyulianhejiangcheng/>. Accessed 14 September 2021.

<sup>14</sup> Chen, Lin and Liu 2018, 15-16.

<sup>15</sup> ECCC 2019, 20.

efficiency and scalability of government processes. In its Guiding Opinions on Accelerating the Construction of a Social Credit System and Building a New Credit-Based Supervisory Mechanism (2019 Guiding Opinions) (*guanyu jiakuai tuijin shehui xinyong tixi jianshe goujian yi xinyong wei jichu de xinxing jianguan jizhi de zhidao yijian*, 关于加快推进社会信用体系建设构建以信用为基础的新型监管机制的指导意见), the State Council depicted social credit as the basis for government supervision over market entities and called for the building of “credit-score-based supervision” (*xinyong fenji fenlei jianguan*, 信用分级分类监管).<sup>16</sup> Under this new mechanism, firms will be categorized into different levels based on the public credit scores derived from an integrated public credit assessment conducted either at the national or local level, by an industry association, or a third-party credit rating agency.<sup>17</sup> Based on the ratings given in accordance with the public credit scores, highly rated companies will be subject to less supervision; low-rated companies will be warned and subject to heightened supervision by local government agencies.<sup>18</sup> In this sense, the CSCS is an advanced incarnation of nascent “regtech” initiatives around the world, in which analog-era regulatory strategies are shifted to digital and computational models.<sup>19</sup> With the CSCS, Beijing “has figured out how to entwine surveillance with digital governance” in order simultaneously to shape trustworthy market actors to its specifications and enhance the provision of government services.<sup>20</sup>

### *B. Toward Surveillance State Capitalism*

The preceding overview of the CSCS, at least as envisioned on paper, is still far from completely implemented in practice, reveals its conceptual and operational linkages to three contemporary phenomena in the global political economy: the surveillance state, surveillance capitalism, and state capitalism.

The CSCS would not be possible without the ability to collect and analyze enormous amounts of data generated by the interactions of businesses with regulators, courts, and other market participants. Before the full-blown emergence of the modern surveillance state, scholars noted that authoritarian regimes face difficulties in collecting information due to the lack of an independent press and civil society organizations.<sup>21</sup> Indeed, although China under the CCP has a long history of politically motivated surveillance, until relatively recently the effort was decidedly low tech, relying primarily on a network of local informants in neighborhoods, schools, and workplaces. The advent of AI, biometric identification systems, and the digitization of policing and other government procedures have dramatically altered the capacity of authoritarian regimes to monitor and influence the behavior of their populations in real-time.

Beijing has long pursued the goal of assembling a vast, sophisticated network of interrelated technologies to predict, identify and neutralize perceived threats to the regime before

---

<sup>16</sup> The State Council 2019.

<sup>17</sup> NDRC 2019.

<sup>18</sup> The State Council 2019.

<sup>19</sup> For an overview of regtech, see Barefoot 2020.

<sup>20</sup> Gates, Megan. 2021. “The Rise of the Surveillance State,” Security Management, 1 June, <https://www.asisonline.org/security-management-magazine/monthly-issues/security-technology/archive/2021/june/The-Rise-of-The-Surveillance-State/>. Accessed 22 January 2022.

<sup>21</sup> Ginsberg and Moustafa 2008, 7-8.

they materialize.<sup>22</sup> Projects developed to meet this objective include Golden Shield, which built the Great Firewall of internet monitoring and censorship, the Police Cloud of big data platforms, which tracks and predicts the movements of individuals of concern to the regime, and the Skynet and Sharp Eyes systems of blanket video surveillance of target areas. Human Rights Watch concludes that “the Chinese government is perfecting a system of social control that is both all-encompassing and highly individualized, using a mix of mechanisms to impose varying levels of supervision and constraint on people depending on their perceived threat to the state.”<sup>23</sup>

China’s big tech companies have served as proving grounds for the government’s efforts to connect huge, disparate data sets.<sup>24</sup> Huawei, Alibaba, Tencent, and other Chinese companies have collaborated in the creation of a meta-database (the National “Internet + Monitoring” System) that integrates monitoring and credit information on companies from a wide range of government, commercial, and e-commerce sources.<sup>25</sup> More recently, at the request of Beijing, Ant Group, the financial services affiliate of Alibaba under the control of Jack Ma, contributed its data on consumer loans and personal credit to a new credit scoring joint venture with state-owned enterprises (SOEs).

The goal of obtaining massive surveillance capacity on market behavior to generate inputs for the CSCS has obvious parallels to what has come to be known as surveillance capitalism, which may loosely be defined as the use of data on human behavior as raw material for a new form of market exchange.<sup>26</sup> In surveillance capitalism, the “behavioral surplus” generated by user interactions with a platform or app is claimed as the property of private firms for the generation of profits; and thus, the power over this data is held in the first instance not by the state, but by “surveillance capitalists” such as Facebook and Alibaba.<sup>27</sup>

In developing the CSCS, the Chinese government has embraced the basic logic of surveillance capitalism,<sup>29</sup> but turned that logic on its head. The data used in the CSCS is accumulated, not principally by private companies from user interactions with their platforms and apps, but by government organs at the national and local level as business entities interact with regulatory agencies and the courts. More importantly, in the CSCS, data generated by human behavior (conducted via business organizations) is not commodified for private profit; rather, it is amassed and analyzed in service of the party-state’s interests – market surveillance and behavior modification in conformity with its policy objectives.

---

<sup>22</sup> The government has enlisted both state-owned and private firms in the creation of this surveillance infrastructure – for example, AI startups Hikvision and SenseTime. State-owned CETC built much of the surveillance infrastructure in Xinjiang. US firms such as Apple, Cisco, and Oracle have been criticized for contributing to this effort.

<sup>23</sup> Roth, Kenneth, and Maya Wong. 2019. “Data Leviathan: China’s Burgeoning Surveillance State,” New York Review of Books, 16 August, <https://www.hrw.org/news/2019/08/16/data-leviathan-chinas-burgeoning-surveillance-state>. Accessed 22 January 2022.

<sup>24</sup> RAND 2020, 19.

<sup>25</sup> ECCC 2019, 5.

<sup>26</sup> Zuboff 2019.

<sup>27</sup> Ibid.

<sup>29</sup> See Aho and Duffield 2020, 188.

As previously noted, the CSCS is also a central component of the longstanding CCP goal of digital governance, what RAND calls China’s “national big data strategy.”<sup>30</sup> This is a whole-of-government effort to unlock technology’s full potential to improve the provision of government services and enhance the government’s capacity in the performance of economic, military, police, and intelligence functions. In RAND’s assessment, the goal of the strategy is nothing less than helping China achieve great power status.<sup>31</sup>

Thus, conceptually, the CSCS is much more than a robo-version of a credit rating agency such as Moody’s or S&P. It is an enormously ambitious regtech approach to improved corporate compliance and governmental supervision, filling enforcement gaps in the Chinese legal system and shortcomings in regulatory capacity. If its potential is fully realized – a significant “if,” given the demands the system will place on accurate data collection and its effective centralization and downstream use by local governments – the CSCS will supply a technological solution to existing limitations on party-state control over the corporate sector<sup>32</sup> and propel the emergence of a powerful, data-driven variant of Chinese state capitalism.

The role the CSCS will ultimately play in China, however, depends on its implementation at both the national and local levels, the subject to which we now turn.

## II Administration and Implementation of the CSCS

The CSCS is administered at the central level by the National Development and Reform Commission (NDRC), a powerful state planning agency, and the Peoples Bank of China, the central bank. The State Administration for Market Regulation (SAMR), an antitrust authority, is also involved, as it collects a large amount of data on enterprises and maintains a “heavily distrusted entities list” (*yanzhong weifa shixin mingdan*, 严重违法失信名单), which is fed into the sanctioning mechanism of the CSCS. An inter-ministerial conference composed of numerous government agencies and party bodies coordinates the sharing of information and imposition of sanctions.<sup>33</sup>

Publication of the Planning Outline in 2014 touched off a “waterfall effect” of government agency involvement in the CSCS at descending levels of government.<sup>34</sup> Even though 2020 marked the end year of the major policy blueprint issued in 2014, the CSCS today is not a unified, standardized system. Overarching design features such as grading and punishment systems and policies on technical issues such as the scope of data collection and storage are established at the national level.<sup>35</sup> Each provincial, city, and district government is responsible for setting up a CSCS

---

<sup>30</sup> RAND 2020, vii.

<sup>31</sup> Ibid.

<sup>32</sup> Milhaupt and Zheng (2015) argue that the Chinese state exercises less control over SOEs than is commonly assumed; Milhaupt (2020) notes that agency problems and span-of-control challenges limit the government’s capacity to control the state sector.

<sup>33</sup> Chen, Lin and Liu 2018, 13.

<sup>34</sup> Trivium 2020, 17.

<sup>35</sup> A public consultation draft was published by NDRC in July 2021 regarding the scope of public credit information. See NDRC 2021.

to score firms registered in its locality. A digitized evaluation system to generate a score for each registered enterprise will eventually be established locally throughout the country.<sup>36</sup>

Implementation of the CSCS at the local level is most advanced in Zhejiang Province. Zhejiang is one of the most economically developed coastal provinces and home to a thriving private sector, including the Alibaba Group. Zhejiang is also a frontrunner in building the assessment model for public credit, which is the core of an enterprise's overall social credit assessment.<sup>37</sup> By January 2018, Zhejiang had developed comprehensive assessment criteria for business enterprises, among other entities.<sup>38</sup> As of June 2021, the Zhejiang government had completed public credit assessments for 3 million business enterprises.<sup>39</sup>

According to the Guidelines for the Evaluation of the Public Credit of Five Types of Subjects in Zhejiang Province (2020 Version) (*2020 Zhejiang Guidelines*) (*zhejiang sheng wulei zhuti gongong xinyong pingjia zhiyin (2020 ban)*, 浙江省五类主体公共信用评价指引 (2020版)), the enterprise public credit scores are evaluated under three levels of indicators. (See Appendix for Zhejiang Province's evaluation and scoring system.) The first-level indicators include the following five components: *Basic Data*, *Finance and Taxation*, *Governance*, *Compliance*, and *Social Responsibility*.<sup>40</sup> The *2020 Zhejiang Guidelines* assign different weights to each component, following industry practice and expert recommendations. The total possible score is 1,000, of which *Basic Data* accounts for 80 points (8% of the total), *Finance and Taxation* 195 points (19.5%), *Governance* 90 points (9%), *Compliance* 450 points (45%), and *Social Responsibility* 185 points (18.5%). As noted in Part I, public credit information refers to the data or information collected by government bodies or legally-authorized administrative bodies in the performance of their duties or in the process of providing public services.<sup>41</sup> The scores, therefore, do not currently contain market credit information generated by consumers, industry associations, etc., or information voluntarily provided by the enterprises, such as financial and management performance. The Appendix shows the weighting, content, and source of data for all three levels of indicators.

The *Basic Data* indicator aggregates information on key corporate personnel and the business itself to determine if dishonest acts or abnormal operations have occurred. Points are deducted if an enterprise's directors, actual controllers, or other key personnel are listed as having committing serious dishonest acts by any government agency, or if they have failed to satisfy a court judgment. *Finance and Taxation* aggregates information on the creditworthiness of the

---

<sup>36</sup> Trivium 2020, 17-18.

<sup>37</sup> While most provinces and municipalities have promulgated master regulations relating to public credit assessment, only seven had published scoring standards by October 2021, and only two of these (Shandong and Zhejiang Provinces) had completed digitized evaluation systems and databases.

<sup>38</sup> Zhejiang Provincial Development and Reform Commission. 2018. "Kai Gonggong Xinyong Pingjia Xianhe Zhejiang Sheng Wulei Zhuti Gonggong Xinyong Pingjia Zhiyin (2017 Ban) Yinfa" (Pioneer in Public Credit Evaluation! "Guidelines for the Evaluation of the Public Credit of Five Types of Subjects in Zhejiang Province (2017 Version)" Has Been Published), Sohu.com, 15 January, [https://www.sohu.com/a/216872262\\_660726](https://www.sohu.com/a/216872262_660726). Accessed 24 August 2021. Note that the CCP is the only social, political, or economic actor not subject to evaluation.

<sup>39</sup> Credit Zhejiang, 2021.

<sup>40</sup> The latest version of the assessment guideline was published on Aug. 4, 2020. See Zhejiang Provincial Development and Reform Commission 2020a (*2020 Zhejiang Guidelines*), 2020b.

<sup>41</sup> Zhejiang Provincial Development and Reform Commission 2017, art. 2.



enterprise. Points are deducted if the enterprise failed to pay debts, social insurance fees, or taxes. *Governance* aggregates information related to an enterprise's product quality, safety record, and environmental compliance. Points are deducted for poor inspection results and accidents. The *Compliance* indicator, accounting for almost half of the total possible points, aggregates information on an enterprise's record of compliance with a wide range of agency and judicial authorities, with deductions for administrative penalties, criminal conduct, and other enforcement actions. *Social Responsibility* aggregates information on redlisting, awards from government organs, and charitable donations. Unlike the format of the other indicators in which points are deducted from the base score to penalize bad conduct, points are added for good behavior in the *Social Responsibility* category, meaning that it is possible to score zero in this category.

To gain insights into the implementation of the CSCS in Zhejiang Province, we collected publicly available scores on the Zhejiang Province government website as of July 1, 2021.<sup>42</sup> All 531 A-share listed companies headquartered in Zhejiang are included in our sample. According to the *2020 Zhejiang Guidelines*, scores range from 0 to 1000 and, based on the scores, enterprises are rated as Excellent ( $S \geq 850$ ), Good ( $800 \leq S < 850$ ), Average ( $750 \leq S < 800$ ), Fair ( $700 \leq S < 750$ ), and Poor ( $S < 700$ ).<sup>43</sup> Table 1 and Figure 1 present the distribution of ratings and scores.

[insert Table 1]  
[insert Figure 1]

As is evident from Table 1, ratings are not equally distributed. 74.2% of the firms are rated Excellent, while only about 2% of the firms are rated Fair or Poor. Overall, around 90% of the firms are ranked Excellent or Good. The high ratings may be indicative of the comparatively high quality of listed firms in this economically developed region of China, or may signal poor quality data in the system. Further analysis will have to await publication of scores in other provinces. As mentioned, the NDRC established the new credit-score-based supervision linking a firm's performance in the public credit rating system to the intensity of regulatory oversight. Following the national policy, Zhejiang has strengthened supervision of firms rated Fair and Poor as well as those included in a national black list.<sup>44</sup>

While no firm received a full score, the average score of 864.39 carries an Excellent rating. The summary statistics in Table 1 and the Kernel density estimation plot in Figure 1 provide additional information about variations in scoring. The total scores range from 541 to 935 and the distribution concentrates and peaks between 850 and 900. The distributions of the first four categories as shown in Figure 1 are skewed towards the maximum scores. The only exception is the *Social Responsibility* category, where the distribution peaks between 50 and 75 (out of 185) and has the largest variation. Scores in *Social Responsibility* start from zero, with points added as a bonus, while the scores in other categories start from full marks, with points deducted as

---

<sup>42</sup> Available at <https://xyxx.zjzfwf.gov.cn/index/#/index/searchHome>.

<sup>43</sup> See Zhejiang Provincial Development and Reform Commission, 2020a.

<sup>44</sup> Credit Zhejiang, 2021.

penalties. The empirical analysis in the next part will underscore the significance of high variability in *Social Responsibility* scores.

For additional perspective on the distribution of scores and what might be thought of as the “future payoff opportunity” for firms with respect to each indicator, we calculated the mean score for all firms as a percent of total points possible with respect to each first- and second-level indicator. As shown in Figure 1, the mean scores for the first four first-level indicators are all above 96%. The mean score for *Basic Data* is 99.34%, potentially calling into question its usefulness in the Zhejiang CSCS, at least at this early stage of implementation. The mean score of first-level indicators is lowest for *Social Responsibility*, at 38.25%. This suggests the largest future payoff to effort may be found in actions such as donations, volunteer work, and obtaining awards from the government. Perhaps not coincidentally, these are precisely the areas of emphasis in President Xi Jinping’s current campaign to reduce income inequality, promote pro-social contributions by wealthy individuals and private corporations, and increase loyalty to the Party.

[insert Figure 2]

Figure 2 also shows differences in mean scores in percentage terms for second-level indicators. Firms obtained the lowest mean scores for *Honesty Records* (58.29%) – which adds points for government awards and redlisting – and *Charity* (1.25%). *Charity* aggregates information on volunteer services in party-sanctioned activities and donations to the Red Cross or other social organizations recognized by the party-state. Since 88% of our sample firms are non-state firms, the low mean score for volunteer services probably results from low levels of participation in CCP-sanctioned activities. Looking forward, the opportunity to gain points in the *Social Responsibility* category by participating in party-endorsed activities may nudge non-state firms to demonstrate greater fealty toward the CCP.

Focusing on the nuances of the scoring system in this way highlights the potential of the CSCS to tighten linkages between the corporate sector and the party-state and to modify corporate behavior consistent with CCP policy objectives. To delve deeper into the operation and potential of the CSCS, we now turn to a more rigorous analysis of the early scores in Zhejiang province.

### **III Empirical Analysis of Zhejiang Scores**

The CSCS is a first-of-its-kind comprehensive, data-based corporate scoring system implemented in the world’s second largest economy. Investigating the determinants of scores in the CSCS is therefore important as a matter of theory – to test understanding of what market “trustworthiness” means in China, and practice – to provide insights into the potential effects of the CSCS on firm behavior and economic performance. Previous literature (not focused on the CSCS), and the structure of the CSCS scoring system itself described above, suggest four factors that may be influential in determining a firm’s corporate social credit score: corporate governance, financial condition, state ownership and party fealty, and political connections.

The CSCS is a means of evaluating a firm’s legal compliance and market conduct. Firms with better corporate governance may be expected to have cleaner compliance profiles and better

track records of market conduct. For our regression model, we use the percentage of independent directors on the board to proxy for the quality of a firm's corporate governance. Introducing independent directors to boards was the focus of major corporate governance reforms in many countries after the Asian financial crisis in 1997, and it continues to be a central component of reforms across the region. The percentage of independent directors on a given firm's board has been adopted as one of the key indicators used in corporate governance assessments throughout the world.<sup>45</sup> Thus, we may expect firms with a higher percentage of independent directors to receive higher scores, owing to more robust compliance programs and heightened board sensitivity to legal risk.

Since the CSCS measures creditworthiness (or "trustworthiness"), a firm's financial condition might also be expected to affect its social credit score. All else being equal, more highly leveraged and less profitable firms have a higher probability of defaulting on debts and potentially less capacity to satisfy judicial awards and administrative penalties. We use leverage ratio and return on assets to assess a firm's financial condition.

Notwithstanding the ostensibly neutral quality of the CSCS, the policy context in which it has been developed is obviously relevant to its implementation. As outlined above, the CSCS is part of a sweeping project to combine surveillance of regime threats with enhancement of government functions. As such, it is plausible that direct connections to the party-state in the form of state equity ownership and overt signals of fealty to the CCP would be associated with higher social credit scores. We use a combination of variables to test the degree to which party-state linkages affect credit scores: (1) a firm's status as an SOE or privately-owned enterprise (POE), (2) the percent of the state's equity ownership in a firm, and (3) whether a firm has adopted charter amendments in response to a corporate "party building" (*dangjian*, 党建) policy launched by the CCP in 2015.<sup>46</sup>

But examining only formal party-state linkages may be misleading. Previous literature has indicated that state equity ownership is an imperfect measure of the degree to which a firm accedes to government and party policy, and the line between SOEs and POEs is blurred in China.<sup>47</sup> Political connections are important to private firm growth in China and serve as a form of protection for large Chinese firms in a weak rule of law environment.<sup>48</sup> Prior studies have documented the link between political connections and a host of economic, legal, and political outcomes, including the likelihood of listing shares on a Chinese stock exchange in an initial public

---

<sup>45</sup> See, e.g., ISS (Institutional Shareholder Services). 2021. "Governance Quality Score Methodology Guide," 31 December, <https://www.issgovernance.com/file/products/qualityscore-techdoc.pdf>. Accessed 22 January 2022 ("The percentage of independent directors on a board is viewed by many as a critical to firm performance.").

<sup>46</sup> Lin and Milhaupt 2021, 193-194. In 2015, the Central Committee of the CCP and the State Council issued a document ("Guiding Opinions on Deepening State-owned Enterprise Reforms") to strengthen CCP leadership over SOEs by formalizing the legal position of party cells in SOEs and their role in corporate governance. The policy requires SOEs to follow a model template of charter amendments to formalize and elevate the role of the CCP in their corporate governance. Some POEs also followed the policy, even though it was not directed at the private sector.

<sup>47</sup> Milhaupt and Zheng 2015.

<sup>48</sup> Ibid.

offering,<sup>49</sup> accessing external finance,<sup>50</sup> and formally acceding to party policy.<sup>51</sup> Politically connected firms may obtain higher social credit scores because they are more likely to be redlisted or because they receive greater protection against adverse administrative and judicial actions than unconnected firms.

We ran ordinary least squares (OLS) regressions on public credit scores published by the Zhejiang government and measured the effect of the above independent variables on total scores. We estimated the following OLS regression specifications:

$$\begin{aligned}
 Scores_i = & \alpha_i + \beta_1 \%IndependentDirector_i + \beta_2 Leverage_i + \beta_3 ROA_i + \beta_4 SOE_i + \\
 & + \beta_5 \% StateShareholding_i + \beta_6 PartyBuildingReform_i + \beta_7 PoliticalConnection_i + \\
 & X_i + \varepsilon_i
 \end{aligned}
 \tag{1}$$

Scores are the public credit scores of the sample firms in Zhejiang derived from the comprehensive public credit assessment based on government records.  $X_i$  represents three control variables: *Firm Size* (log of a firm's total assets), *Firm Age*, and *Book-to-Market Ratio*. We obtained data on the percentage of independent directors on the board (*% Independent Director*), *Leverage*, return on assets (*ROA*), *SOE* dummy, and percentage of state shares and state-owned legal person shares (*% State Shareholding*) from the China Stock Market and Accounting Research Database (CSMAR) and the Wind Economic Database (WIND). The *Independent Directors* variable is defined by Chinese securities law and regulations. The *Party-building Reform* variable evaluates the extent to which a firm is susceptible to CCP influence. Since 2015, CCP has engaged in the party-building reform, whereby SOEs are required to make their internal party committee an official governance organization. Some non-SOEs also voluntarily adopted party-building provisions in their corporate charters.<sup>52</sup> The variable is derived from a hand-coding exercise conducted by the authors in a previous paper and denotes one if a firm has amended its corporate charter to include party-building provisions as of December 31, 2018 and zero otherwise.<sup>53</sup> The *Political Connection* variable assesses whether any director or chief executive officer (CEO) of a firm is connected with the government or CCP, such that the individual may be able to exert political influence. To assess whether a given firm is politically connected, we follow existing literature and identify formal party or government positions held by corporate executives.<sup>54</sup> We obtained data on the government or party-related positions held by each director and CEO from CSMAR. There are six main levels in the Chinese bureaucracy: ministry (*bu*, 部), department (*ju*, 局), division (*chu*, 处), section (*ke*, 科), staff member (*keyuan*, 科员), and clerk (*banshiyuan*, 办事员). We coded a director or CEO as politically connected if he or she has served in certain government or party positions at or above the rank of the division level. We then constructed a dummy variable, *Political Connection*, that equals one if a firm has at least one politically connected director or CEO, and zero otherwise. As a robustness check, we constructed two other

---

<sup>49</sup> Lee, Qu and Shen 2019.

<sup>50</sup> Firth, et al. 2009.

<sup>51</sup> Lin and Milhaupt 2021.

<sup>52</sup> Ibid.

<sup>53</sup> Ibid., 196-199.

<sup>54</sup> Lee, Qu and Shen 2019 and Haveman et al. 2017.

measures: a dummy variable of directors (not including the CEO) having political connections and the percentage of directors having political connections. Since the CSMAR data on top executive employment is only available to March 2018, we only included 414 Zhejiang sample firms listed on stock exchanges before March 2018 in the regression analysis. To avoid the influence of outliers, we winsorized financial variables (*Leverage*, *ROA*, *Firm Size*, and *Book-to-Market Ratio*) at 0.5%.

Table 2 shows the summary statistics of all variables.<sup>55</sup> On average, 37% of the directors in the sample firms are independent – just over the minimum threshold of one-third set by the China Securities Regulatory Commission. Only 15% of the sample firms are SOEs and the average state shareholding is only 1%. This is consistent with the general perception that Zhejiang is a powerhouse for private and small-and-medium-sized enterprises. However, one-quarter of the firms have amended their corporate charters in compliance with the party building policy and 54% of sample firms have at least one politically connected director or CEO.

[insert Table 2]

We ran regressions on the total scores and sub-scores of first-level indicators respectively. Table 3 shows the OLS regression results on the total scores. Models (1) to (4) examine the relationship between credit scores and corporate governance, financial condition, state ownership and party fealty, and political connections indicators, respectively. Model (5) examines these factors together.

[insert Table 3]

These results are contrary to some plausible conjectures based on the design and context of the CSCS and consistent with others. Contrary to expectations, the quality of corporate governance, at least as proxied by the percentage of independent directors, is not correlated with higher scores. Nor are connections to the party-state in the form of status as an SOE, state equity ownership, or formal signaling of fealty to the CCP. Although *SOE* is positively correlated with scores in Model (3), the significance of the result disappears when controlling for other variables in Model (5). Consistent with expectations, leverage is negatively associated with scores as it may be associated with higher rates of default and nonperformance of other obligations which are a major focus of the CSCS. The result remains after controlling for other variables in Model (5) (significant at the 5% level in both models). A one percent increase in leverage ratio decreases scores by 50.785. By contrast, profitability is not significantly associated with higher scores. This may be a natural result of a system designed to measure legal compliance rather than financial performance. But this result may raise questions about the impact of the CSCS on the Chinese economy: will it lead corporate managers to focus on maximizing scores in ways that harm their financial performance?

---

<sup>55</sup> We computed the correlation coefficient for all variables and the VIF value and found no sign of multicollinearity.

Most importantly, consistent with findings in other areas of the Chinese economy, political connections matter in the CSCS: *Political Connection* is significantly associated with higher scores in Model (4) (significant at the 5% level) and the result remains robust after controlling for other variables in Model (5). (Also consistent with prior literature, a politically connected private firm may have more influence with the state than an SOE whose only connection to the state is via equity ownership.) In unreported regressions, the positive correlation holds when using a dummy variable of directors (without the CEO) having political connections (significant at 5% level) and the percentage of directors having political connections (significant at 10% level). Despite the fact that “trustworthiness” has no overt political connotations in the CSCS, it is significant (if not surprising) that politically connected firms have advantages in a scoring system designed by the party-state to serve its interests. As demonstrated in the summary statistics discussed above, the payoff to effort is high under the *Social Responsibility* indicator, where scores can be boosted by participating in activities endorsed in CCP policy and garnering awards from the government.

To obtain a finer-grained understanding of the association between CSCS scores and our variables of interest, we ran a regression on the sub-scores in each first-level indicator.<sup>57</sup> Table 4 shows the regression results. SOEs score higher under the *Basic Data* indicator, which measures the trustworthiness of key corporate personnel and the operation of a business. *Percentage of State Shareholding* is significantly correlated with scores in the *Compliance* indicator. A one percent increase in the percentage of state shareholding increases *Compliance* scores by 53.073. Even though party-state control variables are not correlated with total scores, the regression results in sub-scores suggest that firms with formal linkages to the party-state have moderately better compliance records. (This may be due to superior compliance functions in firms with more state shareholding, or the difficulty of sanctioning firms connected to the state.) *Percentage of Independent Directors* is also associated with higher *Compliance* scores. A one percent increase in the percentage of independent directors increases *Compliance* scores by 58.167, statistically significant at the 5% level. (Better governance may result in superior compliance records, consistent with our conjecture above. Less plausibly, firms with good compliance programs require higher percentages of independent directors.) Amplifying the results in Table 3, *Leverage* is negatively correlated with each of the *Basic Data*, *Finance and Taxation* and *Compliance* categories, suggesting that the overall scores of more heavily indebted firms are dragged down by a range of credit history and compliance problems. *ROA* is again uncorrelated with scores.

Consistent with the analysis above, *Political Connection* is positively correlated *only* with the sub-score for *Social Responsibility*. Thus, our findings indicate that politically connected firms receive higher total CSCS scores by accumulating soft merits from party-state organs; we find no evidence that such firms have better compliance records or other indications of superior “trustworthiness” as market actors.<sup>58</sup> Whether the high payoff potential of political connections in the *Social Responsibility* category is a bug or a design feature of the CSCS remains to be seen. It will be important to analyze whether political connections are a channel for higher scores in other provinces and throughout the CSCS over time.

---

<sup>57</sup> Sub-scores refer to the separate scores in each of the five broad scoring categories. See Appendix.

<sup>58</sup> In fact, firms following the CCP’s party-building reform policy receive significantly lower scores in *Finance and Taxation*. This may indicate that companies in arrears on debts and taxes signal fealty to the party as a form of protection from adverse actions by creditors or regulators.

[insert Table 4]

To test the robustness of our results, we conducted several alternative (unreported) regressions. First, to address the concern that scores are skewed towards the high end, we ran an OLS regression against the log of the scores as the dependent variable and found results similar to those reported in Table 3. Second, since the scores are capped at 1,000 points, we ran additional Tobit and Fractional Response Logit regressions to address the concern that the dependent variables are possibly censored or measured within a bounded range. The results of these regressions are similar to the OLS results, with *Leverage* negatively and *Political Connection* positively correlated with the scores.

#### IV Implications and Questions

The longstanding objective of ensuring market behavior deemed trustworthy by the party-state is an increasingly prominent feature of Chinese state capitalism. China's approach to economic growth over the past thirty years has combined capitalist institutions –the corporation and markets – with pervasive party-state influence over the financial system and business sector.<sup>59</sup> As enormous wealth and data have been accumulated by private firms outside the direct control of the state, demands for political conformity in corporate governance and regulatory compliance have increased. The most recent manifestations of this trend are the government's regulatory crackdown on many of China's leading big data firms and its investment in "special management shares" (*teshu guanli gu*, 特殊管理股) in major online content companies.<sup>60</sup>

As a data-driven system of evaluation, rewards and punishments for every commercial enterprise in the country, the CSCS is a policy channeling<sup>61</sup> tool of potentially far-reaching significance. Consider, for example, the potential of the "social responsibility" category to shape corporate behavior going forward. Our findings indicate a high payoff potential in the CSCS scoring system for corporate managers who prioritize CCP policy compliance and local government ingratiation over profit maximization. Some signs of this behavior are already appearing in China, with firms and their wealthy founders promising large donations to social causes, consistent with current CCP emphasis on "common prosperity" (*gongtong fuyu*, 共同富裕).<sup>62</sup> While this conduct may or may not be directly motivated by the CSCS, the opportunity to boost CSCS scores with such donations may well serve as a powerful added incentive in future

---

<sup>59</sup> See generally, Liebman and Milhaupt 2016.

<sup>60</sup> On the regulatory backlash against Chinese big tech, see, e.g., Reuters. 2021. "Chinese Tech Firms "Self-Correct" to Get Ahead of Potential Regulatory Fury," 12 August, <https://www.reuters.com/world/china/chinese-tech-firms-self-correct-get-ahead-potential-regulatory-fury-2021-08-11/>. Accessed 22 January 2022. The Chinese government is taking special management shares, carrying veto rights and board representation, in internet-content companies in order to intensify monitoring of media and internet content. See, e.g., Zhai, Keith, and Liza Lin. 2021. "China Steps Up Direct Involvement in Internet Content Firms," Wall Street Journal, 17 August, <https://www.wsj.com/articles/china-steps-up-direct-involvement-in-internet-content-firms-11629209515>. Accessed 22 January 2022.

<sup>61</sup> Milhaupt and Pargendler (2017, 479) use the term policy channeling to denote the state's ownership of corporations (as opposed to regulation or taxation) to pursue industrial and social policy goals.

<sup>62</sup> See, e.g., Matsuda, Naoki, and Iori Kawate. 2021. "China's Elite Scramble for Path to Xi's 'Common Prosperity,'" Nikkei Asia, 2 September, <https://asia.nikkei.com/Business/China-tech/China-s-elite-scramble-for-path-to-Xi-s-common-prosperity>. Accessed 22 January 2022.

instances. Importantly, as CCP policy priorities change over time, the CSCS scoring system can be readily adjusted by local governments to incentivize and reward compliance.

Our results, based on the initial scores in a single province, have clear limitations; a more complete picture of the CSCS must await publication and analysis of scores in other provinces. But our findings tentatively raise the specter of numerous potentially problematic consequences of the CSCS. For example, local scoring systems may be gamed or corrupted by powerfully connected companies located in the locality. Moreover, if the benefits of political connections via the “social responsibility” channel are replicated throughout the country, foreign firms registered in China (which are subject to the CSCS) will be inherently disadvantaged, deepening their difficulties of operating in the Chinese economy. Even more problematically, the CSCS may be used, not simply to assess corporate regulatory compliance, but as a means of ensuring that all market actors promote the CCP’s vision of a socialist market economy with Chinese characteristics – whatever that vision may emphasize in a given period. Even if the CSCS is not taken to an Orwellian extreme, it could prompt a revival of the impulse toward central planning, as the system harnesses the technological means to overcome many of the information and incentive problems that doomed this approach to economic management long ago. China’s CSCS strategists will need to take care, lest their algorithms nudge Chinese companies into competitive dead ends or serve as an unproductive distraction to their managers.

To be sure, the CSCS may have some salutary incentive effects on corporate behavior, particularly as the scoring system is refined. The scoring platform’s malleability can be a strength as well as a potential hazard. For example, compliance with additional regulatory regimes, such as those for the capital and labor markets, could be subject to scoring. Perhaps most promising and ambitious would be the incorporation of meaningful environmental, social, and governance (ESG) metrics into the CSCS scoring system. It is conceivable that at least some aspects of the CSCS will be emulated in regtech approaches by more democratically accountable governments.

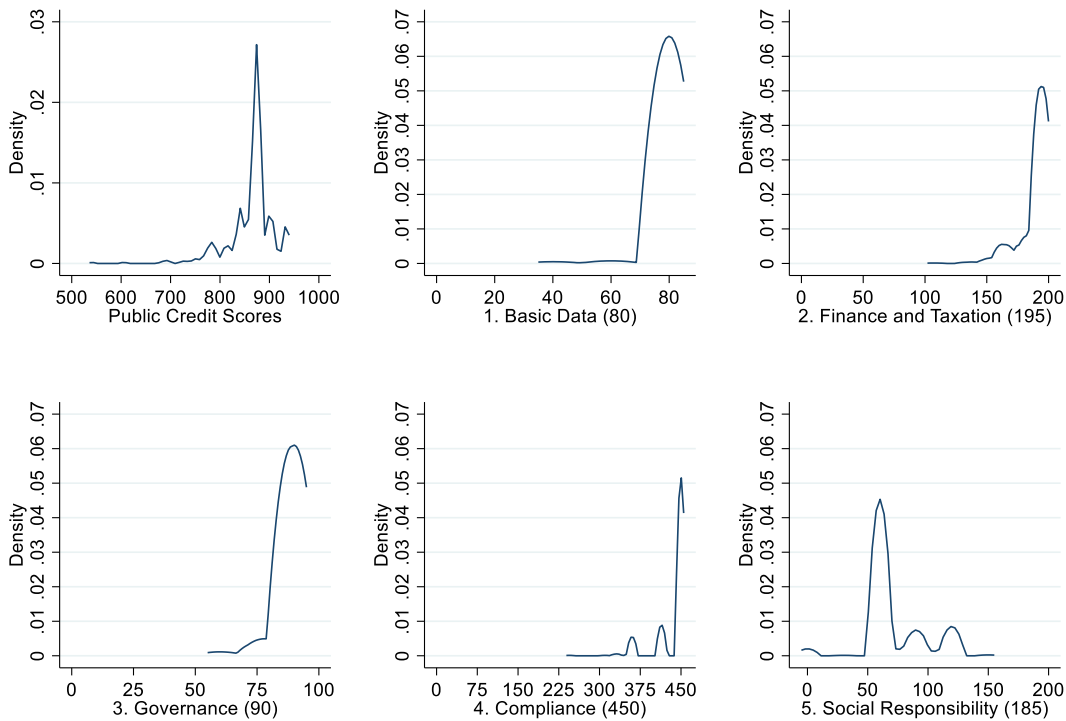
It is too early to determine exactly how effectively the CSCS will be implemented nationwide, let alone how it will evolve over time and the role it will play in the Chinese political economy. As more data become available, we intend to conduct further research to evaluate how corporations respond to this form of monitoring and evaluation (for example, with respect to blacklisting). Moreover, we hope to learn how well CSCS scores predict significant corporate outcomes, such as bankruptcies or compliance-related scandals. Nonetheless, despite the early stage of our research, we believe analysis of the first available CSCS scores has raised some meaningful questions and opened new avenues of inquiry at what may be the dawn of Chinese surveillance state capitalism.



Table 1: Distribution of Ratings and Scores

Variable	N	%	Mean	S.D.	Min.	Median	Max.
<i>Ratings</i>							
Excellent ( $S \geq 850$ )	394	74.20	884.31	21.27	851	875	935
Good ( $800 \leq S < 850$ )	88	16.57	833.74	12.64	802	839	849
Average ( $750 \leq S < 800$ )	38	7.16	779.58	11.15	755	785	799
Fair ( $700 \leq S < 750$ )	5	0.94	734.80	9.81	725	735	746
Poor ( $S < 700$ )	6	1.13	651.00	63.89	541	685	695
<i>Scores</i>							
Basic Data (80)	531		79.47	4.04	40	80	80
Finance and Taxation (195)			189.59	11.80	107	195	195
Governance (90)			88.61	4.89	60	90	90
Compliance (450)			435.97	29.96	244	450	450
Social Responsibility (185)			70.75	25.07	0	60	150

Figure 1: Kernel Density Plot of Public Credit Scores



Note: Kernel = epanechnikov, bandwidth = 5.0000.

Figure 2: Mean Score (Percent) of First-Level and Second-Level Indicators

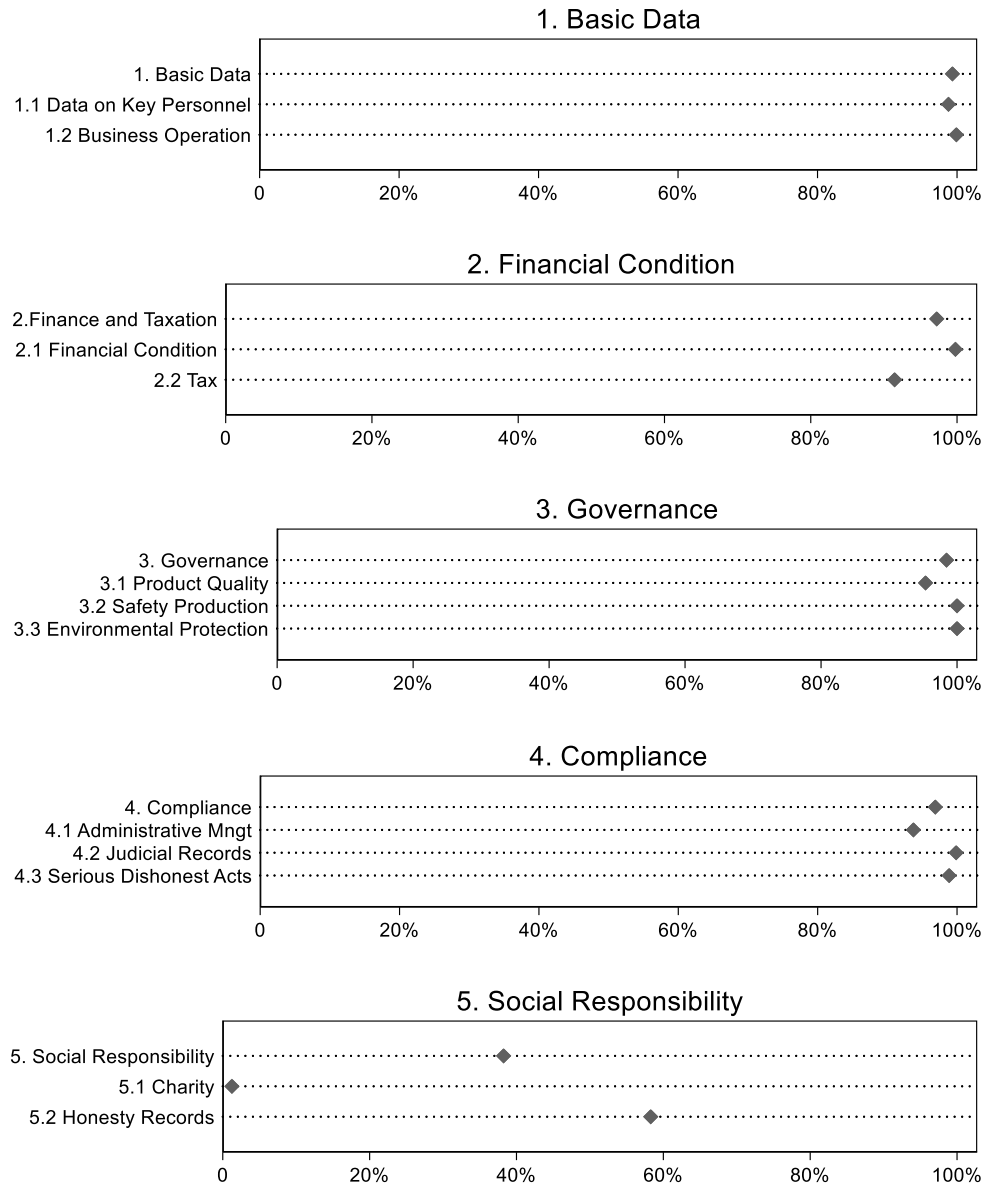


Table 2: Summary Statistics

	N	Mean	S.D.	Min	Median	Max
Scores	414	862.40	49.30	541.00	875.00	935.00
% Independent Director	414	0.37	0.05	0.29	0.33	0.60
Leverage	414	0.43	0.21	0.06	0.41	1.46
ROA	414	0.03	0.14	-1.13	0.04	0.46
SOE	414	0.15	0.36	0.00	0.00	1.00
% State Shareholding	414	0.01	0.04	0.00	0.00	0.59
Party-Building Reform	414	0.25	0.43	0.00	0.00	1.00
Political Connection	414	0.54	0.50	0.00	1.00	1.00
Firm Size	414	22.25	1.25	19.75	22.14	27.79
Firm Age	414	21.73	5.10	11.00	21.00	66.00
Book-to-Market	414	0.61	0.26	0.07	0.60	1.29

Table 3: OLS Regression on the Determinants of Corporate Social Credit Scores

	(1)	(2)	(3)	(4)	(5)
% Independent Director	52.584 (51.028)				54.039 (46.495)
Leverage		-51.494** (21.083)			-50.785** (20.922)
ROA		10.477 (31.785)			8.845 (30.920)
SOE			12.855* (7.574)		11.011 (7.217)
% State Shareholding			44.362 (43.671)		56.309 (48.146)
Party-Building Reform			-6.634 (7.311)		-7.621 (7.125)
Political Connection				9.625** (4.799)	10.515** (4.831)
Firm Size	8.922*** (2.102)	10.296*** (2.484)	8.454*** (2.025)	8.353*** (2.046)	9.928*** (2.540)
Firm Age	0.474 (0.475)	0.197 (0.426)	0.407 (0.476)	0.447 (0.466)	0.235 (0.433)
Book-to-Market	-15.219 (11.084)	-14.345 (10.998)	-16.402 (11.132)	-16.039 (11.144)	-16.462 (10.958)
Constant	579.268*** (65.787)	606.856*** (52.269)	606.372*** (52.883)	609.336*** (52.484)	584.304*** (63.327)
Observations	414	414	414	414	414
$R^2$	0.117	0.160	0.122	0.123	0.178

Robust standard errors in parentheses. All models include industry and city fixed effects.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4: OLS Regression on the Determinants of First-Level Sub-scores

	(1) Basic Data	(2) Finance and Taxation	(3) Governance	(4) Compliance	(5) Social Responsibility
% Independent Director	4.146 (4.536)	-1.335 (14.368)	-3.609 (4.855)	58.167** (29.201)	-3.331 (25.852)
Leverage	-4.217* (2.329)	-12.471*** (4.438)	-0.131 (1.264)	-29.492** (12.944)	-4.474 (8.550)
ROA	1.281 (3.256)	2.974 (7.188)	2.554 (4.312)	-0.995 (19.273)	3.032 (10.994)
SOE	0.740* (0.433)	2.086 (1.793)	-0.351 (1.166)	6.387 (5.203)	2.149 (4.051)
% State Shareholding	1.511 (2.166)	15.592 (18.630)	-8.599 (9.796)	53.073* (30.569)	-5.268 (18.975)
Party-Building Reform	-0.374 (0.658)	-3.784* (1.985)	0.175 (0.721)	-5.505 (5.101)	1.868 (3.745)
Political Connection	0.426 (0.469)	0.448 (1.229)	0.449 (0.559)	4.669 (3.156)	4.523* (2.661)
Firm Size	0.367* (0.203)	-0.342 (0.598)	0.031 (0.223)	4.640*** (1.605)	5.232*** (1.405)
Firm Age	-0.006 (0.043)	-0.071 (0.113)	0.008 (0.077)	-0.211 (0.302)	0.516* (0.271)
Book-to-Market	-1.984 (1.413)	-3.594 (2.649)	0.961 (1.224)	-8.624 (6.487)	-3.221 (6.529)
Constant	72.235*** (4.228)	193.566*** (16.774)	90.556*** (5.205)	291.553*** (40.088)	-63.607** (31.269)
Observations	414	414	414	414	414
$R^2$	0.095	0.191	0.068	0.156	0.168

Robust standard errors in parentheses. All models include industry and city fixed effects.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Appendix: Zhejiang Province Indicators for Public Credit Evaluation of Enterprises

First-level Indicator	Weight	Second-level Indicator	Weight	Third-level Indicator	Weight	Description of Indicator	Data Source
Basic Data	80	Data on Key Personnel	40	Serious Dishonest Key Personnel	20	Legal representatives, directors, supervisors, or actual controllers are included in the list of persons with serious dishonest acts	Relevant Departments, Courts
				Key Personnel Failed to Satisfy a Court Judgment	20	Legal representatives, directors, supervisors, or actual controllers have failed to satisfy a court judgment	Relevant Departments, Courts
		Business Operation	40	Abnormal Operations	20	Inclusion in the list of abnormal operations	Market Supervision Administration
				Abnormal Taxpayer	20	Identified as an abnormal taxpayer	Tax Department
Finance and Taxation	195	Financial Condition	135	Failure to Satisfy a Court Judgment Relating to Financing	50	Non-performance of a court judgment relating to financing or loans	Relevant Departments, Courts
				Criminal Liability Relating to Financing	60	Record of criminal liability relating to financing or loans	Relevant Departments, Courts
				Debt Evasion	15	Debt evasion records	Financial Department
				Registration of Equity	10	Failure to register equity in overseas direct investment	People's Bank of China
		Tax	60	Social Insurance Payment	30	Failure to pay social insurance fees	Tax Department
				Tax payment	30	Failure to pay taxes	Tax Department
Governance	90	Product Quality	30	Supervision and Inspection	30	Inspection results on project and product (food and drug) quality	Housing and Urban-Rural Construction Department, Market Supervision Department, Customs and Other Departments
		Production Safety	30	Production Safety Accident and Potential Hazard	30	Production safety accidents, inspection results on production safety, and major fire hazards	Emergency Management Department, Housing and Urban-Rural Construction Department, Fire

First-level Indicator	Weight	Second-level Indicator	Weight	Third-level Indicator	Weight	Description of Indicator	Data Source
							Department, and Other Departments
		Environmental Protection	30	Environmental Accident	30	Environmental and radiation pollution accidents	Ecological Environment Department
Compliance	450	Administrative Management	200	Administrative Penalty	90	Results on administrative penalty	Relevant Departments
				Administrative Enforcement	60	Administrative enforcement actions	Relevant Departments
				Administrative Commitment	20	Failure to perform administrative commitment	Relevant Departments
				Other Non-compliance Records	30	Records on other non-compliance behaviors other than those resulted in administrative penalties	Relevant Departments
		Judicial Records	130	Failure to Satisfy a Court Judgment	50	Failure to satisfy a court judgment in cases other than dishonest persons subject to enforcement or relating to financing	Courts, Relevant Departments
				Other Criminal Records	60	Violation of criminal law in cases not relating to financing	Courts, Relevant Departments
				Frivolous Litigation	20	Court-sanctioned records on frivolous litigation (not constituting a criminal offense)	Courts
		Serious Dishonest Acts	120	List of Enterprises with Serious Dishonest Acts	120	Inclusion in the list of enterprises with serious dishonest acts (including dishonest persons subject to enforcement)	Relevant Departments, Courts
Social Responsibility	185	Charity	65	Volunteer Service	30	Records on volunteer service	Provincial Party Committee Propaganda Department (Provincial Civilization Office), Provincial Youth League Committee
				Donations	35	Donation records	Provincial Red Cross, Civil Affairs Department

<b>First-level Indicator</b>	<b>Weight</b>	<b>Second-level Indicator</b>	<b>Weight</b>	<b>Third-level Indicator</b>	<b>Weight</b>	<b>Description of Indicator</b>	<b>Data Source</b>
		Honesty Records	120	Red-list	60	Inclusion in red-list	Relevant Departments
				Honors and Awards	60	Honors and awards issued by county-level or above governmental departments	Relevant Departments



## References

- Aho, Brett, and Roberta Duffield. 2020. "Beyond Surveillance Capitalism: Privacy, Regulation and Big Data in Europe and China." *Economy and Society* 49 (2), 187-212.
- Backer, Larry Cata. 2019. "China's Social Credit System: Data-Driven Governance for a 'New Era.'" *Current History* 118 (809), 209–214.
- Barefoot, Jo Ann. 2020. "Digitizing Financial Regulation: Regtech as a Solution for Regulatory Inefficiency and Ineffectiveness." Harvard Kennedy School M-RCBG Working Paper No. 150.
- Chen, Yu-Jie, Ching-Fu Lin and Han-Wei Liu. 2018. "Rule of Trust': The Power and Perils of China's Social Credit Megaproject." *Columbia Journal of Asian Law* 32 (1), 1-36.
- Credit Zhejiang. 2021. "Zhejiang Sheng Shehui Xinyong Tixi Jianshe "Shisi Wu" Guihua Da Jizhe Wen" (The Implementation of Social Credit System in Zhejiang Province Media Meeting for the 14th Five-Year Plan), [Creditchina.gov.cn.](https://www.creditchina.gov.cn/), 23 June, [https://www.creditchina.gov.cn/xinyongyanjiu/xinyongjiedu/202106/t20210622\\_237688.html](https://www.creditchina.gov.cn/xinyongyanjiu/xinyongjiedu/202106/t20210622_237688.html). Accessed 28 August 2021.
- ECCC (European Chamber of Commerce in China). 2019. "The Digital Hand: How China's Corporate Social Credit System Conditions Market Actors," 28 August, <https://www.europeanchamber.com.cn/en/publications-corporate-social-credit-system>. Accessed 22 January 2022.
- Ginsberg, Tom, and Tamir Moustafa. 2008. "Introduction." In Tom Ginsberg and Tamir Mustafa (eds.), *Rule by Law: The Politics of Courts in Authoritarian Regimes*. New York: Cambridge University Press, 1-22.
- Hall, Peter A., and David Soskice. 2001. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford: Oxford University Press.
- Krause, Theresa and Doris Fischer. 2020. "An Economic Approach to China's Social Credit System." In Oliver Everling (ed.), *Social Credit Rating*. Wiesbaden: Springer.
- Lee, Charles M.C., Yuanyu Qu and Tao Shen. 2019. "Going Public in China: Reverse Mergers versus IPOs." *Journal of Corporate Finance* 58, 92-111.
- Liebman, Benjamin, and Curtis J. Milhaupt (eds.). 2016. *Regulating the Visible Hand? The Institutional Implications of Chinese State Capitalism* (2016). Oxford: Oxford University Press.
- Lin, Lauren Yu-Hsin, and Curtis J. Milhaupt. 2021. "Party Building or Noisy Signaling? The Contours of Political Conformity in Chinese Corporate Governance." *Journal of Legal Studies* 50 (1), 187-217.
- MERICS (Mercator Institute for China Studies). 2021. "China's Social Credit System in 2021: From Fragmentation Towards Integration," 03 March, <https://merics.org/en/report/chinas-social-credit-system-2021-fragmentation-towards-integration>. Accessed 22 January 2022.
- Michael Firth, et al. 2009. "Inside the Black Box: Bank Credit Allocation in China's Private Sector." *Journal of Banking and Finance* 33(6), 1144-1155.
- Milhaupt, Curtis J. 2020. "The State as Owner – China's Experience." *Oxford Review of Economic Policy* 36 (2), 362-379.
- Milhaupt, Curtis J., and Mariana Pargendler. 2017. "Governance Challenges of Listed State-Owned Enterprises Around the World: National Experiences and a Framework for Reform." *Cornell International Law Journal* 50, 473-542.
- Milhaupt, Curtis J., and Wentong Zheng. 2015. "Beyond Ownership: State Capitalism and the Chinese Firm." *Georgetown Law Journal* 103, 665-722.

- NDRC (National Development and Reform Commission). 2019. “Circular on Pushing and Applying the Integrated Public Credit Assessment Results of Market Players”.
- NDRC (National Development and Reform Commission). 2021. “National Public Credit Information Basic Catalogue (2021 Version) (Public Consultation Draft)”.
- RAND. 2020. “Chinese Views of Big Data Analytics,” [https://www.rand.org/pubs/research\\_reports/RRA176-1.html](https://www.rand.org/pubs/research_reports/RRA176-1.html). Accessed 22 January 2022.
- The State Council. 2019. “Guiding Opinions on Accelerating the Construction of a Social Credit System and Building a New Credit-Based Supervisory Mechanism.”
- Trivium. 2020. “China’s Social Credit System: Context, Competition, Technology and Geopolitics,” 16 November, [https://www.uscc.gov/sites/default/files/2020-12/Chinas\\_Corporate\\_Social\\_Credit\\_System.pdf](https://www.uscc.gov/sites/default/files/2020-12/Chinas_Corporate_Social_Credit_System.pdf). Accessed 22 January 2022.
- Xia, Cai. 2021. “China-US Relations in the Eyes of the Chinese Communist Party: An Insider’s Perspective,” CGSP Occasional Paper Series No. 1.
- Zhejiang Provincial Development and Reform Commission. 2017. “Zhejiang Provincial Regulations on the Management of Public Credit Information”.
- Zhejiang Provincial Development and Reform Commission. 2020a. “Guidelines for the Evaluation of the Public Credit of Five Types of Subjects in Zhejiang Province (2020 Version)”.
- Zhejiang Provincial Development and Reform Commission. 2020b. “Catalogue for Zhejiang Province Public Credit Information (2020 Version)”.
- Zuboff, Shoshana. 2019. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. London: Profile Books.