"Who prefers regular dividends? The effect of inventory level and firm operating efficiency on dividends in an emerging market"

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WHO PREFERS REGULAR DIVIDENDS? THE EFFECT OF INVENTORY LEVEL AND FIRM OPERATING EFFICIENCY ON DIVIDENDS IN AN EMERGING MARKET

Abstract

Stable regular dividends can deliver the steady operation of a firm's performance to its investors. When firms experience lower operation efficiency and more negative performance, they can affect their cash burden and lower the regular dividends. According to the cash conversion cycle theory, quicker inventory turnover could benefit the firm, and it is a significant signal of efficiency and high performance. In the real business environment, the expectation of future production, logistics and inflation can all affect managers' decisions. This paper uses data from all Chinese manufacturing companies listed on the Shanghai and Shenzhen stock exchanges from 2017 to 2020 as a sample. The paper provides the empirical causality between inventory turnover, operating efficiency indicators, and dividend distribution, by applying the regression method to find the causality relationship between inventory as the efficiency indicator and the distribution of dividends. The findings indicate that inventory consideration can be complicated and experience the inverse U-shape relationship with dividend decisions. Further, state-owned enterprises (SOEs) have different considerations about operating efficiency. They prefer to pay stable regular dividends, even if they are under pressure on operating efficiency and suffer from large inventories. SOEs believe that following political guidance and meeting their social obligations is their prioritized mission.

Keywords   inventory turnover, dividends, state-own-enterprise, cash conversion cycle, agency costs

JEL Classification   G31, G35, G40

INTRODUCTION

The manager of a firm usually makes dividend decisions based on firm profitability performance conditions. Its management and operating efficiency determines firm performance. One of the important indicators is the inventory level and how fast the firm can turn from the raw inventory to complete the production and receive revenue from their customers. According to the cash conversion cycle theory, the higher inventory or long days of inventory turnover would be a negative signal that the firm has lower efficiency, or the production is slowed, so the inventory turnover becomes slower.

When the inventory level is too high, the money is invested in that inventory, and the opportunistic costs become larger. A manufacturing firm may suffer from a production inventory shortage when the inventory is too low. Managers tend to make future predictions and use their best estimation to determine the inventory level.

Dividend policy is made after the operating needs, and the capital budgeting is planned. There are some efficient ways to manage operating performance, particularly the inventory level, to ensure there is no large fluctuation when firms experience a different phase in economics and inflation cycles besides only involving the manager's estimation. As the inventory price control tool, the derivative is now commonly involved in large firms' inventory management. Dividend policies and inventory management are forward-looking dynamics rather than static decisions.

There are a significant number of state-owned enterprises (SOEs) among stock exchange-listed Chinese manufacturing firms. State-owned enterprises (SOEs) have different incentives than private firms. They treat themselves as a firm making revenue and as a social entity to stabilize the market and economy. Such double roles make them unique and characterized when making dividend policies.

It is important to understand how managers make dividend policies based on how their inventory budgeting decision can evaluate the manager's ability and firm performance. Dividend policies affect the shareholder's cash flow and reflect profit sharing. Such decisions can also affect a firm's future market price and influence the firm's future capital costs.

1. LITERATURE REVIEW AND HYPOTHESES

Most of the existing theories emphasize the optimal level of inventory, and such level differs by different industries and different individual firms, but in reality, firms prepare inventory based on their production needs and the manager's anticipation of the future short run. There is a tradeoff between too much inventory and not enough inventory. If firms prepare too much, there is a higher opportunity cost since the money is taken to purchase inventory. If all firms simultaneously have higher than usual demand for inventory, the market price is pushed up, and firms would negatively impact their revenues (Chandramohan et al., 2023). Higher inventory may not merely indicate a negative effect on production efficiency but a more sophisticated condition (He et al., 2022). If the inventory is insufficient, then the production cannot go smoothly and need to stop waiting for the new inventory to be delivered and put into the production process. Optimally preparing inventory would increase the firm's efficiency and profit (Plenborg, 1998). The firms reflect such efficiency in share price (Chen et al., 2022; Bendig et al., 2018). As a robust firm efficiency indicator (Lin & Lin, 2021), investors can make significant alpha between long-efficient and short-inefficient firms (Wang, 2019). Firm characteristics could affect the inventory policy and their inventory accounting choices (Archambault & Archambault, 1999). Sometimes a firm has the flexibility to negotiate

with inventory suppliers, which can benefit the firm in adjusting the holding cashflows (Wang et al., 2014). The bank-firm relations (Ameer, 2010) can also relate to a firm's cash management (Ball & Nikolaev, 2022). Firms' dividends are based on profitability performance. Firm size can sometimes significantly affect the dividends policy (Barros et al., 2020). Some firms use derivatives, such as the forward contract to lock the price, but such a forward contract may have counterparty risk. Also, the derivative is high time determined. Large volatility and quick movement of commodity prices may still affect the revenue unless the derivative execution and the actual use of inventory happen simultaneously (Ji & Wei, 2023). It may be possible to use over-the-counter derivatives, but it is less likely for standardized exchange trading contracts. Using derivatives to manage the inventory may require a firm to have a professional finance team, but such professional management may further increase agency costs (Fauver & Naranjo, 2010).

Sometimes, it is difficult to determine the optimal inventory level to maximize efficiency. When firms have different expectations of the future (Moser et al., 2017; Dbouk et al., 2020), especially when if there is a higher expected production need (Baron et al., 2023) and economic condition change (Sarte et al., 2015), or when there are major social events like a pandemic (Flynn & Li, 2023), different managers may consider different inventory level based on the firms' conditions

(Kim, 2020), the future inventory price change or anticipating logistic difficulties (Tan et al., 2020; Qrunfleh & Tarafdar, 2014) may also distort the optimal inventory level, cost of capital and production relationships (Serrano et al., 2017). When the expectation of inflation is high or the cost of logistics is high, manufacturing firms typically increase their inventory level to lock the close future profit and ensure the product is not adversely affected by the increase in material costs. Dividend policy is also closely related to the asset size (Ouyang & Zhong, 2023), investment opportunity (Espahbodi et al., 2022) and reinvestment needs (Meng & Siu, 2011). When firms have expanding consideration, they usually cut the regular dividends or keep only regular ones but cut any non-ordinary ones (Jabbouri, 2016). Firms usually prefer stable dividends to show consistent performance each year. If there is an interruptive stop to paying the regular dividends, many shareholders panic that the firm may perform very badly in share price in the financial market (Daniel et al., 2008). The reaction of the profit distribution upon the current firm's efficiency could be slow. The deferred reaction toward the operating inefficiency may only happen when the manager can significantly realize the operation performance is negatively abnormal. Since it is complicated to judge the more optimal inventory level and decide how much capital should be involved in the different economic environments (Yu et al., 2023), some firms seek to smooth their dividends (Bali et al., 2022; Kilincarslan, 2021). Features of the firm characteristics (Michaely & Moin, 2022) and their competitors may affect their dividends attitudes. For example, firms are more willing to smooth their dividends when competitors do less (Chen et al., 2022).

State-owned-enterprises consider many values differently (Tang, 2023). The corporate governance of SOEs has different features and incentives than non-SOE corporates (Shen et al., 2020). They do not only consider economic values but also political values (Xin et al., 2019), and they are more likely to show different incentives and aims compared with normal private exchange-listed firms (He & Kyaw, 2018). SOEs in China have special social responsibility (Kong et al., 2023), not just rendering services to the residents but also stabilizing local employment, tax and social welfare (Beladi et al.,

2022). They need to be more politically correct than only maximizing the shareholder's wealth (Chen et al., 2023). Making regular dividends could be one of the important factors to show investors that there is reliability in investing in SOEs (Liu & Shu, 2022). It is expected the managers of SOEs are more likely to prefer the extremely stable regular dividends since they are required to show not only to their investors but the whole financial market that the economic operation is stable and the SOEs are worth trusting (Chen et al., 2022). Such an image requires them to follow the regular dividends scheme, and any negative surprise in operation or financial market performance would be a bad signal sent to the public.

This paper aims to explain how choosing the potential optimal inventory level affects dividend policies. The dynamic optimal inventory level may be expectation-led forward-looking, and the dividend policy is affected after inventory has increased over a threshold level. The study also shows that state-owned enterprises (SOEs) have different market incentives, goals and obligations. Following the above aspects and reasonings, the following hypotheses are raised:

H1a: *Higher days of inventory turnover decrease the level of dividends paid.*

H1b: *Higher inventory turnover days decrease the return on assets (ROA).*

H2: *Days of inventory turnover and dividends may exist in non-linear relationships.*

H3: *State-owned-enterprises (SOEs) have incentives to pay more regular dividends, less affected by operation performance.*

2. DATA AND METHODOLOGY

This study collects the sample data from the Chinese financial market between 2017 and 2021 from the China Eastern Money Database. All manufacturing firms listed before 2017 are included, and any financially distressed firms are excluded from the sample. The final sample has 8,530 firm-year observations. The variable definitions are listed in Table 1.

Table 1. Variable definitions

Variable	Symbol	Variable Treatment
Days of Inventory Turnover	INV	365/ [COGS / Average Inventory]
Account Receivable Turnover Rate	ACCR	COGS / Average Account Receivable
Account Payable Turnover Rate	ACCP	COGS / Average Account Payable
Leverage	LEV	Leverage ratio over assets
Share Pledge	PLD	The total amount of pledge shares by largest shareholder
State-Owed Enterprise	SOE	Dummy variable, if state-owned, is equal to 0
Dividend	DIV	The actual accumulated dividends in each year.
Return on Assets	ROA	Net income / Asset
Squared Days of Inventory Turnover	SQRINV	$[365/ [COGS / Average Inventory]]^2$

Table 2. General statistics

Source: China Eastern Money Database.

Variable	Unit	Observation	Mean	Standard Deviation	Min	PCTL (25%)	PCTL (75%)	Max
INV	Days	8,530	162.789	469.755	0	62.84	175.323	23,684.21
ACCR	Percent	8,530	16.239	220.533	0	0	3.9	6,002
ACCP	Percent	8,530	7.184	10.555	0	3.089	7.422	220.743
LEV	Percent	8,530	43.743	197.535	0.836	26.257	54.317	17,834.55
PLD	Million Shares	8,530	93.406	323.372	0	0	90	10,876
SOE	Dummy	8,530	0.294	0.456	0	0	1	1
ROA	Percent	8,530	5.296	19.063	-888.815	2.449	9.066	1,206.39
DIV	Percent	8,530	0.148	0.428	0	0	0.2	19

Table 2 shows that about one-third of the listed manufacturing firms are state-own-enterprises (SOEs), which shows that public-owned firms perform large weight in the Chinese market. The return on assets (ROA) average reflects the GPD growth in China, but the variations among firms are large. Even close to half of the firms pay dividends, but the dividend levels are averagely low.

The first test involves the relationship between the inventory level and dividend payments, which is hypothesis 1. There are many cash conversion cycles and profitability tests. This study focuses on a slightly differentiated point. Equations (1) and (2) focus on such relationships. The expected outcome is the higher inventory level would decrease the level of dividends.

$$DIV_{i,t} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 ACCR_{i,t} + \\ + \beta_3 ACCP_{i,t} + \beta_4 LEV_{i,t} + \beta_5 PLD_{i,t} + \\ + \beta_6 SOE_{i,t} + \varepsilon_{i,t}, \qquad (1)$$

$$DIV_{i,t} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 ACCR_{i,t} + \\ + \beta_3 ACCP_{i,t} + \beta_4 LEV_{i,t} + \beta_5 PLD_{i,t} + \\ + \beta_6 SOE_{i,t} + \sum Year\,Controls + \varepsilon_{i,t}. \qquad (2)$$

The inventory level also could affect a firm's operating efficiency, and the firm's profit reflects such efficiency. Such relationships are tested by equations (3) and (4)

$$ROA_{i,t} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 ACCR_{i,t} + \\ + \beta_3 ACCP_{i,t} + \beta_4 LEV_{i,t} + \beta_5 PLD_{i,t} + \\ + \beta_6 SOE_{i,t} + \varepsilon_{i,t}, \qquad (3)$$

$$ROA_{i,t} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 ACCR_{i,t} + \\ + \beta_3 ACCP_{i,t} + \beta_4 LEV_{i,t} + \beta_5 PLD_{i,t} + \\ + \beta_6 SOE_{i,t} + \sum Year\,Controls + \varepsilon_{i,t}. \qquad (4)$$

Some complicated incentives may distort the inventory level which managers have in mind. The square term of the inventory is taken to observe if there is a non-linear relationship between the inventory level and the dividends. Managers may consider having a larger inventory to ensure smooth production before paying more significant dividends. Such safety-first cognition bias may deviate the inventory from its optimal level toward a larger level. Equations (5) and (6) are used to test hypothesis 2.

$$DIV_{i,t} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 ACCR_{i,t} + \\ + \beta_3 ACCP_{i,t} + \beta_4 LEV_{i,t} + \beta_5 PLD_{i,t} + \\ + \beta_6 SOE_{i,t} + \beta_7 SQRINV_{i,t} + \varepsilon_{i,t}, \qquad (5)$$

$$DIV_{i,t} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 ACCR_{i,t} +$$
$$+ \beta_3 ACCP_{i,t} + \beta_4 LEV_{i,t} + \beta_5 PLD_{i,t} +$$
$$+ \beta_6 SOE_{i,t} + \beta_7 SQRINV_{i,t} + \tag{6}$$
$$+ \sum Year\,Controls + \varepsilon_{i,t}.$$

The last section uses interactive terms to test the different incentives of SOEs. The SOEs are expected to follow the mission of paying more dividends and stabilizing the financial market. Equations (7) and (8) are used to test hypothesis 3.

$$DIV_{i,t} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 ACCR_{i,t} +$$
$$+ \beta_3 ACCP_{i,t} + \beta_4 LEV_{i,t} + \beta_5 PLD_{i,t} +$$
$$\beta_6 SOE_{i,t} + \beta_7 SQRINV_{i,t} + \tag{7}$$
$$+ \beta_8 \left[INV_{i,t} \cdot SOE_{i,t} \right] +$$
$$+ \beta_9 [SQRINV_{i,t} \cdot SOE_{i,t}] + \varepsilon_{i,t},$$

$$DIV_{i,t} = \beta_0 + \beta_1 INV_{i,t} + \beta_2 ACCR_{i,t} +$$
$$+ \beta_3 ACCP_{i,t} + \beta_4 LEV_{i,t} + \beta_5 PLD_{i,t} +$$
$$+ \beta_6 SOE_{i,t} + \beta_7 SQRINV_{i,t} +$$
$$+ \beta_8 \left[INV_{i,t} \cdot SOE_{i,t} \right] + \tag{8}$$
$$+ \beta_9 [SQRINV_{i,t} \cdot SOE_{i,t}] +$$
$$+ \sum Year\,Controls + \varepsilon_{i,t}.$$

3. RESULTS

The relationship between inventory and dividends is shown in Table 3. The significant positive coefficients of "INV" in both cases show even when there are higher days of inventory turnover, and the dividends become higher. Such results do not confirm what usually the cash conversion cycle predicts. In theory, if more resources are taken, the efficiency should decrease, and the dividend payment should become more conservative to reflect such negative effects. The results may be affected by the heterogenous behavior of SOEs. As mentioned in previous sections, SOEs in the Chinese market are large, and they consider their social function differently compared with other private corporations. The results do not support hypothesis H1a.

Table 3. Dividends and inventory circulate efficiency

	Dependent Variable: DIV	
	(1)	(2)
INV	0.00002*	0.00002*
	(0.00001)	(0.00001)
ACCR	0.001***	0.001***
	(0.00002)	(0.00002)
ACCP	−0.0004	-0.0004
	(0.0004)	(0.0004)
LEV	−0.00003	-0.00003
	(0.00002)	(0.00002)
PLD	−0.00005***	-0.00005***
	(0.00001)	(0.00001)
SOE	−0.21**	-0.21**
	(0.009)	(0.009)
CONSTANT	0.145***	0.128***
	(0.006)	(0.010)
YEAR CONTROL	N	Y
Observations	8530	8530
R²	0.247	0.248
Adjusted R²	0.247	0.247
Residual Std. Error	0.372	0.372
	(df=8519)	(df=8519)
F Statistic	466.979***	218.030***
	(df=10; 8519)	(df=10; 8519)

Note: *, **, and *** denote statistical significance at 1%, 5%, and 10%; standard errors are shown in parentheses.

The inventory level and ROA relationship are shown in Table 4. The coefficient of inventory turnover days is negative. Here the results confirm the cash conversion cycle and the cash management theories. A higher inventory or longer time to turn inventory into products and services shows lower earnings and performance efficiency.

Table 4. ROA and inventory circulate efficiency

	Dependent Variable: ROA	
	(1)	(2)
INV	−0.002***	-0.002***
	(0.0004)	(0.0004)
ACCR	0.003***	0.003***
	(0.0001)	(0.0001)
ACCP	0.0044***	0.0042**
	(0.0016)	(0.0016)
LEV	−0.052***	-0.052***
	(0.001)	(0.001)
PLD	−0.0003	-0.0003
	(0.001)	(0.001)
SOE	−0.247	-0.251
	(0.381)	(0.381)
CONSTANT	7.612***	8.512***
	(0.255)	(0.429)
YEAR CONTROL	N	Y
Observations	8530	8530
R²	0.299	0.301
Adjusted R²	0.299	0.300
Residual Std. Error	15.963	15.949
	(df=8523)	(df=8523)
F Statistic	606.632***	366.557***
	(df=6; 8523)	(df=6; 8523)

Note: *, **, and *** denote statistical significance at 1%, 5% and 10%; standard errors are shown in parentheses.

Table 5 shows the relationship between the inventory squared term to the dividend. The inventory may be affected by many other factors, including the expectation of future production level, future material prices and logic costs. Managers may have different judgements in different environments. The general higher than normal inventory level would be a bad signal. So, the purpose here is to test if pushing the days of inventory to a larger number should show the reasonable negative relationship with the dividends. The coefficients of the squared days of inventory turnover term are both significant, even though the actual number is small. However, considering the days of inventory turnover is a large number, the results show that the inventory and dividends have an inverse U-shape relationship. The increase in inventory may be a ready reaction of managers, but when such costly preparation becomes too large, then it reduces the earnings expectation and decreases dividends.

Table 5. Non-linear dividends and inventory circulate efficiency

	Dependent Variable: DIV	
	(1)	(2)
INV	0.0001***	0.0001***
	(0.00002)	(0.00002)
ACCR	0.001***	0.001***
	(0.00002)	(0.00002)
ACCP	−0.0003	−0.0003
	(0.0004)	(0.0004)
LEV	−0.00003	−0.00003
	(0.00002)	(0.00002)
PLD	−0.00005***	−0.00005***
	(0.00001)	(0.00001)
SOE	−0.020**	−0.020**
	(0.009)	(0.009)
SQRINV	−0.000***	−0.000***
	(0.000)	(0.000)
CONSTANT	0.131***	0.141***
	(0.007)	(0.010)
YEAR CONTROL	N	Y
Observations	8530	8530
R^2	0.249	0.250
Adjusted R^2	0.249	0.249
Residual Std. Error	0.371	0.371
	(df=8522)	(df=8519)
F Statistic	404.561***	258.260***
	(df=10; 8519)	(df=10; 8519)

Note: *, **, and *** denote statistical significance at 1%, 5% and 10%; standard errors are shown in parentheses.

SOEs have different social responsibilities compared to other private corporations. Table 6 shows the interaction between SOEs and the days of inventory turnover. The significant positive coefficient of the interaction between SOEs and the

days of inventory turnover shows that the SOEs have a stronger incentive to pay higher dividends even when there is a higher inventory level. Note that after the interactive term is included, the original days of inventory turnover term has a significant negative coefficient, which shows the normal higher than optimal inventory would lower the dividends relationship. As mentioned in early chance, SOEs need to stabilize the financial market, and they usually show a very positive image by paying regular stable dividends.

Table 6. State-owned-enterprise and inventory circulate efficiency on dividend

	Dependent Variable: DIV	
	(1)	(2)
INV	−0.00005**	−0.00005**
	(0.00002)	(0.00002)
ACCR	0.001***	0.001***
	(0.00002)	(0.00002)
ACCP	0.0001	0.0001
	(0.0004)	(0.0004)
LEV	−0.00003	−0.00003
	(0.00002)	(0.00002)
PLD	−0.00004***	−0.00004***
	(0.00001)	(0.00001)
SOE	−0.134***	−0.134***
	(0.012)	(0.012)
SQRINV	0.000*	0.000*
	(0.000)	(0.000)
INV*SOE	0.001***	0.001***
	(0.0001)	(0.0001)
SQRINV*SOE	0.00000	0.00000
	(0.00000)	(0.00000)
CONSTANT	0.150***	0.132***
	(0.007)	(0.010)
YEAR CONTROL	N	Y
Observations	8530	8530
R^2	0.276	0.277
Adjusted R^2	0.275	0.275
Residual Std. Error	0.365	0.365
	(df=8520)	(df=8516)
F Statistic	360.539***	250.371***
	(df=9; 8520)	(df=13; 8516)

Note: *, **, and *** denote statistical significance at 1%, 5% and 10%; standard errors are shown in parentheses.

As mentioned in early sections, firms listed on the Shanghai stock exchange are bigger firms, especially SOEs. Firms listed in Shenzhen are mid and smaller-size firms. Big firms have a more professional inventory management team, often using derivatives to control inventory. The level of inventory becomes less important to overall dividend decision-making. This is well reflected in the results. The coefficients of days of inventory turnover and interactive terms between inventory and SOEs are all insignificant. Compared to Shanghai, Shenzhen listed com-

panies have both stock day ratios significantly negative, which, according to the theory, the higher the stock, the lower the dividend. The interactive term between inventory and SOEs are significantly positive, the SOEs prefer to pay more regular dividends.

Table 7. Heterogeneity in different exchanges

	Dependent Variable: DIV			
	Shanghai Exchange		Shenzhen Exchange	
	(1)	(2)	(3)	(4)
INV	−0.00003	−0.00003	−0.0001**	−0.0001**
	(0.00004)	(0.00004)	(0.00002)	(0.00002)
ACCR	0.002***	0.002***	−0.00001	−0.00001
	(0.00003)	(0.00003)	(0.000002)	(0.000002)
ACCP	−0.0004	−0.0004	0.0002	0.0002
	(0.001)	(0.001)	(0.0003)	(0.0003)
LEV	−0.001***	−0.001***	−0.00001	−0.00001
	(0.0002)	(0.0002)	(0.00001)	(0.00001)
PLD	−0.0001***	−0.0001***	−0.00005***	−0.00005***
	(0.00001)	(0.00001)	(0.00002)	(0.00002)
SOE	−0.103***	−0.103***	−0.059***	−0.060***
	(0.017)	(0.017)	(0.013)	(0.013)
SQRINV	0.000	0.000	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
INV*SOE	0.00005	0.00005	0.001***	0.001***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
SQRINV*SOE	−0.00000	−0.00000	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)
CONSTANT	0.226***	0.192***	0.132***	0.132***
	(0.013)	(0.013)	(0.010)	(0.010)
YEAR CONTROL	N	Y	N	Y
Observations	2885	2885	5645	5645
R^2	0.736	0.737	0.029	0.030
Adjusted R^2	0.735	0.735	0.028	0.028
Residual Std. Error	0.334 (df=2875)	0.334 (df=2875)	0.243 (df=5635)	0.243 (df=5631)
F Statistic	889.523*** (df=9; 2875)	617.765*** (df=13; 2871)	18.924*** (df=9; 5635)	13.590 (df=13; 5631)

Note:*, **, and *** denote statistical significance at 1%, 5% and 10%; standard errors are shown in parentheses.

Table 8 summarizes the findings of this study.

Table 8. Summary of findings

Hypotheses	Validation	Discussion
H1a. Higher days of inventory turnover decrease the level of dividends	Rejected	The inventory level may have other connections with dividends. Managers may consider their expectations of future market conditions to make inventory decisions.
H1b. Higher days of inventory turnover decrease the firm's ROA	Supported	Normal relation should have higher inventory turnover days, lower efficiency and worse profitability.
H2. The inventory experiences a non-linear relationship with dividends	Supported	An initial increase in inventory increases the dividends, but there is a significant threshold level. After such a level, the higher inventory negatively affects dividends.
H3. SOEs have different goals and social responsibilities. They would prefer to pay more regular dividends even if they experience high days of inventory turnover	Supported	SOEs are more likely to pay stable regular dividends. Even when a firm's operating performance deteriorates, it still prioritizes keeping regular dividends.

4. DISCUSSION

The inventory turnover condition reflects a firm's operating performance (Li et al., 2015) and should be closely connected with the firm's dividend distribution policy (Eldomiaty et al., 2018). The cash conversion cycle emphasizes such efficiency and profitability relationship. According to the cash conversion cycle, a firm should hold its inventory at the minimum level to optimize its cash opportunity costs. In real business environments, the expectations of managers, the business and the economic environments could all affect such optimal levels and make it very difficult to predict which level is the true optimal. Therefore, the inventory experiences the inverse U relationship with the dividends. Before managers consider the inventory level reaching the "too much" threshold, the managers consider the opportunity cost of interrupting production larger than using cash flow. They tend to consider increasing the inventory level. Once the inventory is too much, it becomes a negative signal to the managers, adversely affecting the firm's willingness to make dividend decisions.

Cash management can at some level alleviate the inventory burden and positively contribute to a firm's earnings (Dvořáková et al., 2018). Of course, other components of the cash conversion cycle, like the account payable, could also help to reduce the efficiency burden. The result section shows that larger firms are less likely to have inverse inventory turnover and dividend problems. The large scale of economics allows them to afford the professional management team, who may use the derivative to alleviate the inventory stock and production smooth problem. The derivative can also

hedge the price, but it brings another problem: the managers are given larger authority, increasing agency costs (Brunzell et al., 2011). The derivative brings additional counterparty risk (Nguyen & Faff, 2010). The gain side may have the counterparty declaring bankruptcy, and the hedge becomes ineffective. The professional management team can be very expensive, so small to mid-size firms may be unable to afford it.

SOEs do not consider operating efficiency too much when deciding their dividend policy compared with private firms (Sarwar et al., 2020). Such efficiency and distribution irrelevance are large because they always try closely follow the policy to stabilize the financial market and be as politically correct as possible. Since the number of SOEs is large, almost one-third of exchange-listed firms when they pay regular dividends, the private firms need to follow, or otherwise the private firms will suffer from losing share price. Then the authority's goal – a stable financial market with all firms sharing their revenue with investors by paying regular dividends – can be achieved. Most SOEs do not only follow the profit maximization concept in China, but also claim they must also meet social responsibility. It is doubtful for such SOE behavior (Huang et al., 2019). Suppose such profit-sharing behavior could cultivate an economy with overall high efficiency. In that case, it is probably worth investigating the social governance field in the corporate environment. Giving up profit maximization by taking social responsibility would be behavioral and economically similar to taking the cost for environmental protection or maintaining the firms with high ESG.

CONCLUSION AND FUTURE RESEARCH

This study focuses on the inventory and dividends relationship. The finding suggests that the consideration of managers on the inventory level is more than the cash conversion cycle theory. The future expectation could have a deterministic effect on the current inventory level. The post-optimal inventory level could negatively affect the earning performance. The complicated expectation makes the inventory and dividends experience the inverse U-shape non-linear relationship. When the inventory level is still comparatively low, managers tend to increase the level even though they may realize it is the optimal level, but when the inventory level is high enough, they could negatively affect the earning performance too much. This result shows that such an inverse U-shape relationship lowers the level of the dividend distribution compared with the optimal inventory level in the cash conversion cycle theory. SOEs have different considerations on operating efficiency and dividends. They prefer more stable regular dividends to meet their social obligation. SOEs use regular dividends as a positive firm image to receive credit from their investors and stabilize their market value when the economic cycle fluctuates. Since SOEs are all large firms and the number of SOEs is significant in the Chinese market, the SOEs dominate the market. Once SOEs have a stable market price, the market volatility becomes smaller and investors have higher confidence in the overall economy.

Research can extend from only focusing on inventory to firms that use derivatives. How does a more advanced and cost-efficient instrument affect earnings? The demand for more professional management would increase the agency's cost. It remains interesting to empirically understand if the efficiency benefits can offset the costs.

AUTHOR CONTRIBUTIONS

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