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## Article

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# State-owned asset management reform and corporate cash holdings: study on central enterprise income distribution policy

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## ABSTRACT

Based on the data of A-share listed central state-owned enterprises (CSOEs) and non-state-owned listed companies in China from 2003 to 2019, we use propensity score matching and the difference-in-difference method to examine the impact of CSOEs' income distribution policy on corporate cash holding decisions. The results show that the policy implementation improves corporate cash holding levels. Further analysis found that: (1) corporate financial flexibility can alleviate the policy effect; (2) when the control distance is shorter, and environmental uncertainty is higher, the policy effect is stronger; and (3) the policy has a lagged effect. This study theoretically expands the research on the economic consequences of income distribution policy and the influencing factors of cash holdings. It further aids policymakers in improving the state-owned capital gains distribution system, deepening the reform of state-owned enterprises, and providing empirical evidence at firm level for investors to understand the real impact of the policy.

## KEYWORDS

Income distribution; cash holdings; cash flow constraints; financial flexibility

## 1. Introduction

Cash is an important strategic resource for maintaining healthy corporate development and is the material basis for daily corporate operations and sustainable development (Zhang and Wu, 2014). Cash holding and management are related to the asset efficiency of its allocation and usage. Guided by corporate strategic decisions, cash holdings can further influence other corporate decisions (Chen et al., 2011), such as investment and financing. Thus, cash holdings play a linking role in corporate operations and governance mechanisms. This is a key concern in both theory and practice. Previous studies suggest that financial constraints (Pinkowitz et al., 2006), internal and external governance levels (Gao et al., 2013), macroeconomic policies (Lu & Han, 2013), and institutional environment (Chen et al., 2015), and others influence firm cash holdings. Bates et al. (2009) point out that when facing financial constraints due to external uncertainties, a firm would choose to maintain high liquidity and increase cash holdings for both transactional and

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precautionary motives. However, they further suggest that when a firm lacks an effective governance mechanism, the use of cash would not be disciplined nor regulated. Moreover, the agency problem prompts managers to go against shareholder interests and adjust cash holdings, which is inconsistent with the original intention of decision-making. Hence, an effective institution that regulates and monitors corporate cash holding behaviour is particularly important.

Central state-owned enterprises (hereafter, parent CSOEs) are an important pillar of the national economy. They are charged with promoting steady economic development and safeguarding the value added of state-owned capital. Parent CSOEs are an important cornerstone of deepening reform; they have made a series of attempts and explorations under the guidance of national policies. Since the Third Plenary Session of the 18th CPC Central Committee, a state-owned capital management system has been gradually established and is almost complete. As early as 2007, the State Council of China released the '*Opinions on the Polit Implementation of State-Owned Capital Operation Budget (Guofa No. 26, 2007)*' (hereinafter, '*Opinions*'). The '*Opinions*', which proposes a policy that took parent CSOEs as a pilot to distribute income (hereafter, the policy), gradually changed the mode of capital management. The state-owned capital operation budget system (hereafter, the system) was formally established in China.<sup>1</sup> Since then, the Ministry of Finance, together with the State-Owned Assets Supervision and Administration Commission (SASAC), has successively issued several documents, such as the '*Interim Measures for the Administration of the Collection of State-Owned Capital Gains by CSOEs*' (hereafter, '*Interim Measures*'). This clearly stipulates the proportion of income distribution of CSOEs. It further addresses the issue of state-owned enterprises (SOEs) in China that have paid little or no dividends for many years.<sup>2</sup> According to the released data, parent CSOEs distributed 178.56 billion RMB of state-owned capital gains to the Ministry of Finance in 2020, a 9.1% increase compared with 2019.<sup>3</sup> Since the implementation of the policy, the scale of state-owned capital gains distributed by parent CSOEs has shown an increasing trend annually. Under this macro background, it is of theoretical and policy significance to explore the behaviours of parent CSOEs and their listed companies (hereafter, listed CSOEs). Their behaviours further aid in understanding the implementation effect and spillover impact of the state-owned capital gains collection system. Specifically, the income distribution by parent CSOEs would inevitably lead to changes in retained funds; that is, after the policy was implemented, corporate cash flow level decreased, and the cash flow constraint was relatively strengthened. As a link to corporate operations, cash holdings may be adjusted under the influence of policies; this may change subsequent corporate decision making and behaviour adjustment. Therefore, in this study, we focus on cash holding, and specifically discuss the following questions. Does the important reform of income distribution affect cash holdings? If the effect is significant, what are the differences under different constraints?

Taking the matched sample of an A-share listed CSOE in China from 2003 to 2019, we conduct empirical tests on the above issues. The results show that the income distribution policy has a significantly increased effect on corporate cash holdings. Compared with

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<sup>1</sup>Data Source: [http://www.gov.cn/zhengce/content/2008-03/28/content\\_1479.htm](http://www.gov.cn/zhengce/content/2008-03/28/content_1479.htm).

<sup>2</sup>Data Source: <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c4259810/content.html>.

<sup>3</sup>Data Source: [http://zcgls.mof.gov.cn/qiyeyunxingdongtai/202101/t20210126\\_3649676.htm](http://zcgls.mof.gov.cn/qiyeyunxingdongtai/202101/t20210126_3649676.htm);  
[http://gks.mof.gov.cn/tongjishuju/202101/t20210128\\_3650522.htm](http://gks.mof.gov.cn/tongjishuju/202101/t20210128_3650522.htm).

companies that did not distribute their income, companies that did improved their cash holdings in order to relieve internal capital pressure and maintain the original capital level. Further analysis shows that financial flexibility can mitigate the policy impact on cash holdings; the weaker the corporate cash renewable ability and refinancing ability, the stronger the policy effect. When the control distance is shorter and corporate environmental uncertainty is higher, policy plays a stronger role. This policy has a positive and lagged impact on cash holding value.

The study has the following three implications. First, from the perspective of fund management, it enriches and promotes relevant research on the capital income distribution policy for SOEs. Previous studies on the economic consequences of the policy have been less empirical and have not yet reached consistent conclusions. Some studies have found that the policy is conducive to improving investment efficiency (Zhang et al., 2021), reducing excess employees (X. Zhang & Su, 2021), and enhancing business performance (Chen et al., 2016). However, some scholars have opposing views, that the policy intensifies overinvestment (Wang et al., 2014) and earnings management (Yan et al., 2020), reduces dividend payments (Lin et al., 2022), and damages operating performance (Ding et al., 2013). The empirical research on the impact of the policy is mainly focused on the investment, financing, income creation, and distribution activities, rarely on fund management. Furthermore, existing research ignores the fact that fund management affects the subsequent decisions and economic behaviours of companies. Therefore, the impact of the policy on fund management deserves attention. Our findings of this study provide empirical support for improving the state-owned capital supervision system and deepening SOE reform. Moreover, it aids the capital market in understanding the reform and other economic consequences, which have certain theoretical and practical implications.

Second, based on the reform of the corporate dividend distribution system led by government intervention, this study enriches the research on the macro policy influencing the factors of corporate cash holdings. Numerous studies have discussed the factors that influence cash holdings. They have pointed out that companies may increase their cash holdings from the perspectives of corporate finance (Pinkowitz et al., 2006) and governance (Gao et al., 2013). The decision to hold cash may be affected by macro policy and the institutional environment (Chen et al., 2015). As one of the corporate dividend distribution decisions, the reform of state-owned capital income distribution still has an obvious impact on corporate behaviours, such as cash holdings. It is worth exploring the mandatory dividend system led by the government in a targeted way. Based on the unique governance environment of China's SOEs, we examine the impact of the macro reform policy on corporate cash holding decisions. It helps to reflect on the practical results of China's income distribution reform from the perspective of micro-corporate cash management and promotes income distribution theory in China.

Third, it enriches the relevant research on the reform effect of SOEs. This policy has ended the era of paying taxes and retaining profits in China. It is committed to strengthening and expanding SOEs and the value added of state-owned capital (Yang & Yin, 2018). Thus, this policy has far-reaching impact and great significance. Previous studies have investigated the impact of SOEs reforms on cash holding decisions, from the perspectives of reforming to SOEs mixed ownership (Yang & Yin, 2018) and economic value-added assessment (Liang et al., 2019). There are evident differences in the implementation motivation and impact mechanisms of various reforms. This policy is uniformly regulated by the

government—a special major shareholder—on company dividends. Its purpose is to standardise the state-enterprise relationship of distribution, strengthen the management of state-owned capital income, regulate cash flow, and promote the optimal allocation of state-owned capital (Lin et al., 2022); this reflects the demands of the government. Therefore, these results cannot be generalised to the previous effects of SOE reform. From this perspective, we test the policy effects of government interventions on SOEs dividend payments. This has a theoretical significance for promoting further SOE reform in China.

## 2. Institutional background, literature review, and theoretical analysis

### 2.1. Institutional background

Since the beginning of their reform and opening, CSOEs have explored suitable routes to their development. They have attained achievements and gradually developed into internationally influential enterprise groups in the process. In 2003, the State Council established SASAC to exercise investor rights and supervise the operation of state-owned assets. Since then, China's current state-owned asset management system was gradually established, showing a three-level management pattern of SASAC; group parent company (parent CSOEs); and solely state-owned, controlling company, and participating enterprise (listed companies). The first level is SASAC. Appointed by the State Council, SASAC supervises and manages the operation of state-owned capital and is responsible for the top-level design of deepening reform. The second level are the parent CSOEs. Under the vertical management of SASAC, parent CSOEs are responsible for value added to state-owned assets. As the core unit of the enterprise group, parent CSOEs have absolute rights in the operation and management decisions of their controlling companies. The third level are the listed CSOEs, which undertake substantive operational activities under the overall planning of the parent CSOEs. The Third Plenary Session of the 18th CPC Central Committee proposed deepening the reform of the economic system, dealing with the government-market relationship, and changing the management pattern of enterprises from persons, affairs, and asset management to capital management.

The state-owned capital operation budget system is one of the best measures to deepen SOE reform. It has improved the national financial budget system and facilitates the state's function of capital value management and income distribution (Z. Zhu & Chen, 2013). This system was first proposed in 1993. However, due to the lack of a policy basis and income source, the system was not implemented.<sup>4</sup> Simultaneously, the scale of retained funds in SOEs expanded, and the problems of internal institutional mechanisms became increasingly prominent. The State Council promulgated the *Interim Measures* in December 2007, proposing to use CSOEs as a polit to distribute state-owned capital gains to the state treasury. The policy's purpose was to enhance the government's control and promote the strategic adjustment of the layout and structure of the state-owned economy. Specifically, state-controlled and equity-accounted enterprises should pay dividends, and the net income from the transfer of state-owned property rights and

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<sup>4</sup>The Third Plenary Session of the 14th Central Committee of the Communist Party of China adopted the '*Decision on Several Issues Concerning the Socialist Market Economic System*', which proposed to improve and standardise the double budget system, and establish the government public budget, the operation of state-owned assets budget, the social security budget and other budgets as needed.

liquidation to all state investors. Wholly state-owned enterprises shall, according to their industry, refer to different distribution ratios, based on half of the net profit attributable to the parent CSOEs in the annual consolidated financial statements. Since then, the Ministry of Finance and SASAC have issued several supplementary policies to adjust the distribution ratios. According to the '*Interim Measures*', since 2007, the distribution ratio of China National Tobacco Corporation and companies in monopoly industries was 10%, and that of companies in general competitive industries was 5%. In 2010, the ratios of the above three types of companies increased by 5% respectively, and companies in the military and scientific research industries were required to distribute income at the ratio of 5%. In 2012, the ratio of China National Tobacco Corporation increased by 5%. In 2014, the ratios of the above four types of companies increased by 5%. The China National Grain Reserve Corporation (SINOGRain) and China National Cotton Reserve Corporation (CNCRC) were always exempt from the policy.<sup>5</sup> Table 1 presents the specific evolution of this policy. The compulsory collection of state-owned capital gains by the state created new operating pressure on the parent CSOEs. The listed CSOEs, as the main operating units of the group, were affected by the policy as well. With the continuous increase in the distribution ratio, the pressure of the parent and listed CSOEs increased, and the degree of policy influence gradually expanded.

## 2.2. Research on the budget system of state-owned capital operation

To date, research based on the state-owned operating budget system in China has mainly focused on two aspects: normative research on its feasibility and empirical research on its effectiveness.

On the one hand, some normative studies have explored the feasibility of the content of the system. Some scholars have theoretically defined the system's meaning, implementation objectives, scope and proportion of income and expenditure, relationship with public budget (Cong, 2000; Wen & Liu, 2005), and so on. Li (2004) proposed that the budget system is an effective incentive constraint mechanism for non-public welfare state-owned assets. It can promote the strategic layout adjustment of the economic structure and substantive restructuring of SOEs. Wen and Liu (2005) point out that the system should focus on the diversification of preparers and participators and work together to achieve economic benefits and added value to state-owned capital. Cong (2000) considered that the system and public finance budget are relatively independent and interrelated and that the state should classify and manage them to regulate budget management.

On the other hand, empirical studies have explored the consequences of system implementation. Previous studies have discussed the implementation effect of systems from an empirical perspective. However, there is no common view of system impact. Some scholars think that the system has positive economic effects, including improving the dividend mechanism and operating performance of SOEs and promoting optimal resource allocation; that is, promoting the efficiency of state-owned capital. Moreover, the positive effect becomes more evident with an increase in the income distribution ratio of different industries (Wang et al., 2014). However, other scholars point out the system's negative economic impacts, including restricting managers' self-interest

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<sup>5</sup>Data Source: Official website of SASAC (<http://www.sasac.gov.cn/>). The data are calculated by manual finishing.



**Table 1.** State-owned income distribution of CSOEs.

File Name	Version	Date	Period
Panel A: Timeline of State-Owned Capital Income Distribution Policy of CSOEs			
<i>Interim Measures for the Administration of the Collection of State-Owned Capital Gains by CSOEs</i>	Release initially	2007.09	2007–2010
<i>Circular of the State Council on Improving the Central State-Owned Capital Operation Budget</i>	Adjust firstly	2010.12	2011–2012
<i>Circular of the State Council on Expanding the Scope of Implementation of the Central State-Owned Capital Operation Budget</i>	Adjust secondly	2012.05	2012–2013
<i>Circular Of the State Council on Further Increasing the Proportion of State-Owned Capital Gains Collected by CSOEs</i>	Adjust thirdly	2014.04	Since 2014
<i>Measures for the Administration of the Collection of State-Owned Capital Gains from CSOEs</i>	Revise fourthly	2016.07	Since 2016
<i>Guidance of the CPC Central Committee and the State Council on Improving the State-Owned Financial Capital Management</i>	Supple fifthly	2018.07	Since 2018
Panel B: Industries and Proportion of State-Owned Capital Income Distribution by CSOEs			
Industries and Proportions of CSOEs	2011–2012	2012–2013	Since 2014
China National Tobacco Corporation	15%	20%	25%
Monopoly Industries: Petroleum, Mining, Telecommunications, Electric Power	15%	15%	20%
General Competitive Industries: Transportation, Steel, Commercial Trade, Construction	10%	10%	15%
Enterprises in Military Related Industries and Affiliated with Scientific Research Institutions	5%	5%	10%
SINOGRAIN and CNCRC	exempted	exempted	exempted
	exempted	exempted	exempted

behaviour, which leads to management laziness, triggering moral hazard and declined corporate value, and damaging minority shareholders' rights and interests (Ding et al., 2013). For instance, to alleviate the pressure of compulsory dividends, listed CSOEs manipulate downward earnings, reduce the distribution scale and dividend payments, and transfer retained funds through related trade and lending between listed and parent CSOEs (Lin et al., 2022).

In summary, the SASAC system is formulated to collect state-owned capital gains from CSOEs, which is a mandatory requirement for CSOEs to distribute income. It has a direct impact on corporate cash flows. Based on this institutional background, we discuss the policy impact on the cash holding decisions of listed CSOEs to expand and enrich the relevant research.

### ***2.3. Theoretical analysis and hypothetical development***

Combined with existing theories, we consider that the policy may have a two-way impact on corporate cash holdings, that is, it may improve or reduce the cash holding level.

On the one hand, this policy may improve the level of corporate cash holdings. Compared with external financing, the reconfiguration conditions of corporate internal funds are more relaxed, the use cost is lower, and flexibility is higher (Fazzari et al., 1998; Myers & Majluf, 1984). Therefore, if external funds can easily meet the capital demand, enterprises do not need to hold internal funds. However, Jensen and Meckling (1976) and Myers and Majluf (1984) have shown that incomplete market efficiency poses risks to corporate cash flow that cannot be ignored. They further point out that capital transactions must have costs, which would increase the corporate external financing cost and intensify financing difficulties. In the short term, the limitation of internal funds makes a company appear to have or even aggravates cash flow constraints. Previous studies have found that when companies face cash flow constraints, the scale of internal funds can significantly affect corporate economic behaviour (Fazzari et al., 1998). That is, when enterprises are faced with cash flow constraints or future uncertainty of investment, the internal fund is the main payment power used to meet daily production and operation and cope with future unexpected needs. Simply put, exogenous shocks lead to a decrease in cash flow. If there is a shortage of internal funds, the enterprise must transform non-cash assets to pay for daily activities. The transaction must incur costs. To reduce the adverse impact of cash flow constraints and transaction costs, enterprises prefer to retain funds (this is called 'transaction motivation'; Baumol, 1952). In addition, corporate ability to deal with uncertainty in the short term is limited. Moreover, enterprises with cash flow constraints may miss good opportunities or even fall into risk. Therefore, to avoid risks and take precautions, enterprises retain internal funds (this is called 'prevention motivation'; Bates et al., 2009; H. Zhang & Wu, 2014). Based on the above analysis, enterprises may hold more cash to ease cash flow constraints (transaction and prevention motivation; Bates et al., 2009).

The policy requires CSOEs to distribute their incomes to the state. Before the policy was implemented, the cash that could have been kept for themselves was passively distributed, the level of cash flow decreased, and the constraint strengthened. Presumably, the policy's implementation improves corporate cash holding levels to ease cash flow constraints.

On the other hand, the policy may reduce corporate cash holdings. The first type of problem in agency theory points out that the control-ownership separation makes the utility-objective-functions of managers inconsistent with that of shareholders. Managers do not always act to maximise shareholder value (Chen & Wan, 2005). Managers often make decisions that harm shareholders' rights and interests, especially when faced with the opportunity to obtain excess individual returns (Jensen & Meckling, 1976). Chen and Wan (2005) pointed out that, under agency conflict, managers' self-motivation is mainly manifested in two aspects. The first is the use of illegal means of misappropriating corporate funds and embezzling assets to obtain monetary incentives. The second is the pursuit of excessive non-monetary incentives, such as on-the-job consumption. Due to the higher liquidity, lower liquid-cost, and risk, cash is more easily converted into personal income compared with other assets. Moreover, cash is one of the most important options for managers' self-motivation (Pinkowitz et al., 2006). Thus, if the two-right separation is serious, the manager is likely to squander, occupy, and build an 'empire' out of the need to control corporate resources. One such way is to accumulate substantial cash assets (this is called 'agency motivation') (Jensen, 1986; Gao et al., 2013). In China, the two-right separation is particularly evident in SOEs (Chen & Wan, 2005). Unlike private enterprises, SASAC is the actual controller of the vast majority of SOEs, who act as agents of the state in exercising supervision and management rights. However, it is difficult to manage and cover all aspects of SASAC since there are numerous, large-scale, and diversified SOEs (Li & Jiang, 2007). At that moment, the long-term vacancy of the actual controller leads to weaker governance of the controllers and gives the manager greater rights to corporate decisions. Therefore, the first type of agency problem is more prominent in SOEs (Luo & Huang, 2008). In addition, before the system was established, most of China's SOEs distributed less to no dividends (Wei & Liu, 2007). As a result, enterprises retained rich cash assets. Excess cash would lead to opportunistic behaviours, such as excessive investment (Richardson, 2006). The policy, as a manifestation of SASAC's mandatory dividend distribution (Yan et al., 2020), is also a national means of state-owned capital governance. This policy is conducive to further improve and optimise SOE governance.<sup>6</sup>

Before the policy was implemented, CSOEs were more strongly regulated by the government. The agency problem was eased. In addition, after the CSOEs' income distribution, the corporate funds available to be retained decreased, the demand for external financing increased passively, and the scale of cash, which was originally at

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<sup>6</sup>The agency problem may have a negative impact on cash holdings. The 'dissipation hypothesis' of the internal controller points out that when senior executives prefer 'empire building,' it will induce excessive investment. Next, it would lead to rapid consumption of internal funds and reduction of cash holdings. However, the premise of such behaviour is that the senior executives have unlimited power and the liquidity of self-interest behaviour is strong. However, it is difficult for the managers of SOEs to meet the two assumptions simultaneously. In addition, this state that there is an 'agency motivation' for the company to increase its cash holding.

the managers' discretion, declined. Currently, to some extent, enhanced external regulation compensates for the deficiencies in the governance of the controlling shareholder and alleviates the first type of agency conflict caused by the owner's deficiency. Furthermore, it strengthens the binding force on managers' opportunistic behaviours. Presumably, policy implementation curbs managers' self-interests and reduces corporate cash holding levels.<sup>7</sup>

Based on the above analysis, we propose a competitive research hypothesis:

**Hypothesis 1A:** *The implementation of the income distribution policy would improve the cash holding level of listed CSOEs.*

**Hypothesis 1B:** *The implementation of the income distribution policy would reduce the cash holding level of listed CSOEs.*

### 3. Research design

#### 3.1. Model construction and variable definition

The policy has an exogenous impact independent of internal decision-making; it can alleviate the endogenous problem of corporate decision-making. China's A-share listed companies can be divided into experimental and control groups, based on how a company is affected by the policy. That is, the quasi-natural experiment of the policy provides convenience in building a difference-in-difference (DID) model for policy evaluation. Specifically, the object of the policy is the parent CSOEs; therefore, the listed CSOEs are taken as the treatment group. Non-state-owned listed companies are not affected by the policy; therefore, they are taken as the control group.<sup>8</sup> However, some of the differences in the cash holdings of listed CSOEs and non-state-owned listed companies may be generated by other unobservable and non-time-varying factors. In addition to the long-time span of SOE reforms, direct comparisons may result in a heterogeneity bias. Considering that such factors may lead to biased research results, we first use the propensity score matching (PSM) method to find a control group which is similar with the listed CSOEs, to eliminate the sample selectivity problem. We used the DID method to test whether the policy affects corporate cash holdings. Referring to Yang et al. (2020) and Lin et al. (2022), we designed regression model (1) to test our research hypothesis. Table 2 reports the variable definitions and descriptions in model (1).

$$Cash_{i,t}/Cash\_Adj_{i,t} = a_0 + a_1Pr_{i,t} + \sum Control_{i,t} + \sum Year + \sum Firm + \varepsilon_{i,t} \quad (1)$$

<sup>7</sup>In the context of the study, the tax avoidance motivation of cash holding isn't affected. Therefore, there is no discussion.

<sup>8</sup>The objects of the 'Interim Measures' and subsequent relevant documents are parent CSOEs. But the listed local SOEs are adjusted to local conditions according to the policies of the local SASAC where they are located. That is, the ratio, scope and beginning-year of these companies are different from the provisions of the 'Interim Measures.' And it's difficult to obtain data of the policy, so the listed local SOEs are not included in the sample.

**Table 2.** Definition of main variables.

Variable	Variable definition
<i>Cash</i>	Monetary capital/(total assets – monetary capital)
<i>Cash_Adj</i>	The cash holdings level adjusted by the industry's average level
<i>Pr</i>	Dummy variable that equals 1 if the parent CSOE is required to distribute income in the current year and 0 otherwise
<i>Pr5</i>	Dummy variable that equals 1 if the parent CSOE is required to distribute income in the current year and the proportion is 5% and 0 otherwise
<i>Pr10</i>	Dummy variable that equals 1 if the parent CSOE is required to distribute income in the current year and the proportion is 10% and 0 otherwise
<i>Pr15</i>	Dummy variable that equals 1 if the parent CSOE is required to distribute income in the current year and the proportion is 15% or more and 0 otherwise
<i>Pr_ratio</i>	Proportion of income required to be distributed by the parent CSOE in the current year
<i>Size</i>	Natural logarithm of total assets
<i>Lev</i>	Total liabilities/total assets
<i>ROA</i>	Net profit/total assets
<i>Cfo</i>	Net cash flow from operating activities/Total assets
<i>Div</i>	Cash dividend before tax per share/(Net profit or paid-in capital)
<i>Tobinq</i>	Market value/replacement cost
<i>Capex</i>	Net cash from purchasing and constructing payment and disposing of fixed assets, intangible assets and other long-term assets/total assets
<i>Top</i>	Largest shareholder's shareholding ratio
<i>Balance</i>	The sum of the second to the fifth largest shareholders' shareholding ratio/Largest shareholder's shareholding ratio
<i>Msh</i>	Managers' shareholding ratio
<i>Dual</i>	Dummy variable that equals 1 if the chair of the board is also the CEO and 0 otherwise
<i>Indep</i>	Number of independent directors/Number of directors
<i>Soe</i>	Dummy variable that equals 1 if the company is SOE and 0 otherwise

### 3.2. Sample selection and data source

Since SASAC was established in 2003, we take the listed CSOEs and non-state-owned listed companies with A-shares from 2003 to 2019 as the initial sample. Then, we screen as follows: (1) exclude the observations of financial industries; (2) exclude the observations when total assets and owners' equity are negative; (3) eliminate observations when the company are special treated (ST) and \*ST; and (4) eliminate observations with missing values. Finally, 24,660 firm-year observations were obtained. Based on the aim of our study, we use the PSM method; 3855 firm-year observations of 272 listed companies are finally obtained for empirical analysis. The policy data of the listed CSOEs were manually sorted, and the other data were sourced from the China Stock Market & Accounting Research (CSMAR) Database. To reduce the influence of extreme values, all continuous variables were tailed by 1% and 99%, respectively. Table 3 reports the annual income distribution of the listed CSOEs. The results show that since 2007, some companies distributed their income at 5% and 10%. In 2010, after the distribution proportion was adjusted, some companies distributed at 15% and 20%. The sample's annual distribution is consistent with the policy reform.

## 4. Empirical results and analysis

### 4.1. Propensity score matching

The enactment and adjustment of the policy occurred in 2007, 2010, 2012, and 2014. We use an annually matching approach to match the treatment group with the corresponding control group in each policy year. This is drawn from Liu et al. (2016).

**Table 3.** Annual distribution of income distribution by listed CSOEs.

Year	Number of listed CSOEs that distribute income					Total
	5%	10%	15%	20%	25%	
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
2007	116	42	0	0	0	158
2008	122	44	0	0	0	166
2009	132	47	0	0	0	179
2010	143	49	0	0	0	192
2011	75	144	49	0	0	268
2012	73	151	48	1	0	273
2013	72	145	47	1	0	265
2014	0	73	151	48	1	273
2015	0	81	143	50	1	275
2016	0	85	140	50	1	276
2017	0	88	140	51	1	280
2018	0	87	143	52	1	283
2019	0	51	118	39	1	209
Total	733	1087	979	292	6	3097

Specifically, we select *Size*, *Lev*, *ROE*, *Cfo*, *Div*, *Capex*, *Top*, *Balance*, and institutional investors' holdings (*Inst*) as the covariates. We use these characteristic variables to match the nearest-neighbour 1:2 propensity scores for treated and untreated companies. Companies with a propensity-score difference of less than 0.05 are retained as matched companies, and all observations of matched companies are retained as the control sample. The results of the covariate balance test (not reported) showed that the p-values of the covariate differences after PSM is greater than 0.1. This indicates that there are obvious differences between the observations of the treatment and control groups; however, there is no significant difference in covariates after matching.

#### 4.2. Descriptive statistics and correlation analysis

Based on the PSM estimation, we obtain 3855 firm-year observations for the empirical analysis. Table 4 presents the descriptive statistics for the main variables. This shows that an average of 28.5% of the companies distribute their income to the state. The average *Cash* of the sample is 0.227, the median is 0.155, and the standard deviation is 0.236. The average *Cash\_Adj* is 0.067, the median is -0.002, and the standard deviation is 0.228. In addition, nearly 1/5 of corporate assets are cash, and there are significant differences among companies. The statistics of the retaining variables are within reasonable ranges. The correlation matrix results of the variables (not reported) in this study show that the correlation between *Cash* (*Cash\_Adj*) and *Pr* is negative and both are significant at the 5% level. The correlation between *Soe* and *Pr* is 0.802, mainly because companies distributing income in the sample are all listed CSOEs. The correlation between *Soe* and *Cash* (*Cash\_Adj*) is negative and significant at the 1% level. The correlation of the other variables is consistent with previous studies.

**Table 4.** Descriptive statistics.

Variable	Mean	SD	Min.	P25	Median	P75	Max.
<i>Cash</i>	0.226	0.236	0.004	0.084	0.155	0.276	3.092
<i>Cash_Adj</i>	0.067	0.228	-0.219	-0.064	-0.002	0.111	2.787
<i>Pr</i>	0.285	0.451	0.000	0.000	0.000	1.000	1.000
<i>Size</i>	22.184	1.330	19.302	21.147	22.025	23.004	26.458
<i>Lev</i>	0.484	0.196	0.045	0.340	0.497	0.629	0.906
<i>ROA</i>	0.037	0.058	-0.317	0.012	0.033	0.063	0.265
<i>Cfo</i>	0.050	0.077	-0.383	0.009	0.049	0.094	0.355
<i>Div</i>	0.240	0.307	0.000	0.000	0.157	0.350	2.603
<i>Tobinq</i>	2.170	1.688	0.717	1.207	1.636	2.466	20.593
<i>Capex</i>	0.049	0.054	-0.161	0.011	0.032	0.069	0.354
<i>Top</i>	0.359	0.151	0.053	0.239	0.336	0.466	0.821
<i>Balance</i>	0.557	0.527	0.009	0.145	0.377	0.827	2.828
<i>Msh</i>	0.008	0.042	0.000	0.000	0.000	0.000	0.480
<i>Dual</i>	0.119	0.324	0.000	0.000	0.000	0.000	1.000
<i>Indep</i>	0.361	0.051	0.154	0.333	0.333	0.375	0.625
<i>Soe</i>	0.382	0.486	0.000	0.000	0.000	1.000	1.000

### 4.3. Research hypothesis test

#### 4.3.1. Basic test: distribution income and cash holdings

Table 5 reports the testing results of research hypothesis 1. The model regressions are controlled for year-fixed and firm-fixed effects to mitigate heteroskedasticity and serial correlation. The explanatory variable in column (1) is *Cash*. The explanatory variable in column (4) is *Cash\_Adj*. The results show that the coefficient of *Pr* is positive and significant at the 1% level, that is, companies that distribute income have a higher level of cash holding. In addition, the lower the *Lev*, and the higher the *ROA*, *Cfo*, *Div*, *Tobinq*, and *Capex*, the lower the *Cash* (*Cash\_Adj*), in line with previous studies, such as J. Zhu and Lu (2009) and Yang and Yin (2018). The above results indicate that the policy significantly increases the cash holding level of listed CSOEs. Compared to companies that do not distribute income, companies that do have higher cash holding level, thus supporting hypothesis H1A.

#### 4.3.2. Extensibility test: distribution ratio and cash holdings

Our results suggest that the policy can increase corporate cash holding levels. Therefore, we must determine if different ratios contribute equally to cash holdings. We draw on Yan et al. (2020) to set up the distribution ratio continuous variable (*Pr\_ratio*), and Lin et al. (2022) to set up dummy variables at all ratios (*Pr5*, *Pr10*, *Pr15*) for regression tests. Table 5 presents the results of the expansiveness tests. The explanatory variables in columns (2) and (5) are *Pr\_ratio*. The results show that the coefficients of *Pr\_ratio* are positive and significant at the 5% level. The explanatory variables in columns (3) and (6) are *Pr5*, *Pr10*, and *Pr15*. The results show that the coefficients of *Pr10* and *Pr15* are positive and significant at the 5% level, overall, and the coefficients gradually increase as the ratio increases. Altogether, the results show that the promotion effect of different degrees of distribution pressure on the cash holdings of listed CSOEs varies; in general, the higher the ratio, the greater the promotion effect.

**Table 5.** Income distribution policy and cash holdings.

<i>Depvar =</i>	(1) <i>Cash</i>	(2) <i>Cash</i>	(3) <i>Cash</i>	(4) <i>Cash_Adj</i>	(5) <i>Cash_Adj</i>	(6) <i>Cash_Adj</i>
<i>Pr</i>	<b>0.069***</b> (3.00)			<b>0.068***</b> (2.91)		
<i>Pr_ratio</i>		<b>0.442**</b> (2.20)			<b>0.431**</b> (2.12)	
<i>Pr5</i>			<b>0.058**</b> (2.47)			<b>0.057**</b> (2.43)
<i>Pr10</i>			<b>0.070***</b> (2.98)			<b>0.068***</b> (2.87)
<i>Pr15</i>			<b>0.077**</b> (2.39)			<b>0.075**</b> (2.32)
<i>Size</i>	0.006 (0.51)	0.008 (0.67)	0.007 (0.57)	0.007 (0.61)	0.009 (0.76)	0.008 (0.66)
<i>Lev</i>	-0.359*** (-5.46)	-0.361*** (-5.49)	-0.361*** (-5.50)	-0.354*** (-5.35)	-0.355*** (-5.38)	-0.356*** (-5.39)
<i>ROA</i>	0.156 (1.48)	0.144 (1.38)	0.152 (1.46)	0.173* (1.69)	0.161 (1.60)	0.169* (1.67)
<i>Cfo</i>	0.289*** (4.74)	0.289*** (4.73)	0.289*** (4.74)	0.293*** (4.79)	0.293*** (4.78)	0.293*** (4.79)
<i>Div</i>	0.028* (1.76)	0.029* (1.79)	0.029* (1.77)	0.029* (1.85)	0.030* (1.88)	0.030* (1.85)
<i>Tobinq</i>	0.018** (2.16)	0.019** (2.22)	0.018** (2.17)	0.017** (2.25)	0.018** (2.31)	0.018** (2.26)
<i>Capex</i>	-0.298*** (-3.71)	-0.281*** (-3.50)	-0.295*** (-3.65)	-0.311*** (-3.83)	-0.294*** (-3.62)	-0.308*** (-3.77)
<i>Top</i>	0.061 (0.86)	0.050 (0.70)	0.056 (0.78)	0.063 (0.90)	0.052 (0.73)	0.058 (0.82)
<i>Balance</i>	0.005 (0.26)	0.006 (0.31)	0.005 (0.25)	0.004 (0.23)	0.005 (0.27)	0.004 (0.21)
<i>Msh</i>	0.566 (1.43)	0.564 (1.44)	0.569 (1.44)	0.546 (1.41)	0.543 (1.41)	0.549 (1.42)
<i>Dual</i>	-0.017 (-1.05)	-0.016 (-1.02)	-0.016 (-1.02)	-0.015 (-0.91)	-0.014 (-0.89)	-0.014 (-0.89)
<i>Indep</i>	0.168 (1.23)	0.158 (1.16)	0.162 (1.18)	0.182 (1.34)	0.173 (1.27)	0.177 (1.29)
<i>Soe</i>	-0.068* (-1.89)	-0.058 (-1.63)	-0.069* (-1.92)	-0.068* (-1.93)	-0.059* (-1.67)	-0.069* (-1.95)
<i>_Cons</i>	0.212 (0.87)	0.173 (0.70)	0.203 (0.83)	0.021 (0.09)	-0.017 (-0.07)	0.012 (0.05)
<i>Year &amp; Firm</i>	YES	YES	YES	YES	YES	YES
<i>N</i>	3855	3855	3855	3855	3855	3855
<i>Adj-R<sup>2</sup></i>	0.131	0.130	0.131	0.131	0.130	0.131

Note: \*\*\*, \*\* and \* mean significant at the level of 1%, 5% and 10% (two-tailed) respectively, the same below.

#### 4.4. Robustness tests<sup>9</sup>

##### 4.4.1. Parallel trend test

We follow Beck et al. (2010) and set up a dynamic model to test whether the cash holding level satisfies the parallel trend assumption before the policy was implemented. Table 6 reports the results of the parallel trend test; the cash holding level satisfies the parallel trend assumption before the implementation of the policy. Therefore, the estimation results remain robust.

<sup>9</sup>To save space, the results of the subsequent regressions are not presented for the control variables, but no anomalies were observed.

**Table 6.** Parallel trend test.

<i>Depvar =</i>	(1) <i>Cash</i>	(2) <i>Cash_Adj</i>
<i>Pre2</i>	0.022 (0.79)	0.021 (0.78)
<i>Pre1</i>	0.031 (1.13)	0.031 (1.11)
<i>Current</i>	<b>0.055*</b> <b>(1.91)</b>	<b>0.053*</b> <b>(1.86)</b>
<i>Post1</i>	<b>0.105***</b> <b>(3.67)</b>	<b>0.105***</b> <b>(3.66)</b>
<i>Post2+</i>	<b>0.082***</b> <b>(4.25)</b>	<b>0.080***</b> <b>(4.16)</b>
<i>_Cons</i>	0.137 (1.00)	-0.052 (-0.38)
<i>Control</i>	YES	YES
<i>Year &amp; Firm</i>	YES	YES
<i>N</i>	3855	3855
<i>Adj-R<sup>2</sup></i>	0.064	0.064

#### 4.4.2. Placebo test

To mitigate the effects of other policies and randomisation factors on the study findings, a placebo test was conducted based on previous studies. The specific steps were to randomly assign values of 0 and 1 to *Pr* and repeat this treatment 1000 times. The unreported results show that the mean of the estimated coefficients is clustered around 0. Therefore, the estimation results remain robust.

#### 4.4.3. Exclusion of alternative explanations

The theoretical analysis and empirical findings of our study suggest that listed CSOEs increased their cash holdings after the policy. We argue that this is the result of companies choosing to protect themselves against future uncertainty risks. However, there is still an alternative explanation; listed CSOEs have a countermeasure under the state's policy, and they adopt opportunistic behaviours, such as high cash holdings, to gain self-interest. Thus, agency motivation promotes an increase in cash holdings after policy implementation. If this hypothesis is valid, then the policy effect on cash holdings should be stronger in the case of more severe agency problems.

Consequently, we referred to Ang et al. (2000) to measure agency motivation. We used the management expense ratio (management expenses/main business income) as a proxy for agency costs. For robustness, the DIB internal control (IC) index is also used as an inverse proxy for agency costs. The higher the value of this index, the higher the level of internal control, and the lower the corporate agency costs. The unreported results show that the policy effect does not differ significantly at different levels of agency costs. Therefore, our findings do not support this alternative explanation.

#### 4.4.4. Other tests

(1) Tests based on a sample of listed CSOEs. Considering that the sample interval is long and there may be a lot of noise when using mixed samples for research, we refer to X. Zhang and Su (2021) and use only a sample of listed CSOEs for testing. Then, we set the dummy variable of the policy, which equals 0 if it is before 2007 and equals the value of the distribution ratio if it is after 2007. Additionally, a DID model is designed. Drawing on

Xiao and Kong (2014), we use the companies that were only affected by the policy of the previous period as the treatment, and used the companies that were only affected by the policy of the current period as the control.

(2) Tests for alternative measures of cash holding. Considering that the different definitions of cash holding may affect the research findings, we refer to Yang et al. (2020) to measure cash holding, using  $(\text{money capital} + \text{short-term investment}) / (\text{total assets} - \text{money capital} - \text{short-term investment})$ . In addition, we refer to J. Zhu and Lu (2009), using  $(\text{money capital} + \text{short-term investment}) / \text{total assets}$  to measure cash holdings.

(3) Test for shortened sample time span. The longer the time span of the sample, the greater the possibility of other SOE reforms during the period that affects the findings. Therefore, drawing on Liu et al. (2016), we use the balanced panel data of the four years before and after the first policy year for the test. The results of the above tests were robust.

## 5. Further exploration

### 5.1. Tests based on financial flexibility

Financial flexibility is the corporate ability to mobilise financial resources to raise funds (Denis, 2011). It can reflect corporate financial power, which, in turn, affects business management decisions (Marchica & Mura, 2010). Financial elasticity is expressed in terms of internal cash and debt levels (DeAngelo et al., 2006; Marchica & Mura, 2010). That is, the higher the level of internal cash and the lower the level of debt, the more financially resilient the companies are. When internal cash flow is insufficient, enterprises with higher financial flexibility can quickly call for and raise financial resources and financing funds. They have a stronger ability to cope with external event shocks (Fahlenbrach et al., 2021).

Previous theoretical analysis points out that the policy resulted in a decrease in corporate cash flow, an increase in cash flow constraints, and an impact on corporate cash holding decisions. Although the cash flow level of listed CSOEs decreased after the policy, there were differences in the corporate capital levels. Not all companies faced the same cash flow constraints. Thus, we must determine if financial flexibility affects the policy's impact on cash-holding decisions. We follow this idea and strengthen the research logic by examining internal cash regeneration and refinancing capacities.

#### 5.1.1. Internal cash regeneration capacity

Internal cash regeneration capacity represents future cash levels (Gamba & Triantis, 2008) and can reflect cash sustainability, which in turn affects the cash flow constraints resulting from external shocks (Marchica & Mura, 2010). This policy implies that discretionary funds kept within the firm need to be distributed. Discretionary funds increase corporate liquidity pressure and affect cash-holding decisions. Presumably, companies with higher internal cash regeneration capability have weaker cash flow shocks from the policy, and their cash holdings are too weak to improve. Based on this, we refer to Byoun (2021), using the *ROA* of the previous period as a proxy for internal cash regeneration capacity.

### 5.1.2. Refinancing capacity

Refinancing ability affects future funding levels from external sources (Fahlenbrach et al., 2021). Consequently, this affects the cash flow constraints generated by external shocks. Previous studies have found that the stronger the corporate refinancing capacity, the greater the financial elasticity, the stronger the ability to cope with cash flow constraints arising from external shocks, the fewer management decisions affected, and the smaller the benefits of holding cash (Zhou & Xie, 2007). Presumably, enterprises with higher refinancing capacity have weaker cash flow shocks from the policy, and their cash holdings are correspondingly weaker. Based on this, we refer to Whited and Wu (2006), who used the *WW-index* to present a company's refinancing ability; here, the larger the index, the weaker the refinancing ability.

Previous studies have found that the choice of debt maturity structure can affect corporate ability to refinance and management decisions (Myers, 1977; Tong & Lu, 2005). On the one hand, compared to long-term debt, the repayment term of short-term debt is more imminent. Moreover, the company faces greater liquidity pressure and managers face stronger constraints. On the other hand, due to the short repayment cycle, the repayment of short-term debt reduces the corporate debt burden and improves its refinancing ability. Presumably, short-term debt has a stronger moderating effect on the policy-cash holding relationship. Based on this, we refer to Byoun (2021) to measure the debt level.

Table 7 reports the test results on the moderating effect of financial flexibility. The results in columns (1) and (2) show that the coefficients of  $ROA \times Pr$  are negative and both are significant at the 5% level. In columns (3) and (4), the coefficients of  $Ww \times Pr$  are positive and significant at the 1% and 5% level, respectively. In columns (5) and (6), the moderator is short-term debt ( $SLev$ ), and the coefficients of  $SLev \times Pr$  are positive and significant at the 1% level. In columns (7) and (8), the moderator is long-term debt ( $LLev$ ), and the coefficients of  $LLev \times Pr$  are not significant. In columns (9) and (10), both  $SLev$  and  $LLev$  are included in the regression. The results show that the coefficients of  $SLev \times Pr$  are positive and significant at the 5% level, and the coefficients of  $LLev \times Pr$  are insignificant. From these results, there is a significant moderating effect of financial elasticity on the policy-cash holding relationship, which is consistent with the inference.

## 5.2. Tests based on control distance

The theory of government decentralisation suggests that longer control distances can reduce the strength of government intervention and efficiency of information transmission. The management of low-level firms have more discretion in decision-making regarding corporate behaviour. At that point, the cost and difficulty of government regulation for such companies increases (Chen et al., 2018). Presumably, when the control distance between listed companies and their controllers is longer, the controller's impact on the listed CSOEs is smaller, and the policy has a weaker role in promoting cash holdings.

Table 7. Tests based on financial flexibility.

Depvar =	(1) Cash	(2) Cash_Adj	(3) Cash	(4) Cash_Adj	(5) Cash	(6) Cash_Adj	(7) Cash	(8) Cash_Adj	(9) Cash	(10) Cash_Adj
Pr	0.061*** (4.27)	0.062*** (4.30)	0.151*** (3.80)	0.142*** (3.57)	0.061*** (4.48)	0.060*** (4.45)	0.062*** (4.00)	0.060*** (3.91)	0.044*** (2.59)	0.043*** (2.56)
ROA×Pr	<b>-0.263**</b> <b>(-2.02)</b>	<b>-0.289**</b> <b>(-2.22)</b>								
ROA	0.278*** (3.47)	0.302*** (3.77)								
Ww×Pr			<b>0.093***</b> <b>(2.73)</b>	<b>0.085**</b> <b>(2.50)</b>						
Ww			-0.065*** (-2.14)	-0.057* (-1.88)						
SLev×Pr					<b>0.163***</b> <b>(3.40)</b>	<b>0.159***</b> <b>(3.33)</b>			<b>0.036**</b> <b>(2.57)</b>	<b>0.034**</b> <b>(2.46)</b>
SLev					-0.131*** (-2.72)	-0.134*** (-2.81)			-0.963*** (-2.45)	-0.908*** (-2.32)
LLev×Pr							<b>-0.003</b> <b>(-0.18)</b>	<b>-0.001</b> <b>(-0.05)</b>	<b>-0.002</b> <b>(-0.11)</b>	<b>0.000</b> <b>(0.02)</b>
LLev							0.069 (1.46)	0.073 (1.56)	-0.868*** (-2.19)	-0.810*** (-2.05)
_cons	0.105 (0.73)	-0.096 (-0.67)	-0.247* (-1.78)	-0.441*** (-3.17)	0.126 (0.90)	-0.052 (-0.37)	0.090 (0.65)	-0.085 (-0.61)	0.103 (0.74)	-0.074 (-0.53)
Control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year & Firm	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	3506	3506	3398	3398	3748	3748	3748	3748	3748	3748
Adj-R <sup>2</sup>	0.042	0.043	0.041	0.041	0.060	0.062	0.057	0.059	0.059	0.061

Drawing on Chen et al. (2018), we adopt the pyramid level as a proxy for control distance.<sup>10</sup> The *Layer*, a dummy variable, equals 1 if the corporate pyramid level is greater than the sample median (implying a longer control distance) and 0 otherwise. Columns (1) and (2) of Table 8 show that the coefficients of *Layer*×*Pr* are negative and significant at the 5 and 10% levels, respectively. This finding suggests that when the control distance is longer, the policy effect on listed companies is weaker, which is consistent with the inference.

### 5.3. Tests based on environmental uncertainty

Based on the above analysis and empirical results, listed CSOs would increase their cash holdings after the implementation of the policy. Previous studies have shown that when environmental uncertainty is high, companies tend to balance cash flows and reserve more cash to cope with potential future contingencies (Shen et al., 2012). Presumably, when environmental uncertainty is high, enterprises that distribute income have a greater need to retain cash. In other words, policy has an enhanced effect on the promotion of cash holdings.

Based on this, we draw on Ghosh and Olsen (2009) using the industry-adjusted standard deviation of sales revenue as a proxy for environmental uncertainty (*EU*). A larger value indicates greater uncertainty. Columns (3) and (4) of Table 8 show that the coefficients of *EU*×*Pr* are positive, and both are significant at the 10% level. This indicates that the policy effect is stronger when environmental uncertainty is stronger, which is consistent with our inference.

**Table 8.** Tests based on control distance and environmental uncertainty.

	Control Distance		Environmental Uncertainty	
	(1) <i>Cash</i>	(2) <i>Cash_Adj</i>	(3) <i>Cash</i>	(4) <i>Cash_Adj</i>
<i>Depvar</i> =				
<i>Pr</i>	0.054*** (4.15)	0.053*** (4.08)	0.040*** (2.76)	0.039*** (2.70)
<i>Layer</i> × <i>Pr</i>	<b>-0.107**</b> <b>(-2.10)</b>	<b>-0.099*</b> <b>(-1.94)</b>		
<i>Layer</i>	0.007* (1.85)	0.008** (2.01)		
<i>EU</i> × <i>Pr</i>			<b>0.011*</b> <b>(1.80)</b>	<b>0.012*</b> <b>(1.84)</b>
<i>EU</i>			0.001 (0.45)	0.001 (0.25)
_Cons	0.053 (0.39)	-0.137 (-1.02)	-0.044 (-0.37)	-0.237** (-1.99)
<i>Control</i>	YES	YES	YES	YES
<i>Year &amp; Firm</i>	YES	YES	YES	YES
<i>N</i>	3425	3425	3575	3575
<i>Adj-R</i> <sup>2</sup>	0.130	0.132	0.123	0.123

<sup>10</sup>Since the data interval of the pyramid hierarchy is from 2004 to 2018, we use the sample of from 2004 to 2018 for the test of the control distance based on the pyramid hierarchy.

#### 5.4. Tests based on cash holding value

Although the policy changes the corporate cash holding decision, it is necessary to further examine whether the value of its cash holding is affected by the policy. On the one hand, enterprises manage cash carefully to maintain daily business operations and respond to possible future investment opportunities, which in turn enhances the cash holding value. On the other hand, since corporate cash holding adjustment is dynamic, some cash may be used inefficiently in the process, which in turn reduces the cash holding value. In addition, the increased cash from the policy may be partially held and adjusted for future distribution, and managers' control over cash can be partially restored. These factors may reduce the value of the cash holdings. Presumably, the policy may increase or decrease the value of cash holdings.

Based on this, we construct a value regression model to test the policy effect on cash holding value by referring to Lu and Han (2013) and H. Zhang and Wu (2014). The model uses market value (*MV*), normalised by total assets, as the explanatory variable, and controls for *Size*, *Lev*, *ROA*, *Cfo*, *Div*, *Msh*, *Capex*, operating profit (*Oi*), non-cash assets (*Nca*), and initial market value (*L.MV*). The unreported test results show that the policy has a significant effect on the cash holding value in the current and future periods.

## 6. Conclusions

Using PSM and DID methods and a research sample of listed CSOEs and non-state-owned companies in China's A-share from 2003 to 2019, we examine the impact of income distribution policy on cash holdings. This study finds that the policy significantly contributes to the corporate cash holding level. In addition, we explore the changes in the policy effect from the perspectives of financial flexibility, control distance, environmental uncertainty, and the value of cash holdings. The income distribution policy, along with other SOE reforms, is significant, as it is committed to making SOEs stronger and larger and ensuring value added to state-owned capital (Yang & Yin, 2018). We consider the income distribution policy as an exogenous shock, which makes the study more meaningful. On the one hand, from the more direct perspective of capital management, this study enriches the empirical study on the state-owned capital management budget system. In addition, based on China's unique institutional background, we discuss the impact of government's mandatory dividend distribution on cash holding decisions. We further expand the literature on the practical results of the separation of government, enterprises, and capital. On the other hand, our research has certain policy-inspired implications for further improvement of the state-owned capital management budget system. Additionally, it provides investors with a realistic basis for a deeper understanding of the SOE reform.

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## References

- Ang, J.S., Cole, R.A., & Lin, J.W. (2000). Agency costs and ownership structure. *The Journal of Finance*, 55(1), 81~106. <https://doi.org/10.1111/0022-1082.00201>
- Bates, T.W., Kahle, K.M., & Stulz, R.M. (2009). Why do U.S. firms hold so much more cash than they used to? *The Journal of Finance*, 64(5), 1985~2021. <https://doi.org/10.1111/j.1540-6261.2009.01492.x>
- Baumol, W.J. (1952). The transactions demand for cash: An inventory theoretic approach. *Quarterly Journal of Economics*, 66(4), 545~556. <https://doi.org/10.2307/1882104>
- Beck, T., Levine, R., & Levkov, A. (2010). Big bad banks? The winners and losers from bank deregulation in the United States. *The Journal of Finance*, 65(5), 1637~1667. <https://doi.org/10.1111/j.1540-6261.2010.01589.x>
- Byoun, S. (2021). Financial flexibility demand and corporate financial decisions. *Financial Review*, 56(3), 481~509. <https://doi.org/10.1111/fire.12258>
- Chen, Y., Dou, P.Y., Rhee, S.G., Truong, C., & Veeraraghavan, M. (2015). National culture and corporate cash holdings around the world. *Journal of Banking and Finance*, 50(1), 1~18. <https://doi.org/10.1016/j.jbankfin.2014.09.018>
- Chen, D., Kim, J., Li, O., & Liang, S. (2018). China's closed pyramidal managerial labor market and the stock price crash risk. *The Accounting Review*, 93(3), 103~131. <https://doi.org/10.2308/accr-51867>
- Chen, D., Li, S., & Wang, C. (2011). Government quality, ultimate property rights and corporate cash holdings. *Journal of Management World*, 11, 127~141. (in Chinese). <https://doi.org/10.19744/j.cnki.11-1235/f.2011.11.012>
- Chen, X., & Wan, H. (2005). Regulation and non-pecuniary compensation in Chinese SOEs. *Economic Research Journal*, 2, 92~101. (in Chinese). <https://kns.cnki.net>
- Chen, Y., Xu, T., & Gong, R. (2016). The research of the effect of the state-owned capital operating budget on state-owned enterprises operating performance – An empirical evidence based on central listed company. *Journal of Financial Research*, 5, 57~67. (in Chinese). <https://doi.org/10.14115/j.cnki.10-1242/f.2016.05.006>
- Cong, S. (2000). Establishing a classified and managed national budget system. *Journal of Finance and Economics*, 6, 23~29. (in Chinese). <https://doi.org/10.16538/j.cnki.jfe.2000.06.005>
- DeAngelo, H., DeAngelo, L., & Stulz, R.M. (2006). Dividend policy and the earned/contributed capital mix: A test of the life-cycle theory. *Journal of Financial Economics*, 81(2), 227~254. <https://doi.org/10.1016/j.jfineco.2005.07.005>
- Denis, D.J. (2011). Financial Flexibility and Corporate Liquidity. *Journal of Corporate Finance*, 17(3), 667~674. <https://doi.org/10.1016/j.jcorpfin.2011.03.006>
- Ding, Y., Wang, Q., & Liu, P. (2013). Research on the executive incentive of state-owned enterprises under the background of dividend payout. *China Industrial Economics*, 1, 116~127. (in Chinese). <https://doi.org/10.19581/j.cnki.ciejournal.2013.01.010>
- Fahlenbrach, R., Pageth, K., & Stulz, R.M. (2021). How valuable is financial flexibility when revenue stops? Evidence from the COVID-19 crisis. *The Review of Financial Studies*, 34(11), 5474~5521. <https://doi.org/10.3386/w27106>
- Fazzari, S.T., Hubbard, R.G., & Petersen, B.C. (1998). Financing constraints and corporate investment. *Papers on Economic Activity*, 37(1), 141~206. <https://doi.org/10.2307/2534426>
- Gamba, A., & Triantis, A. (2008). The value of financial flexibility. *The Journal of Finance*, 63(5), 2263~2296. <https://doi.org/10.1111/j.1540-6261.2008.01397.x>
- Gao, H., Harford, J., & Li, L. (2013). Determinants of corporate cash policy: Insights from private firms. *Journal of Financial Economics*, 109(3), 623~639. <https://doi.org/10.1016/j.jfineco.2013.04.008>
- Ghosh, D., & Olsen, L. (2009). Environmental uncertainty and managers' use of discretionary accruals. *Accounting, Organizations and Society*, 34(2), 188~205. <https://doi.org/10.1016/j.aos.2008.07.001>

- Jensen, M.C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323~329. <https://www.jstor.org/stable/1818789>
- Jensen, M.C., & Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305~360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Li, Y. (2004). Study on setting up the state-owned capital management system. *Journal of Central University of Finance & Economics*, 2, 1~4. (in Chinese). <https://kns.cnki.net>
- Li, W., & Jiang, T. (2007). A study of corporate governance and corporate overinvestment behavior – Evidence from Chinese listed companies. *Finance & Trade Economics*, 12, 52~61. (in Chinese). <https://doi.org/10.19795/j.cnki.cn11-1166/f.2007.12.010>
- Liang, S., Pan, J., & Bai, Y. (2019). EVA assessment and cash holdings: Evidence from Chinese central SOEs. *Management Review*, 31(12), 233~249. (in Chinese). <https://doi.org/10.14120/j.cnki.cn11-5057/f.2019.12.020>
- Lin, C., Liu, H., Ni, C.K., & Zhang, B.H. (2022). State controlling shareholders and payout policy, *Journal of Financial and Quantitative Analysis*, forthcoming. <https://jfq.a.org/2022/03/05/state-controlling-shareholders-and-payout-policy/>
- Liu, Y., Zhang, X., & Lan, X. (2016). The influence of the mixed ownership reform on the total factor productivity of the state-owned enterprises – An empirical study based on PSM-DID method. *Public Finance Research*, 10, 63~75. (in Chinese). <https://doi.org/10.19477/j.cnki.11-1077/f.2016.10.007>
- Lu, Z., & Han, F. (2013). How do macroeconomic policies affect the economic effects of firms' cash holdings? – A study based on both product market and capital market perspectives. *Journal of Management World*, 6, 43~60. (in Chinese). <https://doi.org/10.19744/j.cnki.11-1235/f.2013.06.004>
- Luo, H., & Huang, W. (2008). SOE dividends, on-the-job spending and company performance. *Journal of Management World*, 9, 139~148. (in Chinese). <https://doi.org/10.19744/j.cnki.11-1235/f.2008.09.014>
- Marchica, M.T., & Mura, R. (2010). Financial flexibility, investment ability, and firm value: Evidence from firms with spare debt capacity. *Financial Management*, 39(4), 1339~1365. <https://doi.org/10.1111/j.1755-053X.2010.01115.x>
- Myers, S.C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147~175. [https://doi.org/10.1016/0304-405X\(77\)90015-0](https://doi.org/10.1016/0304-405X(77)90015-0)
- Myers, S.C., & Majluf, N.S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187~221. [https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)
- Pinkowitz, L., Stulz, R., & Williamson, R. (2006). Does the contribution of corporate cash holdings and dividends to firm value depend on governance? A cross-country analysis. *The Journal of Finance*, 61(6), 2725~2751. <https://doi.org/10.1111/j.1540-6261.2006.01003.x>
- Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, 11(2), 159~189. <https://doi.org/10.1007/s11142-006-9012-1>
- Tong, P., & Lu, Z. (2005). Debt financing, the sources of debt, and the firms' investment behavior: Evidence from listed companies in China. *Economic Research Journal*, 5, 75~84. (in Chinese). <https://kns.cnki.net/>
- Wang, J., Tong, J., & Li, X. (2014). SOE dividends, excessive investment and the effectiveness of the state-owned capital management budget system. *Economic Perspectives*, 8, 70~77. (in Chinese). <https://kns.cnki.net/>
- Wei, M., & Liu, J. (2007). SOE dividends, governance factors and over-investment. *Journal of Management World*, 4, 88~95. (in Chinese). <https://kns.cnki.net/>
- Wen, Z., & Liu, W. (2005). Subject of state capital budgeting. *Review of Economic Research*, 79, 1~2. (in Chinese). <https://doi.org/10.16110/j.cnki.2095-3151.2005.79.008>
- Whited, T.M., & Wu, G. (2006). Financial constraints risk. *Review of Financial Studies*, 19(2), 531~559. <https://doi.org/10.1093/rfs/hhj012>
- Xiao, H., & Kong, A. (2014). A study of the mechanism of the impact of financing and financing on stock price idiosyncratic volatility: A test based on a DID model. *Journal of Management World*, 5, 136~141. (in Chinese). <https://doi.org/10.19744/j.cnki.11-1235/f.2014.08.004>

- Yan, L., He, Y., & Zhang, J. (2020). Mandatory dividend: Pressure downshift and earnings management – Empirical evidence from central listed companies in China. *Accounting Research*, 2, 60~73. (in Chinese). <https://kns.cnki.net/>
- Yang, X., Yang, Z., & Chen, F. (2020). How does the new performance appraisal system affect cash holdings of CGOEs? Evidence from the quasi-national experiment based on the third revision. *Business and Management Journal*, 42(5), 140~157. (in Chinese). <https://doi.org/10.19616/j.cnki.bmj.2020.05.009>
- Yang, X., & Yin, X. (2018). How SOE hybrid reform affects company cash holdings. *Journal of Management World*, 34(11), 93~107. (in Chinese). <https://doi.org/10.19744/j.cnki.11-1235/f.2018.0008>
- Zhang, X., Liu, Y., & Zhou, Y. (2021). Can “government – capital separation” improve investment efficiency in state-owned enterprises. *Journal of Management Sciences in China*, 24(4), 1~18. (in Chinese). <https://doi.org/10.19920/j.cnki.jmsc.2021.04.001>
- Zhang, X., & Su, Q. (2021). The impact of profit distribution between government and SOEs on excess employees. *Journal of World Economy*, 44(11), 121~144. (in Chinese). <https://doi.org/10.19985/j.cnki.cassjwe.2021.11.007>
- Zhang, H., & Wu, Y. (2014). Internal control, cash holdings and economic consequences. *Accounting Research*, 3, 71~78. (in Chinese). <https://kns.cnki.net/>
- Zhou, W., & Xie, S. (2007). Reasons for high cash holdings by Chinese listed companies. *The Journal of World Economy*, 3, 67~74. (in Chinese). <https://kns.cnki.net/>
- Zhu, Z., & Chen, S. (2013). The policy succession and practical effect of state-owned capital management budget—Based on the analysis of PVAR model about the central enterprises. *Research on Economics and Management*, 7, 5~13. (in Chinese). <https://doi.org/10.13502/j.cnki.1000-7636.2013.07.006>
- Zhu, J., & Lu, Z. (2009). Monetary policies, enterprise’ growth, and the change in the level of cash-holding. *Journal of Management World*, 3, 152~158. (in Chinese). <https://doi.org/10.19744/j.cnki.11-1235/f.2009.03.017>