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Local Government Debt and Managerial Incentives: Evidence from China

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ABSTRACT

This study investigates the impact of local government debt on managerial incentives. The results show a significant negative relationship between local government debt and managerial incentives. The effect is more pronounced for equity-based incentives in non-state-owned enterprises and for salary-based incentives in state-owned enterprises. Furthermore, we address potential endogeneity concerns by employing an instrumental variable (IV) approach. Our findings underscore the need for adaptive compensation strategies to mitigate the risks associated with fiscal pressures.

KEYWORDS

Local government debt; Managerial incentives; Corporate governance.

1. INTRODUCTION

Managerial incentives derived from compensation contracts are fundamental tools for aligning the interests of managers with those of shareholders, thereby enhancing firm performance and value (Jensen and Meckling, 1976). Executive compensation structures, like salary, bonuses, and stock options, are meant to motivate managers to make decisions that increase shareholder wealth (Murphy, 1999). Understanding the factors that influence these compensation structures is crucial for effective corporate governance.

The importance of this research lies in the unique economic and institutional environment of China. Unlike in developed economies, where market mechanisms predominantly govern corporate behavior. China's economy is characterized by significant government intervention (Allen et al., 2005), and local government play a crucial role in economic activities within their jurisdictions. Following the 2008 global financial crisis, China implemented a 4 trillion-yuan stimulus package, leading a surge in local government borrowing. By 2020, the debt escalated to around 25.66 trillion yuan, with a debt ratio of 93.6%. The rapid accumulation of debt has heightened concerns about crowding-out effects on firms, amplifying financial risks at the local level.

Our findings contribute to the literature in several ways. First, we contribute to the corporate governance literature by exploring how external economic conditions influence executive compensation. Second, this study highlights the moderating role of ownership structure, by illustrating how firms with different ownership types adapt to external economic pressures. Finally, our research offers practical insights for policymakers and practitioners, shedding light on the implication of local government for corporate decision-making in transitional economies such as China.

2. HYPOTHESES DEVELOPMENT

Local government debt can greatly shape the business environment for firms (Qian and Roland, 1998). High LGD often diverts financial resources from the private sector to service government debt, leading to resource misallocation. This crowding-out effect limits firms' capacity for innovation and growth (Faccio et al., 2006). Under these pressures, firms in high-LGD regions often struggle to allocate resources effectively, which negatively impact their financial budget (Liu et al., 2023), limits their risk-taking ability (Bao et al., 2024), and even influences their tax strategies (Peng and Lin, 2024).

However, few studies discuss the impact of LGD on compensation structures. On the one hand, High LGD can crowd out private firms by consuming most of the available funding in credit markets. On the other hand, to service debt, local governments may increase taxes or tighten regulations, reducing firm profitability. Both scenarios can pressure firms to cut costs, including managerial compensation. Additionally, high LGD is often linked to economic downturns, increasing uncertainty and risk aversion among managers. This makes equity incentives less attractive and effective, prompting firms to reduce their use of such incentives. Based on this analysis, this paper proposes Hypothesis 1 as follows:

Hypothesis 1. Higher levels of local government debt significantly reduce managerial incentives.

3. METHODOLOGY

3.1. Data

Our data come from a few sources. Enterprise-level data is obtained from the CSMAR for 2013 to 2021. Prefecture-level cities data comes from Wind database. Macro-level data is from the China Statistical Yearbook.

3.2. Model Specification

We apply following equation to identify the impact of local government debt on managerial incentives.

$$Incentives = \alpha_0 + \beta_1 LGD + \lambda Controls + YearFE + IndFE + \varepsilon \quad (1)$$

Where managerial incentives (Incentives) represent both equity-based and salary-based compensation incentives. LGD is measured by the municipal bonds issued by local government financing platforms. The model also includes a vector of control variables (Controls), year fixed effects (YearFE), industry fixed effects (IndFE) and the residual term (ε).

Table 1 reports the summary statistics of all variables. The dataset includes 17,768 observations, highlighting substantial heterogeneity across firms and regions. Incentive shows wide variation, with a mean of 26.43% and a maximum of 100%, indicating significant differences in equity-based compensation structures. LGD averages 31.25% of GDP but reaches as high as 302.48%, showing big differences in fiscal conditions across regions.

Table 1. Descriptive statistics.

Variable	Definition	Observation	Mean	Std. Dev.	Min	Max
Incentive	$\frac{\Delta(Value\ of\ Stock\ and\ Stock\ Options)}{Total\ Compensation} * 100$	17,768	26.43	34.14	0.00	100.00
Salary	Ln (Total Compensation+1)	17,768	15.01	0.85	0.00	18.73
LGD	$\frac{Local\ Government\ Debt}{GDP} * 100$	17,768	31.25	40.83	0.08	302.48
Size	Ln (Total Assets)	17,768	22.29	1.29	19.59	26.43
Lev	$\frac{Total\ Liability}{Total\ Assets}$	17,768	0.42	0.20	0.05	0.92
ROE	$\frac{Net\ Income}{Total\ Equity}$	17,768	0.06	0.13	-0.96	0.41
Top 1	$\frac{Shares\ Held\ by\ the\ Largest\ Shareholder}{Total\ Shares\ Outstanding}$	17,768	0.34	0.15	0.08	0.75
ListAge	Ln (Current Year-Listing Year+1)	17,768	2.20	0.76	0.69	3.37
Big 4	Equals 1 if the firm's financial statements are audited by one of the Big Four accounting firms and 0 otherwise	17,768	0.06	0.24	0.00	1.00
Population	Ln (Total Population at Year-End)	17,768	6.53	0.65	3.05	8.14
Financial Development	$\frac{Outstanding\ Loans\ of\ Financial\ Institutions}{Regional\ GDP}$	17,768	4.21	1.69	0.67	12.57
Fiscal Decentralization	$\frac{Fiscal\ Revenue\ of\ the\ Government}{Fiscal\ Expenditure\ of\ the\ Government}$	17,768	0.74	0.20	0.09	1.54
Foreign Investment	$\frac{Utilized\ Foreign\ Investment}{Regional\ GDP}$	17,768	0.03	0.02	0.00	0.20
SOE	A dummy variable that equals 1 if the firm is state-owned and 0 otherwise.	17,768	0.35	0.48	0.00	1.00
Med	Ln (Public Budget Expenditure on Healthcare)	17,768	9.26	1.08	5.48	11.06

4. EMPIRICAL TEST

4.1. Baseline Regression Results

In Column (1) of Table 2, LGD has a coefficient of -0.043, significant at the 1% level, suggesting that higher LGD is associated with reduced equity-based managerial incentives. Column (2) demonstrates that this relationship remains robust after adding control variables, with a slightly lower coefficient of -0.036. In Columns (3) and (4), LGD similarly exhibits a significant negative effect. These results are consistent across all specifications, with the inclusion of year and industry fixed effects, highlighting the robustness of the findings.

Table 2. Baseline regression results.

	(1) Incentive	(2) Incentive	(3) Salary	(4) Salary
LGD	-0.043^{***} (-6.77)	-0.036^{***} (-6.37)	-0.001^{***} (-4.85)	-0.001^{***} (-6.59)
Controls		YES		YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Observations	17,768	17,768	17,768	17,768
Adj.R^2	0.155	0.372	0.101	0.342

Note: t-values are in parentheses, *** p < 0.01, ** p < 0.05, * p < 0.1. The following tables use the same formatting rule.

4.2. Endogeneity Test

Following Yang et al. (2023), we select health expenditure (Med) as an instrumental variable for LGD, given its close connection to public finance. Health expenditure is primarily driven by population structure and demographic factors, making it less likely to be influenced by corporate decision-making. As such, it can be regarded as a relatively exogenous component of government spending. In Column (1) of Table 3, the first stage regression confirms the validity of the instrument Med, with a highly significant and negative coefficient of -41.664. The second stage results further validate the baseline findings. In Column (2), LGD has a significant negative effect on Incentive. Similarly, in Column (3), LGD negatively impacts Salary, with a coefficient of -0.004, also significant at the 1% level. These results reinforce the causal interpretation of LGD's adverse effect on managerial incentives.

Table 3. Endogenous tests.

	IV		
	First stage (1) LGD	Second stage (2) Incentive	Second stage (3) Salary
LGD		-0.100^{***} (-9.00)	-0.004^{***} (-14.33)
Med	-41.664^{***} (-82.36)		
Controls	YES	YES	YES
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Observations	17,768	17,768	17,768
Adj.R^2	0.4411	0.373	0.348

4.3. Robustness Test

Columns (1) and (2) in Table 3 indicate that the lagged LGD consistently exert a significant negative impact on Incentive, with coefficients of -0.035 in both cases. Similarly, Columns (3) and (4) demonstrate that Salary is negatively affected by lagged LGD, with coefficients of -0.001 in both cases. These results suggest that the negative effect of LGD on managerial incentives persists over time and is not limited to the current period.

Table 4. Robustness test results.

	(1) Incentive	(2) Incentive	(3) Salary	(4) Salary
LGD_{t-1}	-0.035^{***} (-5.13)		-0.001^{***} (-6.02)	
LGD_{t-2}		-0.035^{***} (-4.12)		-0.001^{***} (-4.82)
Controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Observations	13,876	11,254	13,876	11,254
Adj.R^2	0.369	0.362	0.342	0.324

4.4. Heterogeneity Analysis

Columns (1) and (2) in Table 5 show that the interaction term (LGD*SOE) has a positive and significant effect on Incentive, with coefficients of 0.029 and 0.032, respectively, indicating that the negative impact of LGD on equity-based incentives is less pronounced in state-owned enterprises (SOEs). However, Columns (3) and (4) show that the interaction term has a negative and significant effect on Salary, suggesting that LGD's adverse effect on salary-based incentives is amplified in SOEs. These findings highlight the nuanced moderating role of ownership structure. While SOEs are less affected by LGD when it comes to equity-based incentives, they experience a stronger negative impact on salary-based incentives.

Table 5. Heterogeneity analysis: SOE versus non-SOE.

	(1) Incentive	(2) Incentive	(3) Salary	(4) Salary
LGD	-0.028^{***} (-3.76)	-0.037^{***} (-5.47)	-0.0002^{**} (-1.44)	-0.0003^{**} (-2.12)
LGD*SOE	0.029^{***} (2.66)	0.032^{***} (3.15)	-0.002^{***} (-5.04)	-0.001^{***} (-5.33)
SOE	-30.955^{***} (-50.12)	$-.18.108^{***}$ (-28.91)	0.209^{***} (12.12)	0.064^{***} (3.88)
Controls	NO	YES	NO	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Observations	17,768	17,768	17,768	17,768
Adj.R^2	0.295	0.410	0.109	0.343

5. CONCLUSION

This study examines the relationship between LGD and managerial incentives in Chinese publicly listed firms, revealing a significant negative impact on both equity-based and salary-based incentives. The effects persist across robustness checks and IV analyses, providing strong evidence of causality. Ownership structure moderates this relationship, with SOEs being less affected in equity-based incentives but more negatively impacted in salary-based incentives, reflecting differences in governance and resource allocation. A remaining question not addressed in this study is whether these results are also applicable to other transitional economies. We leave it for future studies.

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