THE DYNAMICS OF CAPITAL STRUCTURE

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Abstract

The research explores the causality relationship between dividend distribution and capital structure among Chinese stock exchange-listed manufacturing firms. The research results confirm the pecking order theory and discover a non-linear U-shaped relationship between firm performances and dividend distributions. State-owned enterprises (SOEs) prefer more steady and regular dividends than private firms.

1. INTRODUCTION

The optimal capital structure and dividend payout are key factors that directly influence firms' cost of capital. Since Modigliani and Miller's (1958) pioneering study, research has increasingly focused on analyzing the disparity between the cost of debt and the potential unobservable opportunity cost of equity. Myers (1984) introduced the pecking order theory, which suggests that managers should prioritize utilizing capital resources with the least information asymmetry.

2. LITERATURE AND HYPOTHESES

2.1. Pecking order theory

Myers' (1984) pecking order theory suggests that retained earnings, being the most reliable and cost-effective capital source, are favored by managers who have full control over them. External capital is utilized only when internal capital is insufficient to cover new projects. When firms exhibit strong performance, characterized by high return on equity (ROE) and return on assets (ROA), the incentive for expansion is bolstered. Based on these premises, we formulate the following hypotheses.

H1a: Better-performing firms make smaller dividend payouts.

H1b: Firms with higher earning quality make lower dividend payouts.

2.2. Loss aversion and mental accounting affected payout policy

Building on Thaler's (1999) exploration of mental accounting bias, managers may sort capital resources into different pools of capital for distinct purposes. Once the targeted funding amount is achieved, the manager's risk appetite may shift, leading them to become more aggressive in seeking additional external financial leverage, even if the project's future outcomes are uncertain.

H2: The negative relationship between firm performance and dividend payout is exacerbated by concentrated management power.

2.3. Key stakeholder theory

In examining business ethics and corporate social responsibility through the lens of key stakeholder theory, a firm can be deemed successful when it effectively satisfies its stakeholders (Donaldson & Preston, 1995). In the case of a state-owned firm, the stakeholders encompass all individuals residing in the respective country. If a state-owned enterprise (SOE) generates substantial profits, it becomes imperative for the firm to exhibit social responsibility. Consequently, the firm should contemplate distributing larger dividends.

H3: When SOEs possess highly concentrated management power, increased profitability leads to higher dividend payments.

3. DATA AND EMPIRICAL METHODOLOGY

3.1. Data and variable definitions

Data on 1,264 manufacturing firms listed on the Chinese stock market for the period 2017–2021 is collected to analyze the above hypotheses. The final balanced sample includes 6,320 firm-year observations.

Table 1 lists all the variable names, its abbreviation used in the equation and the treatment of estimation or calculation of the variables.

Table 1. Variable definitions

Variable	*Symbol*	*Variable treatment*
Dividend	*DIV*	Dividend per a share
Earning per a share	*EPS*	Net profit / total number of shares outstanding
Return on equity	*ROE*	Net profit / Total equity
Return on asset	*ROA*	Net profit / Total asset
The firm is a state-owned firm	*SOE*	Binary, if the firm is state-owned, *SOE* = 1, otherwise = 0.
Top shareholders' position in percentage	*TOP*	Percentage of shares held by the largest shareholder
The board chairman and chief executive officer (CEO) are the same person	*DUAL*	Binary, if the board chairman is also CEO, *DUAL* = 1, otherwise = 0.
Earning quality	*QUALITY*	Net profit / Operating income
Dividend growth	*PDIV*	Binary, if next year the dividend grows, *PDIV* = 1, otherwise = 0.

3.2. Empirical methodology and results

3.2.1. Pecking order theory

In accordance with the pecking order theory, firms prioritize the utilization of profits or retained earnings from previous periods as their primary resource. When managers identify favorable investment opportunities or observe strong performance within the company, it is expected that they will decrease dividend payments or refrain from paying additional dividends due to the recent positive performance. To empirically test the validity of the pecking order theory, Eq. (1) and (2) are employed to test *H1a* about the relationship between firm performance and dividend payouts using return on equity (*ROE*) and return on assets (*ROA*), respectively.

$$DIV_{i,t} = \beta_0 + \beta_1 ROE_{i,t} + \beta_2 EPS_{i,t} + \beta_3 TOP_{i,t} + \beta_4 DUAL_{i,t} + \sum IND_{i,t} + \sum YEAR_{i,t} + \epsilon_{i,t} \quad (1)$$

$$DIV_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 EPS_{i,t} + \beta_3 TOP_{i,t} + \beta_4 DUAL_{i,t} + \sum IND_{i,t} + \sum YEAR_{i,t} + \epsilon_{i,t} \quad (2)$$

The findings obtained from Eq. (1) and (2) reveal that the coefficients associated with the profitability indicators, *ROE* and *ROA*, are both negative and statistically significant. These results indicate that when firms exhibit higher profitability, managers tend to reduce dividend payments. Investment funds are more likely to be sourced from operating income rather than additional external funding. These results provide support for the pecking order theory, which suggests that managers prioritize capital sources over which they have better control.

Building on the findings above, we next incorporate earnings quality. As discussed above in hypothesis *H2*, if managers possess greater certainty regarding the success of their future investments, e.g., if they have higher earnings quality, they are likely to seize opportunities for investment. Obtaining external financing is time-consuming in the Chinese market, making retained earnings a more expedient option. Equations (3) and (4) test whether higher firm performance leads to lower dividend payouts, even after controlling for earnings quality, whether higher earnings quality in itself leads to lower dividend payouts, and finally, whether higher earnings quality makes manager behavior even more likely to conform to the pecking order theory.

$$DIV_{i,t} = \beta_0 + \beta_1 ROE_{i,t} + \beta_2 QUALITY_{i,t} + \beta_3 EPS_{i,t} + \beta_4 TOP_{i,t} + \beta_5 DUAL_{i,t} + \beta_6 (ROE_{i,t} * QUALITY_{i,t}) + \sum IND_{i,t} + \sum YEAR_{i,t} + \epsilon_{i,t} \quad (3)$$

$$DIV_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 QUALITY_{i,t} + \beta_3 EPS_{i,t} + \beta_4 TOP_{i,t} + \beta_5 DUAL_{i,t} + \beta_6 (ROA_{i,t} * QUALITY_{i,t}) + \sum IND_{i,t} + \sum YEAR_{i,t} + \epsilon_{i,t} \quad (4)$$

The results demonstrate that, again consistent with the pecking order theory, firms with higher earnings quality prioritize using operating income for investment purposes. Both current firm performance, *ROE* and *ROA*, and higher earning quality lead to lower dividend payments. Further, the interaction terms of performance and earning quality also exhibit negative and statistically significant coefficients, providing further empirical support for the pecking order theory.

3.2.2. Loss aversion

When managers possess significant management power, their rational response upon identifying profitable opportunities is to make investment decisions promptly, without hesitation. If managers adhere to the pecking order theory, it follows that a greater concentration of

management power should amplify the negative relationship between performance and dividend payout revealed above. Equations (5) and (6) are employed to test this causal relationship.

$$DIV_{i,t} = \beta_0 + \beta_1 ROE_{i,t} + \beta_2 QUALITY_{i,t} + \beta_3 EPS_{i,t} + \beta_4 TOP_{i,t} + \beta_5 DUAL_{i,t} + \beta_6 (ROE_{i,t} * DUAL_{i,t}) + \sum IND_{i,t} + \sum YEAR_{i,t} + \epsilon_{i,t} \quad (5)$$

$$DIV_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 QUALITY_{i,t} + \beta_3 EPS_{i,t} + \beta_4 TOP_{i,t} + \beta_5 DUAL_{i,t} + \beta_6 (ROA_{i,t} * DUAL_{i,t}) + \sum IND_{i,t} + \sum YEAR_{i,t} + \epsilon_{i,t} \quad (6)$$

In estimates of Eq. (5) and (6), both the return on equity (*ROE*) and the interactive term of *ROE* and *DUAL* exhibit statistically significant negative coefficient estimates. This confirms that when management concentration is high, the negative relationship between firm profitability and dividend payouts is even stronger. However, contrary to expectations, the coefficient on the interaction term between return on assets (*ROA*) and *DUAL* is *positive* and statistically significant. This leads us to hypothesize that the negative relationship between *ROE* and dividend payout does not hold after *ROE* increases beyond some threshold level.

3.2.3. Key stakeholder theory

To examine how firm characteristics influence the preference for funding resources, the presence of a high number of *SOEs* is considered a unique characteristic of Chinese financial markets. In Eq. (7) and (8), an interactive term of *SOE*, profitability, and management power is included to test the preference of *SOEs* for dividend payout when they have high profits and when the *SOE* possesses highly concentrated managerial power.

$$DIV_{i,t} = \beta_0 + \beta_1 ROE_{i,t} + \beta_2 QUALITY_{i,t} + \beta_3 EPS_{i,t} + \beta_4 TOP_{i,t} + \beta_5 DUAL_{i,t} + \beta_6 SOE_{i,t} + \beta_7 (ROE_{i,t} * SOE_{i,t}) + \beta_8 (ROE_{i,t} * DUAL_{i,t}) + \beta_9 (SOE_{i,t} * DUAL_{i,t}) + \beta_{10} (ROE_{i,t} * SOE_{i,t} * DUAL_{i,t}) + \sum IND_{i,t} + \sum YEAR_{i,t} + \epsilon_{i,t} \quad (7)$$

$$DIV_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 QUALITY_{i,t} + \beta_3 EPS_{i,t} + \beta_4 TOP_{i,t} + \beta_5 DUAL_{i,t} + \beta_6 SOE_{i,t} + \beta_7 (ROA_{i,t} * SOE_{i,t}) + \beta_8 (ROA_{i,t} * DUAL_{i,t}) + \beta_9 (SOE_{i,t} * DUAL_{i,t}) + \beta_{10} (ROA_{i,t} * SOE_{i,t} * DUAL_{i,t}) + \sum IND_{i,t} + \sum YEAR_{i,t} + \epsilon_{i,t} \quad (8)$$

Even with their complex incentives, the behavior of *SOEs* is similar to that of privately held firms: when profitability is high, *SOEs* tend to pay fewer dividends. However, differences appear between *SOEs* and privately held firms as managerial power becomes highly concentrated.

For *SOEs*, the coefficient estimate on the triple interaction term between profitability, *SOE* status, and *DUAL*, a dummy variable indicating highly concentrated managerial power, is *positive*. Contrary to privately held firms, when *SOEs* enjoy high profits and have a high concentration of managerial power, they do not cut dividends to finance investment. Rather, *SOEs* tend to increase dividend payouts.

4. CONCLUSION

This study demonstrates that Chinese firms generally adhere to the pecking order theory. Higher initial profitability leads to a decrease in dividend payout. However, as profits continue to grow, a U-shaped nonlinear relationship emerges. Managers begin to deviate from the pecking order theory, leading to an increase in dividends. State-owned enterprises exhibit similar dividend payout choices. However, the relationship changes when the SOEs have high management concentration. These findings reflect a distinct type of agency problem unique to SOEs.

REFERENCES

1. Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, *20*(1), 65–91. https://doi.org/10.2307/258887
2. Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, *48*(3), 261–297. http://www.jstor.org/stable/1809766
3. Myers, S. C. (1984). The capital structure puzzle. *The Journal of Finance*, *39*(3), 574–592. https://doi.org/10.1111/j.1540-6261.1984.tb03646.x
4. Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, *12*(3), 183–206. https://doi.org/10.1002/(SICI)1099-0771(199909)12:3%3C183::AID-BDM318%3E3.0.CO;2-F