Research on Dividend Payout of Chinese Real Estate Companies by Inflated Earnings

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Abstract. This study examines the managerial incentives of earnings management of Chinese real estate companies with focuses on the high dividend payout and the effect of the "three red lines" policy which stipulates that several solvency and liquidity ratios should be higher than certain levels and then raise demand for increasing cash holding of real estate companies. The pressure from policy requirements may motivate managers to earnings management techniques related to discretionary accruals and real activities to inflate earnings for certain targets including dividend payments and debt-to-equity ratio. Accrual-based and real activities management are proxied by modified Jones' model and Roychowdhury's model respectively. Key findings are that managers of Chinese real estate companies tend to use discretionary accruals to inflate operating income and to manipulate real activities to increase cash holdings to meet the policy requirements and that dividend payments stickness still hold under the pressure from external stakeholders but may be supported by inflated income.

Keywords: Earnings management, Chinese real estate company, "Three Red Lines" policy, Dividend payout.

1. Introduction

In 2020, the Chinese government announced a financial regulatory guidance named "three red lines" that governs companies' debt financing. In detail, the guidance includes three rules that companies must adhere to: liabilities should not exceed 70 percent of assets, net debt should not be greater than 100 percent of equity, and money reserves must be at least 100 percent of short-term debt. Particularly, the guidance aimed to mitigate financial risks in the highly indebted real estate industry. The guidance resulted in Chinese top real estate companies reporting huge losses, and they were faced with increasing liquidity and solvency risk. However, under increasing pressure from debtholders, the companies still chose to pay dividends despite lower scales as opposed to a significant decrease in profit. In 2024, the China Securities Regulatory Commission (CSRC) announced the earnings manipulation behaviour of Evergrande Group, a top-tier real estate company, that Evergrande prematurely recognized revenue and inflated profit of 40.72 and 512.89 billion yuan in 2019 and 2020 respectively. This is evidence against theories related to dividend policy and signalling that firms willing to pay dividends are more likely to have better earnings quality and dividend payment contains information about a manager's assessment of future earnings and financial health [1-3]. It is meaningful to examine the relationship between payout policy and incentives of earnings management behaviour in the setting of Chinese real estate industry.

The research question of this study is to test the relationship between payout policy and earnings manipulation in the context of Chinese real estate industry and find possible earnings management incentives. After the theory of information content in payout policy was firstly proposed by Miller and Modigliani [4], there is growing literature examining the effect of dividend paying on earnings manipulation which is defined as a type of earnings management behaviour with manager's purpose to mislead stakeholders [5]. Dividend is generally considered as a source of positive information because dividend acts as both a cash payment and a positive signal from managers to mitigate problems of information asymmetry and principal-agent conflict [6]. However, though dividend payout is negatively related to information asymmetry, in China, dividend policy may not be a signal to financial market and state-owned companies with high information asymmetry tend to have higher

rates of dividend payout in favour of their shareholders than non-state-owned counterparties [7]. According to Yang et al., firms spending more on research and development (R&D) are likely to pay more dividends not for signalling but for access to external equity market [8]. In general, the effect of dividend paying of Chinese firms is ambiguous.

Theory and empirical evidence of earnings management are studied in corporate finance and accounting theories. Considering the relationship between earnings management and dividend policy, dividend payout has a negative effect on earnings management and a positive effect on alleviating information asymmetry and agency problem [1-3]. Lawson and Wang complement that earnings persistence is negatively related to audit fees and that dividend mitigates this relationship [9]. The effect of dividends on earnings management widely exists in both developed and developing countries [3]. For example, Nguyen and Bui find earnings quality of dividend payers is generally better than that of non-payers [10]. So far, literatures about earnings management in Chinese firms is focused on manager's incentive and external pressure on earnings management. In China, government intervention has a strong and wide effect on manager's incentives for earnings management. Xia et al. find that local government's Gross Domestic Product (GDP) growth target puts pressure on local enterprises' managers and induces their incentives to manage accounting numbers related to GDP calculations [11]. Chen et al. document that local governments may assist companies in inflating earnings to satisfy requirements in the initial public offering (IPO) process because their interest is aligned with listed firms [12]. The ownership structure of companies is another determinant of earnings management incentives [13,14]. Chinese central government, in contrast, not only develop regulations but also directly and intensively supervises local firm's earnings management behaviours, significantly decreasing their political incentives in short term [15].

Chinese real estate companies have common features of high financial leverage, high asset turnover, and high growth rate of enterprise size. Anagnostopoulou and Tsekrekos find that firms with high financial leverage have a strong incentive to use both accrual-based and real activity earnings management because of intensified outsider scrutiny [16]. Chu et al. point out that the liability-to-asset ratio limit imposed by 'three-red-lines' policy significantly increases stock price crash risk, implying that the high leverage characteristic of Chinese real estate companies potentially contains financial risks [17]. It can be inferred from previous studies that real estate companies in China have strong incentives to earnings management, but so far there is no empirical literature showing the mechanisms of the relationship between high dividend payout and earnings management.

2. Hypothesis, Methodology and Sample

This research aims to find the relationship between earnings management and dividend payout in the setting of Chinese real estate companies. So far, according to CSRC, there have been cases of accrual-based earnings manipulations of Chinese listed real estate companies that simultaneously have high dividend payments. This fact is opposite to theories related to dividend policy and earnings quality. Therefore, in the context of the Chinese real estate industry, dividend payout may not deter manager's incentive of earnings management, and there may be other incentives.

Hypothesis 1. In the setting of the Chinese real estate industry, accrual-based earnings management behaviour and dividend payout are not negatively correlated.

Recent studies point out the role of financial leverage in manager's incentives for earnings management [16]. Chinese real estate companies' financial leverage is typically higher than others. Specifically, the "three red lines" policy requires companies to replenish liquidity and solvency, and companies may have incentives to meet policy demand as high debt level makes their debt-to-asset fall short of the 70% requirement.

Hypothesis 2. The high debt level puts pressure on Chinese real estate companies' earnings and triggers managers' incentive of earnings management to meet policy requirements.

Recent literature discussed the relationship and interaction between local government and state-owned real estate companies [11-15]. Because of the GDP growth objective, local government may

assist or force companies to inflate earnings by increasing accruals related to GDP calculation. Government has direct or indirect control over state-owned real estate companies, and therefore ownership structure may affect earnings management behaviour.

Hypothesis 3. Ownership structure has a strong influence on Chinese real estate companies' earnings management.

Data is collected from CSMAR from 2020 to 2021. The classification of Chinese real estate companies is based on CSRC Industry Classification 2012 Version. Observations that have a null value in any variable are removed from the sample.

Modified Jones model has been widely used by scholars in accounting research to proxy for discretionary accruals recently. This research employs modified Jones model with firm performance to compute discretionary accruals as manager's incentive to accrual-based earnings management [18]. The cross-sectional model implicitly assumes that all firms in the same industry have a similar level of non-discretionary accruals which may lead to biased estimates, but the 'three red lines' policy sets limits of accounting numbers and mitigates this problem [19].

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = a_0 + a_1 \frac{(\Delta Sales_{i,t} - \Delta AR_{i,t})}{Assets_{i,t-1}} + a_2 \frac{PPE_{i,t}}{Assets_{i,t-1}} + a_3 \frac{ROA_{i,t}}{Assets_{i,t-1}} + \varepsilon_{i,t} \quad (1)$$

Where:

$TA_{i,t}$ = total accruals of firm i at time t, defined as the change in non-cash current assets minus the change in current liabilities net of the current portion of long-term debt minus depreciation and amortization.

$Assets_{i,t-1}$ = total asset of firm i at time t;

$\Delta Sales_{i,t} - \Delta AR_{i,t}$ = change in sales of firm i from $t-1$ to t minus change in accounts receivables from $t-1$ to t;

$PPE_{i,t}$ = the property, plant, and equipment of firm i at time t;

$ROA_{i,t}$ = the return on asset of firm i at time t;

$\varepsilon_{i,t}$ is the residual and the proxy for discretionary accruals of firm i at time t.

Then, following previous research, the absolute discretionary accruals are the dependent variable in the empirical model. The effect of payout ratio is primarily examined, and there are 7 controlled variables added to further test other incentives or forces driving earnings management behaviour.

$$DA_i = b_0 + b_1 payout_i + b_2 ownership_i + b_3 leverage_i + b_4 audit_i + b_5 op\_profit_i + b_6 cash_i + b_7 debt\_asset_i + b_8 debt\_cap_i + \varepsilon \quad (2)$$

Where:

DA_i are discretionary accruals scaled by total assets of firm i;

$payout_i$ = payout ratio of firm i;

$ownership_i$ is a dummy variable that equals 1 if the firm is state-owned and equals to 0 if it is privately owned;

$leverage_i$ is the financial leverage ratio of firm i;

$audit_i$ is the audit fee of firm i;

op_profit_i is the operating profit ratio calculated by operating profit divided by operating revenue of firm i;

$cash_i$ is the cash ratio of firm i;

$debt\_asset_i$ is the debt-to-asset ratio of firm i;

$debt\_cap_i$ is the debt-to-equity ratio of firm i.

As to real earnings management behaviour, following Roychowdhury, there are three measures used to proxy for real activity management [19].

$$\frac{CFO_{i,t}}{Assets_{i,t-1}} = c_0 + c_1 \frac{1}{Assets_{i,t-1}} + c_2 \frac{Sales_{i,t}}{Assets_{i,t-1}} + c_3 \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \varepsilon_{i,t} \quad (3)$$

$$\frac{DISEXP_{i,t}}{Assets_{i,t-1}} = d_0 + d_1 \frac{1}{Assets_{i,t-1}} + d_2 \frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{i,t} \quad (4)$$

$$\frac{PROD_{i,t}}{Assets_{i,t-1}} = e_0 + e_1 \frac{1}{Assets_{i,t-1}} + e_2 \frac{Sales_{i,t}}{Assets_{i,t-1}} + e_3 \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + e_4 \frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{i,t} \quad (5)$$

Where:

$CFO_{i,t}$ is the cash flow from operation of firm i at time t;

$DISEXP_{i,t}$ are the discretionary expenses of firm i at time t,defined by the sum of advertising, R&D, selling, general, and administrative expenses;

$PROD_{i,t}$ is the production cost of firm i at time t, defined by the sum of cost of goods sold and change in inventory.

Like Jone's model, the residuals of the three equations (3), (4), and (5) are abnormal level of sales *(_ab_cfo)*, discretionary expenditures *(_ab_disexp)*, and production costs *(ab_prod)*. The abnormal level of sales *(_ab_cfo)* and discretionary expenditures *(_ab_disexp)* are multiplied by -1 to ensure that a higher value means more incentives to inflate earnings by real activities. In addition, the sum of three proxies *(rem)* is also used to indicate the overall level of real activities management. In the empirical model of real activity management, the independent variables are the same as those in accrual-based management model, but the independent variables are $CFO_{i,t}$, $DISEXP_{i,t}$, $PROD_{i,t}$, and rem, separately.

To test the intervention of local government, there are two interactive variables added to the empirical models:

$$owner_{profit} = ownership * op\_profit \quad (6)$$

$$owner_{debt\_capital} = ownership * debt\_capital \quad (7)$$

All the variables are based on year 2021 when the 'three red lines' policy comes into effect. Proxies of both modified Jones' model for accruals and Roychowdhury's model for real activities implicitly assume that the earnings management behaviour is common in a certain industry, and therefore, the sample is drawn within Chinese listed real estate companies as best suited for empirical analysis [20]. Specifically, the policy directly affects cash ratio, debt-to-asset ratio, and debt-to-equity ratio by setting minimum limits. Dividend payment measured by payout ratio, financial leverage, and annual audit fees are factors that may put pressure on firm's earnings and so may contribute to firm's incentive to manage earnings. The operating profit is one of the direct consequences of upward or downward earnings management behaviour. Table 1 shows key descriptive statistics in the empirical model.

Table 1. Sample descriptive statistics

Variables	Obs.	Mean	Min.	Max.	Std. Dev.
DA	96	0.959539	0.007569	11.64467	1.67122
rem	96	$-5.72e^{-10}$	-0.724685	0.650217	0.209477
ab_cfo	96	$9.79e^{-11}$	-0.263216	0.213153	0.081053
_ab_exp	96	$2.32e^{-11}$	-0.075470	0.023992	0.012403
_ab_prod	96	$-1.88e^{-10}$	-0.46516	0.659932	0.164811
audit	96	2633043	370000	16900000	2730258
payout	96	0.239095	0	2.622853	0.410774
ownership	96	0.583333	0	1	0.495595
leverage	96	3.744656	1.085913	9.489102	1.970243
op_profit	96	0.183698	-0.185752	2.161497	0.3017867
cash	96	0.355701	0.006072	2.563161	0.423510
debt_asset	96	0.640427	0.096877	0.896336	0.195635
debt_cap	96	0.354601	0	0.722603	0.19917

The discretionary accruals scaled by total assets has a mean of 95.95%, indicating that there is a lot of space for accrual-based earnings management in Chinese real estate companies. Proxies for real activities management show different patterns as the mean abnormal level of discretionary expenditures is negative which directly leads to a negative sum of real activities proxies, indicating that there is a lot of pressure from production cost controls. Except for some non-dividend payers, the mean value of payout ratio is 23.9% with a standard deviation of 41% which suggests that manager's incentive to pay dividends is strong even though the average financial leverage ratio of 3.74 may put a lot of pressure on companies' solvency. In fact, in 2024, risk of liquidation led to a huge problem in solvency of Chinese real estate companies. As to audit fees, the variation is not great relative to average number because of different scales of business. From the sample, approximately 60% of Chinese listed real estate companies are owned by government.

3. Empirical Results and Discussions

3.1. Accrual-based and Real-activity Earnings Management

Table 2 shows the regression result of accrual-based earnings management model. The most conspicuous evidence is that operating profit ratio is the only statistically significant independent variable. With a coefficient of 1.79, the operating profit ratio has a strong impact on the decision of discretionary accruals. This indicates that the primary purpose of accrual-based earnings management in Chinese listed real estate companies may be to increase operating efficiency. Compared with other real estate companies, the listed companies within the sample are typically larger, and they have a comparative advantage over smaller companies even during market downturns [21]. Coincidently, the effect of COVID-19 did not diminish in 2021, and Chinese economy was still in recession. From both the sample statistics and empirical results, it can be inferred that Chinese real estate companies may engage in opportunistic behaviour to maintain their consistently high operating efficiency and profitability in recession and to avoid a plunge in stock prices. Despite the existence of reluctance to report loss or deteriorating financial operation, the accounting numbers distorted by earnings management techniques show evidence of declining operating efficiency and profitability and will reverse in the next years. On the other hand, it is possible that companies manage earnings to maintain high earnings quality which is reflected by consistency in both earnings and operating efficiency. Particularly for real estate companies of which financing cost lies at the heart of business, earnings quality is one of the determinants of cost of debts and equity capital.

Table 2. Empirical model result: accrual-based earnings management

Dependent variable	Coefficient	*t* -statistic
payout	-0.067	-0.17
ownership	-0.309	-0.9
audit	-0.029	-0.46
leverage	-0.085	-0.55
op_profit	1.791***	2.66
cash	0.152	0.29
debt_asset	1.677	0.71
debt_cap	-2.155	-1.55
constant	0.858	0.7
Adjusted R^2	0.1337	

Note: ***, **, and * denote statistical significance at 0.01, 0.05, and 0.1 level, respectively.

Table 3 presents the regression result of real-activity management model. Interestingly, consistent with sample statistics, the abnormal level of production cost shows no significant causal effect with dependent variables as companies barely find ways to decrease production cost – the cost reduction of real estate construction is largely dependent upon economies of scale [22]. The growth rate of Chinese real estate industry has gradually cooled down in recent years for multiple reasons such as

the urbanization rate in China being close to a stable level. Accordingly, Chinese real estate companies are faced with weakening negotiating power towards suppliers and labours and therefore find it more difficult to apply the cost leadership strategy. The result indicates no significant incentives to manipulate production-related activities to manage earnings, and a possible explanation for this fact is that the cost reduction advantage brought by economies of scale cannot continue given unfavorable macroeconomic and demographic environment.

The result of dependent variables *ab_cfo* and *_ab_prod* suggests that companies manage real activities related to sales revenues and expenditures with the aim of increasing holdings of cash and cash equivalents. Obviously, this aim is directly derived from the "three red lines" policy requirements. There are many ways to increase the cash holdings such as recognizing revenues prematurely and deliberately postponing recognition of expenditures. However, the policy requires companies to exclude the revenue from pre-sales when reporting financial statements to regulator, creating a huge gap between cash received from property buyers and cash holdings reported to regulators. The result indicates that to fill the gap, real estate companies are trying to find other sources of revenue to generate more cash or lower expenditures to save more cash. In practice, possible actions may be massive layoffs, selling quality assets and suspension of new real estate project development. Such behaviour outputs negative and substantial externalities to society and harms interests of many groups of stakeholders. One example could be the increasing number of unfinished buildings for which buyers had paid downpayment and mortgage.

Taking three managements together, it is statistically significant that real estate companies manage real activities typically to meet "three red lines" policy requirement of debt-to-equity ratio. The negative coefficient indicates that a lower level of debt-to-equity ratio triggers even more real activities management. Interestingly, like the analysis of accrual-based management, there is little significant evidence showing the negative effect of dividend payout on real activities management. They both show managers' incentives to keep the sticky level of dividend payment even though policy and economic environment put pressure on companies' operating and financing activities.

Table 3. Empirical model result: real-activity management

Dependent variables	ab_cfo		_ab_exp		_ab_prod		rem	
	Conf.	*t*	Conf.	*t*	Conf.	*t*	Conf.	*t*
payout	-0.031	-1.5	-0.001	-0.25	0.041	0.98	0.009	0.18
ownership	-0.024	-1.36	0.002	0.54	-0.046	-1.28	-0.07	-1.5
audit	0.000	0.12	0.000	0.71	0.003	0.42	0.003	0.42
leverage	0.002	0.28	0.000	-0.3	0.003	0.16	0.004	0.21
op_profit	-0.002	-0.06	-0.003	-0.6	0.026	0.38	0.021	0.24
cash	0.051*	1.96	-0.007*	-1.79	0.033	0.61	0.077	1.12
debt_asset	0.126	1.04	-0.009	-0.47	0.078	0.32	0.195	0.62
debt_cap	-0.090	-1.27	0.001	0.06	-0.236	-1.63	-0.325*	-1.76
constant	-0.055	-0.87	0.009	0.87	0.017	0.14	-0.028	-0.18
Adjusted R^2	0.0384		-0.0315		0.0341		0.0303	

Note: ***, **, and * denote statistical significance at 0.01, 0.05, and 0.1 level, respectively.

3.2. Test of Ownership Structure Effect

The regression result is presented in Table 4. Generally, manager's incentive to use earnings management techniques does not change under local government intervention. The incorporation of interactive variables contributes to the significance level of operating profit ratio and debt-to-capital ratio in effect to discretionary accruals and real activities management, respectively. Hence, the result indicates that ownership structure has positive effects on both accrual-based and real activities management, and both government and companies have a common target to boost earnings and to lower debt-to-equity ratio. This is in line with findings of prior literature [11-15] that local

governments have control of economic resources beneficial to business's growth, and with the purpose of job promotion, they have incentives to assist or force companies to inflate earnings because of the single performance measurement of GDP growth. The result also highlights the agency conflict between Chinese local government and central government that central government's policies aiming to stabilize real estate market may motivate local government to assist or force companies to use earnings management techniques to disguise financial statements to evade regulatory scrutiny and possible punishment.

Table 4. Empirical model result - local government intervention

	DA		ab_cfo		_ab_exp		_ab_prod		rem	
Dependent variable	Conf.	*t*	Conf.	*t*	Conf.	*t*	Conf.	*t*	Conf.	*t*
payout	0.067	0.17	-0.03	-1.43	0	0.06	0.041	0.98	0.012	0.22
ownership	0.116	0.14	-0.044	-0.99	0.006	0.83	-0.117	-1.3	-0.155	-1.36
audit	-0.022	-0.36	0.001	0.21	0	0.78	0.004	0.57	0.005	0.58
leverage	-0.111	-0.73	0.001	0.16	-0.001	-0.42	0	-0.02	0	0.02
op_profit	2.251***	2.98	-0.003	-0.07	0	0.06	0.186	0.23	0.162	0.16
cash	0.085	0.16	0.046	1.68	-0.008*	-1.82	0.159	0.29	0.54	0.77
debt_asset	1.494	0.64	0.127	1.04	-0.011	-0.55	0.083	0.34	0.199	0.64
debt_cap	-2.106	-1.05	-0.147	-1.41	0.004	0.23	-0.422**	-2	-0.565**	-2.12
owner_debt_capital	0.155	0.08	0.828	0.8	-0.003	-0.18	0.268	1.28	0.348	1.31
owner_profit	-2.885**	-1.96	-0.045	-0.58	-0.02	-1.67	-0.111	-0.72	-0.176	-0.9
constant	0.925	0.71	-0.034	-0.5	0.008	0.76	0.084	0.61	0.582	0.33
Adjusted R	0.1579		0.033		-0.02		0.0472		0.05	

Note: ***, **, and * denote statistical significance at 0.01, 0.05, and 0.1 level, respectively.

4. Conclusion

The "three red lines" policy stipulates that the highly indebted real estate companies in China should have better solvency reflected by ratios. It motivates real estate companies to use earnings management techniques to increase their cash holdings. Even though the payout ratio remains at generally high levels, incentives for earnings management focus on increasing operating income and debt-to-asset ratio, and managers may then use increased earnings for dividend payments. In summary, the results show opposite evidence against the negative relationship between dividends and earnings management.

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