

Heterogeneity Research on the Influence of Financial Asset Allocation on Enterprise Leverage Ratio from the Perspective of Enterprise Life Cycle

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Abstract

Preventing and defusing systemic financial risks is of great strategic significance to the healthy development of China's finance. In view of the potential risks brought by high leverage, promoting structural reform on the supply side and lowering the leverage ratio by sector and industry have become the focus of supply-side reform in China for a long time now and even in the future. In this paper, the financial data of A-share listed non-financial companies from 2010 to 2019 are taken as samples. From the perspective of enterprise life cycle, the dynamic GMM model is mainly used for empirical analysis. Economic policy uncertainty and the interaction between monetary policy and financial asset allocation are introduced into the model to study how they affect the relationship between financial asset allocation and enterprise leverage ratio. The results show that the financial asset allocation behavior of enterprises to obtain financial flexibility will reduce their leverage ratio, and it will have a stronger effect on the leverage ratio of non-state-owned enterprises; Finally, the paper puts forward some corresponding policy suggestions.

Keywords: Enterprise life cycle; Allocation of financial assets; Enterprise leverage ratio; Heterogeneity analysis

1. Introduction

Enterprise finance runs through the whole process of enterprise operation, and plays an important role in implementing investment decision-making and strategic planning. And the core subject of enterprise financial management is investment, financing, financing and other related financial activities [1]. In view of the high leverage ratio of the enterprise sector, the government has formulated and implemented the supply-side reform, taking "de-leverage" as an important direction of the reform. Although it has achieved some results, it still deviates from expectations. In the process of implementing the deleveraging policy, the phenomenon of "one size fits all" is serious, which accidentally hurts private enterprises and small and medium-sized enterprises with reasonable capital structure in the process of deleveraging. Financial deleveraging leads many private enterprises to face problems such as difficult financing and high liquidity stratification [2-3]. The realistic result of the polarization of the leverage ratio of enterprises urges us to think: What is the internal

theoretical logic of the significant difference in the leverage ratio of enterprises of different natures and scales? What microscopic effects will the existing leverage structure have on the development of different enterprises? How should macro-policy operations deal with the leverage ratio of enterprises with such structural differentiation?

From the above situation, we can see that asset structure is a problem worth studying, both theoretically and practically. Whether an enterprise's asset structure is reasonable not only directly affects its operational ability, solvency and risk avoidance ability, but also affects its development potential, popularity and reputation, and even affects its survival [4]. Reasonable asset structure is an important guarantee for the smooth production and operation of enterprises and the realization of enterprise goals. Therefore, the research on asset structure has great theoretical and practical significance.

Based on the perspective of enterprise life cycle, this paper analyzes the influence of micro-behavior of financial asset allocation on enterprise leverage ratio, and discusses how to rationally allocate financial assets to reduce leverage ratio; From two dimensions

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of monetary policy and economic policy uncertainty, this paper analyzes its influence on enterprise leverage ratio. At the same time, this paper analyzes the influence of quantitative monetary policy, that is, the change of monetary factors, on the leverage ratio of enterprises, analyzes the structural effect of economic policy uncertainty, and analyzes the influence of economic policy uncertainty on the trend of enterprise leverage ratio.

2. Literature review

2.1. Financial asset allocation behavior and enterprise leverage ratio

Financial asset allocation is defined as a series of decisions and behaviors of enterprises on the selection, holding, distribution and trading of financial assets. In addition, when most scholars analyze the influence of financial asset allocation behavior on the leverage ratio of enterprises, they usually divide the financial asset allocation behavior twice to refine the research. Literature [5] divides financial asset allocation into profit-seeking motivation and risk-avoidance motivation according to the motivation of enterprises to allocate financial assets; Some studies, such as literature [6], divide financial assets into short-term financial assets and long-term financial assets according to the remaining period; Another part of the study divides the financial asset allocation behavior into three parts: total amount index, profit index and cash flow index.

2.2. The influence of financing constraints on enterprises

In view of the impact of financing constraints on enterprises, domestic and foreign research mainly focuses on financing constraints and enterprise ownership structure, enterprise information disclosure and enterprise innovation. Literature [7] shows that, for the purpose of maintaining social stability and economic development, the state will help state-owned enterprises facing difficulties, thus creating the difference between them and non-state-owned enterprises in financing constraints. Literature [8] points out that banks in China have loan discrimination against enterprises with different ownership, and large enterprises and state-owned enterprises have more advantages in credit policies and financing channels, so they have lower financing constraints. Literature [9] found that the heterogeneity of enterprise financing leads to the unbalanced allocation of credit resources among enterprises of different types and levels. Literature [10] shows that the financing ability of industries in a

dominant position is obviously stronger than that of other industries. For a long time, state-owned enterprises and large enterprises are in the upstream of the industrial chain and are in an absolute advantage and dominant position in the whole industrial chain, so they can get the inclination of credit policy compared with non-state-owned enterprises and small and medium-sized enterprises.

2.3. Research on the influence of debt financing on inefficient investment

Foreign scholars mostly study the influence of debt financing on inefficient investment from two aspects, one is that debt financing can restrain excessive investment, the other is that debt financing can promote excessive investment. Literature [11] puts forward the concept of agency cost. They think that under the environment of asymmetric information, the authorized agent in the contract will only care about what ways he can take to get more benefits and promotion opportunities, while ignoring the interests of shareholders and creditors, and has a tendency to over-invest and harm the interests of corporate creditors. It is difficult to ensure the maximization of the benefits of both parties, so the utility interests of both parties are not completely coordinated. Literature [12] shows that under the background of dynamic mechanism, the agency relationship between insiders and external investors thinks that the favorable rating of bonds by the market expects that the underinvestment behavior of the company will be limited, and the financing strategy will be limited to some extent. If there is a large amount of funds in the enterprise, it may cause the major shareholders of the company to use their power to seek benefits, which may lead to inefficient investment behavior in the enterprise. Literature [13] constructs debt heterogeneity index (DSHI) according to the research of related scholars, which reflects the proportion of different types of debt. These criteria make debt heterogeneity more systematically divided.

2.4. Literature review

By combing the literature in related fields, such as enterprise's financial asset allocation behavior, differences among enterprises with different property rights, it can be found that the researches on financial asset allocation by domestic and foreign scholars mostly focus on the motivation of enterprise's financial asset allocation, the crowding-out effect of financial asset allocation behavior on real investment, and the influence on enterprise value and enterprise leverage ratio.

This paper focuses on this, and analyzes the

heterogeneity of the impact of financial asset allocation behavior on the leverage ratio of enterprises with different property rights from the perspective of enterprise life cycle. In the specific research, this paper further divides the allocation behavior of financial assets according to the motives of enterprises' allocation of financial assets, and introduces industry categories to refine the heterogeneous research on its impact on the leverage ratio of enterprises with different property rights.

3. Research method

3.1. Research hypothesis

In the growth period, enterprises have entered a period of rapid development. During this period, the technology of enterprises gradually matured, the products were gradually accepted by the market, the popularity and reputation were continuously improved, and the management strength was continuously enhanced. With the continuous expansion of business, various expenses increase rapidly. Therefore, in order to maintain the previous operating results and increase profits, enterprises should not only work hard on products, but also keep a large number of current assets for short-term investment and daily operation and management activities [14-15]. After the enterprises entered the mature stage from the growth stage, the enterprises in this period have achieved a relatively stable market position in the market competition, and their popularity and reputation have been further enhanced. However, the growth rate of enterprises has gradually slowed down, and the growth rate of various expenses has also gradually slowed down, and enterprises have entered a relatively stable stage. The investment in fixed assets has changed from quantitative investment to qualitative improvement, and the fixed assets have been updated and transformed to improve production efficiency, with a view to reducing production costs and realizing economies of scale by using economies of scale.

Based on the above analysis, this paper puts forward the following assumptions:

H4.1: There is a positive correlation between the ratio of current assets and enterprise performance, and the correlation in growth period is greater than that in maturity period

H4.1.a: There is a positive correlation between the ratio of current assets in growth period and enterprise performance

H4.1.b: There is a positive correlation between the ratio of current assets in mature period and

enterprise performance

H4.2: The ratio of fixed assets is negatively correlated with enterprise performance, and the correlation in growth period is less than that in maturity period

H4.2.a: There is a negative correlation between the ratio of fixed assets in the growth period and enterprise performance

H4.2.b: The ratio of fixed assets in mature period is negatively correlated with enterprise performance

H4.3: There is a positive correlation between intangible assets ratio and enterprise performance, and the correlation in growth period is less than that in maturity period

H4.3.a: There is a positive correlation between the ratio of intangible assets in the growth period and enterprise performance

H4.3.b: There is a positive correlation between the ratio of intangible assets in maturity and enterprise performance

3.2. Sample selection

This paper selects the financial data of A-share listed non-financial companies from 2010 to 2019 as samples, and does the following processing:

(1) Excluding the samples of financial companies, ST, PT and other companies with delisting risk or risk warning;

(2) Excluding the samples of IPO companies and H-share and B-share listed companies in the current quarter;

(3) The companies with missing samples, discontinuities and outliers were eliminated. A total of 12037 samples were obtained. In order to prevent abnormal values of samples, all the sample data were processed with 1% tail reduction. The sample data came from WIND database, and the empirical test was carried out with the measurement software stata15.0.

3.3. Variable selection

(1) Interpreted variable

1) Enterprise leverage ratio *Lev*

The explained variable is the leverage ratio of the enterprise. According to the research of reference [16-18], ZEV is selected as the proxy index of the capital structure variable, and its calculation method is total liabilities/total assets.

(2) Core explanatory variable

1) Proportion of financial assets *Fah*

The proportion of financial assets is defined as the proportion of financial assets held by enterprises to total assets. This index is a stock allocation index, which is used to measure the static index of enterprise's preventive saving behavior. The propor-

tion of financial assets can describe the reservoir function of financial asset allocation behavior, that is, financial asset reserve can alleviate the adjustment cost and financial distress cost of enterprises. The calculation method of the proportion of financial assets is total financial assets/total assets.

Financial assets include monetary funds, held-to-maturity investments, transactional financial assets, derivative financial assets, available-for-sale financial assets, long-term equity investments, dividends receivable and interest receivable.

2) Financial profit ratio Fcp

The proportion of financial profits is defined as the proportion of corporate financial income to earnings before interest and tax. This index can reflect the preference degree of enterprises for capital market operation, and is mainly used to measure the allocation behavior of financial assets driven by profit-seeking motivation, that is, the allocation behavior of financial assets trading and holding in order to obtain high financial benefits. Among them, financial profit includes investment income, fair value change profit and loss and other comprehensive income.

(3) Control variable

1) Operating cash flow Ocf

Operating cash flow is defined as the ratio of operating cash flow to total assets, which reflects the cash flow ratio of business operations and can effectively reflect the liquidity of enterprises. The more operating cash flows allocated by a general enterprise, the more stable the operation and development of the enterprise, and the more stable the leverage ratio. The direction of the impact of operating cash flows on the leverage ratio of the enterprise is not predicted here.

2) Sales revenue $Xssr$

Sales income is defined as the ratio of business income to total assets, which is an index to measure business income and can measure the sustainable operation of enterprises. The higher the income of an enterprise, the greater the corresponding asset demand. At this time, the external financing gap of the enterprise is large, and it may be necessary to

Among them, Lev_{it} and Lev_{it-1} represent the capital structure at the end of the period and at the beginning of the period, and Lev_{it}^* represents the target capital structure. Therefore,

make up the financing gap through liabilities. Therefore, the higher the sales revenue, the higher the leverage ratio.

3) Proportion of tangible assets Tag

It reflects the asset quality of an enterprise and is an important reference index when measuring the credit qualification of an enterprise. The higher the proportion of tangible assets, the more assets that can be pledged, and the stronger the debt financing ability of the company. Therefore, the higher the proportion of tangible assets, the higher the leverage ratio.

4) Company size $Size$

The size of the company reflects the size of the enterprise, which is standardized by taking the natural logarithm here. It is generally believed that the size of a company is directly proportional to its financing ability, and large-scale enterprises generally have higher leverage ratio.

5) Sales revenue growth rate $Grow$

The growth rate of sales revenue measures the sustainable operation and growth of an enterprise, which is the seven key indicators for valuation by external investment institutions and an important indicator for measuring the external financing needs of an enterprise. The way that the growth rate of sales revenue affects the leverage ratio of enterprises is similar to that of sales revenue. Enterprises with high growth rate of sales revenue often have higher leverage ratio.

(4) Dummy variable

1) Virtual variable of property right nature PN

In this paper, virtual variables are set for the follow-up analysis, in which state-owned enterprises are assigned 1 and non-state-owned enterprises are assigned 0. The definition of property rights refers to the classification of enterprise ownership provided by Wind.

3.4. Model design method

Based on the previous discussion, this paper adopts the local adjustment model to investigate the influence of financial asset allocation on enterprise leverage ratio, and the design is as follows [19]:

$$Lev_{it} - Lev_{it-1} = \gamma (Lev_{it}^* - Lev_{it-1}) \quad (1)$$

$(Lev_{it}^* - Lev_{it-1})$ is the adjustment cost for enterprises to achieve the optimal target level. The adjustment coefficient γ determines the adjustment speed of the enterprise. The value range is [0,1], and γ is 1, indicating that the enterprise adjusts to the

target level in the current period; γ is 0, indicating that the adjustment cost of the enterprise is too high, and it is impossible to adjust the cost.

The target capital structure Lev_{it}^* cannot be

Among them, ρ is a constant term, x_{kit} is a virtual variable in which enterprise characteristic variables ζ_i and θ_t represent individual and time

directly observed, but it can be replaced by historical and industry average indicators [20]. With reference to [21-22], the target capital structure is linearly fitted with a series of variables that are expected to have an impact on the capital structure in theory:

$$Lev_{it}^* = \rho + \sum_k \beta_k x_{kit} + \zeta_i + \theta_t + v_{it} \tag{2}$$

effects respectively, and v_{it} is a random disturbance term. Substituting formula (2) for formula (1), we can get:

$$Lev_{it} = \alpha + \delta_0 Lev_{it-1} + \sum_k \delta_k x_{kit} + \eta_i + \lambda_t + \varepsilon_{it} \tag{3}$$

Among them, By contrast, this paper also estimates the following static models:

$$Lev_{it} = \rho + \sum_k \delta_k x_{kit} + \zeta_i + \theta_t + v_{it} \tag{4}$$

Obviously, there is no adjustment cost in this model, and the enterprise achieves the best result in the target capital. Therefore, in order to verify

hypotheses 1, 2 and 3 respectively, the models are set as follows:

$$Lev_{it} = \alpha + \delta_0 Lev_{it-1} + \Phi Fa_{it} + \sum_k \delta_k x_{kit} + \eta_i + \lambda_t + \varepsilon_{it} \tag{5}$$

$$Lev_{it} = \alpha + \delta_0 Lev_{it-1} + \Phi Fa_{it} * MP_t + \sum_k \delta_k x_{kit} + \eta_i + \lambda_t + \varepsilon_{it} \tag{6}$$

$$Lev_{it} = \alpha + \delta_0 Lev_{it-1} + \Phi Fa_{it} * EPU_t + \sum_k \delta_k x_{kit} + \eta_i + \lambda_t + \varepsilon_{it} \tag{7}$$

Among them, Fa stands for financial asset allocation, which includes two subdivision levels: financial asset holding share and financial channel profit. x_{kit} is the characteristic variable of the company, including operating cash flow, profitability, etc. EPU and MP represent economic policy uncertainty and monetary policy, respectively. In the model estimation, the focus is on the coefficient to be estimated, Φ , the influence of financial asset allocation on the leverage ratio of enterprises is $(\Phi_{MP/EPU})/(1-\gamma)$, η_i is the fixed effect of

enterprises, and λ_t is the fixed effect of time.

4. Descriptive statistics and analysis of test results

4.1. Descriptive statistic

Table 1 reports descriptive statistics of variables. Table 1 shows that, The mean values of Lev , Fah , Fcp are -0.3205, 2.0107 and 0.0639, respectively, the mean value of growth rate of sales revenue ($Grow$) is 1.3076, and the PN mean value of virtual variable of property rights is 2.6301.

Table 1 Results of descriptive statistics of variables

Variable	Sample size	Mean	Median	maximum value	Minimum value	Standard deviation
<i>Lev</i>	12037	-0.3205	-0.3002	0.0237	-0.1024	0.3621
<i>Fah</i>	12037	2.0107	2.1047	3.2014	1.3087	0.3392
<i>Fcp</i>	12037	0.0639	2.0306	2.01207	-2.0127	0.3071

<i>Ocf</i>	12037	3.0145	1.0052	0.3960	-2.0277	0.2214
<i>Xssr</i>	12037	1.1025	0.0371	1.1207	0.30674	0.1025
<i>Tag</i>	12037	0.0701	0.0691	3.3601	0.0363	0.7120
<i>Size</i>	12037	0.2230	1.2507	4.5029	1.2570	0.3607
<i>Grow</i>	12037	1.3076	3.0270	3.2104	1.2074	0.8210
<i>PN</i>	12037	2.6301	0.0741	2.0207	-0.3690	14.2017

4.2. Correlation analysis of variables

Table 2 reports the correlation coefficient of variables. Table 2 shows that, *Fah*, *Fcp*, *Ocf*,

Tag, *Size*, *Grow* and the correlation coefficient with *PN* at 1% level are: 0.1104, 0.0203, 0.3071, 0.0365, 0.0718, 0.0621, 0.0831, and -0.2071.

Table 2 Correlation coefficient matrix

Variable	<i>Lev</i>	<i>Fah</i>	<i>Fcp</i>	<i>Ocf</i>	<i>Xssr</i>	<i>Tag</i>	<i>Size</i>	<i>Grow</i>	<i>PN</i>
<i>Lev</i>	1.0000								
<i>Fah</i>	0.1104	1.0000							
<i>Fcp</i>	0.0203	0.0412	1.0000						
<i>Ocf</i>	0.3071	0.3201***	0.2011	1.0000***					
<i>Xssr</i>	0.0365	0.0671	0.003711	0.2014	1.0000				
<i>Tag</i>	0.0718	0.0424	0.1024	0.0633	0.0066	1.0000			
<i>Size</i>	0.0621	0.0714**	0.0201	0.0178**	-	0.0712	1.000		
<i>Grow</i>	0.0831	0.0208*	0.0360	0.2014	0.0521	0.0699***	0.0214	1.0000**	
<i>PN</i>	-	0.0418	0.0821	0.0147	0.0712	0.0257	0.0302	0.6022	1.0000*

Note: ***, ** and * are significant at the level of 1%, 5% and 10% respectively.

4.3. Empirical results and analysis

leverage ratio

4.3.1. Financial asset allocation and enterprise

Table 2 Financial asset allocation and enterprise leverage ratio

Variable	Share of financial assets	Financial profit channel	Share of financial assets and financial profit channels
<i>Lev</i>	0.3601	0.3025	0.2071
<i>Fah</i>	-0.3060	0.1407	0.3066
<i>Fcp</i>	0.0250	-0.2014	-0.2010
<i>Ocf</i>	0.1420	-0.3014	0.5027
<i>Xssr</i>	-0.0141	-0.104	-0.2033
<i>Tag</i>	-0.2251	0.1024	0.2072
<i>Size</i>	-0.014	0.3014	0.1083
<i>Grow</i>	-0.3021	-0.7735	0.5271
<i>PN</i>	-0.2104	0.6025	-0.3066

Table 2 reports the results of benchmark regression. In the financial asset share model, fixed effect model and GMM model are used to estimate. In the share of financial assets, the coefficient of financial assets (*Fah*) is -0.3060, which is significant at the statistical level of 1%, and the regression

coefficient of enterprise leverage ratio (*Lev*) is 0.3601, which indicates that there is still a long way to go before the capital structure reaches the target level, and the required dynamic adjustment speed is 0.2071, and the corresponding adjustment half-cycle is 2.71 years respectively.

The regression coefficient of the fictitious variable (PN) of property right nature is also significantly -0.2104 , and its effect on the leverage ratio of enterprises is 0.6025 , which indicates that the leverage ratio of enterprises will decrease by 0.6025 units for every unit increase in the financial channel profit rate, which is lower than that of the single financial profit channel model. Under the environment of increasing economic policy uncertainty, the negative relationship between financial channel profit and enterprise leverage ratio is also weakening, and the weakening extent is greater than that under the loose monetary policy.

4.3.2. Microscopic effect analysis



Figure 1 Year-on-year rate of return on assets of large enterprises and small and medium-sized enterprises

The reverse trend between the leverage ratio and return on assets of large enterprises, state-owned enterprises, small and medium-sized enterprises and non-state-owned enterprises reveals that there is a mismatch of funds in the enterprise sector in China, and most of the funds flow to the enterprise sector with low economic benefits, showing an abnormal phenomenon of "high leverage and low return". The specific performance is as follows: on the one hand, the debt of large state-owned enterprises is high, but the utilization efficiency of funds is low; On the other hand, many small and medium-sized non-state-owned enterprises with strong profitability are facing the problem of financing difficulties. The high leverage ratio of large state-owned enterprises has not brought corresponding cash flow, which has led to the financing difficulties of small and medium-sized private enterprises in disguise, thus forming a "crowding out effect" on small and medium-sized private enterprises.

Through the trend chart of year-on-year change rate of return on assets of large enterprises and small and medium-sized enterprises, state-owned enterprises and non-state-owned enterprises (Figure 1), it is not difficult to see that the debt of large enterprises and state-owned enterprises is high, but the profitability of assets has not been improved correspondingly. Small and medium-sized enterprises and non-state-owned enterprises are in a weak position in market competition. Although they have good profitability, they are hard to get financial support.

5. Conclusion and suggestion

5.1. Conclusion

In this paper, from the perspective of enterprise life cycle, according to the influence of financial asset allocation behavior on enterprise leverage ratio and its heterogeneity in enterprises with different property rights, and combining with theoretical analysis, the research hypothesis is put forward. According to the research needs, the benchmark regression model and cross-term model are set to verify hypothesis 1 and hypothesis 2. The benchmark regression model is used to analyze the influence of financial asset allocation behavior on the leverage ratio of enterprises, and the cross-term model is used to analyze the heterogeneity of the influence in enterprises with different property rights. The research draws the following conclusions:

(1) The negative correlation between the allocation of financial assets and the leverage ratio of

enterprises has been significantly weakened under the macro environment of rising economic policy uncertainty and loose monetary policy. First, the increase of economic policy uncertainty will increase the risk of capital market; Second, from the perspective of creditor's rights, loose monetary policy will lead to an increase in the level of bank lending, but it will also increase the financial market risk, and then inhibit the de-leverage of enterprises.

(2) From the perspective of debt maturity heterogeneity, long-term debt can promote inefficient investment, that is, it can aggravate the inefficient investment behavior of enterprises; There is a significant negative correlation between short-term debt and inefficient investment of enterprises, saying that short-term debt can inhibit inefficient investment of enterprises; For the heterogeneity of debt sources, the level of commercial credit is significantly negatively correlated with the level of inefficient investment of enterprises, which shows that commercial credit can also alleviate the inefficient investment of enterprises; There is a significant positive correlation between financial institution borrowing and inefficient investment, saying that financial institution borrowing can aggravate inefficient investment.

(3) The superposition effect of financing constraints makes more funds flow to large state-owned enterprises with lower financing constraints. Large state-owned enterprises have obvious capital "crowding out effect" on small and medium-sized private enterprises, and this "crowding out effect" has significant scale effect, which makes small and medium-sized private enterprises face an embarrassing situation of "financing difficulties" and "expensive financing".

5.2. Suggestion

(1) Improve the financial market, broaden the financing channels for small and medium-sized private enterprises, improve capital markets at different levels, increase financial support for small and medium-sized enterprises and private enterprises, and make structural adjustments by optimizing leverage, so that more funds and resources can flow to enterprises, industries and departments with good benefits and high returns.

(2) Improve corporate governance and improve investment efficiency. Enterprise managers need to improve their own corporate governance level, clearly locate different life cycle stages of enterprises, and adjust debt structure to adapt to the development of enterprises. Enterprises should establish a dynamic

mechanism to cope with the change of debt heterogeneity. When enterprises are in the growth and maturity stage, they should strengthen the mitigation effect of short-term debt and commercial credit on inefficient investment, give full play to the positive role of debt in regulating corporate governance, reducing agency costs and improving inefficient investment, and promote enterprise development.

(3) We must seize the favorable opportunity to deepen the reform of state-owned enterprises and develop the mixed ownership economy. The current reform of mixed ownership economy in state-owned enterprises is helpful to break the vertical industrial structure boundary between state-owned enterprises and private enterprises, and weaken the asymmetric influence of monetary policy on the leverage ratio of state-owned enterprises and private enterprises.

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