

China's CEO Pay Reform: An Analysis of the Financial Impact on Central State-Owned Enterprises (CSOEs)

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Abstract

China's Central State-Owned Enterprises (CSOEs) are considered to be inefficient with major agency problems where the interests of management and shareholders are poorly aligned. Rather than making decisions that make the CSOE more profitable and to help grow the economy, management will choose to solve government problems such as social stability and low employment (retain redundant workers). As China grows its socialist market economy and lists its stocks on markets in New York and London, it has become increasingly more important to reduce agency problems to better align the interests of management and shareholders. *China's CEO pay reform* is passed to reform executive compensation at CSOEs. This reform is driven by President Xi and the Central Politburo of the Communist Party of China. Using an event study methodology, we find CSOEs, on average, experience a 3.05 percent increase in market capitalization from *China's CEO pay reform*. In dollar terms, the mean market capitalization increase was \$89 million, and cumulatively, the twenty-four CSOEs in our sample gained \$2.136 billion in market capitalization. We conclude that *China's CEO pay reform* was highly successful, and the gains were a result of lower executive compensation expenses without increased perk consumption and tunneling activities.

Keywords: Event Study, Financial Analysis, Reform, CEO Compensation, State Ownership, China

I. Introduction

The People's Republic of China (PRC) was founded on October 1, 1949, under Chairman Mao Zedong and the Communist Party of China (CPC). The goals of the CPC included industrialization, raising the living standard, improving income equality, and creating a modern military. The CPC chose to adopt the Soviet Union's centrally planned economy, where state-owned enterprises (SOEs) would be used to industrialize the economy, versus a market-based economy with private ownership. In 1950, the Chinese stock markets closed and China entered a period of isolation from the West. While the economies of the Western nations saw continued growth and increases in standards of living with their market-based economies, Chinese living standards improved less so under the centrally planned economy resulting in China reforming and opening up their economy in 1978 (Zhong, 2006).

1949-1978: While state-owned enterprises (SOEs) produced the goods and services needed in the economy, SOEs also played a major role in providing societal benefits such as employment, education, healthcare, and retirement benefits. The government would own

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the SOE, hire managers to operate the SOE, set price and production quota for the SOE, and collect/cover all profits/losses of the SOE. The SOE structure created agency problems where managers must decide whether to run a more profitable business (e.g., lay off redundant workers) or help solve government problems such as social stability and low employment (e.g., retain redundant workers). Employment incentives typically led managers to choose solving government problems, which makes business inefficient and limits China's economic growth (Zhong, 2006).

1978-1990: China started a massive undertaking of *reform and opening-up* the economy in 1978. To better incentivize managers, some SOEs were allowed to keep a portion of their profits and pay employee bonuses when goals were achieved. The Chinese government further incentivized managers by awarding *operating rights* to managers along with three-to-five-year contracts. This *operating rights* structure enabled managers to resemble residual claimants, which helped reduce agency problems, as it now was in management's interest to generate profits. Unfortunately, this *operating rights* structure incentivized short-term profits at the expense of long-term profits. Managers had little incentive to maintain equipment and buildings or to undertake new capital budgeting projects. Agency problems remained, and SOEs still were inefficient, with around four out of ten losing money (Lin, Lu, Zhang, and Zheng, 2020).

1990-2002: The Chinese government introduced a socialist market economy. The Chinese government had reformed *operating rights* from 1978 to 1990 and now the Chinese government reformed *ownership rights*. The Shanghai and Shenzhen Stock Exchanges opened in 1990, and the Company Law was passed in 1994. The Company Law created a corporate governance structure with three main bodies: general meeting of shareholders, board of directors, and board of supervisors. The Company Law allowed SOEs to convert to limited liability companies, where the government and private investors jointly owned the SOE. Even with these changes, SOEs struggled to turn a profit, and taken together, industrial SOEs provided no net revenues for the government, but instead absorbed fiscal resources estimated at five percent of the gross domestic product. Agency problems remained, and SOEs continued to be inefficient, but there were SOE stock corporations (Gang and Hope, 2013).

2003-2014: The Chinese government expanded the socialist market economy by reforming the largest and most important SOEs. The government also worked on *ownership rights* by identifying the owners of an SOE who would assume the responsibilities of shareholders, on behalf of the state. By 2011, there were 1,000+ SOEs listed on the Shanghai and Shenzhen stock markets. Some SOEs even were listed on other stock markets such as Hong Kong, New York, London, and Singapore. Typically, the Chinese government would hold a majority ownership in the listed SOE company while selling a minority interest to the public in the form of an initial public offering (IPO). These reforms of *ownership rights* improved firm performance, but agency problems still existed, as executives at SOEs still were much less likely to be replaced by their boards than executives at private companies (Gang and Hope, 2013).

2014-2015: *China's CEO pay reform* took place to reform executive compensation at central state-owned enterprises (CSOEs), which were the large SOEs controlled by the central government (Hao and Lu, 2018). There were two main reasons for government intervention into executive compensation at CSOEs. One, executive compensation at CSOEs were much greater than those of non-CSOEs. Two, there was a huge disparity in compensation among executives at CSOEs. This reform was called the "2015 Reform Plan for Salary System for Centrally

Administered State-owned Enterprises,” also known as a “pay restriction policy.” *China’s CEO pay reform* introduced a three-component executive compensation plan. The first component was *basic salary* that should not exceed twice the average salary of employees. The second component was *performance wages* and cannot exceed twice the *basic salary*. The third component was *term incentive income*, which directly tied executive compensation to firm performance to align manager interests with shareholder interest.

Government intervention into executive compensation is debated widely on whether or not it is effective. Governments have tried new rules, more disclosure requirements, and tax reforms. One argument concludes restricting executive compensation is ineffective, as it leads to unintended consequences such as greater perk consumption and tunneling activities, all of which have a negative impact on shareholders. Another argument concludes restricting executive compensation can be done effectively, making the firm more efficient. To our knowledge, this is the first paper that examines the immediate financial impact of *China’s CEO pay reform* on the stockholders of CSOEs. This study provides valuable information on *China’s CEO pay reform* to policy makers and investors.

II. Research Objective and Data

We use an event study methodology (Brown and Warner, 1985; Peterson, 1989; Schweitzer, 1989; Wells, 2004) to examine the immediate financial impact of *China’s CEO pay reform* on CSOEs. Event studies have been used to evaluate many regulatory events. For example, prior research finds investment companies suffered under President Obama’s Fiduciary Rule reform of 2015, which required a fiduciary relationship on retirement accounts. Evidence shows that variety stores and restaurants benefitted from the Durbin Amendment of 2010, which reformed debit card fees. Research shows large retailers who issued credit cards suffered from the Credit Card Act of 2009. Hoag (2002) finds that the Cable Communications Policy Act of 1984 benefitted cable companies.

We can isolate the impact of *China’s CEO pay reform* because of two distinct stock price characteristics. One, a stock price is driven by the expected future earnings of the CSOE. Two, the stock market is efficient such that a stock price reacts quickly and efficiently when there is an event announcement that will affect the CSOE’s expected future earnings. Thus, if investors believe *China’s CEO pay reform* will successfully align manager interests with shareholders, thereby increasing future earnings, then the stock prices of CSOEs will increase. However, if investors perceive the reform will be ineffective, then stock prices will not increase. Therefore, policy makers and investors can evaluate the expected economic impact of China’s pay restriction policy on CSOEs.

Our event study methodology separates a CSOE’s stock return into two unique components. The first component is the normal return, which is the change in stock return that occurs from the overall stock market movement. The second component is the abnormal return, which is the change in stock return attributed to *China’s CEO pay reform*. In this paper, we examine those abnormal returns.

II.1 Event Windows

We identify two events for *China's CEO pay reform*. Additionally, we combine the two events to determine the overall impact of *China's CEO pay reform*.

President Xi Effect: The first event is August 18, 2014, which is when China's President Xi announced executive salaries of major SOEs were unreasonably high and "must be regulated." We believe this announcement provided significant information to the markets. To capture the event's impact on stock prices, we use a four-day event window where day zero, ($t = 0$), is defined as August 18, 2014, which is the announcement date. Day minus one, ($t = -1$), is defined as one trading day before President Xi's announcement; day plus one, ($t = +1$), is one trading day after the announcement date; and so forth, where day plus two, ($t = +2$), is two trading days after the announcement. The event window is shown in Table 1.

Politburo Effect: The second event is August 29, 2014, which is when the Central Politburo of the Communist Party of China promulgated *China's CEO pay reform*. Once again, we use a four-day event window, where day zero is defined as August 29, 2014. The event window is shown in Table 1.

Combined Effect: The combined event is the combination of both events: (i) *President Xi Effect*, and (ii) *Central Politburo Effect*. This provides the overall impact of *China's CEO pay reform*.

Table 1. Event Windows for *China's CEO pay reform*

President Xi Event	President Xi announced that the executive salaries of CSOEs were unreasonably high and "must be regulated."			
Politburo Event	The Central Politburo of the Communist Party of China promulgated <i>China's CEO pay reform</i> .			
Event Day	-1	0	+1	+2
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President Xi Event	8/15/2014	8/18/2014	8/19/2014	8/20/2014
Politburo Event	8/28/2014	8/29/2014	9/1/2014	9/2/2014

II.2 Data

The sample is comprised of CSOEs collected from CSMAR (China Stock Market & Accounting Research Database). To isolate the stock price reaction due only to *China's CEO pay reform*, it is crucial that CSOEs do not have any major news announcement around the event window. Thus, each CSOE must have no major news announcement around the event window, and CSMAR is used to determine whether there are any other major news announcements. When there is another major announcement affecting the CSOE around the event window, the effect of *China's CEO pay reform* cannot be isolated, and the observation is removed from the sample. We find that 24 CSOEs do not have a major announcement around the two event windows.

The final sample of 24 CSOEs is listed in Table 2, and includes 17 industrial, 3 utility, and 4 property companies. The 24 CSOEs have mean and median market capitalizations of \$1.84 billion and \$925 million, respectively. The largest and smallest companies are CRRC Corporation and Linhai with market capitalizations of \$9.94 billion and \$289 million, respectively.

Table 2. Chinese Central State-Owned Enterprises (CSEOs), Ticker, Revenue, Industry, and Market Capitalization (MC) in US Dollars (Millions).

	CSOE	Ticker	Revenue	Industry	MC
1.	Aeolus Tyre	600469	\$1,316	Industrial	\$624
2.	Antong Holdings	600179	\$174	Utility	\$350
3.	CRRC Corporation	601766	\$19,289	Industrial	\$9,943
4.	Cangzhou Dahua	600230	\$502	Industrial	\$531
5.	Changchun FAW Fuwei Automobile Parts	600742	\$1,816	Industrial	\$832
6.	China XD Electric	601179	\$2,267	Industrial	\$3,317
7.	Cinda Real Estate	600657	\$781	Property	\$898
8.	COSCO SHIPPING Technology	002401	\$89	Utility	\$775
9.	Greatwall Information Industry	000748	\$275	Industrial	\$1,506
10.	Grimm Advanced Materials	600206	\$390	Industrial	\$1,787
11.	Guizhou Aerospace Electronics	002025	\$258	Industrial	\$1,030
12.	Guizhou Qianyuan Power	002039	\$346	Industrial	\$501
13.	Huludao Zinc Industry	000751	\$702	Industrial	\$1,735
14.	Kangxin New Material	600076	\$3	Industrial	\$339
15.	Linhai	600099	\$58	Industrial	\$289
16.	NARI Technology	600406	\$1,435	Industrial	\$5,745
17.	SPIC Dongfang New Energy Corporation	000958	\$125	Industrial	\$806
18.	Shanghai Tongji Science & Technology Industrial	600846	\$664	Property	\$958
19.	Shenzhen Overseas Chinese Town	000069	\$4,949	Property	\$6,520
20.	Sichuan Mingxing Electric Power	600101	\$201	Industrial	\$442
21.	Sichuan Minjiang Hydropower	600131	\$134	Industrial	\$394
22.	Sinoma International Engineering	600970	\$3,684	Property	\$1,349
23.	Unisplendour Corporation	000938	\$1,796	Industrial	\$953
24.	Xinxing Ductile Iron Pipes	000778	\$9,795	Industrial	\$2,530
	Mean		\$2,127		\$1,840
	Median		\$583		\$925

Notes: Revenue is calculated as of December 31, 2014. MC is calculated as the average market capitalization between August 15 and August 20, 2014. All companies are Co., Ltd. or limited liability company.

II.3 Research Questions and Hypotheses

The research question is whether *China's CEO pay reform* was effective in aligning the interests of executives and shareholders, such that CSOEs experienced a significant stock price change during the event window. To answer this question, the following hypotheses are considered in the alternative form.

- H_{a1}: The stock returns (cumulative abnormal returns) of the CSOEs attributed to the *President Xi Effect* are different from zero.
- H_{a2}: The percent of positive stock returns (cumulative abnormal returns) of the CSOEs attributed to the *President Xi Effect* are different from fifty percent.
- H_{a3}: The stock returns (cumulative abnormal returns) of the CSOEs attributed to the *Politburo Effect* are different from zero.
- H_{a4}: The percent of positive stock returns (cumulative abnormal returns) of the CSOEs attributed to the *Politburo Effect* are different from fifty percent.

H_{a5}: The stock returns (cumulative abnormal returns) of the CSOEs attributed to the *Combined Effects* are different from zero.

H_{a6}: The percent of positive stock returns (cumulative abnormal returns) of the CSOEs attributed to the *Combined Effects* are different from fifty percent.

To test the odd numbered hypotheses, that the cumulative abnormal returns are different from zero, we use both a parametric t-test and a non-parametric Wilcoxon signed rank test. To test the even numbered hypotheses, that the number of positive and negative cumulative abnormal returns are not equal to fifty percent, non-parametric sign tests are used. Non-parametric tests address issues related to non-normally distributed data and small samples.

III. Methodology

The normal return is calculated for each day in the event window for each CSOE. The normal return is what one would expect if there were no *CEO pay reform* event. Because the return on the market index is commonly used as the normal return, we use the daily market return of the Chinese CSI 300 Index as the normal return. The CSI 300 Index represents China's 300 top stocks that are traded on the Shanghai and Shenzhen stock exchanges. The CSI 300 index is considered the blue-chip index for Chinese stocks and is an excellent proxy for the market return.

The abnormal return is calculated for each CSOE for each day over the four-day event window. The abnormal return represents the return not predicted by the market index, and is an estimate of the change in the stock price on that day due to *China's CEO pay reform* event. The abnormal return, AR_{it} , for each CSOE i on day t is defined as:

$$AR_{it} = R_{it} - R_{mt} \quad (1)$$

where R_{it} is the return on the common stock of CSOE i on day t , and R_{mt} is the return on the market index (CSI 300 Index) on day t .

The cumulative abnormal return is calculated for each CSOE because in many cases, the market reaction to the announcement of an event may linger for days. For example, it may take financial analysts and investors several days to determine the impact of *China's CEO pay reform* event upon a CSOE's expected future earnings captured by the stock price. The stock market may continue to make stock price adjustments over a couple of days. Thus, the cumulative abnormal return is an estimate of the stock return caused by the event over the four-day event window. The cumulative abnormal return, CAR_i , for each CSOE for the four-day event window beginning with day -1 through day +2 is defined as:

$$CAR_i = \sum_{t=-1}^{+2} AR_{it} \quad (2)$$

where AR_{it} is the daily abnormal return for CSOE i on day t .

Lastly, the mean and median cumulative abnormal returns are calculated for the CSOEs in the sample. The mean cumulative abnormal return can be viewed as a diversified portfolio, which eliminates unique individual stock returns by offsetting random positive stock returns with random negative stock returns. Thus, we have a mean cumulative abnormal return that captures only the

characteristics of *China's CEO pay reform* event. Furthermore, if *China's CEO pay reform* event did not impact the future earnings of CSOEs, then the mean cumulative abnormal return should not be significantly different from zero. Likewise, the median cumulative abnormal return should not be significantly different from zero if *China's CEO pay reform* event did not impact future earnings of CSOEs. Finally, we examine the percent of cumulative abnormal returns that are positive for each of the three events. If *China's CEO pay reform* event did not impact the future earnings of CSOEs, then the percent of cumulative abnormal returns that are positive should not be significantly different from fifty percent.

We employ t-tests and Wilcoxon signed rank tests to determine whether the cumulative abnormal returns are significantly different from zero. The t-tests examine the mean return, and the Wilcoxon signed rank tests examine the difference in median returns and do not assume normally distributed data. Binomial z-statistics tests are used to determine whether the proportion of positive cumulative abnormal returns is significantly greater than 50 percent under the assumption of no reaction to the event. The binomial z-statistic is appropriate for small samples with non-normal distributions because it requires neither normally distributed data nor that the population be symmetric. Under the efficient market hypothesis, the likelihood of a rise or fall in stock price should be a flip of the coin, on average.

IV. Results

Below we examine *China's CEO pay reform* via the results of the *President Xi Effect*, the *Politburo Effect*, and the *Combined Effect*.

IV.1 President Xi Effect

We evaluate the *President Xi Effect*, and find that the CSOEs experienced significant financial gains from President Xi's announcement. As shown in Table 3, the CSOE's mean and median CARs for the *President Xi Effect* are 1.58% and 1.06%, respectively. When we calculate the absolute dollar impact of the *President Xi Effect*, we find the CSOE's mean and median market capitalization gains to be \$16 million and \$7 million, respectively. Cumulatively, the twenty-four CSOEs gained \$384 million in market capitalization from President Xi's announcement. Our results support that *China's CEO Pay Reform* will benefit CSOEs, which will incur lower executive compensation expenses without increased perk consumption and tunneling activities.

IV.2 Politburo Effect

When we evaluate the *Politburo Effect*, we find that the CSOEs benefit greatly from the Politburo promulgating *China's CEO pay reform*. As shown in Table 3, the CSOE's mean and median CARs for the *Politburo Effect* are 1.58% and 1.06%, respectively. We calculate the absolute dollar impact and find the CSOE's mean and median market capitalization gains to be \$73 million and \$80 million, respectively. Cumulatively, the twenty-four CSOEs gained almost \$1.75 billion in market capitalization from the Politburo announcement. Our results support that *China's CEO Pay Reform* will benefit CSOEs through lower executive compensation expenses.

IV.3 Combined Effect

The *Combined Effect* is the cumulative results of the *President Xi Effect* and the *Politburo Effect*. When we add the Politburo's promulgating of *China's CEO pay reform* to President Xi's announcement of the reform, we get a compounding effect where CSOEs benefited financially from both events.

When the *Combined Effect* is evaluated, we find that the shareholders of CSOEs experienced tremendous gains from *China's CEO pay reform*. As shown in Table 3, the CSOE's mean and median CAR for the *Combined Effect* are 3.05% and 2.73%, respectively. Additionally, we find that 83% of the CSOEs experienced a positive CAR for the *Combined Effect*. When we calculate the absolute dollar impact on the CSOEs, we find the mean and median market capitalization gains to be \$89 million and \$87 million, respectively. Cumulatively, the twenty-four CSOEs gained \$2.136 billion in market capitalization. The \$2+ billion gain is driven from the fact that CSOEs will incur lower executive compensation expenses without increased perk consumption and tunneling activities. Thus, the earnings will be higher, and the CSOE is more valuable to investors. All three of our test results, which are both statistically and economically significant, clearly show that the shareholders of CSOEs benefitted financially with *China's CEO pay reform*.

Table 3: China's Central State-Owned Enterprises (CSOEs) – Cumulative Abnormal Returns (CAR) for President Xi Effect, Politburo Effect, and Combined Effect

CSOEs (n=24)	President Xi Effect	Politburo Effect	Combined Effect
Mean CAR	1.58%**	1.47%***	3.05%***
<i>t</i> -statistic	2.56	3.12	3.75
(<i>p</i> -value)	(0.017)	(0.005)	(0.001)
Median CAR	1.06%**	1.57%***	2.73%***
<i>Wilcoxon signed rank test</i>	86	95	112
(<i>p</i> -value)	(0.011)	(0.0041)	(<0.001)
Percent positive CARs	75%**	83%***	83%***
<i>Sign test</i>	-2.45	-3.27	-3.27
(<i>p</i> -value)	(0.014)	(0.001)	(0.001)
Shapiro-Wilk test for normality	Not normal	Not normal	Not normal
(<i>p</i> -value)	(0.422)	(0.691)	(0.606)

***, **, and * denote one, five, and ten percent significance levels, respectively.

V. Conclusion

The People's Republic of China founded in 1949 adopted the Soviet Union's centrally planned economy with central state-owned enterprises (CSOEs) to industrialize the economy. After almost 20 years of little success, China called for *reform and opening up* the economy in 1978, but still maintained a planned economy. Finally, in 1990, China opened the Chinese stock markets and introduced a socialist market economy. From 1990 to 2015, private ownership evolved, and China recognized the need to resolve the well-known agency problem of owners versus managers. For years, centrally state-owned enterprises (CSOEs) incentivized managers to solve social problems (e.g., retain redundant workers) rather than managing well run businesses

(e.g., lay off redundant workers). CSOE manager compensation was far too high, and did not effectively utilize firm performance-based incentives. After China's President Xi called for compensation reform and the Central Politburo of the Communist Party of China promulgating for compensation reform, *China's CEO pay reform* was passed. We find that the shareholders benefitted tremendously from *China's CEO pay reform*, whereby the shareholders of CSOEs experienced a mean and median gain in market capitalization of \$89 million and \$87 million, respectively. Cumulatively, the twenty-four CSOEs gained over \$2 billion in market capitalization. This is not surprising given that the reform included a firm performance component that had been omitted previously, thereby better aligning the interests of managers and shareholders. We conclude that *China's CEO pay reform* was highly effective in reducing agency problems.

References

- Adams, J. S. and Jacobsen, P. R. (1964), "Effects of Wage Inequities on Work Quality," *Journal of Abnormal and Social Psychology*, 69: 19-25.
- Brown, S. J. and Warner, J. B. (1985), "Using Daily Stock Returns: The Case of Event Studies," *Journal of Financial Economics*, 14: 3-32.
- Claessens, S., Djankov, S., Fan, J., and Lang, L. (2002), "Disentangling the Incentive and Entrenchment Effects of Large Shareholdings," *Journal of Finance*, 57: 2741-2771.
- Claessens, S., Djankov, S., and Lang, L. (2000), "The Separation of Ownership and Control in East Asian Corporations," *Journal of Financial Economics*, 58: 81-112.
- Cornett, M. M. and Musumeci, J. (1999), "How Legislation Affects Value: The Failure of Credit Card Cap Legislation," *Financial Management*, 28: 83-94.
- Gang F. and Hope, N. C. (2013), "The Role of State-Owned Enterprises in the Chinese Economy," *China-US 2022*, 7.Hao, Y., and Lu, J. (2018). "The Impact of Government Intervention on Corporate Investment Allocations and Efficiency: Evidence from China," *Financial Management*, 47: 383-419.
- Hoag, A. M. (2002), "Measuring Regulatory Effects with Stock Market Evidence: Cable Stocks and the Cable Communications Policy Act of 1984," *Journal of Media Economics*, 15: 259-272.
- Lin, K. J., Lu, X., Zhang, J., and Zheng, Y. (2020), "State-Owned Enterprises in China: A Review of 40 Years of Research and Practice," *China Journal of Accounting Research*, 13: 31-55.
- Murphy, K. J. and Jensen, M. C. (2018), "The Politics of Pay: The Unintended Consequences of Regulating Executive Compensation," *Journal of Law, Finance, and Accounting*, 3: 189-242.
- Peterson, P. P. (1989), "Event Studies: A Review of Issues and Methodology," *Quarterly Journal of Business and Economics*, 28: 36-66.
- Schweitzer, R. (1989), "How Do Stock Returns React to Special Events?" *Business Review – Federal Reserve Bank of Philadelphia*, Jul/Aug: 17-29.
- Wells, W. (2004), "A Beginner's Guide to Event Studies," *Journal of Insurance Regulation*, 22: 61-70.
- Zhong, H. (2006), "Where is the Future: China's SOEs Reform," *Journal of the Washington Institute of China Studies*, 1: 105-115.