

An Empirical Study on Working Capital Management Strategy and Business Performance of Food Enterprises

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Abstract: Working capital is the blood of the survival of enterprises, and the management of working capital is an important part of the financial management of enterprises. This paper selects the financial data of 97 listed food companies from 2015 to 2019 as the research sample to explore the relationship between working capital management strategy and business performance of food enterprises. The results of empirical research show that the relatively loose working capital investment strategy is in line with the characteristics of food industry and can bring higher profits to enterprises. There is a significant positive correlation between aggressive working capital financing strategy and business performance. In view of the current situation of working capital management of food enterprises, this paper proposes to strengthen the operation capacity of assets, improve the turnover rate of current assets, control the scale of short-term borrowing, and increase the use of commercial credit.

Keywords: Working capital management strategy; Food enterprises; Current assets; Current liabilities

1. Introduction

The efficient management and utilization of working capital is the prerequisite for enterprises to operate well and develop sustainably. Food is the paramount necessity of the people. Food industry is the pillar industry of China's economic development and is closely related to people's lives. With the increasing material and cultural needs of the people, the management requirements of food enterprises are more and more strict. Working capital management has an important impact on the development of food enterprises. This paper takes listed food companies as the research object, discusses the relationship between working capital management strategy and business performance of enterprises, and tries to explore ways to improve working capital management level of food enterprises suitable for China's national conditions, so as to provide data support and research experience for promoting the performance of food enterprises.

2. Working Capital Management Strategy

Working capital includes current assets and current liabilities. Working capital management strategy includes

working capital investment strategy and working capital financing strategy. Working capital investment strategy refers to the company's holding and use of working capital. The appropriate scale of current assets can balance the profit and risk of the company's production and operation. Working capital investment strategy is mainly divided into tight type and loose type. A tight working capital investment strategy means that the company holds a small amount of current assets and has a relatively low ratio of current assets. The tight working capital investment strategy is characterized by the coexistence of high return and high risk, which is suitable for companies with strong risk tolerance. The loose working capital investment strategy is exactly the opposite of the tight strategy. The liquidity of the company's assets is high, that is, the ratio of current assets is high. Loose working capital investment strategy is characterized by low risk and low return.

Working capital financing strategy refers to the way in which a company's working capital is sourced. The company needs to find a balance between risk and profit and develop a reasonable financing strategy. Working capital financing strategy is divided into radical type and conservative type. The radical working capital financing strategy means that the current debt ratio in the corporate financing structure is higher, and it is a financing strategy with higher income and risk. When the current liabilities in the financing structure of the company are small, the company adopts a conservative working capital financing strategy. Conservative financing strategies are associated with low risk and low return.

3. Literature Review

Since Manual Jose et al. (1996) first found that there is a significant relationship between working capital management efficiency and corporate performance, most subsequent research results show that working capital management is significantly correlated with corporate performance. Sonia B et al. (2014) took non-financial companies in the UK as research objects and studied the relationship between working capital management and corporate performance of sample companies. The empirical research results showed that there was an inverted U-shaped relationship between the two, that is, there was an optimal investment level that could make a company performs best. Janina J (2017) studied the

working capital management of the Construction industry in Europe. The research results showed that the working capital management strategies of companies were not unchanged, but different working capital management strategies were adopted in different periods^[1].

Yuan Guangcai (2008) took 47 listed electric power companies in China as samples, and the empirical results found that current assets/long-term assets were positively correlated with enterprise performance, while current liabilities/long-term liabilities were negatively correlated with enterprise performance, but not significantly^[2]. Liu Jilu (2011) took the listed companies in China's non-ferrous metal industry as the research object and found that there is a strong correlation between the operating performance of non-ferrous metal enterprises and working capital management, in which the operating performance is significantly positively correlated with the ratio of current assets, and negatively but not significantly correlated with the ratio of current liabilities^[3]. He Hongwei and Li Zhumei et al. (2014) took listed companies in China's information transmission, software and information technology service industries as research objects and found that there is a strong correlation between business performance and working capital management, and business performance is significantly positively correlated with the proportion of current assets, while negatively but not significantly correlated with the proportion of current liabilities^[4]. Wang Xiuping and Gu Yutong (2016) took gem companies in Shandong province as the research object and found that the working capital management strategy of the company had a significant impact on corporate performance, and the liquidity ratio was negatively correlated with corporate performance^[5]. Li Yan (2017) took 140 listed companies on gem as the research object, and the research data found that after listing, enterprises gradually adopted the strategy of tight working capital investment and the strategy of aggressive working capital financing^[6].

In summary, scholars mostly use empirical methods to test the relationship between working capital management and corporate performance, and quantify the diversification of working capital management indicators. Due to differences in research samples, research time, quantitative indicators, macro and micro economy, there are certain differences in research results.

4. Research Samples and Sources

In this paper, the financial data of food listed companies from 2015 to 2019 are taken as the research sample, and the data are screened according to the following principles: the samples without complete data for five consecutive fiscal years are excluded, the listed companies that have been ST are excluded, and the samples with abnormal data are finally excluded. Through screening, 97 eligible food listed companies were finally determined as the research objects, with a total of 485 sample data. All sample data are from the stock exchange website. EXCEL and SPSS26.0 statistical software were used to calculate and organize the data.

5. Time Series Dynamic Analysis

5.1. Dynamic analysis of time series of working capital investment strategy in food enterprises

5.1.1. Analysis of liquid assets ratio of food enterprises

The current asset ratio, which is the proportion of current assets to total assets, is used as a proxy variable for the working capital investment strategy. If the index is low, it shows that the enterprise adopts the strategy of shrinking working capital investment; if the index is on the high side, it shows that the enterprise takes a loose working capital investment strategy. This paper first calculates the annual current asset ratio of 97 sample companies, and then carries out the arithmetic average to get the annual mean of the current asset ratio of the sample companies and the time series trend of the current asset ratio in 5 years, as shown in Table 1.

Table 1: Time series dynamic analysis of liquid assets ratio of food enterprises

	2015	2016	2017	2018	2019
Current asset ratio	48.9%	49.2%	50.9%	50.3%	50.2%
Fixed base index	100%	100.4%	103.9%	102.6%	102.4%

Table 1 show that the current asset ratio of food enterprises from 2015 to 2019 was basically maintained between 48.9% and 50.9%. The current asset ratio was the highest in 2017, reaching 50.9%. The current asset ratio was the lowest in 2015, also 48.9%, and the average current asset ratio was 49.9%. In the past five years, the current asset ratio of food enterprises has remained stable on the whole, showing a slight upward trend, indicating that food enterprises tend to adopt a stable and relatively loose working capital investment strategy. The reason why food enterprises adopt relatively loose working capital investment strategy may be due to the particularity of the food industry. On the one hand, enterprises need to consume a certain amount of monetary funds to purchase raw materials and maintain daily business activities; on the other hand, enterprises also need more cash flow support in production, sales and other links.

5.1.2 Analysis of internal structure of liquid assets in food enterprises.

After a preliminary understanding of the basic situation of the working capital investment strategy of food enterprises, it is necessary to further analyze the internal structure of the current assets of enterprises, and obtain the data in Table 2 below.

Table 2: Time series analysis of the current assets of food enterprises

	2015	2016	2017	2018	2019
Monetary capital/current assets	35.6%	36.9%	35.8%	35.1%	33.6%
(Notes receivable +accounts	13.3%	13.7%	13.7%	14.4%	13.1%

receivable)/Current assets					
Inventory/current assets	31.5%	30.7%	29.9%	29.6%	30.9%
Other items/current assets	19.5%	18.7%	20.7%	20.9%	22.4%

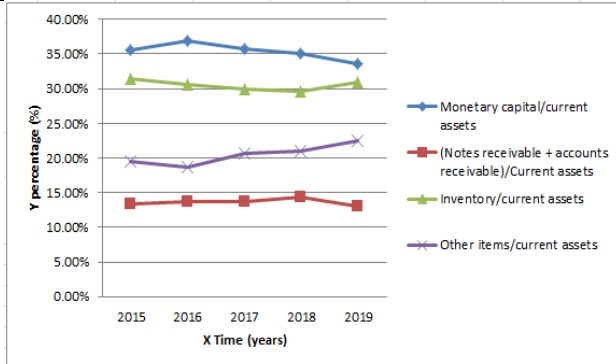


Figure 1: The trend chart of the proportion of items in the current assets of food enterprises

As shown in Table 2 and Figure 1, on the whole, monetary capital and inventory are important components of current assets, which is consistent with the characteristics of food enterprises. In recent years, the average proportion of monetary funds in food enterprises reached 35.4%. From the trend, enterprises began to fine-adjust the scale of monetary fund's holding, and the proportion of monetary funds in current assets showed a gradual downward trend. And from 2015 to 2018, the food company notes receivable and accounts receivable account for current assets ratio is on the rise, the company to expand sales, moderate ease credit conditions, may be due to the economic growth is slowing, economic downward pressure is big, the company by loosening credit strategy to achieve sales growth, but with the increase of notes receivable and accounts receivable, Receivables may generate bad debts and affect a company's profitability. As for the proportion of inventory in current assets, the average value has reached 30.5% in recent years, showing a slight decreasing trend. On the one hand, enterprises maintain a relatively stable inventory; on the other hand, they are improving the realization speed of inventory and speeding up capital withdrawal.

5.2. Time series dynamic analysis of food enterprise working capital financing strategy

5.2.1 Food enterprise current debt ratio analysis.

Current liability ratio refers to the proportion of current liabilities to total liabilities. This paper uses the current liability ratio index as a proxy variable of enterprise working capital financing strategy. If the ratio of current liabilities is high, it shows that the enterprise prefers to borrow current liabilities to meet the needs of current assets, and it takes a radical working capital financing strategy. If the current debt ratio is low, it shows that the enterprise prefers to borrow long-term debt or equity financing to meet the needs of current

assets, and adopts the strategy of stable working capital financing. This paper first calculates the annual current debt ratio of 97 sample companies, and then carries out the arithmetic average to get the annual mean of current debt ratio of sample companies and the time series trend of current debt ratio in 5 years, as shown in Table 3 below.

Table 3: Time series dynamic analysis of current debt ratio of food enterprises

	2015	2016	2017	2018	2019
Current liabilities/total liabilities	85.9%	85.1%	84.5%	84.7%	82.5%
Fixed base index	100%	99.1%	98.4%	98.6%	93.1%

Table 3 shows that the current debt ratio of food enterprises from 2015 to 2019 was maintained between 82.5%-85.9%. The current debt ratio in 2015 was the highest, reaching 85.9%, and the current debt ratio in 2019 was the lowest, also 82.5%. The overall average current debt ratio was 84.5%. In the past five years, the current debt ratio of food enterprises on the whole remained high and stable, and showed a gradual downward trend, indicating that food enterprises mainly adopt radical working capital financing strategy. Food enterprises to take radical type of working capital financing strategy can reduce financial cost, but with a certain financial risk. Compared with the previous average data of current asset ratio, food enterprises have too much current debt in recent years. The current debt ratio is nearly 1.7 times that of current asset ratio, which means that not only all current assets but also some non-current assets of food enterprises are financed through current liabilities, which is very easy to produce financial crisis.

5.2.2 Analysis on the internal structure of current liabilities of food enterprises.

After understanding the basic situation of food enterprise working capital financing strategy, we need to further analyze the internal structure of current liabilities, and get the data in table 4 below.

Table 4: Time series analysis of the current liabilities of food enterprises

	2015	2016	2017	2018	2019
Short-term borrowings/current liabilities	35.5%	31.1%	30.1%	29.2%	27.6%
(Accounts payable + notes payable)/Current liabilities	26.9%	27.8%	29.4%	29.1%	31.1%
Other items/current liabilities	37.5%	41.2%	40.5%	41.7%	41.3%

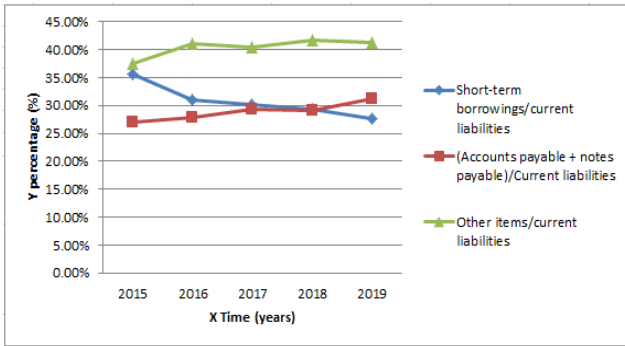


Figure 2: Proportion trend chart of food enterprises' current liabilities

As shown in Table 4 and Figure 2, short-term borrowings, accounts payable and notes payable are important components of current liabilities. The average proportion of short-term borrowings is 30.7% and the average proportion of the sum of accounts payable and notes payable is 28.9%, and the sum of the three is 59.6%. In addition, we have seen, the food industry in recent years of short-term loans accounted for the proportion of current liabilities is on the decline, the enterprise of accounts payable and notes payable account for current liabilities ratio is on the rise, means that enterprises gradually reduce the dependence on short bank lending, increase the commercial credit financing scale, on the one hand, reduces the enterprise financial cost and financial risk, on the other hand can strengthen enterprise inventory management, Improve corporate performance. Combined with the previous food enterprises to adopt a more aggressive working capital financing strategy, it shows that food enterprises have been gradually adjusting and controlling financial risks, increasing the financing strength of interest-free commercial credit, and reducing the financial risks of enterprises.

5.2.3. Dynamic analysis of food enterprise performance time series

Corporate performance refers to the operating income of a company in a period of time. Corporate performance is mainly measured by such indicators as return on total assets (ROA) and return on equity (ROE). Return on equity index comprehensively reflects a company's profitability, operating capacity and solvency, but it is easily manipulated by a company. Return on total assets (ROA) evaluates the ability of a company to make profit from its total assets and reflects the efficiency and profitability of its asset management.

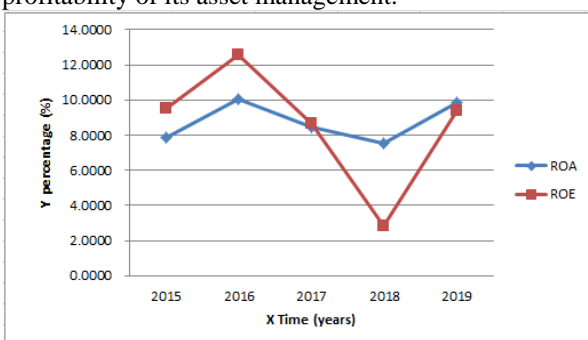


Figure 3: Dynamic time series of performance indicators of food enterprises

As can be seen from Figure 3, the change trend of return on equity and return on total assets of food enterprises is basically the same, but the former is more volatile than the latter. According to the economic Operation Report of China's Food Industry in 2016, food enterprises actively adapt to the new normal of economic development, maintain balanced and healthy development and accelerate the pace of transformation and upgrading under the promotion of rigid demand and consumption upgrading. In 2016, the main business revenue grew by 5.4% and the profit grew by 2.9%. As shown in Figure 1, in the past five years, the return on total assets and return on equity in 2016 were the highest, reaching 7.9% and 9.5% respectively. Due to the downward pressure on the economy, according to the statistical data of China's Food Industry Economic Operation Monthly Report, the cumulative loss of the food industry increased by 13.6% at the end of December 2017, and the cumulative loss of the food industry increased by 48.6% at the end of December 2018, and the performance of food enterprises declined. Therefore, the two performance indicators showed a downward trend in 2017 and 2018, and the return on equity in 2018 was only 2.9%. In 2019, thanks to the work of restructuring, promoting transformation and increasing efficiency, the operating income of the national food industry increased by 4.2% and the total profit increased by 9.1%.

6. Empirical Analysis

6.1. Empirical Hypothesis

Due to the particularity of the industry, food enterprises need a large amount of financial support in the process of purchasing materials, producing products and selling products. As can be seen from the rising trend of the ratio of current assets of food enterprises in the past five years, this requires enterprises to make full use of their own funds, reduce idle funds and improve asset turnover efficiency. The higher the ratio of current assets, the greater the proportion of current production in the total assets of the enterprise, and the lower the operating risk of the enterprise. The strong liquidity of current assets can improve the solvency of enterprises, but the weak profitability will reduce the performance of enterprises. On the contrary, the lower the current assets ratio is, the better the profitability of the enterprise, but the higher the operating risk of the enterprise. Therefore, it is proposed that:

Hypothesis 1: The ratio of current assets is negatively correlated with corporate performance

According to the current situation of working capital financing strategies of listed food companies, the average current debt ratio of food companies during 2015-2019 is between 82% and 86%, and the important components of current debt are short-term borrowing, notes payable and accounts payable, which belong to non-interest or low-interest financing. The higher the current debt ratio is, the more radical the working capital financing strategy of

the enterprise is, it can save the financing cost while expanding the capital space, so as to improve the operating performance. On the contrary, the lower the current debt ratio is, the more conservative the working capital financing strategy of the enterprise will be. If the current debt is insufficient, the enterprise will fill it with interest-bearing debt or high-interest debt, and the extra capital cost will reduce the performance of the enterprise. Therefore, it is proposed that:

Hypothesis 2: Current debt ratio is positively correlated with enterprise performance.

6.2. Variable selection and description

6.2.1. Dependent variable

According to the previous analysis, return on Total Assets (ROA) evaluates a company's ability to make profit from total assets, reflecting the management efficiency and profitability of a company's assets. This paper selects this index to quantify corporate performance.

6.2.2. Independent variable

Based on the above analysis, this paper uses current assets ratio (CAR) as an independent variable to measure the working capital investment strategy. The calculation method is current assets/total assets. The current liabilities ratio (CLR) was used as the independent variable to measure the working capital financing strategy, which was calculated as current liabilities/total liabilities.

6.2.3. Control variables

There are many factors affecting profitability. In addition to the first two independent variables, in order to improve the accuracy of data analysis, this paper takes two indicators of company size and company capital structure as control variables^[7].

It is generally believed that corporate size is positively correlated with corporate performance. The larger the company is, the higher its market position is. It is a well-known enterprise in the industry with high product visibility, strong market competitiveness, and a relatively strong position in the business transactions with other enterprises, so the company's performance is also higher. In this paper, the natural logarithm of total assets is used to measure the SIZE of a company.

In theory, the equity structure in the capital structure of a company has a positive effect on the operating efficiency of an enterprise, and a reasonable increase in the proportion of equity structure is conducive to improving the operating efficiency of an enterprise. On the contrary, the creditor's right structure in the capital structure has a negative effect on the enterprise's operating efficiency. The high debt ratio makes the business performance of the enterprise decline and restrains the growth of the company. It is generally believed that corporate capital structure is negatively correlated with corporate performance. In this paper, the asset-liability ratio is used to measure the company's capital structure (LEV).

See Table 5 for specific variable definitions and expected symbols.

Table 5: Table of variable definitions

	Variable name	Variable symbol	Calculation method and definition	Expected symbol
Dependent variable	Corporate performance	ROA	Net profit/total assets	
Independent variable	Current asset ratio	CAR	Current assets/total assets	-
	Current liability ratio	CLR	Current liabilities/total liabilities	+
Control variables	Company size	SIZE	LN(Total assets)	+
	Capital structure	LEV	Total liabilities/total assets	-

6.3. Regression model construction

Based on the above assumptions and the setting of relevant variables, the concrete model of empirical analysis in this paper is as follows:

$$ROA = \beta_0 + \beta_1 CAR + \beta_2 CLR + \beta_3 SIZE + \beta_4 LEV + \varepsilon$$

Where, β_0 is a constant term; $\beta_1 \sim \beta_4$ are the coefficients of each variable; ε is the random interference item.

6.4. Descriptive analysis of variables

Overall descriptive analysis was performed on all variables of the research sample, and the statistical results were shown in Table 6:

Table 6: Overall descriptive analysis of variables

	Mean value	Maximum value	Minimum value	Standard deviation
Corporate performance (ROA)	8.76	67.60	-183.98	13.63
Current asset ratio (CAR)	49.91	92.02	5.13	16.65
Current liability ratio (CLR)	84.16	100	12.61	15.42
Company size (SIZE)	21.74	24.91	18.88	1.12
Capital structure (LEV)	0.37	0.99	0.03	0.19

As can be seen from Table 6, the standard deviation of the return on total assets, current asset ratio and current debt ratio of food enterprises is relatively large, which indicates that the return on total assets of food enterprises adopting different working capital strategies are still quite different. Similarly, the ratio of current assets and current liabilities of food enterprises with different return on total assets are also significantly different, that is, working

capital management strategies have different effects on corporate performance. However, the standard deviation of company size and capital structure is smaller which indicates that some large companies and high debt companies do not have a good working capital strategy management.

6.5. Correlation analysis

Table 7: Variable correlation analysis

variable	ROA	CAR	CLR	SIZE	LEV
ROA	1				
CAR	0.051	1			
CLR	0.105*	0.116*	1		
SIZE	-0.031	-0.040	-0.099*	1	
LEV	-0.332**	-0.188**	-0.002	0.316**	1

Note: scores of ** and * indicate significant at the significance level of 5% and 10%

As shown in Table 7, the correlation coefficients among the variables are small and less than 0.7, indicating that there is no multicollinearity among the variables. In addition, correlation analysis also helps us preliminarily test whether the above hypothesis is established. Both current asset ratio and company size have little relationship with corporate performance, but current debt ratio is significantly positively correlated with corporate performance. The larger current debt ratio is, the higher corporate performance will be. Capital structure has a significant negative correlation with corporate performance. The more debt a company has, the weaker its profitability will be.

6.6. Linear regression analysis

The correlation analysis is only to help us preliminarily examine the influence of the above factors on the performance of food enterprises. In order to more comprehensively control the interaction between variables and investigate the relationship between working capital management strategy and enterprise performance, multiple linear regression analysis is required for the data. The regression results are shown in Table 8 below.

Table 8: Results of multiple linear regressions

	Coefficient	T value	VIF
constant	-14.069	-1.131	
CAR	-0.023	-0.648	1.052
CLR	0.103	2.711**	1.026
SIZE	1.169	2.125*	1.124
LEV	-27.112	-8.043**	1.153
Adjusted R ²		0.123	
F		17.947***	
D-W		1.906	

Note: scores of ***, ** and * indicate significant at the significance levels of 1%, 5% and 10%

According to the results of multiple regressions in Table 8, it can be concluded that:

$$ROA = -14.069 - 0.023 \times CAR + 0.103 \times CLR + 1.169 \times SIZE - 27.112 \times LEV$$

The adjusted judgment coefficient R² in Table 8 is 0.123, that is, this regression model can explain the reason for the change of 12.3% of total return on assets of enterprise performance. The model passes the F-value test, and the d-W value is near 2, indicating that the model does not exist autocorrelation, and the VIF values are all near 1, indicating that there is no collinearity problem among variables in the model, and the model is of high quality.

Although the current asset ratio of food companies is negatively correlated with corporate performance, it does not pass the significance test, indicating that hypothesis 1 is not valid, that is, the current asset ratio is not significantly negatively correlated with corporate performance, that is, the loose working capital investment strategy may also bring high returns to food companies, which should be related to the characteristics of the food industry. With the increase of current liabilities of food companies, corporate performance also increases, and the significance level reaches 5%. Hypothesis 2 is established, current liabilities ratio is positively correlated with corporate performance, that is, aggressive working capital financing strategy can improve corporate profitability.

7. Research Conclusions

Food enterprises are an important part of economic development. With the increasing material and cultural needs of the people, the management requirements of food enterprises are more and more strict. Working capital management is an important part of enterprise financial management. Working capital management has an important impact on the development of food enterprises. This paper selects the financial data of 97 listed food companies from 2015 to 2019 as the research sample, discusses the relationship between the strategic management of working capital and business performance of food enterprises, and tries to explore the methods to improve the working capital management level of food enterprises suitable for China's national conditions, so as to provide data support and research experience for promoting the performance of food enterprises.

The empirical research results show that: On the one hand, due to the particularity of the food industry, enterprises in procurement, production, sales and other links, working capital circulation is more frequent, enterprise current assets need to maintain a stable level, so food enterprises generally adopt a loose working capital investment strategy, that is, the enterprise's monetary capital and inventory scale is large. The relatively loose working capital investment strategy is in line with the characteristics of the food industry, so it will also bring higher profits to the enterprise, that is, the ratio of current assets does not show a significant negative correlation with corporate performance. But it is worth noting that the flow of food enterprise assets increased in

recent years, the enterprise needs to strengthen the inventory management, production management, accounts receivable management and sales management, constantly improve the asset turnover, improve the efficiency of the use of the assets. On the other hand, food enterprises adopt aggressive working capital financing strategy can improve corporate profitability, that is, there is a significant positive correlation between current debt ratio and corporate performance. Food enterprises adopt radical working capital financing strategy mainly reflects the combination of short-term borrowing and commercial credit. In recent years, food enterprises gradually reduce their dependence on short-term bank loans and increase the scale of commercial credit financing. On the one hand, it reduces the financial cost and financial risk of enterprises, on the other hand, it can strengthen inventory management and improve enterprise performance. The current debt ratio of food enterprises should also be gradually reduced, so that the enterprise's asset structure and capital structure form consistency, prevention and control of financial risks.

References

- [1] Z.Q. Wang; Y.M. Pang; J.Q. Sun. Review and prospect of working capital Management research at home and abroad. *Accounting Research* **2007**, (02), 85-90.
- [2] G.C. Yuan; J. Chen; X.X. Yang; Z.A. Gu. An empirical study on the structure of working capital and firm performance of listed electric power companies. *Communication of Finance and Accounting* **2008**, (09), 93-96.
- [3] J.L. Liu. An empirical study on working capital management and business performance: A case study of nonferrous Metals industry". *Journal of Lanzhou College of Commerce* **2011**, (01), 15-20.
- [4] H.W. He, Z.M. Li. An empirical study on working capital management and business performance: A case study of information transmission, software, and information technology service industries. *Business Accounting* **2014**, (11), 36-38.
- [5] X.P. Wang, Y.T. Gu. The Correlation between Working capital Management and Corporate Performance: A Case study of Gem listed companies in Shandong Province. *Friends of Accounting* **2016**, (15), 31-35.
- [6] Y. Li. Empirical Analysis of Working Capital Management Strategy of Gem Listed Companies. *Business Accounting* **2017**, (01), 22-25.
- [7] J. Xiang. Working capital management research on the influence of corporate performance. *Anhui university of finance and economics*, **2018**.