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Achieving stability and prosperity: The Chinese way

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State governance in corporations controls the economy and employment to develop prosperity in China. Does privatization achieve both objectives? Privatization theory views that giving up state control benefits firms economically but is quite silent on the value of employment benefits. However, market mix theory (Sappington and Stiglitz, J Policy Anal Manag 6(4):567–582, 1987; Stiglitz, Whither Socialism? MIT Press, Cambridge, MA, and London, England, 1994) views that state control of firms to provide employment is valuable. It further implies that corporate performance and employment objectives can co-exist well together. We formalize Market Mix Theory to reveal its testable implications on dual objectives and performance. We test the notion that Chinese corporations pursue two objectives: maximizing economic value *and* employment, unlike the singular objective of value maximization in Western firms. As well, we test the benefit of partial privatization. First, we test the market mix theory by studying the relationship between state ownership and employment and financial performance as a combined objective. We show that mixed firms have the highest performance in wealth maximization and employment compared to private and state-controlled firms. Second, we examine Chinese SOEs' Employment with a large sample of 2536 public firms using panel regressions. We find that state ownership and firm employment have a positive relationship. State ownership is positively related to employment stability. Moreover, performance has a negative relationship with state ownership–employment. This result supports our over-employment hypothesis, meaning that economic performance is sacrificed to provide employment. Lastly, we show executive pay for SOE managers is positively related to employment. The employment objective is real in determining state control in Chinese corporations without conflicting to maximize shareholder wealth. Rather, the mixed form of ownership is optimal and vitally contributes overall to the stability and prosperity of China. Our formalization of market mix theory better reflects the reality of motivation, performance and benefits of partial privatization as exemplified in Chinese state-owned enterprises.

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Introduction

In the face of the worldwide COVID pandemic, China is the only country to grow its GDP by 3.2 percent in the second quarter, while most countries suffer economic declines (Cheng, 2021). Thus, the economy of China is showing profound resilience and strength. The recovery also came as China stepped up efforts to boost the SOEs via ownership reforms and market-oriented operations. With an emerging and socialist economy, China is remarkable for having the highest number of Fortune Global 500 list companies in 2021, with the United States coming second. Moreover, it is even more remarkable that these are mostly state-owned enterprises (SOEs).[1] The surprising success of state-owned firms versus publicly traded and global players from Western countries suggests that China's "socialism with Chinese characteristics" actually works and has understated merit.

This success of Chinese state-owned firms runs counter to the dominant view of privatization in academia. That is, state control negatively impacts efficiency and economic welfare, so privatization is favored. This view has greatly influenced governments to pursue privatization policies around the world. Social incentives are known to harm SOE firm performance, as suggested by research on corporate governance (Marcelin and Mathur, 2015). Further, SOEs are more susceptible to interest group influence (Shleifer and Vishny, 1994) which tend to answer to political masters rather than market rationales (Shleifer and Vishny, 1994; Boubakri et al., 2011; Sager, 2011). Employment-friendly policies can trump competition and efficiency (Shleifer and Vishny, 1994; Boycko et al., 1996).

We are motivated to extend this strand of the literature on the social incentives of privatization.

The content of SOE reforms in China suggests that government ownership has complicated both financial and social effects on SOEs (Wang et al., 2004). While the relationship between privatization and financial performance has received sufficient attention (Marcelin and Mathur, 2015), the relationship between ownership and employment performance has received scant attention. In China, SOEs employ the majority of the urban workforce (Wang et al., 2004). Emphatically, job creation is one of the primary reasons most communities pursue an economic development program.[2] China's SOEs are characterized as over-manned vehicles of artificial employment creation (Putterman and Dong, 2000), and these raise a fascinating question: Do Chinese SOEs pursue employment as a firm objective?[3]

While the privatization literature generally agrees that privatization is more beneficial than state control, according to the survey of Marcelin and Mathur (2015), the market mix theory disagrees (Sappington and Stiglitz, 1987; Stiglitz, 1994). Indeed, they argue that the benefits of privatization are overstated because market competition is more important than who owns property rights, the state or private person. If SOEs brought the right product to the market at competitive prices, they would match the privately owned companies' performance. Thus, there should not be much difference in performance between privatized SOEs versus state-controlled ones, and even less difference between mixed ownership firms. Hence, the benefits and costs of state control or no control exist regardless. Privatized firms, for example, gain greater freedom and autonomy to pursue success, but they also forfeit state support, incentives, and risk mitigation. Market mix theory views there are benefits and costs to state ownership that allow them to compete well in the marketplace. One of these benefits is the state's social incentive to provide employment is valuable.

Estrin et al. (2009) conclude that privatization is not associated with reducing employment in the post-communist economies and China. This conclusion suggests that employment remains an essential incentive for firms after privatization. Indeed, Li and Yamada (2015) are the first to find that Chinese SOE firms have a social incentive for employing people. We propose that the employment objective exists and is as real as the corporate objective to maximize Chinese corporations' firm value. We study how the degrees of privatization influence the Employment and economic performance of SOEs. Furthermore, Marcelin and Mathur (2015) conclude that a privatized firm's performance ultimately varies along institutional and property rights dimensions. Thus, we examine employment and economic performance along this institutional dimension of government ownership at the central or local level.

Insightfully, the market mix theory does not disagree with the privatization theory's view that generally favors privatization. That is, if the government only valued the economic performance of state firms, then privatization theory is largely correct that privatizing state firms are beneficial. Yet, this theory is incorrect with Chinese SOEs because it does not value state social objectives like employment. Rather, it views that the employment objective serves social interests, not economic ones. Here, the government values both financial and employment performance and perhaps other social missions. Therefore, the market mix theory more realistically reflects the incentives and realities of state-owned enterprises in China or other countries.

Using China as an empirical context for financial reform has several advantages. First, China has the highest number of firms on the Forbes 500 global list. Second, it has the world's largest population of publicly listed state companies to examine. Hence, the large sample of Chinese firms provides firms with a large range of privatization levels to discover the relationship between state ownership and employment and economic performance.

Consequently, our study aims to contribute to this emerging stream of social incentives in the privatization literature. Our study may be the first to empirically test the market mix theory (Stiglitz, 1994), which affirms that firms do have value in employing people from the viewpoint of governments. Our findings that the employment objective matters to SOEs offer evidence of the importance of this social incentive in governing SOEs. The privatization literature has yet to recognize this motivation, and this employment motivation further raises questions about the social responsibility role of corporate governance. Thus, our study may be the first to contribute to the idea that privatization costs society the employment of people. From this perspective, state ownership benefits national employment, and this benefit is why China retains some state ownership.

Our second motivation is to examine corporate governance and dual objectives in SOEs. Like countries with capitalist markets, Chinese firms are presumed to have maximizing shareholder wealth as their corporate objective. Social factors such as employment could undermine the corporate objective of maximizing firm value. Studies (Clarke and Cull, 2002; Boubakri et al., 2017; Dinc and Gupta, 2011; Li and Yamada, 2015) show that employment matters to privatization and thus exists as a social objective. Hence, this raises a second fascinating question: does this employment objective conflict with *or* complement their economic objective of creating economic value?

As a second contribution, we show that mixed ownership or partial privatization of firms can achieve corporate and employment objectives. Moreover, SOE firms do not follow the singular objective of maximizing firm value. Rather, Chinese SOEs pursue the dual objectives of employment and economic value. These conclusions contribute to challenging the normative notion of the fundamental theory of shareholder maximization as the sole corporate objective. And they pursue these objectives *harmoniously*, as exemplified by the superior performance of mixed ownership SOEs.

The next part of this paper provides (1) literature review, (2) theory and hypotheses development, (3) methodology, (4) sample and data, (5) results and discussion, and the robustness of findings. The last section concludes.

Literature review

In surveying the privatization literature, Marcelin and Mathur (2015) examine how institutional arrangements (i.e., property rights, contract rights, political institutions, and corporate governance practices) affect the performance of privatized enterprises and the development of capital markets and economic growth. They conclude that complete privatization generally results in improved performance. The state's partial ownership can help monitor newly privatized firms' performance. Privatized firms tend to thrive in countries with strong economic and political institutions. They raise an important question: how does government ownership relinquishment affect firm performance?

In India, Gupta (2005) finds that partial privatization positively impacts performance. With the government on the privatized firm's board, this may be a private–public partnership, serving as a guarantee for stakeholders (Marcelin and Mathur, 2015). In China, Huang and Wang (2011) show that performance improved after the government gave up total ownership. Mrad and Hallara (2012) found that very high state ownership levels are related to increased performance and value within privatized firms. In China, "higher performing SOEs are more likely to be privatized" (Tong, 2009).

The privatization performance in China literature has shown non-linear effects between privatization and financial performance. Qi et al. (2000) find that state or legal-person shareholdings dominance can affect the public SOE firms' performance. Subsequent studies (Sun et al., 2002; Wei and Varela, 2003; Wei et al., 2005; McGuinness and Ferguson, 2005; Tian and Estrin, 2008; Ng et al., 2009, Liu et al., 2012) show a concave relationship between state ownership and performance. This concave shape implies poor performance in highly state-controlled and privatized firms. On the other hand, some studies (Wei and Varela, 2003; Wei et al., 2005; Tian and Estrin, 2008; Ng et al. 2009) find that state ownership has a convex relationship with performance, which implies that both high and low state ownership is related to higher firm value. These non-linear relationships offer valuable guidance on the extent to which the government should give up state control to realize the potential economic benefits of privatization (Ivashina and Scharfstein, 2010). However, whether this non-linear relationship is concave or convex is not yet resolved in this literature.

Our research question regarding the shareholder and employment objectives in SOEs draws on the theories of the firm's objective and the market mix theory of privatization. Shareholder theory states that the sole objective of the corporation is to maximize value for its shareholders and its suppliers of capital (Friedman, 1999). However, this theory of the firm's objective has been challenged in recent decades. Namely, stakeholder theory (Jensen, 2001) challenges shareholder maximization theory in the core idea of a singular objective, and only shareholders matter in the economic objective of a firm. Indeed, stakeholder theory identifies other parties with relevant stakes in a firm and can have different objectives and, therefore, different performance expectations. These stakeholders can include customers, suppliers, employees, and government who have social objectives which are often aligned with corporate social responsibility. Thus, firms under a stakeholder theory view can have multiple objectives besides profit and maximizing shareholder wealth, but also objectives of other firm stakeholders.

When the major stakeholder is the government, as with Chinese SOEs, the social objective of employment gains importance vis-a-vis maximizing shareholder wealth. Here, the market mix theory (Sappington and Stiglitz, 1987; Stiglitz, 1994) offers rich insight to explain how government ownership (versus privatization) in firms can meet economic and employment objectives.

Theory and hypotheses development

We will extend the market mix theory by formalizing it in the Chinese SOE context.

	Private		Mixed/partial SOEs		State control
Objectives	Shareholder wealth maximization	⇒	Shareholder wealth maximization + employment	⇒	Employment

This theory implies that the state's residual right of intervention in SOEs to provide employment is valuable. That is, the state has a political and social incentive to provide employment because it provides social stability. Mixed state or partial ownership SOE is the optimal means, a state-corporate system, to achieve prosperity and stability in the country. Pursuing prosperity and stability is consistent with modern China's development mindset and history. Therefore, mixed SOEs have developed the ability to harmonize corporate performance and employment objectives without compromising each other. Market competitiveness matters more than who owns (private or state) the firm. Bai et al. (2006) suggest that the government might simultaneously pursue economic and social objectives. After all, economic and social commitments and incentives realistically exist together in governments. Employment is fundamental to the social stability and survival of the ruling party in socialist countries.

Marcelin and Mathur's (2015) survey concludes that privatized firms' performance ultimately varies along institutional and property rights dimensions. This hypothesis explores the relationships between state ownership and financial and social performance. The Chinese SOE literature has shown either concave or convex relationships between state ownership and performance. Moreover, given the market mix theory implies that there exists an optimal mix of state and private ownership, we propose a *dual objectives hypothesis:*

> H1: State ownership non-linearly relates to two objectives of economic and employment performance.

Employment objectives hypotheses

Chinese SOEs are motivated to provide employment. There is a basic social contract between the government and its citizens to provide secure, adequate, and gainful employment. Since the 1950s, employment by the state has played an important role in the organization and culture of urban life. "Work units occupied center stage in the economic and social lives of workers by providing not only wages but also subsidized housing, education, health care, and retirement pensions" (Putterman and Dong, 2000). Income and other guarantees are provided through the work units. Naturally, the state's residual right of intervention is to ensure SOEs provide employment. As a result of private owners and the state exercising their rights of intervention, the market mix theory suggests that partial privatization can achieve the state's social goals for employment and the private owner/investors' goals for achieving economic wealth. Employment is a major factor in the Chinese government's decision to keep control of SOEs (Li and Yamada, 2015). We examine the relationship between state ownership and employment performance. The government owns more shares to employ more people, therefore:

H2: State ownership positively relates to employment performance.

We introduce the employment stability hypotheses here. Employment needs to be secure and stable to people. Hence, the government owns more shares to provide stable employment, therefore:

H3: State ownership positively relates to job stability

Indeed, to provide secure and stable employment to people, the government is willing to prioritize the performance of the employment objective over the economic one, especially during poor economic times. Hence, SOEs employ more people even if they lose money, therefore:

H4: SOE performance negatively relates to (employment × state ownership)

We introduce the management incentive hypothesis. Executive management plays a central role in leading SOEs. Indeed, historically, work units are organized and taken under the auspices of SOE "bosses" or executives who see that part of their business and social responsibilities is to provide job opportunities and to "look after" the social welfare of their employees. These SOE "Bosses" are paid more for employing more people, so their compensation should align with the state objectives of employment performance, therefore:

H5: Management compensation positively relates to employment.

Market mix and performance value

We continue extending the market mix theory by formalizing its main implication. That is, intriguingly, mixed ownership firms can create more value than privatized or purely state-controlled firms. In the table below, we present a model of market mix theory on the value of mixed firms compared to private and state-owned firms.

Here, we show the strengths ($+\Delta V_s$) or sources of value for each control type of firm (private, mixed, and state), as well as their weaknesses ($-\Delta V_W$). For example, private firms have strengths in raising equity and adapting to market competition, while state firms have strengths in employing people and support from governments. On the other hand, private firms are smaller scale and have less stable short-term equity capital, while state firms are disadvantaged by bureaucracy and have a poorer ability to adapt.

	Private V_{PRIV}		**Mixed/ partial SOEs V_{MIXED}**		**State control V_{GOV}**
Strengths ($+\Delta V_S$)	Raising equity and debt capital, adaptable to markets, competitive, efficient management talent, pursuing growth	→	$+\Delta V_S$ synergistic combination	←	Employing people, support by government, large scale, stability, Socially Responsible, lower cost and access to debt capital, patient capital
Weaknesses ($-\Delta V_W$)	Unstable, smaller scale, shorter-term capital, lower spheres of influence on society	→	$-\Delta V_W$ synergistic Combination	←	Bureaucracy is inefficient, political incentives, poor ability to adapt

We integrate the theoretical concept of synergy in explaining the benefits of mergers and acquisitions, M&A. Extra value can be created when two firms combine to form a more valuable firm than the individual firm's stand-alone value. Synergy is expressed as: $V_{AB} = V_A + V_B + \Delta V$ where V_A, V_B are the value of two firms A and B, and ΔV is the synergy value. Synergy exists when $+\Delta V = V_{AB} - V_A - V_B$ is a positive non-zero value.

In our integration of the M&A theory of synergy into market mix theory, mixed control firms combine the strengths and weaknesses of both private (V_{PRIV}) and state control firms (V_{GOV}) in a synergistic manner. This synergy results in greater strengths ($+\Delta V_S$) and weaknesses ($-\Delta V_W$) than each of these added together. However, we propose that the combined strengths outweigh the weaknesses of value in mixed control firms. Hence, the strength minus the weakness results in a positive value of net strength, $+\Delta V_S - \Delta V_W > 0$.

Net strength		$+\Delta V_S - \Delta V_W = +\Delta V_S$	

The positive net value of strengths is accrued to the mixed SOE firm to result in:

Value	V_{PRIV}	$V_{MIXED} = V_{PRIV} + V_{GOV} + \Delta V_S$	V_{GOV}

The implication of this theoretical result is that mixed-control firms are more valuable than pure private and state-controlled firms. These implications are consistent with market mix theory yielding these testable hypotheses:

Hypotheses	$V_{MIXED} - V_{PRIV} > 0$	$V_{MIXED} = V_{PRIV} + \Delta V_S$ $V_{MIXED} = V_{GOV} + \Delta V_S$	$V_{MIXED} - V_{GOV} > 0$

Hence, our theoretical proof yields our last market mix theory hypothesis:

H6: Mixed-control firms have greater economic and employment value than private and state-controlled firms.

Central or local government effects

Marcelin and Mathur (2015) conclude that the performance of privatized firms is influenced by the second dimension of property rights. Property rights refer to the rights of individuals to the use of resources. Not only formal legal rules and state power establish and enforce these rights, but also social conventions (De Alessi, 1987). According to Cao et al. (1999), central and local governments may have different privatization incentives. According to Zhan and Turner (2012), minority shareholders in Chinese-listed companies value local government-controlled firms over individuals and central government-controlled firms. Local governments prefer more efficient firms that hire more workers, according to Li and Yamada (2015).

Central state government control could confer higher employment intensity because the central government has substantial commitments, political control, and stability incentives. Moreover, the central government has more significant resources, power, and social benefits to motivate SOE firms to provide higher employment. Li and Yamada (2015) demonstrate that the government selects and controls firms that employ more workers and have better valuations than private firms. They conclude that the central government controls firms to pursue employment regardless of efficiency. In contrast, local governments control firms to pursue both efficiency and social objectives simultaneously. Local governments are more financially constrained than the central government, and by necessity, they have more significant commitment and incentives for economic performance to meet local economic development needs. Hence, we examine

whether local or central government-controlled firms influence employment. Thus, we propose:

H7: Central/Local state ownership is related to employment and financial performance.

Methodology

We use an unbalanced panel data set from 2001 to 2011 for partial least-squares regression analysis with period random effects. The significant advantage of using the panel least squares regression method is that it reduces the magnitude of a critical econometric problem in empirical studies, namely, omitted variables correlated with explanatory variables (Hsiao, 1993). It is better able to control for the effects of missing or unobserved variables. Previous studies on Chinese firm performance studies employ panel least squares regression and yearly cross-section and pooled regressions (Ng et al., 2009; Wei and Varela, 2003; Sun et al., 2002). We control for heteroscedasticity by specifying White's correction of standard errors in our models. We consider that our model has no omitted variables. Hence, a random-effects model is preferable to fixed effects because (a) the effects of time-invariant variables like Industry and Economic Region can be estimated rather than just controlled for, and (b) standard errors of estimates tend to be smaller (Williams, 2015).

Dual Objectives Performance Hypothesis: We specify this regression model to test this hypothesis:

$$\begin{aligned}\textbf{H1}: (\text{ECONOMIC} \times \text{EMPLOYMENT PERFORMANCE}) &= B_0 + B_{1-2}\text{STATE OWNERSHIP} + B_3\text{CENTRAL} \\ &+ B_4{-}B_{12}\text{CONTROLS (firm)} + B_{13}{-}B_{18}\text{CONTROLS} \\ &\text{(external)} + \text{Error}\end{aligned}$$

where Firm Controls = ASHARE, LEGAL, EXECUTE, INDDIR, LEVERAGE, ROS, SIZE, FREECASH, DUAL External Controls = INDUSTRY (7), ECONOMIC REGION (4)

Employment performance.

We specify these regressions to test these hypotheses:

H2: $\text{EMPLOYMENT} = B_0 + B_{1\text{-}2}\text{STATE OWNERSHIP} + B_3\text{CENTRAL} + B_4{-}B_{12}\text{CONTROLS (firm)} + B_{13}{-}B_{18}\text{CONTROLS (external)} + \text{Error}$

Job stability hypothesis:

H3: $\text{JOB STABILITY} = B_0 + B_{1\text{-}2}\text{STATE OWNERSHIP} + B_3\text{CENTRAL} + B_4{-}B_{12}\text{CONTROLS (firm)} + B_{13}{-}B_{18}\text{CONTROLS (external)} + \text{Error}$

Overemployment hypothesis:

H4: $\text{PERFORMANCE} = B_0 + B_{1\text{-}2}(\text{STATE OWNERSHIP} \times \text{EMPLOYMENT}) + B_3\text{CENTRAL} + B_4{-}B_{12}\text{CONTROLS (firm)} + B_{13}{-}B_{18}\text{CONTROLS (external)} + \text{Error}$

Management incentive hypothesis:

H5: $\text{MANAGER COMPENSATION} = B_0 + B_1\text{EMPLOYMENT} + B_2\text{STATE OWNERSHIP} + B_3\text{CENTRAL} + B_4{-}B_{12}\text{CONTROLS (firm)} + B_{13-18}\text{CONTROLS(external)} + \text{Error}$

where Firm Controls = ASHARE, LEGAL, EXECUT, INDDIR, LEVERAGE, ROS, SIZE, FREECASH, DUAL External Controls = INDUSTRY (7), ECONOMIC REGION (4)

Table 1 provides our definition and measurement of each variable in the above regression models.

Dependent variable specification. For the dual objective performance variable, we combine economic and employment by simply multiplying these measures together. Employment is the logarithm of the number of employees working at each firm. We define two measures of firm-level market performance, with the first being Tobin's Q, consistent with previous studies (Ng et al., 2009; Wei and Varela, 2003; Loderer and Martin, 1997).

The second measure is yearly stock returns adjusted for dividends. Then, we created two variations of this dual performance variable based on these two measures of market performance, which are:

1. DUAL1 = Log number of Employees × Tobin's *Q*
2. DUAL2 = Log number of Employees × Stock Return

For the employment objective, we use size-adjusted employment, which is the same used by Li and Yamada (2015), which they call "labor intensity." Size adjusted Employment addresses firm size as larger SOEs would employ more people. Here are our measures for dependent variables:

1. Employment Intensity=Number of employees/Assets.
2. Job stability = annual percentage change in the number of employees.
3. Managerial compensation = Total compensation of the top three executives.

Main variables of interest. As explained in Table 1, we define our main independent variables and their expected effects on financial and social performance. The STATE variable is the percentage of shares in firms held by the central government, local government, or solely government-owned enterprises. The coefficient for the variable of STATE2 combined with the coefficient for STATE determines whether the relationship between performance and STATE is non-linear, which can be convex, U-shaped or concave, or n-shaped. A convex shape shows that state ownership is positively related to market performance, but the relationship changes to become negative beyond an inflection point.

We create a classification variable CENTRAL/LOCAL to examine the effect of the level of government control on the firm. The CSMAR dataset's governance module identifies the controlling shareholder ("actual controlling person") of a firm. First, we separate the SOE from a private or non-state-owned firm by looking at the controlling shareholders' Chinese names. If the controlling shareholder is a personal name or a private company name such as ABC Group Ltd, it is separated from the SOEs. Also, English-named firms tend to be non-SOE companies. If we cannot tell by looking at the name, we manually checked the information on their websites. To determine whether the central government or local government controls a firm, we manually classify the controlling shareholder of each firm based on their Chinese company name. Company names containing the words "China," "Chinese," "National," or "Central" are classified as central state-owned as their Chinese meaning implies national or central in English. We identify this firm with a dummy value of 1. Whereas company names that contain the words of a specific town, city, or province are classified as local state-owned companies (dummy value of 0). If there is insufficient evidence to identify the controlling shareholder or the controlling government, we exclude the company.

Control variables. We explain the other ownership variables, which include ASHARE and LEGAL shares. ASHARE represents private ownership in the firm, and privatization arguments and empirical studies support the view that private ownership would benefit the firm financial performance (Wang, 2005; Firth et al., 2013; Ng et al., 2009). Privatization could have positive effects on employment because of greater entrepreneurialism and growth. Indeed, we find that privately-controlled firms have significantly higher job creation than state-controlled firms. LEGAL share is institutional ownership from private companies, state-owned

Table 1 Specification of regression variables for financial and social performance.

Variables	Description	Measure
Dependent variables		
Tobin's Q	Financial performance	(Market value of equity + Book value of total liabilities)/Book value of total assets
Stock Return	Market performance	Stock returns adjusted for dividends Stock return$_i$ = Return$_t$−Return $_{t-1}$
EMPLOYEE/ASSETS	Social performance	Employee numbers divided by total assets
DUAL PERFORM	Financial and social performance	Stock return × Employee/assets
Ownership		
STATE	State ownership	Percentage of shares owned by government
STATE^2	State ownership	Square of percentage of shares owned by government
ASHARE	Private ownership	Ordinary equity shares mostly held and traded by individuals
LEGAL	Legal ownership	Percentage of shares owned by legal institutions
Governance		
CENTRAL/LOCAL	State control	Central or Local state government control (1,0)
EXECUTIVE	Executive ownership	Percentage of shares owned by executives
INDDIR	Board Independence	Percentage of independent directors/all directors
DUAL	Dual role of CEO and Chairman of the Board of directors	Dummy variable of 1 if board chairman and general manager is different person, and 0 if board of chairman and general manager is the same person
Firm characteristics controls		
SIZE	Size of SOE	Logarithm of total assets
LEVERAGE	Leverage	Total debt/total equity
ROS	Return on sales	net income/total sales
FREECASH	Free cash flow	Total free cash flow with reinvested dividends / total assets
INDUSTRY CONTROL (6)	Industry	Dummy variable of 1 if firm is in the finance industry, utilities, property, conglomerate, industrial and 0 if it is otherwise
REGIONAL CONTROL (4)	Economic regions	Dummy variable of 1 if firm is in one of four economic regions of China: East Coast, Central, North East, Western

enterprises and non-bank financial institutions such as investment funds and security companies. These are often related to SOEs and are known to provide business and state benefits such as large block monitors (Shleifer and Vishny, 1986; Ng et al., 2009). They positively affect financial performance (Qi et al., 2000; Wei and Varela, 2003; Ng et al., 2009). Their positive effect is also attributable to legal institutions having a stronger corporate orientation and freedom for their SOEs to formulate and implement profitable firm strategies than their state counterparts. On the other hand, there is no study to date on LEGAL ownership on employment performance. These would have employment objectives consistent with the fundamental purpose of all SOEs to fulfill social stability in China.

We also look at managerial incentives or agency theory with EXECUTIVE shares. Based on the principle of aligning agent incentives with shareholder wealth, executive shares should improve financial performance (Jensen and Meckling, 1976). Alternately, negative effects also include high agency costs and conflicts between SOE executives and multiple shareholders. Executive ownership could also positively affect employment because the state could reward stock shares to SOE managers for fulfilling their mandate for social stability. Thus, the effect of executive ownership on social performance is an empirical matter.

We also control firm governance explanations with the variables: INDDIR (independence of directors) and DUAL (CEO and Chairman dual roles). Jensen and Meckling (1976) theorize that sharing ownership among insiders and outsiders would influence its value. Partially privatized firms have complex ownership structures, consisting of insider owners (state ownership, legal institutional, labor) and outsider owners (minority shareholders). Hence, effective governance is essential to reconcile these multiple owners' demands and expectations and reduce agency conflicts.

The important means to mitigate agency cost is to improve board governance by establishing board independence and avoiding the duality of the CEO and Chair of the board. However, board independence appears to have no conclusive links with shareholder performance in Bebchuk and Weisbachs' (2010) review of the current state of corporate governance. Board independence and its relation to employment performance are not examined so far, so they are valuable to study.

We also include a comprehensive set of firm control variables: SIZE, LEVERAGE, PROFITABILITY, and FREECASH on financial and employment performance. We control for performance differences arising from firms in different industries. This industry control uses the aggregated six-category classification in the CSMAR database. Lastly, we include a set of geographical controls to account for rich and poor regional economies in which the firms belong. Details on the control variables are also in Table 1.

Sample and data

Our sample population consists of publicly listed Chinese firms in both Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE) over eleven years 2001–2011 (January 1, 2001 to December 31, 2011). We collect this data from the GTA information technology company (CSMAR), which is a leading global provider of Chinese business data. We exclude from our sample the so-called "Special Treatment" stocks denoted as (ST, ST*, PT) because these are firms that are not financially viable and should be delisted, yet they remain listed. Stocks with a return on investment (ROE) higher than or <500% were treated as outliners and deleted. Additionally, H-shares, which are another type of private shares from the Chinese market for firms that are listing and trading on the Hong Kong Stock Exchange, are not included in this study. H-share studies are interpreted differently from studies on domestic share issues because H-share issuers have these differences: (1) they are a segmented capital market; (2) domestic Chinese investors cannot trade H-shares, but international investors can (McGuiness and Ferguson, 2005); (3) they are empirically

proven to perform better than domestic A-share issuers (Huang and Song, 2005). Table 2 reports the industry breakdowns of the sample. It shows that the majority of Chinese SOEs are industrial firms comprising 62.2% of our sample. The second-largest group of industries is conglomerates, with 15.9 percent, and the smallest group is financed, with 1.6 percent (Table 2). Table 3 shows summary statistics for our sample of 2,536 companies on average per year for 11 years, with 27,896 firm-year observations.

Table 4 provides detailed equity ownership structures of four categories of state ownership of SOE firms. For category one, these firms (<10% state shares) have mean state ownership of 1%. Most of the share ownership is held as privately owned negotiable A shares with a mean of 60%. These are privately controlled SOE firms, and they represent the majority of firms, 48.3%, in our sample. Category two of mixed ownership SOE firms (10–30% state ownership) has a mean of state ownership of 22% and private ownership of 53%.

Category three of mixed ownership SOE firms (30–50% state ownership) has a mean of state ownership of 41% and private ownership of 43%. Together, these groups of mixed ownership firms are the second largest group comprising 30.5% of our sample. The last category 4 is state-controlled firms (>50%) in which mean state shares are 62%, and private ownership is 31%, and they are 21.2% of this sample, the smallest group.

Results and discussion

Hypothesis 1: State ownership non-linearly relates to two objectives of economic and employment performance. We present the nature of partial privatization and the financial performance of Chinese SOE firms in Fig. 1. This figure shows how state share ownership's institutional dimension affects financial performance measured with Tobin's *Q*. This relationship appears to be concave.

When state ownership changes from 10% to 20%, Tobin's Q increases from 0.3 to about 0.5. When state ownership is in the range of 20–70%, Tobin's *Q* remains close to 0.5. However, when state ownership is above 70%, Tobin's *Q* decreases noticeably to around 0.4. We get a very similar pattern using the median Tobin's Q performance.

This concave n-shape relationship between state ownership and market return performance is even more pronounced when we use annual stock returns, as shown in Fig. 2. When state ownership changes from 10% to 20%, stock returns increase from about 5% to above 20%. This increase is maintained at above 20% when state ownership is in the range of 20–50% (mixed state control). Above 60% state ownership, stock performance falls from above 20% to below 10%. Both Figs. 1 and 2 show that state ownership and performance have concave relationships.

We present panel regression results in Table 5 on our hypothesized relationship between the institutional dimension of state ownership and financial performance. These results also affirm the concave relationship in the figures.

For other variables in Model 2, private ownership (ASHARE) has significant ($p < 0.01$) negative and substantive effects (coefficient = 0.120) on Tobin's *Q*. This finding affirms our preliminary findings of lower financial performance associated with privately controlled firms and the concave-shaped relationship. LEGAL share ownership also has negative effects on Tobin's *Q* ($p < 0.01$). Its Beta coefficient is −0.101, which is lower than the state ownership effect (STATE) with a beta of −0.266. The relationship posited a negative association with which LEGAL has

Table 2 Industries of the Chinese SOE firms 2001–2011 sample.

Industry code	Industry	*N*	%
1	Finance	451	1.62
2	Utilities	2156	7.73
3	Properties	1496	5.36
4	Conglomerates	4444	15.93
5	Industry	17,358	62.22
6	Commerce	1991	7.14
	Total	27,896	100.00

This table consists of 27,896 companies listed in both SHSE and SZSE from 2001 to 2011. The companies are classified into six groups according to CSMAR database classification.

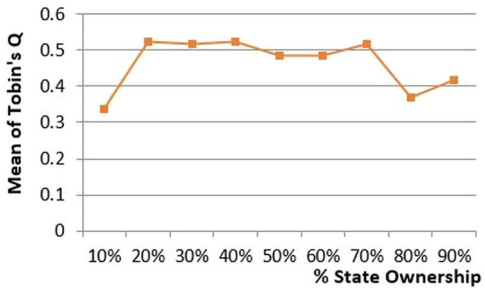

Fig. 1 The institutional dimension of state ownership and financial performance. This figure shows how state share ownership's institutional dimension affects financial performance measured with Tobin's *Q*.

Table 3 Summary statistics for listed Chinese firms 2001–2011.

Statistics	Tobin's Q	Annual return	Employee no.	Change of employees	State shares	Negotiate A shares
N	19,513	18,099	17,350	15,062	19,852	19,852
Mean	0.49	0.23	3.19	0.20	0.21	0.52
Std. dev.	0.27	0.84	0.60	0.95	0.25	0.28
Min.	0.01	−0.91	0.00	−1.00	0.00	0.00
Max.	2.70	3.15	4.81	5.68	0.97	1.00
Statistics	**Domestic legal shares**	**Executive shares**	**Independent director shares**	**Debt to equity**	**Size**	**Free cash**
N	19,852	19,852	16,271	19,813	19,815	19,814
Mean	0.12	0.03	0.33	1.31	21.52	0.03
Std. dev.	0.20	0.08	0.10	2.14	1.36	0.14
Min.	0.00	0.00	0.00	−11.57	10.84	−1.00
Max.	0.97	0.33	0.80	14.38	30.50	1.00

This table presents yearly statistics for the sample of 27,896 companies privatized Chinese firms from 2001 to 2011 listed on the Shenzhen and Shanghai stock exchange. Tobin's *Q*, annual return, employee No., change of employee numbers, state, negotiable A, domestic legal shares, and independent directors are measured as percentage fractions of total shares.

Table 4 Equity ownership structure of Chinese privatized firms 2001–2011.

Share type in %	Statistics	1. Private (<10%)	2. Mixed (10–30%)	3. Mixed (30–50%)	4. State-owned (>50%)
State shares	Means	0.01	0.22	0.41	0.62
	Std. dev.	0.02	0.06	0.06	0.08
Negotiate A share	Means	0.60	0.53	0.43	0.31
	Std. dev.	0.30	0.21	0.16	0.12
Domestic legal shares	Means	0.21	0.11	0.05	0.01
	Std. dev.	0.24	0.15	0.09	0.04
Independent director shares	Means	0.35	0.33	0.31	0.30
	Std. dev.	0.08	0.09	0.10	0.12
Executive shares	Means	0.04	0.01	0.00	0.00
	Std. dev.	0.10	0.04	0.01	0.00
Sample size	*n*	8368	2201	3073	3676
Distribution of all SOEs	% total of 17,318	48.32%	12.71%	17.74%	21.23%

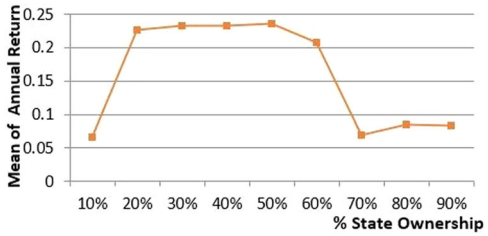

Fig. 2 The institutional dimension of state ownership and financial performance. This figure shows how state share ownership's institutional dimension affects financial performance measured with annual stock returns.

in common with STATE ownership as part of a curvilinear relationship between state ownership and performance. The negative effect is lower for LEGAL compared with STATE ownership. Such a negative effect is plausible; Wei et al. (2005) have a similar finding with their panel regressions. To explain, institutional ownership may be indistinguishable from state ownership because many of the legal entities that own shares are partially or wholly owned by different government levels (Wei and Varela, 2003). Hence, they can also have social incentives at the expense of profit performance.

We consider agency influences on performance. Of interest is whether executives do have any influence and exert agency costs on financial performance. In Table 5, models 2 and 3, we find that executive ownership (EXECUT) and the dual role of CEO/Chairman (DUAL) have no effect on market performance. Executives in SOEs appear not to affect performance differently than other firms, perhaps because they have a limited role in governing their firms.

Hence, the quality of the board may have a more salient role in determining performance. Thus, we consider firm governance influences performance. Indeed, when we look at the independence of firm governance factors, independent directors (INDDIR), this has significant and positive effects ($p < 0.01$) across all three models with Tobin's *Q* and market returns. The benefit of independent boards is very substantial, given that the positive coefficient effect is the highest in each model. Plausibly, independent directors' benefit could be their stronger orientation toward financial objectives and independence from political interference and value from their expertise and experience. This finding shows that independent directors on the board benefit firm performance even more than agent/executive factors (Executive shares and duality). This explanation is consistent with the recipe to make boards better by increasing board independence in the United States (Bebchuk and Weisbach, 2010; Gordon, 2007).

We conclude that both institutional and property rights dimensions influence financial performance. The institutional dimension of state ownership appears to have a non-linear concave relation with financial performance. Also, Fig. 3 shows employment intensity (size-adjusted employment medians) plotted against state ownership. The graph clearly shows a positive relationship between state ownership and employment, implying that companies with higher state ownership have more employment intensity. Therefore, SOEs with greater state ownership have more incentive to provide employment, especially those with high state control.

Hypothesis 2 and 3: Institutional and property rights dimensions effects on employment performance. Our findings on state ownership and property rights dimensions show effects on employment performance as we expected.

Empirically, Table 6 shows our panel regression results with an adjusted *R*-square of 16.4% ($p = 0.000$).

STATE and STATE2 have significant ($p < 0.01$) positive (coefficient is 0.027) and negative effects (coefficient is −0.032) on employment. Together, these results indicate that state ownership has a non-linear concave relationship with employment. This finding implies low that employment intensity at SOEs is low with private control. These privately controlled firms then become higher when there is more state ownership up to an inflection point.

Looking at other ownership influences, private ownership (A shares) has a significant ($p < 0.10$) positive effect on size-adjusted employment intensity. Higher private ownership in SOEs could confer better employment performance because they are more entrepreneurial, smaller, and have higher growth. The employment intensity (total employees/total assets) measure would be higher when assets are relatively smaller than smaller firms. LEGAL institution ownership has a significant ($p < 0.01$) negative effect (coefficient = −0.009). Legal shareholders could have more incentive and commitment to financial performance and prioritize this over employment.

When we examine agency explanations, EXECUTIVE ownership has significant ($p < 0.10$) negative effects on employment (coefficient is −0.095). Moreover, CEO duality (DUAL) also has a significant ($p < 0.05$) negative effect. These results suggest that executive ownership and the dual CEO and Chairman role are associated with less employment. Executives' stock share ownership creates alignment with the profit objectives of shareholders. Hence, they could have personal financial incentives to minimize employment costs to maximize profitability. This negative effect

Table 5 State ownership as a determinant of financial performance of Chinese SOEs.

Variable	Dependant variable (DV): Tobin's Q				DV: Annual Return	
	Model 1	Prob.	Model 2	Prob.	Model 3	Prob.
STATE	0.067 (2.51)	***	−0.266 −(4.77)	***	1.009 (5.11)	***
$STATE^2$	−0.194 −(5.03)	***	0.097 (1.83)	*	−1.147 −(4.92)	***
CENTRAL/LOCAL (1/0)			−0.029 −(4.86)	***	0.053 (2.38)	**
ASHARE	−0.012 −(1.14)		−0.120 −(4.31)	***	0.636 (9.01)	***
LEGAL	−0.039 −(3.05)	***	−0.101 −(3.98)	***	0.448 (4.65)	***
EXECUT	−0.622 −(20.63)	***	−0.052 −(0.50)		1.395 (0.80)	
DUAL	0.005 (0.97)		−0.011 −(1.30)		−0.020 −(0.74)	
INDDIR	0.145 (7.63)	***	0.193 (6.72)	***	1.403 (24.73)	***
LEVERAGE	0.026 (28.31)	***	0.024 (6.44)	***	−0.003 −(0.65)	
ROS	−0.391 −(45.93)	***	−0.402 −(13.66)	***	0.322 (6.61)	***
SIZE	0.023 (37.00)	***	0.011 (2.64)	***	0.033 (3.84)	***
FREE CASH	−0.118 −(8.67)	***	−0.053 −(1.10)		1.143 (8.39)	***
REGION CONTROL (East Coast, Central, Northeast, Western)	Yes		Yes		Yes	
INDUSTRY	Yes		Yes		Yes	
N	15,965		30,432		30,432	
Adj *R*-square	27.75%		22.06%		8.46%	
Std. error	0.224		0.235		0.857	

Panel regression results for state ownership as a determinant of financial performance of Chinese public firms 2001–2011. The dependent variable is financial performance measured as Tobin's *Q* and annual stock returns with dividends reinvested. The main variables of interest are state ownership (STATE and $STATE^2$) and CENTRAL/LOCAL. Control firm variables include private and legal ownership, governance, firm characteristics, industry, and time year controls. We include dummy controls for geographic economic regions of China: East Coast, Central, North East, and Western. Industry controls are based on a five firm-sector classification: finance and banking; utilities, conglomerates, real estate, and industry. Intercepts are not reported. *T*-statistics are reported in parenthesis below each coefficient, and significance levels are indicated by: *at the 10% level **at the 5% level *** at the 1% level based on two-tailed distribution.

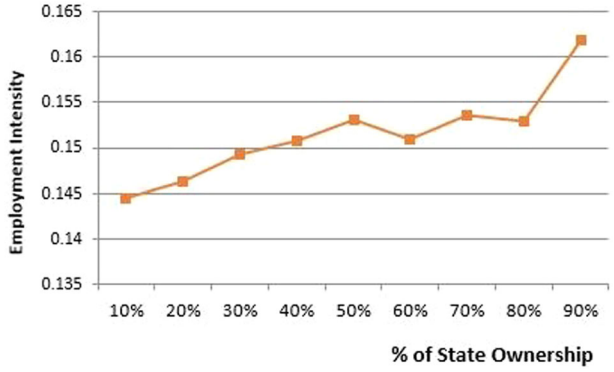

Fig. 3 The institutional dimension of state ownership and employment intensity. The institutional dimension of state ownership appears to have a non-linear concave relation with financial performance. The figure shows employment intensity which is size-adjusted employment medians plotted against state ownership.

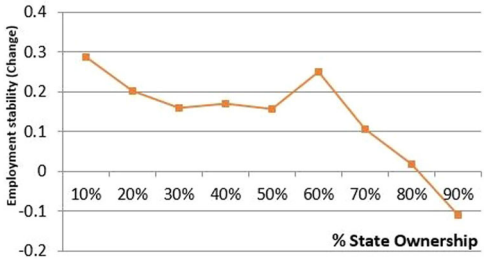

Fig. 4 The institutional dimension of state ownership and employment stability. The figure shows a negative relationship between the degree of state ownership and employment change which is defined as the yearly change in firm-level employment.

on employment is further amplified if the CEO has dual roles. We find no employment effect on board independence. With respect to firm characteristics, profitability (ROS), leverage, and free cash flow have significant ($p < 0.10$ and $p < 0.01$) negative effects on size-adjusted employment.

We further consider another measure of employment performance, job stability. Figure 4 shows a negative relationship between the degree of state ownership and employment change. We define this as the yearly change in firm-level employment. Lower changes in employment convey higher job stability. Here, employment stability increases visibly when state ownership exceeds 20 percent; that is, companies with higher state ownership have more employment stability.

Table 6 presents our results on the effects of state ownership and control on employment stability in model 2. Here we show that state ownership (STATE and STATE2) has significant ($p < 0.05$) non-linear effects on job stability.

Overall, our consistent findings of positive effects on employment performance and job stability arising from the institutional dimension of state ownership and the property rights dimension of local control support our hypothesis on Chinese SOEs' social incentives and commitments.

Hypothesis 4: **SOE performance negatively relates to (employment x state ownership)**. Again, to provide secure and stable employment to people, the government is willing to prioritize the performance of the employment objective over the economic one, especially during poor economic times. Therefore, SOEs employ more people even if they do not perform well financially. To test this, we have firm performance as a dependent variable and introduce an interaction variable (SOEPXEENO) between employment and state ownership by using state ownership times standardized employment numbers. The scandalized employment numbers are the logarithm of the total employee numbers of each

firm. Although we did not go out to test the business cycle relationship, our panel study of 2001 to 2011 captures the Global financial crisis in 2008, which had substantial negative economic effects. Our results on hypothesis 4 show a negative relationship between financial performance and employment. Thus, despite poor economic times, employment is still pursued even during the financial crisis.

Please see Fig. 5 and the results in Table 7. The trendline in the figure and the results in the table show that the financial performance of SOEs is negatively related to the interaction variable state ownership and employment. Table 7 presents the results on the effects of state ownership and employment number in the model. Here we show that employment and state ownership (SOEPXEENO) has very significant ($p < 0.01$) negative effects on Tobin's Q. The coefficient is relatedly high and influential, and it affects Tobin's Q. Overall, our findings of negative effects on financial performance and employment indicate that SOEs over-employ to meet the social stability objective at the expense of profitability.

Hypothesis 5: Management compensation positively relates to employment. In Fig. 6, we used two measures of manager compensation. One is the total compensation of all managers, and another one is the top three execution compensations. As shown in the figure, they are positively related. Furthermore, both compensation measures have non-linear relationships with a standardized number of employees which are controlled by firm size. It shows that the management and top management are getting paid to hire more employees.

The results in Table 8 show that standardized employment numbers have a non-linear relationship with management

Table 6 State ownership as a determinant of employment performance of Chinese SOEs 2001–2011.

Variable	Dependant variable: Employee/assets		Employment change	
	Model 1	Prob.	Model 2	Prob.
STATE	0.027 (3.50)	***	0.160 (2.39)	**
$STATE^2$	−0.032 −(3.72)	***	−0.179 −(2.25)	**
CENTRAL/LOCAL (1/0)	−0.002 −(3.34)	***	0.030 (2.73)	***
ASHARE	0.006 (1.84)	*	0.027 (1.08)	
LEGAL	−0.009 −(2.29)	**	0.048 (1.44)	
EXECUT	−0.095 −(1.80)	*	−0.091 −(0.23)	
DUAL	−0.002 −(2.29)	**	−0.003 −(0.30)	
INDDIR	−0.002 −(0.25)		−0.106 −(2.03)	**
LEVERAGE	0.000 −(1.70)	*	0.000 −(0.18)	
ROS	−0.014 −(6.59)	***	0.015 (1.02)	
SIZE	0.007 (8.41)	***	0.037 (11.42)	***
FREECASH	−0.080 −(3.78)	***	−0.082 −(2.12)	**
REGION CONTROL (East Coast, Central, Northeast, Western)	Yes		Yes	
INDUSTRY CONTROL	Yes		Yes	
N	30,432		30,432	
Adjusted *R*-squared	0.164		0.035	

The dependent variables measure social performances as Employment (size adjusted) and Job Stability (Employment change). The main variable of interest is STATE and CENTRAL/LOCAL. Control firm variables include ownership, governance, firm characteristics, geographic region, industry, and time year controls. Industry controls are based on a five firm-sector classification: finance and banking; utilities, conglomerates, real estate and industry. Intercepts are not reported. T-statistics are reported in parenthesis below each coefficient, and significance levels are indicated by: *at the 10% level **at the 5% level *** at the 1% level.

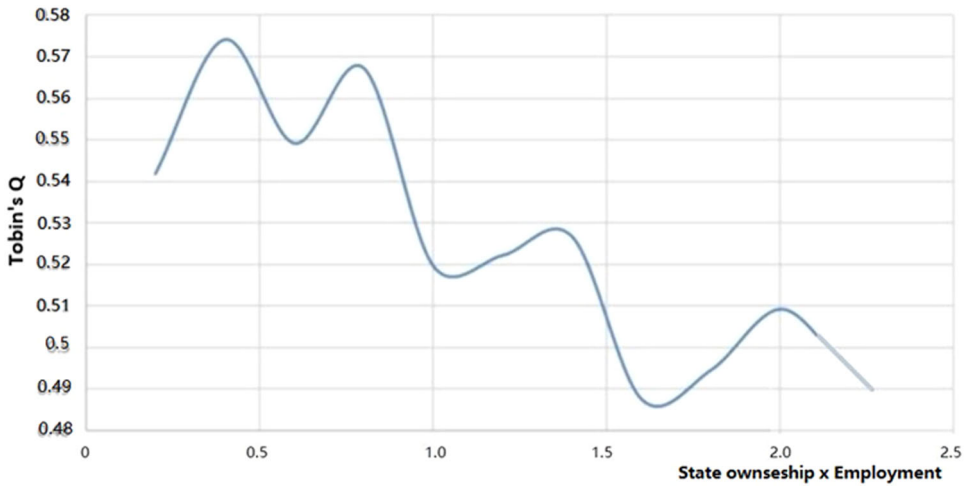

Fig. 5 Interaction of state ownership and employment negatively related to financial performance. The trendline in the figure shows that the financial performance (Tobin's Q) of SOEs is negatively related to the interaction variable state ownership and employment.

Table 7 SOE performance relates to employment of Chinese SOEs 2001–2011.

Variable	Dependant variable: Tobin's *Q*	
Variable		
SOEPXEENO	−0.0428 −(6.83)	***
CENTRAL/LOCAL (1/0)	−0.033 −(3.60)	***
ASHARE	−0.094 −(4.54)	***
LEGAL	−0.039 −(1.51)	
EXECUT	0.033 (0.10)	
DUAL	−0.012 −(1.34)	
INDDIR	0.193 (7.05)	***
LEVERAGE	0.024 (17.05)	***
ROS	−0.413 −(32.94)	***
SIZE	0.012 (4.28)	***
FREECASH	0.019 (0.59)	
REGION CONTROL (East Coast, Central, Northeast, Western)	Yes	
INDUSTRY CONTROL	Yes	
N	30,433	
Adjusted *R*-squared	0.213	

The dependent variables measure financial performances as Tobin's *Q*. The main variable of interest is SOEPXEENO (SOE ownership x logarithm of employment numbers). Control firm variables include ownership, governance, firm characteristics, geographic region, industry and time year controls. Industry controls are based on a five firm-sector classification: finance and banking; utilities, conglomerates, real estate and industry. Intercepts are not reported. *T*-statistics are reported in parenthesis below each coefficient, and significance levels are indicated by: *at the 10% level **at the 5% level *** at the 1% level.

Table 8 Management compensation relates to employment of Chinese SOEs 2001–2011.

Variable	Dependant variable: Management compensation	
Variable		
EMPLASSET	−24.55 −(11.03)	***
$EMPLASSET^2$	34.70 (5.06)	***
CENTRAL/ LOCAL (1/0)	−0.185 −(5.73)	***
ASHARE	0.104 (1.40)	
LEGAL	−0.294 −(3.06)	*
EXECUT	4.151 (3.73)	***
DUAL	−0.108 −(3.67)	***
INDDIR	1.278 (12.86)	***
LEVERAGE	−0.011 −(2.37)	
ROS	0.462 (10.54)	***
SIZE	0.214 (16.85)	***
FREECASH	−0.184 −(1.65)	
REGION CONTROL (East Coast, Central, Northeast, Western)	Yes	
INDUSTRY CONTROL	Yes	
N	27,897	
Adjusted *R*-squared	0.381	

The dependent variables measure management compensation. The main variable of interest is standardized employment numbers by controlling to use total assets (EMPLASSET) and $EMPLASSET^2$. Control firm variables include ownership, governance, firm characteristics, geographic region, industry, and time-year controls. Industry controls are based on a five firm-sector classification: finance and banking; utilities, conglomerates, real estate, and industry. Intercepts are not reported. *T*-statistics are reported in parenthesis below each coefficient, and significance levels are indicated by: *at the 10% level **at the 5% level *** at the 1% level.

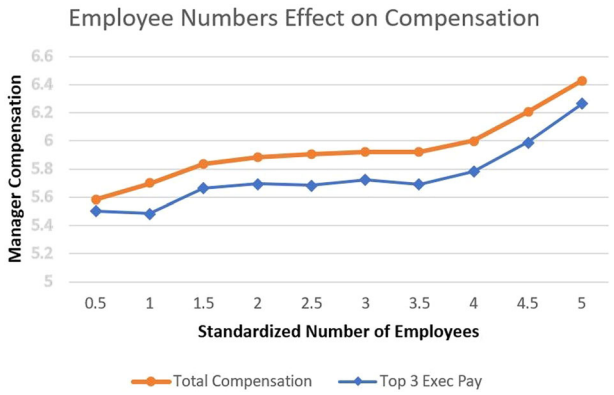

Fig. 6 Management compensation positively relates to employment. The total compensation of all managers and the top three execution compensations are positively related to employment performance measure which is standardized number of employees.

compensations. The coefficient of the standardized employment number square is positive, and the absolute value is bigger than the standardized employment number. The standardized employment number square also has very significant positive effects on manager compensation ($p < 0.01$). Therefore, employing people is the biggest determinant of managerial compensation is even bigger than stock return performance. We have controlled for firm size using Total Assets in the regression testing of this hypothesis. Hence, we can say that in spite of size, firms compensate managers more for hiring more people.

Hypothesis 6: Mixed-control firms have greater economic and employment value than private and state-controlled firms. Both Figs. 1 and 2 show that state ownership and performance have concave relationships. We see intuitively how mixed-controlled SOEs or partially privatized firms perform more successfully than highly private and state-controlled SOEs. This result is supported by the market mix hypothesis, which suggests that optimal performance exists for the SOE firm that reflects a balance of the residual rights of intervention by the state and by the private sector. Additionally, privately owned and highly state-owned firms have a similar performance that is consistent with the market mix view. That is, if SOEs brought the right product to the market at competitive prices, they would match the performance of the privately-owned companies (Sappington and Stiglitz, 1987; Stiglitz, 1994).

In model 1, we observe a concave non-linear relationship between state ownership and Tobin *Q* performance, as we hypothesized. It shows that STATE is significant ($p < 0.01$) and positively related to Tobin's *Q* (beta coefficient is 0.067). STATE2 is also significant ($p < 0.01$) and negatively related (coefficient is −0.194) to Tobin's *Q*.

This implies that this relationship begins positively, and beyond a level of state ownership, the relationship becomes negative; hence, it is concave or n-shaped. Model 3 presents panel regression results on the relationship between state ownership and stock return performance. These results again indicate a concave relationship; STATE has a significant ($p < 0.01$) and positive effect (coefficient is 1.009) on annual stock returns. STATE2 has a significant ($p < 0.01$) and negative effect (coefficient is −1.147). This concave relationship implies that highly state-controlled and highly privatized SOEs are related to lower market performance. As an explanation, highly state-owned firms can suffer from political interference, bureaucracy, less fiscal discipline, and performance accountability.

On the other hand, highly privatized SOEs have lower access to state benefits such as customer, credit, and political connections (Sun et al., 2002). Therefore, our findings show the hypothesis that state ownership is related to financial performance. We emphasize that partial privatization is beneficial to performance, consistent with the market mix theory.

Hypothesis 7: Central/local state ownership is related to financial and employment performance. We present results on the effect of the property rights dimension on financial performance. We propose that the government's locus of control (central or local) would matter in determining performance, as Marcelin and Mathur (2015) concluded. Looking at Model 2 with Tobin's *Q*, central government (local government) control has significant ($p < 0.01$) negative (positive) effects on Tobin's *Q* performance. STATE and STATE2 become a convex shape relationship when the central ownership variable is introduced. STATE is significant ($p < 0.01$) and negatively related to Tobin's Q (beta coefficient is −0.266), and STATE2 is significant ($p < 0.10$) and positively related (coefficient is −0.097) to Tobin's *Q*. This finding suggests that the property rights dimension, the level of state control, can change the nature of the relationship between state ownership and financial performance concerning Tobin's *Q*.

Our result is consistent with Li and Yamada (2015) and Zhan and Turner (2012), who found that local government control demonstrated better financial performance than the central government. As an explanation, local government control benefits firm performance because it has a stronger focus on financial performance to support the local economy. Li and Yamada (2015) conclude that the central government is more concerned with employment's social objectives regardless of financial performance.

However, model 3 shows that central government (local government) control has significant ($p < 0.05$) positive (negative) effects on market return performance. Our different results compared to model 2 suggest that the central government treats stock performance differently versus Tobin's Q performance.

Stock returns are highly visible on national exchanges; therefore, social incentives exist to manage stock performance. The central government has a greater influence on the stock returns of SOEs because the success and stability of its stock markets are important. This is not unusual; there are several high-profile instances in which the Chinese government has intervened in stock markets to assure investors that the government is in control. Chinese investors tend to expect the government to "rescue the markets." Indeed, during the stock market meltdown in early 2016, the Chinese government bought up shares to prop up its stock markets after a sell-off of 590 billion dollars[4]. Researchers continue to encounter differences in results between Tobin's *Q* and stock market return measures of financial performance. This could be a symptom of market inefficiencies in Chinese asset pricing, as Xiao (2006) concluded. The central government's intervention in stock markets is an example of the benefits of central government control in an SOE firm. Other benefits include access to political power, business connections, and contracts with federal resources.

We also find that central state control positively influences stock returns, whereas local state control positively impacts Tobin *Q*'s performance. Our finding complements Li and Yamadas' (2015) finding that better valuation influences state control. In terms of central/local state ownership related to employment, model 1 shows that CENTRAL (LOCAL) government control has a significant negative (positive) effect ($p < 0.01$) on employment. Therefore, these results imply that local government-controlled SOEs have a more significant commitment and incentive to employment than the central government. This result is in line with our hypothesis that social incentives for employment matter more to local governments than central governments. Local governments have more incentive to employ because social stability and control at the local level are more sensitive to the local populace's employment than it is to the central government.

Moreover, central government control (CENTRAL) has significant ($p < 0.01$) positive effects on job stability changes in the number of employees; whereas, local government control has significant ($p < 0.01$) negative effects. Local government control is related to smaller changes in employment change. Therefore, local government control in SOEs is associated with higher job stability than central government control. This explanation is consistent with our previous results showing that local government has positive effects on employment intensity. Again, this aligns with our conjecture that local governments have more commitment and incentive to provide job stability than central governments because local employment directly affects local governments' stability.

Our finding complements Li and Yamadas' (2015) conclusion that employment influences state control. They find that local government prefers to control firms that hire more workers, and we similarly find that local control is associated with more employment. However, we further demonstrate that local control also confers more job stability than central control. More importantly, we can show how partial privatization works to achieve employment in financial performance's competing objective of financial performance. Achieving both missions of employment and prosperity appears to be the reality of Chinese SOEs.

Robustness. We undertake a series of robustness checks and arguments to reinforce the findings of this study as follows:

We address the concern for heteroscedasticity with respect to regression model estimation. We estimate coefficients for each panel regression model using White's heteroskedasticity-consistent standard errors and covariance as well as with Newey-West corrections. These results yield similar conclusions as our previous regression estimates. Also, we use a cross-section least squares method. Qualitatively, the results are similar.

We test Return on Sales as an alternative measure for financial performance. Table 9 presents our results on the effects of state ownership and control on ROS in model 1. State ownership (STATE and $STATE^2$) has again highly significant ($p < 0.01$) non-linear effects on financial performance.

We perform Spearman correlation tests to address possible concerns for multi-collinearity effects of another variable affecting state effects, and the result shows that correlation tests indicate no significant correlations. Therefore, multi-collinearity between the variables of interest, state ownership, and control, with other independent variables, is unlikely an issue.

There can be an endogeneity issue with our regression modeling of Chinese corporations. Wei et al. (2005) tested for potential endogeneity of ownership and found that Tobin's *Q* performance and state ownership (divided by foreign ownership) are not jointly determined. Legal institution ownership is a likely variable that may create endogeneity. Therefore, it is possible that state ownership and its effects on performance could be jointly influenced by legal institution ownership. Endogeneity can occur when more state ownership in SOEs could attract more legal institution ownership because social, economic and business networks and influence are valuable to SOE managers. This kind of network power is not unlike other kinds of connected corporations in Asian countries in which there is cross-ownership amongst firms. For example, Chaebols in Korea and Keiretsus in Japan are highly prevalent. To address this possible concern for endogeneity, we treat legal institution ownership as state ownership by summing or combining them into one variable (STATE + LEGAL). Here, we create an encompassing measure of state ownership without trying to isolate (or disentangle legal institutions) the effects of state ownership. In

Table 9 Robustness checks.

1. DV: Return on sales			2. DV: Annual return			3. DV: Dual perform	
Variable	**Coefficient**	**Prob**	**Variable**	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
STATE	−0.101 −(1.91)	*	STATELEGAL	0.241 (2.42)	**	0.053 (3.90)	***
$STATE^2$	0.241 (3.84)	***	$STATELEGAL^2$	−0.248 −(3.21)	***	−0.049 −(4.71)	***
CENTRAL /LOCAL	−0.002 −(0.29)		CENTRAL /LOCAL	−0.057 −(2.60)	***	0.008 (2.39)	**
ASHARE	0.029 (1.47)		ASHARE	−0.451 (7.47)	***	0.074 (8.44)	***
LEGAL	0.085 (3.28)	***	LEGAL	-			
EXECUT	0.501 (1.70)	*	EXECUT	1.036 (0.58)		0.057 (0.24)	
DUAL	−0.007 −(0.93)		DUAL	−0.019 −(0.71)		−0.003 −(0.84)	
INDDIR	−0.032 −(1.26)		INDDIR	1.414 (25.08)	***	0.197 (24.12)	***
LEGERAGE	−0.015 −(11.56)	***	LEVERAGE	−0.004 −(0.73)		−0.000 −(0.39)	
ROS			ROS	0.330 (6.76)	***	0.042 (6.34)	***
SIZE	0.045 (17.84)	***	SIZE	0.027 (3.27)	***	0.007 (5.51)	***
FREECASH	0.419 (15.78)	***	FREECASH	1.148 (8.45)	***	0.114 (7.28)	***
REGION (East Coast, Central, Northeast, Western)	Yes		REGION (East Coast, Central, Northeast, Western)	Yes		Yes	
INDUSTRY	Yes		INDUSTRY	Yes		Yes	
N	130,432			130,432		130,432	
Adj. *R*-square	0.114			0.082		0.076	

Model 1 uses STATE ownership. Models 2 and 3 are STATE + LEGAL ownership combined. The main variable of interest is STATE, STATELEGAL and CENTRAL/LOCAL. Control firm variables include private and legal ownership, governance, firm characteristics, industry, geographic economic region and time year controls. Intercepts are not reported. *T*-statistics are reported in parenthesis below each coefficient, and significance levels are indicated by: *at the 10% level **at the 5% level *** at the 1% level.

other words, we acknowledge the possible inherent endogeneity between state ownership and legal ownership by treating them together; therefore, any of their joint effects are still state effects. We present panel results using this approach with respect to annual return performance. Table 9, model 2 presents our results, which show that state ownership still has a concave relationship with annual returns, as found earlier. CENTRAL/LOCAL government control has a significant ($p < 0.05$) negative (positive) effect on return performance. These results affirm our conclusions about how institutional and property rights dimensions have effects on privatization performance.

We test the effects of state ownership and control on both objectives simultaneously using a "dual performance" variable. We test an alternative measure for "dual performance," which is defined as Tobin's $Q \times$ employment intensity. Table 9 presents the results in model 3. Here, state ownership (STATE + LEGAL) has a positive and highly significant ($p < 0.01$) effect on dual performance, and $(\text{STATE} + \text{LEGAL})^2$ has a negative and significant ($p < 0.01$) effect. Together, they indicate that state ownership still yields a concave-shaped relationship. CENTRAL government control has a significant ($p < 0.05$) positive effect on dual performance.

Conclusion

State governance in corporations serves the purpose of control over the social and economic development of the country in order to achieve stability for the government in China. We show that employment performance is a pathway to social stability and then to the financial stability of capital markets. We conclude support for our proposition that Chinese SOEs over-employ to meet the social stability objective at the expense of profitability.

Second, does privatization work to achieve both social and economic objectives? Market mix theory suggests that the corporate performance objective and the social objective can co-exist without compromising each other. We find that the institutional dimension of state ownership and property rights dimensions of government control influence Chinese SOE financial and employment performance simultaneously, as Bai et al. (2006) suggest. Local government control is more important than the degree of ownership in achieving dual performance. Partial or mixed privatization works when there is local government control to achieve both employment and economic performance. Our results are consistent with the market mix explanation of how partial privatization works to achieve performance. That is, private and state owners in SOEs are able to exercise their rights of intervention for both economic and social incentives cooperatively in a mutually beneficial manner. Our study's finding of stronger economic and employment performance of mixed ownership SOEs supports China's plan to promote mixed ownership reform. Our study contributes to this understanding of how mixed ownership exemplifies China's development mission of creating "socialism with Chinese characteristics." Privatized SOEs benefit in performance by having more freedom from the costs of politicians and bureaucracy, and highly state-controlled firms benefit in performance by having the benefits of politicians and bureaucracy.

Our conclusion complements Li and Yamada (2015); the government selects and controls firms that have better valuations and employs more workers compared to private firms. Local governments control more efficient (more valuable) firms and hire more workers. Thus, the employment objective is a valid determination of state governance and privatization in Chinese corporations. We suggest that this objective does not conflict with the corporate objective of creating shareholder wealth. Surprisingly, the employment objective contributes overall to the social and financial stability and prosperity of the nation of China.

Future research should build on the emerging literature on political motivations in privatization. With the recognition of the employment objective in state-owned firms, a political-economic and financial theory of privatization are possible. This theory can help us understand how privatization decisions, especially partial privatization, are made and their consequences. This will contribute much-needed theoretical depth to the vast privatization literature.

Data availability

The datasets generated during and/or analyzed during the current study are not publicly available due as they are based on

proprietary data provided under subscription by CSMAR but are available from the corresponding author on reasonable request.

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Notes

1 China's Global 500 companies are bigger than ever—and mostly state-owned.China has 98 firms, and the United States had 128 firms on the Global 500 list in 2015. From Fortune.com: http://fortune.com/2015/07/22/china-global-500-government-owned Accessed 7 Apr 2017

2 Report on Performance Measurement in Economic Development, Government of China.Job creation receives more attention than tax assessment, capital investment, sales revenue, or almost any other measure adopted by economic development organizations in the literature.

3 The Worldwide Governance Indicators (WGI) is a research dataset summarizing the views on the quality of governance provided by a large number of enterprise, citizen, and expert survey respondents in industrial and developing countries. These data are gathered from several survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms. Source: http://info.worldbank.org/governance/wgi/index.aspx#home

4 China Said to Intervene in Stocks After a $590 Billion Sell-off. Bloomberg News. January 4, 2016.http://www.bloomberg.com/news/articles/2016-01-05/china-said-to-intervene-in-stock-market-after-590-billion-rout

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Competing interests

The authors declare no competing interests.

Ethical approval

This article does not contain any studies with human participants performed by any of the authors.

Informed consent

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Additional information

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