



**ANALYZING THE IMPACT OF SHANXI FENJIU ON CASH FLOW  
RISK**

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## ANALYZING THE IMPACT OF SHANXI FENJIU ON CASH FLOW RISK

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Management

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**Title:** Analyzing the Impact of Shanxi Fenjiu on Cash Flow Risk

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### Abstract

The purpose of this study is to whether the internal and external value chain of Shanxi Fenjiu has a significant positive impact on the cash flow risk. As an old brand Baijiu enterprise, Shanxi Fenjiu is facing substantial financial problems. The four objectives of this study are: 1) To clarify that the internal value chains of Shanxi Fenjiu have a significant positive impact on cash flow risk; 2) To identify that the external value chains of Shanxi Fenjiu indirectly affect cash flow risk through insufficient liquidity.

This study examine the cash flow risks of various links in the value chain of Shanxi Fenjiu from the perspective of the value chain, and proposes corresponding countermeasures. The main theory of Shanxi Fenjiu is based on the capital cycle theory from the perspective of the value chain, which is combined with the value chain theory and enterprise risk management theory to lay a theoretical foundation. Then, using mixed analysis method, qualitative and quantitative analysis are applied, starting from the perspective of the internal and external value chains of Shanxi Fenjiu (independent variables), analyzing the impact of internal and external factors of the value chain are analyzed, including insufficient funds, product problems and after-sales service. External investment failures, and policies to verify whether there is a cash flow risk (dependent variable) that affects the company. The research results found that based on the assumptions made in this study, the indirect impact of investment failure is caused by insufficient operating funds on cash flow risk. Indicates a direct relationship between variables and their mutual influence. If cash flow is fully managed, it will create value for the enterprise. This study will provide more evident and reference for other researchers, and more theoretical reference for the cash flow risk management and control of Chinese Baijiu.

**sentence**

**Keywords:** value chain, cash flow risk, cash flow, baijiu industry

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## Declaration

*I, Zhang ShuYan, hereby certify that the work embodied in this independent study entitled “Research on cash flow risk management of shanxi Fen Liquor from the perspective of value chain” is result of original research and has not been submitted for a higher degree to any other university or institution.*

*Zhang ShuYan*  
.....  
(Zhang ShuYan)  
Apr 8, 2023



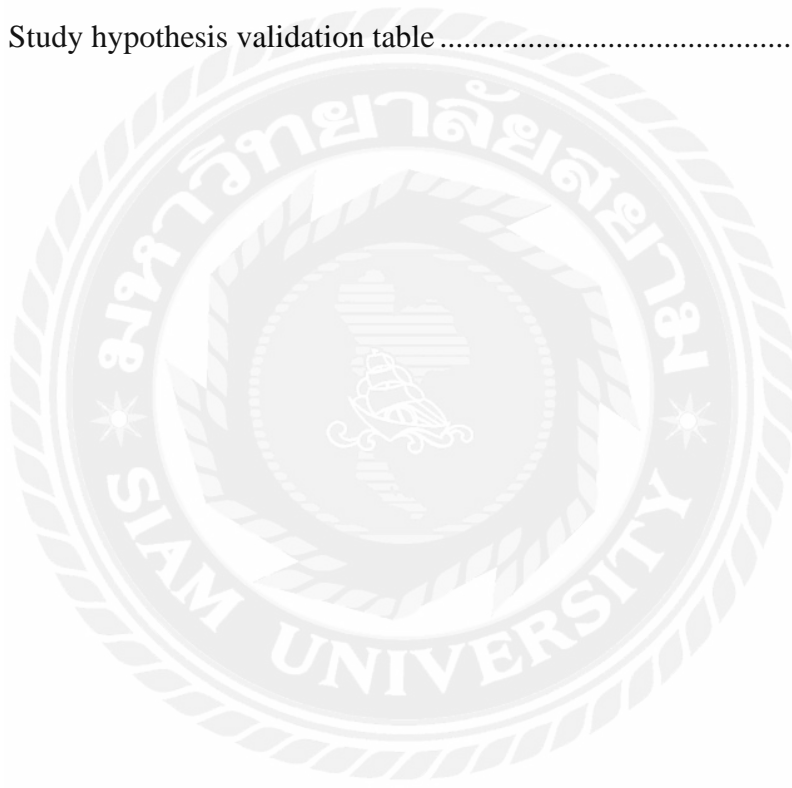
# CONTENTS

ABSTRACT.....	III
ACKNOWLEDGEMENTS.....	IV
TABLE CONTENTS.....	VIII
FIGURE CONTENTS.....	IX
Chapter 1 Introduction.....	1
1.1 Background of the Study.....	1
1.2 Problem of the Study.....	6
1.3 Research Questions.....	6
1.4 Objectives of the Study.....	7
1.5 Significant of the Study.....	8
1.5.1 Theoretical significance.....	8
1.5.2 Practical significance.....	8
Chapter 2 Literatures Review.....	9
2.1 Introduction.....	9
2.2 Literature Reviews.....	9
2.2.1 Value chain.....	9
2.2.2 Cash flow risk.....	10
2.2.3 Baidu industry.....	11
2.2.4 Cash flow.....	11
2.3 Research Relevant.....	12
2.4 Theory of Reviews.....	13
2.4.1 Capital Cycle Theory of Reviews.....	13
2.4.2 Value Chain Theory of Reviews.....	14
2.4.3 Enterprise risk management theory of Reviews.....	14
2.5 Conceptual Framework.....	16
2.6 Terms and Definition Used in This Study.....	16
Chapter 3 Research Methodology.....	18
3.1 Research Method.....	18

3.2 Research Design.....	18
3.3 Population and Sampling .....	20
3.4 Sample Size.....	20
3.5 Data Collection .....	21
3.6 Data Analysis .....	21
Chapter 4 Result of the Study .....	23
4.1 Introduction.....	23
4.2 Description of statistical variables .....	23
4.3 Reliability analysis of the scale.....	24
4.4 Correlation analysis .....	25
4.5 Discussion .....	26
4.5.1 Lack of working capital .....	26
4.5.2 Production costs are high and unreasonable .....	26
4.6 Results of the Study .....	26
Chapter 5 Conclusion and Recommendation.....	29
5.1 Conclusion .....	29
5.2 Recommendation .....	30
5.3 Further Study .....	32
Reference .....	34
Appendix.....	39
Appendix A:.....	39
Appendix B: .....	44

## TABLE CONTENTS

TABLE 1-1 Data of assets and liabilities of Shanxi Fenjiu Group from 2016 to 2021.....	5
TABLE 2-1 Porter's value chain model.....	14
TABLE 4-1 Table of the results of the descriptive analysis.....	24
TABLE4-2 Reliability analysis.....	24
TABLE 4-4 Table of results of correlation analysis.....	25
TABLE 4-5 List of controlled assets of Shanxi Fenjiu Group in 2017-2021 .....	27
TABLE 4-6 Study hypothesis validation table .....	28





## FIGURE CONTENTS

FIGURE 1-1 Production statistics of Chinese liquor in 2017-2021 .....	2
FIGURE 1-2 Statistical of revenue and profit of Chinese liquor enterprises in 2017-2021 .....	3
FIGURE 1-3 Distribution of brands in Chinese liquor industry .....	4
FIGURE 2-1 Model used as a guideline for this research .....	14



# Chapter 1

## Introduction

### 1.1 Background of the Study

Baijiu, a unique kind of liquor in China, is known as the quintessence of China. It has been thousands of years since its birth. The development of Baijiu industry is the product of China's socioeconomic development to a particular stage. And Baijiu industry is a very complex product system, which includes high-end Baijiu such as Guojiao 1573, Baijiu with a price of 100 yuan, and Baijiu with a higher price after consumption upgrading ( Baiju et al, 2022). It reflects consumers' demand for Baijiu quality, brand, price, grade and other aspects from different fields and angles at different price levels.

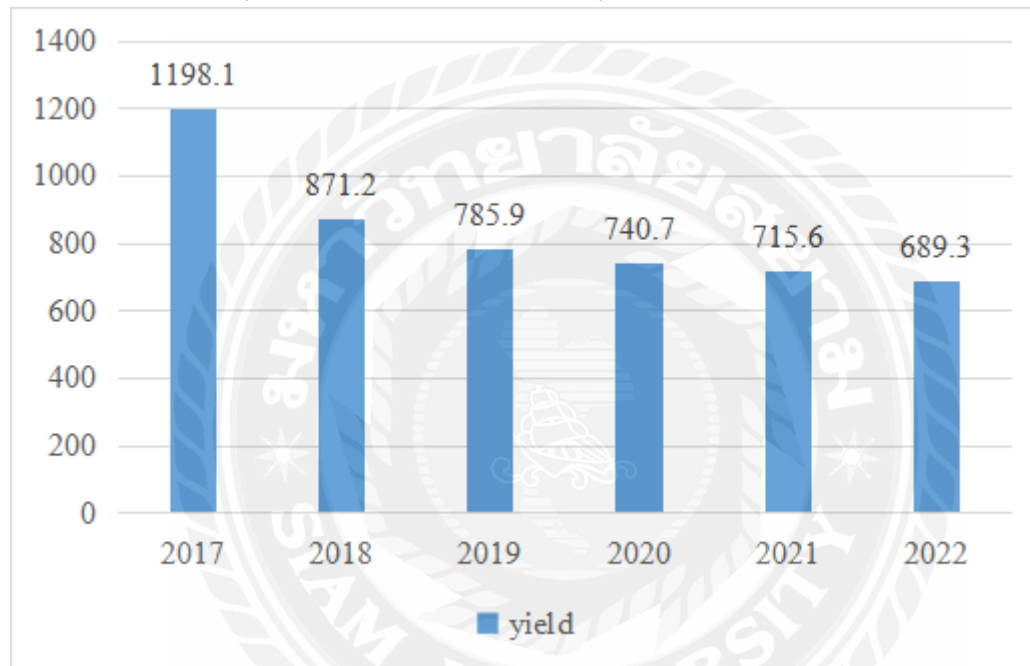
At the same time, with the rapid development of China's economy and the improvement of people's living standards, consumption upgrading will continue to occur for a long time in the future. Therefore, consumers' demand for good, famous, and brand wines will continue to increase. In this situation, significant enterprises should seek new development strategies and strategic measures to meet the changing needs of consumers.

After the golden period of ten years, the development environment of the Baijiu industry has undergone tremendous changes, and enormous difficulties have been placed in front of many Baijiu enterprises. Especially after 2012, policies such as strict inspection of three official consumption, national prohibition of alcohol, and prohibition of price monopoly have been launched ( Tummala & Schoenherr, 2011). The Baijiu industry has been severely impacted, political and commercial consumption has decreased significantly, and the macro environment of the Baijiu industry has undergone profound changes, leading to a significant decline in the industry's growth rate. The growth of the industry is sluggish. In 2012, the output of Chinese Baijiu was 8.132 million kiloliters, down 3.8% yearly. Affected by the anti-corruption storm and the downturn in the market environment, the industry's growth rate continued to decline to 3.7% in 2013, and only 2.1% in 2014 (Baiju et al, 2022). As a traditional industry, the Baijiu industry is also facing many challenges, such as consumption upgrading and overcapacity, intensified market competition, fragmentation of Baijiu enterprises' sales channels, and increased costs caused by enterprise-scale expansion (Kerr, 2006). Therefore, clarifying the strategic direction and focusing when the overall environment becomes grim is necessary. Although each enterprise has its own resources and capabilities, only by forming its own core competitiveness can it maintain its dominant position in the market .

The object of this study, Shanxi Fenjiu, as an old liquor enterprise, is also facing substantial financial problems: the operating profit has declined, the accounts receivable and inventory have increased significantly, the asset-liability ratio has been

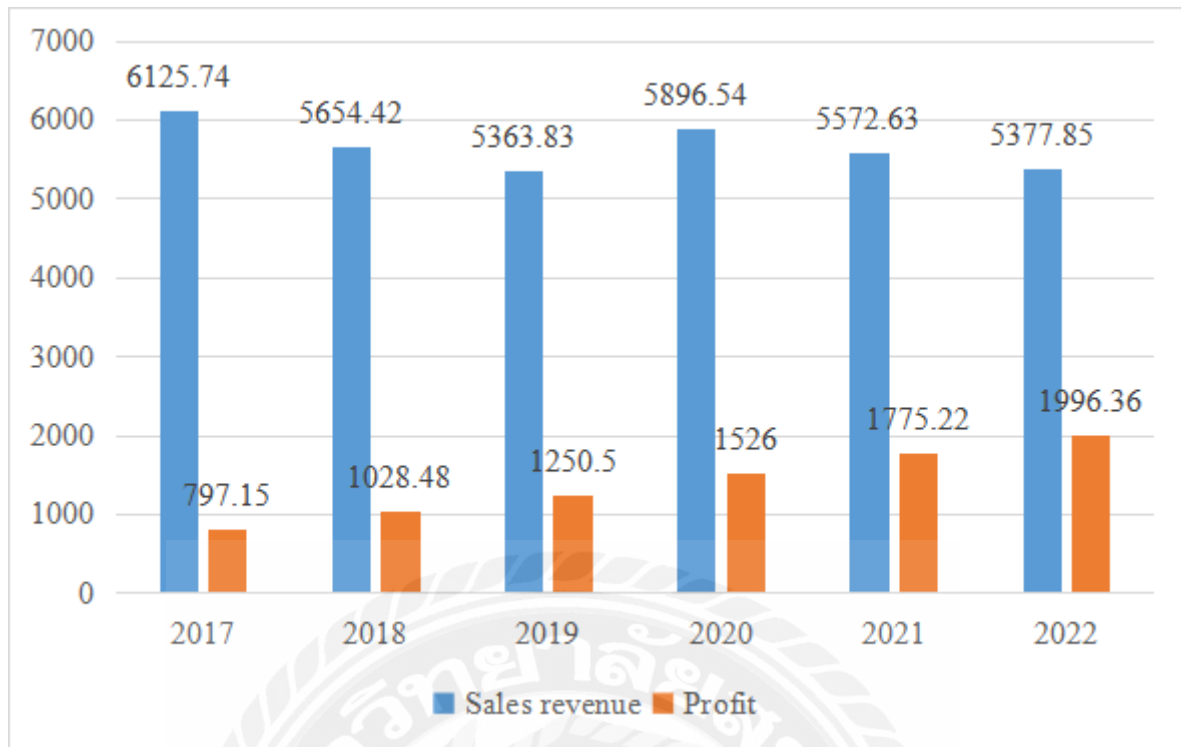
rising, the working capital has been seriously insufficient, and the solvency has deteriorated seriously. Compared with the glorious era of Baijiu enterprises in the past, the financial risk problems caused by the cash flow risk of Baijiu enterprises have gradually emerged in recent years. Many enterprises attach great importance to it (Lin & Liu, 2007).

On the other hand, according to the data from the National Bureau of Statistics and other relevant websites, the overall production of Baijiu enterprises is showing a steady downward trend. The output of Chinese Baijiu will decline from 11.981 million kiloliters in 2017 to 7.407 million in 2020. The latest data shows that the output of Chinese Baijiu's liquor will reach 7.156 million kiloliters in 2021, a year-on-year decline of 0.6%, and the output of Chinese Baijiu's liquor will drop to 6.893 million kiloliters in 2022 ( Foukerdi & Talavari, 2021).



**FIGURE 1-1 Production statistics of Chinese liquor in 2017-2021**

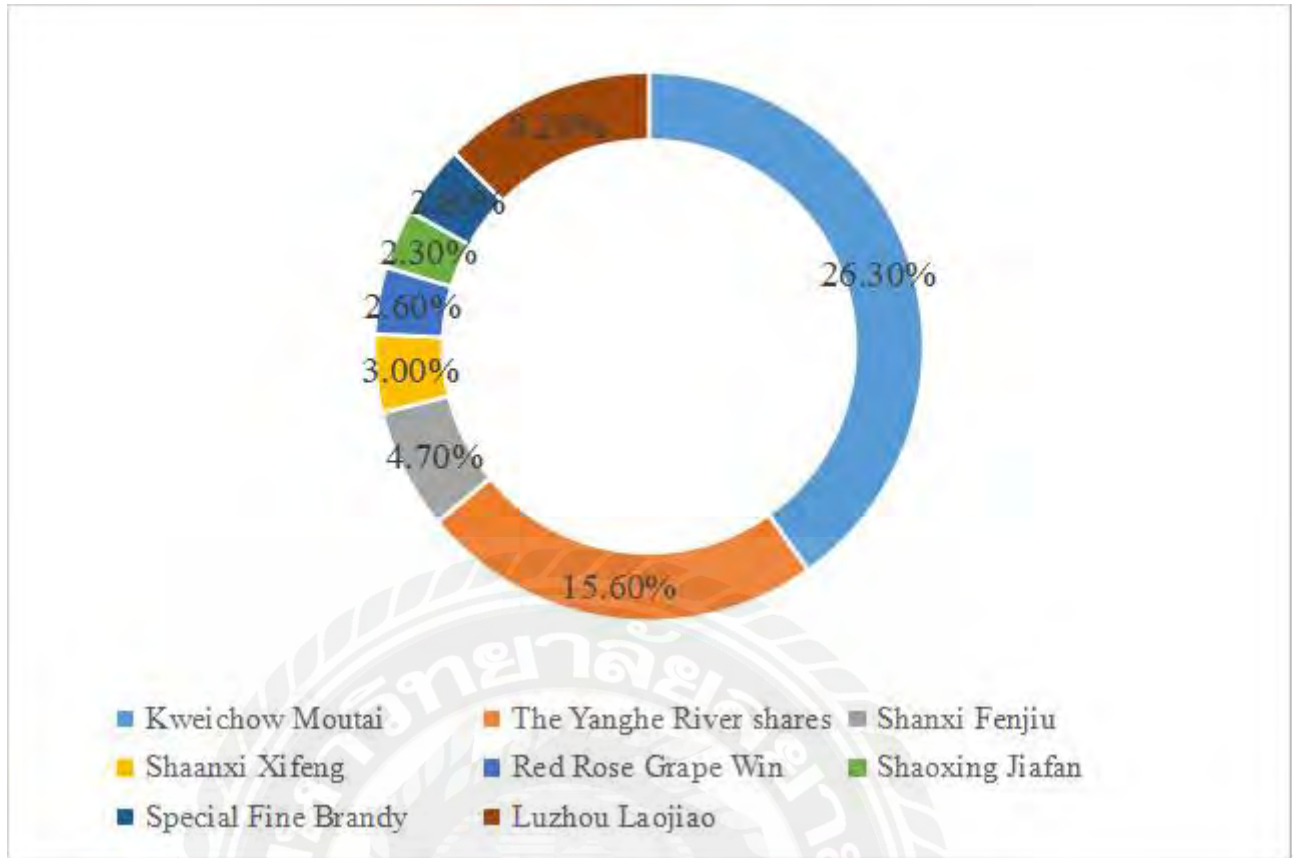
In 2020, Baijiu enterprises above designated size in China will achieve sales revenue of 583.639 billion yuan, up 4.61% year on year; The total profit was 158.541 billion yuan, up 13.35% year on year. It is estimated that in 2021, Chinese enterprises above the designated size will achieve sales revenue of 557.263 billion yuan, down 5.5% year on year; The total profit was 177.522 billion yuan, up 16.3% year on year. In 2022, Baijiu enterprises above the designated size in China will achieve sales revenue of 537.785 billion yuan and total profits of 199.636 billion yuan ( Kouvelis et al, 2019).



**FIGURE 1-2 Statistical of revenue and profit of Chinese liquor enterprises in 2017-2021**

Before the COVID-19, there were signs that the secondary high-end and above liquor enterprises enjoyed the logic of squeezing growth dividends. The pattern of leader concentration in the high-end liquor track was conclusive, and the new change brought by the epidemic was the differentiation within the secondary high-end segment.

In terms of sales revenue, the market concentration of China's liquor industry is relatively high, with CR3 accounting for 61.7% and CR5 accounting for 74.6%, among which Kweichow Moutai City has the largest share, accounting for 26.3%. Secondly, Wuliangye, Yanghe, Luzhou Laojiao and Shanxi Fenjiu accounted for 19.8%, 15.6%, 8.2% and 4.7%, respectively (Pellegrino et al, 2019).



**FIGURE 1-3 Distribution of brands in Chinese liquor industry**

From the perspective of capital structure, according to the annual report data of Shanxi Fenjiu Group from 2016 to 2020 and the semi-annual report data of 2021, the most significant proportion in the balance sheet of Shanxi Fenjiu Group is current assets, which is also related to the characteristics of the Baijiu industry. In 2021, the proportion of current assets will reach 82.95%, and the proportion of current liabilities will reach 99.16% (Baiju et al, 2022). The items with an enormous change in current assets are monetary funds and accounts receivable. As shown in Table 1, monetary funds are increasing year by year while accounts receivable are decreasing. From the characteristics of the Baijiu industry, Baijiu is mainly retail oriented, with fast capital recovery and turnover. From 2016 to 2020, the current ratio of Shanxi Fenjiu Group is 1.86, 1.74, 1.70, 1.51 and 1.64 respectively, and the quick ratio is 1.08, 0.97, 1.10, 0.88 and 0.98, respectively (Lamzaouek et al, 2021). When the current ratio of Baijiu industry is 2, and the quick ratio is 1, it is appropriate. From this, it can be seen that Fenjiu Group has a strong short-term debt-paying ability, as shown in Table 1-1.

**TABLE 1-1 Data of assets and liabilities of Shanxi Fenjiu Group from 2016 to 2021**

	2016	2017	2018	2019	2020	2021
Monetary capital (RMB 100 million)	12.17	12.22	14.22	39.69	46.07	68.70
Accounts receivable (ten thousand yuan)	616.13	118.22	1249.37	641.7	168.3	160.43
Asset-liability ratio (%)	34.78	40.28	45	52.55	49.11	42.55

From the perspective of the asset-liability ratio, it is most reasonable to keep the asset-liability ratio at 60%~70%, when the debt risk is within the safe range. The asset-liability ratio of Shanxi Fenjiu Group in the past five years is less than 60%, which indicates that the company has relatively sufficient funds and a relatively small proportion of liabilities and has a certain ability to resist market risks. However, it also indicates that the company's financial policy is relatively conservative, which is not conducive to expanding the enterprise scale and making it difficult to expand its market share. Financial liabilities are critical indicators for evaluating the solvency of enterprises (Ma et al., 2020). According to the annual report, most of the financial liabilities of Shanxi Fenjiu Group are short-term liabilities within one year, indicating that it prefers to use short-term liabilities for financing. The faster the turnover rate of operating assets, the stronger the sales ability of the enterprise. Shanxi Fenjiu Group's index has increased yearly in the past five years, and its sales ability has gradually strengthened.

From the balance sheet disclosed by Shanxi Fenjiu Group, it can be seen that the biggest change in the liability part of the year is the contract liability. The contract liability of Shanxi Fenjiu Group appeared for the first time in 2019 and reached 2.513 billion yuan, 3.107 billion yuan in 2020 and 3.259 billion yuan in 2021. It can be seen that the amount of its contract liability is continuing to rise (Wang et al., 2021). It is estimated that by 2025, the scale of the domestic Baijiu industry is expected to reach 600 billion yuan, which shows that the Baijiu industry still has a large space for development.

During the COVID-19 epidemic, due to the different response measures taken by enterprises and the different control policies adopted by different regions, Baijiu enterprises may face more significant cash flow risks. Because Baijiu industry has a high-profit margin, other enterprises in the industry choose to reduce costs to obtain greater profit space. At this time, there is low-price competition in the Baijiu industry.

In general, a Baijiu enterprise cannot prevent the cash flow risk well if it only relies on traditional cash flow risk management. Therefore, in the context of increasingly fierce market competition, Baijiu enterprises should fully consider the characteristics of its long industrial chain, and regional distribution. Relatively single product classification, take a variety of risk control measures, establish an adequate cash flow risk management mechanism, enhance the enterprise's cash flow management ability, Prevent and reduce cash flow risk. Therefore, this paper combines the value chain and cash flow risk, taking Shanxi Xinghuacun Fenjiu Group Co., Ltd. as the research object, and analyzes the value chain theory and cash flow risk management theory, focusing on how to identify, evaluate and control the cash flow risk from the perspective of the value chain. It is consistent with the purpose of this study. Based on the above reasons, this paper determines the topic and conducts research on the cash flow risk management of Shanxi Fenjiu from the value chain perspective.

## **1.2 Problem of the Study**

As we all know, cash flow is like human "blood" flowing through every link of the enterprise value chain. If cash flow does not flow smoothly in the enterprise value chain due to insufficient cash flow, slow flow rate and other reasons, it may lead to different degrees or different types of cash flow risk (Foukerdi & Talavari, 2021). In order to meet these new challenges, more and more enterprises have shifted their management focus from internal to external, that is, to manage the cash flow risk in the external value chain by integrating all links of the value chain.

Therefore, Baijiu enterprises need to establish a cash flow risk management model from the perspective of the entire value chain. This new model can not only improve the content of enterprise cash flow risk management so that enterprises can better prevent cash flow risks but also strengthen the ability of cash flow to create value in the entire value activities so that enterprises can maximize value (Fan et al., 2019). The research on cash flow risk management from the value chain perspective is imminent. Therefore, this paper takes Shanxi Fenjiu, which enjoys high popularity, reputation and loyalty in China, as the research object. It is a national large-scale first-class enterprise in China and is also the model for formulating the national light flavour Baijiu standard. Then, because of this trend, from the perspective of the value chain, based on the collected second-hand data, we will conduct empirical analysis after integration and calculation and point out the confirmation hypothesis through the results of quantitative research. It has certain research significance to analyze the existing problems, analyze the causes of cash flow risk in different links of the integrated value chain and put forward corresponding management suggestions.

## **1.3 Research Questions**

In general, due to the influence of various factors on the Baijiu industry in recent years, especially the limitations of cash flow and value chain, Baijiu companies are also constantly carrying out various acquisitions and mergers in the competition, which is an excellent test for the future development of Shanxi Fenjiu. Based on this fact, the

research questions of this study will be expanded into four aspects:

1. What the internal value chain of Shanxi Fenjiu have a significant positive impact on cash flow risk?

(1) Insufficient funds as an influencing variable have an impact on cash flow risk management.

(2) Product issues as influencing variables have an impact on cash flow risk management.

(3) After sales service as an influencing variable has an impact on cash flow risk management.

2. What the external value chain of Shanxi Fenjiu have a significant positive impact on cash flow risk?

(1) Investment failure as an influencing variable has an impact on cash flow risk management.

(2) Policy as an influencing variable has an impact on cash flow risk management.

## **1.4 Objectives of the Study**

How to resist risks and realize enterprise value in the increasingly competitive market has become the goal of small and medium-sized Baijiu enterprises (Atkinson, 2008). Both value management and cash flow risk management can bring more benefits to enterprises in practice, but according to the relevant literature, it is found that there are few cases combining the two. According to the knowledge learned, it is clear that cash flow is permeated into all links of the value chain, and each link is hidden with large and small risks, and each link is affected by the other (Gomm, 2010). If there is a problem in one link, it will produce chain reactions and even affect the company's interests. Therefore, enterprises need to pay attention to and solve the cash flow risk management based on the value chain and take it as the main problem they are currently facing. The establishment of Shanxi Fenjiu's cash flow risk management objectives based on the value chain is the premise of Shanxi Fenjiu's cash flow risk identification, evaluation and control. Based on the understanding of the theoretical part, Shanxi Fenjiu should carry out cash flow risk management from the perspective of the value chain from the perspective of safety objectives and value creation objectives to reduce the cash flow risk and finally realize the enterprise value.

Specifically, the research objectives are:

1. To clarify that the internal value chains of Shanxi Fenjiu have a significant positive impact on cash flow risk management.

(1) To verify that the insufficient funds as an influencing variable have an impact on cash flow risk management.

(2) To verify that the product issues as influencing variables have an impact on cash flow risk management.

(3) To verify that the after sales service as an influencing variable has an impact on cash flow risk management.



2. To identify that the external value chains of Shanxi Fenjiu indirectly affect cash flow risk through insufficient liquidity.

(1) To confirmed that the investment failure as an influencing variable has an impact on cash flow risk management.

(2) To confirmed that the policy as an influencing variable has an impact on cash flow risk management.

## **1.5 Significant of the Study**

Based on the above background, this paper combined with the academic research results, to draw a practical conclusion. In the current work, the value creation of value chain cannot be separated from the management of cash flow risk (Gomm, 2010). But in the existing cash flow risk management theory, the value chain theory is out of line with the cash flow risk management theory, which cannot well meet the needs of theory and practice. Therefore, this paper will elaborate on the research significance of this paper from both theoretical and practical aspects.

### **1.5.1 Theoretical significance**

As for how the Baijiu industry can reduce the existence of cash flow risk and realize enterprise value in the increasingly harsh market environment, it is necessary to pay attention to the theoretical and practical research (Fan & Xu, 2012). Therefore, this paper selects Shanxi Fenjiu, the leader of Shanxi Province, as the case, mainly studies the capital circulation theory of Shanxi Fenjiu from the perspective of value chain, and then combines the value chain theory and enterprise risk management theory, Through the research on the cash flow risk management from the perspective of the value chain of Shanxi Fenjiu, we hope to provide more theoretical reference for the cash flow risk management and control of China's Baijiu industry, and provide a basis for enterprises to create value, so as to promote the rapid development of the liquor industry.

### **1.5.2 Practical significance**

For the Baijiu industry, there are many problems in its cash flow management. On the one hand, as an exceptional business activity, the Baijiu industry's income is unstable. That is, it cannot maintain continuous growth; On the other hand, the Baijiu industry is also a capital-intensive industry, which requires higher costs (Chakuu, Masi & Godsell, 2019). Therefore, from the perspective of the value chain, this paper applies the cash flow risk management method to the actual case of the cash flow risk management of Shanxi Fenjiu, analyzes the cash flow risk in each link of the value chain of Shanxi Fenjiu, and takes specific measures, which will help improve the cash flow risk management method of China's Shanxi Fenjiu Group, and improve its cash flow risk management ability. Establishing the overall concept of cash flow risk management within the group is of great practical significance for improving the cash flow risk management level of Chinese Baijiu.

## **Chapter 2**

### **Literatures Review**

#### **2.1 Introduction**

This chapter mainly combines the value chain theory with the cash flow risk management theory, which can effectively make up for the problem of the disconnection between the value chain theory and the cash flow risk management theory, make the cash flow risk management theory more comprehensive, thus further promote the improvement of the theoretical system, and provide corresponding theoretical reference for other enterprises. Through the analysis of existing literature, it is found that a good cash flow cycle can lead the Baijiu industry out of the "cold winter" and usher in the "spring", laying the foundation for the survival and development of the Baijiu industry. The enterprise's value chain and cash flow risk are inseparable (Acharya et al, 2013). This part conducts research through CNKI, Google Academic, research gate and other resource websites, mainly reviewing and commenting on the relevant literature of value chain management and cash flow risk management, so as to clarify the practical and theoretical basis of the research.

#### **2.2 Literature Reviews**

##### **2.2.1 Value chain**

Value chains appeared earlier abroad. Carter et al. (2005) in *Competitive Advantage* consider that the business activities of an enterprise can be divided into basic activities and ancillary activities, while an enterprise is a collection of business activities such as designing, producing, selling, sending and assisting its products, all of which can be represented by a value chain. Lin and Liu (2007) further study and expands Porter's value chain, which he sees as a link between the company's production and operation and links customers with suppliers and customers. Hendricks and Singhal (2005) believes that creating an enterprise value chain includes many related activities, such as R & D, production, sales, brand, customer service, etc. With the development of network technology, the value chain activities of enterprises tend to be networked, and the form of organization has also changed. Delgado (2012) put forward the related theory of the industry value chain. They believe that enterprises should pay attention to the value of other enterprises in the industry, know more about the value chain of their competitors, and make the enterprise develop healthily.

Kerr (2006), excluding industry impact and company asset size, selected 30 financial indicators of 79 failed companies and 79 successful companies from 1954 to 1964 for analysis and found that cash flow/total debt indicators had the highest accuracy. Sargent (2006) took the lead in introducing the multivariate linear discriminant method in financial risk early warning caused by cash flow risk. Finally, five predictive variables were identified from 22 alternative predictive variables, and

the Z model was constructed. Through the test, it was found that the predictive ability of this model is more accurate. Tsai (2008) found that the capital structure, company size, performance and liquidity of current assets significantly affect an enterprise's bankruptcy probability, he proposed that the value chain of an enterprise includes not only the interior but also the exterior of the enterprise.

By integrating the value chain of upstream suppliers, the enterprise itself and the downstream tourists, an overall enterprise value chain is formed to achieve the maximum benefits of the enterprise. Rudzki et al. (2005) found that the company value chain mainly includes R & D, production, sales, customer service and other activities. Incorporating the above factors into the risk early warning indicator system can better reflect the interaction of these activities. Tang and Musa (2011) holds that liquidity is a key link in the business activities of enterprises. Attention should be paid to the control of liquidity assets, and Z mode should be used to warn the risk of capital flow arising from the business operations of enterprises, and financing and business activities should be regarded as the main factors affecting the business activities of enterprises. Wang et al. (2008) studied the impact of diversification strategy on the cash flow risk of enterprises. He believed that although a diversification strategy can reduce the risk of company closure, there are also potential financial crises, especially the impact of interest rates, exchange rates, inflation rates, growth rates on the cash flow risk of enterprises, which may increase the cash flow risk of enterprises. Severe cases will cause the enterprise capital chain to break. Zheng et al. (2013) studied the measurement method of cash flow risk, using the dynamic random general balance model, dynamic panel model and event study method to analyze the cash flow risk of enterprises, and found that the cash flow risk of enterprises is related to factors such as profitability, debt financing structure and so on.

### **2.2.2 Cash flow risk**

Ma et al. (2020) used univariate decision analysis to select 27 ST and non-ST companies as samples and found that the liquidity ratio and debt ratio had the best predictive effect on the financial crisis. Ali et al. (2019) show that the debt-equity ratio, retained earnings/total assets and other prediction indicators have higher discriminant accuracy. Tsai (2017) improved the Z model and built the F-score model of early financial warning, which greatly improved the comprehensive early warning analysis ability. This study shows that the success of Chinese non-listed enterprises mainly depends on the debt ratio (for manufacturing), working capital ratio (for non-manufacturing) and profitability. Foukerdi and alavari (2021) found a large number of transactions in the value chain, including sales, procurement, production, inventory management, etc. Enterprises may incur losses, such as inventory backlog and cannot be liquidated, there may also be cash flow disruptions, such as cash shortages due to excessive investment in fixed assets. Therefore, it provides a new idea for enterprises to carry out risk early warning. He created a cash flow-based individualized index method and a comprehensive index method for financial early warning research, which avoids distorted financial early warning information caused by using an accrual-based related index system for early warning. Tang & Musa.(2011)

believe that cash flows are more true and accurate in reflecting an enterprise's financial and operational conditions. It is recommended to use ratios such as cash inflow to outflow structure to analyze the financial situation of an enterprise. Therefore, effective management of cash flow risk is essential.

### **2.2.3 Baidu industry**

Tummala and Schoenherr (2011) took the listed liquor companies as the research sample and selected the comprehensive efficiency data from 2003 to 2007. Using the index analysis method, it was found that the national policy and external competition positively affected the comprehensive efficiency. That is, the support of national policy and good market competition would promote the comprehensive efficiency of liquor-making enterprises. This paper uses principal component analysis to evaluate and rank the financial indicators of the stock competitiveness of Listed Companies in the liquor industry. Based on cross-sectional data analysis of the liquor industry, the correlation coefficient between the asset structure and market performance is positive but not significant. Tang and Musa (2011) evaluated the profitability quality of liquor-making enterprises from six aspects: profitability and growth ability. Taking the profitability level and net assets per share as the main indicators, it concluded that the stock options purchased by the company significantly affect the company's capital flow. That is, when the company buys more stocks, the company's capital flow will be reduced, and the company's capital flow will also be reduced.

Overall, this literature review is mainly based on the value chain, cash flow risk and liquor industry. As a systematic concept of this study, it also serves as the primary keywords and ideas for collecting relevant literature in this study.

### **2.2.4 Cash flow**

Cash flow is the movement of money in and out of a company, and cash received signifies inflows, and cash spent signifies outflows (Dirman, 2020). In the case of "bottom line" earnings variables like income before extraordinary items, many of their components relate to operating activities that pass through operating cash flows at some point in time (Nallareddy et al., 2020). For example, revenues from credit sales enter operating cash flows after they enter earnings. However, "bottom line" earnings also contain items related to financing and investing cash flows. These items never enter cash flows from operations. Besides acting responsibly, property investors are primarily interested in the financial performance of properties and the way in which sustainability can contribute to this, as they are in the business of securing income and capital appreciation. Accordingly, there is a growing number of studies researching the impact of sustainability enhancements on properties' cash flows and values. Leskinen et al. (2020) aims to review empirical research concerning the impact of green certificates on property cash flows and values, particularly from professional property investors' perspective. The study uses discounted cash flows (DCF), a widely used property valuation method in income-generating properties, as a methodological framework. In this study, over 70 peer-reviewed studies were identified, categorized, and analyzed in the DCF framework. And on its internal cash

flow, and is quite sensitive to cash flow uncertainty, while other cash flow uncertainty (Liu et al., 2017). Earnings outperform operating cash flows in predicting future operating cash flows when one compares the predictive ability of operating cash flows with that of an equivalent earnings. Ball and Nikolaev (2022) think that this is a foundational issue in accounting, because it addresses the information added by accrual accounting methods, testing it remains unsettled. The result becomes more pronounced when allowance is made for cross-sectional differences in the relation between firms' earnings and future cash flows. In fact, even “bottom line” earnings then have similar explanatory power as operating cash flows. So this paper chose cash flow as one of the directions of the research content, the most obvious example is depreciation and amortization expense, which is a weighted average of investing cash flows in prior periods and has no operating cash flow equivalent to research.

### **2.3 Research Relevant**

Based on this study involving independent variables, intermediate variables and dependent variables, as well as related literature review and theory, it is clear that by summarizing the previous relevant research scholars research, it is found that the current research on cash flow risk management is gradually in-depth, and the research is becoming more and more perfect. Anthony and Jinana (2013) found that in the analysis of value chain, In order to find their own advantages and shortcomings, we should consider from many perspectives, both the industry and the interests of other enterprises. Then Amit (2016) redefined the value chain from different perspectives. His view was to reorganize the company's current assets, and the process of managing this could be called value chain management. This view promoted the position of value chain management and further expanded the scope of value chain application. Zhu et al. (2016) In the process of enterprises entering information technology, enterprises must adapt to the development of the times, and the concept of the value chain is to introduce the concept of the value chain into the enterprise, so as to bring more convenience to the development of enterprises, thus creating more benefits for the development of enterprises. It is manifested in two aspects: on the one hand, the uncertainty of the economic environment and the asymmetry of information are the key factors that affect the risk of enterprises.

On the other hand, enterprise cash flow risk management includes three processes: risk identification, risk assessment and risk control. For cash flow risk assessment, although many scholars have evaluated cash flow risk from the micro-level of the enterprise, that is, from the value chain perspective, most of the business activities of enterprises in China are completed under the accounting system based on financial reports, so the cash flow risk reflected in the financial reports can not truly reflect the cash flow risk faced by enterprises. Therefore, this study mainly from the perspective of the value chain and sustainable development of Chinese liquor industry, explores the company's cash flow risk, evaluates the company's cash flow risk from the internal and internal perspective, and enhances the practicality and feasibility of this research result.

## 2.4 Theory of Reviews

### 2.4.1 Capital Cycle Theory of Reviews

The theory of capital circulation can be understood as that a company's industrial capital takes three different functions through the three stages of purchase, production and sales: monetary capital, production capital and commodity capital to achieve the purpose of increasing the value of capital (Prakash et al., 2018). Among them, purchase and production are the basic means to achieve the capital cycle; By selling goods, commodity capital achieves the purpose that both the residual value and the prepaid value of capital can be achieved. The two stages of purchase and production can be seen as different stages of the completion of the capital cycle, so we can divide them into three stages in the actual operation: purchase, production and sales.

First, monetary capital represented by monetary capital achieves tangible assets in the company's industrial capital by purchasing, mainly monetary capital. There is a problem here, the company will no longer use the funds after they have been deposited in the bank (Banerjee & Chaudhury, 2010). If you want to continue using the funds, you have to withdraw them from the bank first, so the company will also have an interest expense.

Second, productivity investment represented by production capital is the process in which the company invests in industrial capital for production and operation, which is mainly reflected in research and development, production input, etc. to improve the market competitiveness of products.

Third, the realization of capital value represented by commodity capital. In the purchase, production and sale stages, the ownership of commodity capital as commodity has changed in different stages. Its ownership has changed from monetary capital to production capital, but at the same time, a part of the remaining value has not been transferred to the company (Abbasi et al, 2018). At the same time, it realizes the redistribution of the remaining value through the sale of commodities, that is, from monetary capital to production capital and commodity capital, but the remaining value has not changed. In the actual operation process, the three stages can be seen as three stages to complete the entire process of the company's industrial capital cycle: purchase, production and sales. Monetary funds are purchased for generating value; Productive funds use labor and production tools to produce products that contain surplus value. Commodity assets are the means of selling products to achieve the remaining and capital pre-value-added. In these three stages, they are related in the process of capital circulation, and the order of each functional form is transformed, which makes the capital circulation run in an orderly manner.

Generally speaking, the theory of capital circulation reflects the interaction between the creation of cash flow and the flow of capital, while the flow of capital can only be obtained through the continuous and efficient flow of capital (Culp, 2002). Enterprises should coordinate the three aspects of production, sales, purchasing and sales in order to achieve a continuous capital conversion, thus bringing greater benefits to the company. Therefore, the company needs to strengthen the management of cash flow, constantly adjust its operational strategy, expand product sales, and ensure the

smooth flow of capital flow in all links to speed up the capital cycle.

### 2.4.2 Value Chain Theory of Reviews

The value chain was first established by American scholar Porter in 1985. He divided the value activities in the enterprise into two types, one is the basic activities of the enterprise, including internal relations, production operations, external relations, marketing, customer service, etc. The other is enterprise supplementary activities, including enterprise infrastructure, human resources management, technology development, procurement (Randall & Farris, 2009).

**TABLE 2-1 Porter's value chain model**

Enterprise infrastructure					Profit
HRM (human resource management)					
Technological development					
Make purchases for an organization or enterprise					
interior logistics	produce manage	outside logistics	market house sell	customer service serve	

With the economy's rapid development, Porter's value chain can not meet the development needs of enterprises more and more. It focuses on the analysis of the internal value activities of enterprises. The external suppliers, customers and banks and other organizational behaviors accomplish the implementation and control of the external value activities of enterprises (Feng, 2011). Only effective coordination and control between enterprises and suppliers, customers and banks can ensure the smooth progress of value activities. And create value for the enterprise. The value chain of an enterprise is to link the upstream supplier, the enterprise itself organically, the downstream enterprise and the consumer, so as to realize the internal value chain activities such as purchasing, production, sales, internal and external logistics, technological development, etc. of the enterprise and the external value chain such as upstream supplier and end consumer of the enterprise affect each other closely, making the internal value chain and the external value chain of the enterprise an interrelated whole.

In this way, we can make full use of the advantages of both internal and external value chains, and make full use of the integration advantages between the two, so as to better provide effective services for the company, thereby improving the business efficiency of the enterprise (Dickinson, 2001). Each business behavior of an enterprise is closely related to its own links, and at each stage of the value chain, it is the basis of the company's value creation. However, everything has two sides. Different links in the value chain create value for the enterprise and bring certain risks to the enterprise. Therefore, the enterprise should introduce the value chain management thought, strengthen the ability of the enterprise to create value in each business activity, optimize

the enterprise management mode, enhance the enterprise's market competitiveness, expand the enterprise's market share, and finally realize the enterprise value. Based on this, this paper divides the value chain into internal and external value chains according to the organic relationship between the enterprise value chain and business activities. Whether the enterprise's internal or external activities, their goal is to create value for the enterprise. All activities that create value constitute the value chain of the enterprise.

### **2.4.3 Enterprise risk management theory of Reviews**

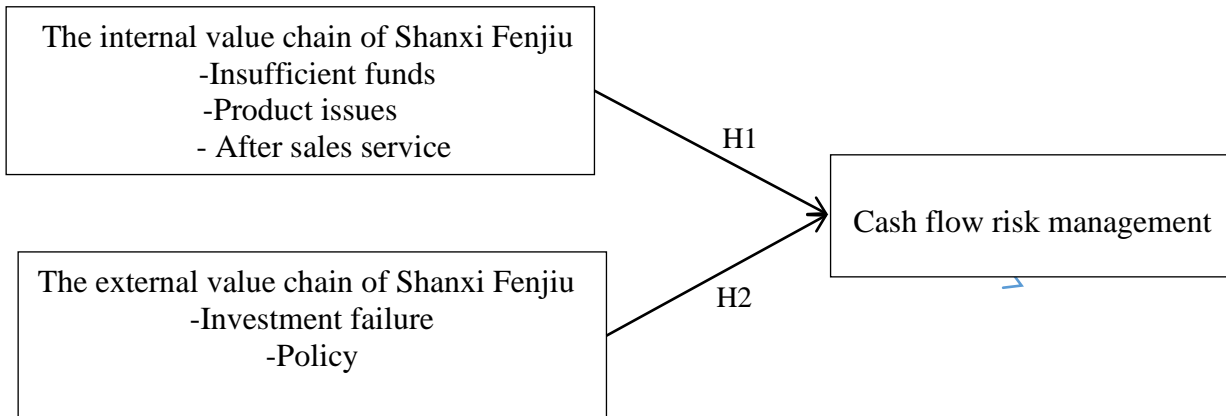
People usually understand the term "risk" in their daily life as a "probable problem" or as a situation in which risks often occur in their work and life. Risk is a common social phenomenon, but it is not easy to define risk accurately from a theoretical point of view. Risk management problems originated in Germany after World War I. As early as the early 20th century, Germans put forward the concept of risk management for reconstruction after World War I. They emphasized risk control, risk dispersion, risk compensation, risk transfer, risk prevention, risk avoidance and offset. Risk management really emerges as a discipline, just as Kouvelis et al. (2019) hold that "risk management is a management method that minimizes risk losses by identifying, measuring and controlling risks at the lowest cost".

Risk management is not only a technology, a method, a management process but also an emerging management science. That is the risk management theory application in enterprises' business activities. It means that before the occurrence of the risk, by formulating and implementing complementary strategies to reduce the probability or extent of risk occurrence to reduce the loss, transfer the adverse effects of risk and other methods to prevent or control the harm of risk occurrence (Fan & Xu, 2012). Because there are a variety of complex economic activities in modern enterprises, it is often difficult to predict potential events and emergencies, so it is necessary to make a prior estimate of these events and their possible harm and loss. Risk management is a dynamic process, which is a series of activities to identify, measure and control various risks to prevent possible losses. In a sense, risk management is a kind of "system design": to achieve the set goals, a series of dynamic operation processes are carried out within the organization, that is, to achieve these actions through the development of various strategies, scenarios and so on.

## **2.5 Conceptual Framework**

The operation and management of Fenjiu in Shanxi is quite good, and there is still much room for improvement. The Chinese liquor-making industry is in a relatively stable stage of development and is facing many opportunities and challenges (Gates, 2006). The development of Chinese liquor-making industry is accelerating due to policy support, technological progress and changes in consumer preferences. However, we can not exclude such factors as slowing down the growth of the industry or the decline of the company's competitiveness, which are all issues that need continuous attention and consideration (Peck, 2006).





**FIGURE 2-1 Model used as a guideline for this research**

This chapter introduces the theme selection background, this paper combines theory and case, with China Shanxi Fenjiu as a case company, specific analysis under the perspective of the value chain, the enterprise how to cash flow risk management, namely how to refine the cash flow risk identification, evaluation, and the cash flow risk in the value chain, specific measures are put forward.

## 2.6 Terms and Definition Used in This Study

There are many definitions that need to be clarified in this study.

**Value Chain Management:** Enterprises carry out value chain management, which means to organically combine their upstream suppliers, enterprises themselves, downstream companies and consumers, so that their internal value chain activities, such as purchasing, production, sales, internal and external logistics, technology development, and other external value chains, such as upstream suppliers and end consumers, influence and closely link with each other. Make the internal and external value chains of an enterprise an interrelated whole (Lambert & Pohlen, 2001). Each business behavior of an enterprise is closely related to each part of the value chain, and at each stage of the value chain, it is the basis of the company's core value creation. The goal of value chain management is to help enterprises improve their core competitiveness and increase their market share. In this way, we can make full use of the advantages of both internal and external value chains, and make full use of the integration advantages between the two, so as to better provide effective services for the company. Therefore, in the process of value chain management, enterprises should first consider how to better combine their internal value chain with external value chain.

**Cash flow risk management:** Revenue and risk correspond to each other in the survival and development of an enterprise (Hassan & Rasiah, 2011). The cash flow risk of an enterprise is usually divided into two categories, namely, liquidity risk and operational risk. Liquidity risk mainly refers to the potential loss caused by the financing of short-term funds and the decision-making of short-term investment projects. Operational risk mainly refers to the loss caused by the internal reasons or

external environment in the value chain of enterprises that can not obtain cash flow in time. This paper defines cash flow risk as the uncertainty of cash flow not functioning properly in the value chain inside and outside the enterprise. Therefore, strengthening the management of cash flow risk is of great significance to the good survival and healthy development of enterprises.

Cash flow: Generally speaking, cash flow is the amount of cash that a company increases or decreases. Cash flow is generally divided into three forms: cash inflow, cash outflow and net cash flow (Gomm, 2010). Cash flow refers to the recovery of funds, the entry of funds will increase the company's funds, and the flow of funds is the growth of funds. Cash payments are payments made by a company when it pays other fees. The amount paid will reduce its cash reserve and consequently reduce its liquidity. The so-called cash inflow is the difference between cash inflow and outflow in the form of cash held in the company.



## **Chapter 3**

### **Research Methodology**

#### **3.1 Research Method**

This paper takes the financial statement of Fenjiu in Shanxi Province from 2019 to 2021 as the analysis period. Firstly, through defining the evaluation variables and indexes, and then sorting out the related financial data of Fenjiu in Shanxi, the reliability analysis is carried out to prove the validity of the data, so as to facilitate further discussion and analysis.

This paper conducts research through literature review and quantitative research methods:

##### **Literature Review**

Before writing the paper, the author has read the relevant literature at home and abroad on value chain and cash flow risk, and has sorted out the relevant literature. From the perspective of practitioners, Leautier (2007) suggested that risk management enables enterprises to ensure financial flexibility so as to support growth at the lowest cost under adverse business conditions. At the same time, the author has retrieved and summarized the relevant literature through other websites such as Knowledge Net, which lays a theoretical basis for the writing of later papers, makes the writing of papers more scientific letters, and further determines the research direction of this paper.

##### **Quantitative Research Methods**

Using the method of quantitative research, after determining the sample data, data analysis and research are completed by SPSS software. This paper uses related software to verify the validity of the data through reliability analysis, correlation analysis, regression analysis, etc. From the perspective of two variables, and pay attention to the mediation effect, and finally summarizes and summarizes on the basis of data analysis, extracts the opinions, summarizes and analyses the results, and draws conclusions.

#### **3.2 Research Design**

Through the literature review, we analyzed the internal and external factors of the value chain, summarized the problems from the value chain theory and the risk management theory, by studying the books about the value chain and cash flow risk at home and abroad, and sorting out and summarizing the relevant literature, the theoretical foundation is laid. Then through the Shanxi Fenjiu website and a-share market collected in 2019-2021 financial statements, sampling survey, and reference to the China Securities Regulatory Commission, finally concluded that 794 sampling observation, using quantitative research method, specific after the reliability and validity analysis, correlation analysis, regression analysis to verify the effectiveness of the data, and made clear about the four assumptions of the study, healthy cash flow is

the first prerequisite for the sustainable development of enterprises. Without cash flow, enterprises cannot carry out average production and operation activities and survive in the market economy environment. Cash flow affects all aspects of enterprises' production, operation and management and is increasingly valued by business operators (Guo & Liu, 2020). For enterprises cash flow management is the key to the survival and development of enterprises. With the guarantee of cash flow, enterprises can operate normally, but many small and medium-sized enterprises are very deficient in cash flow management. Only by correctly understanding the cash flow can enterprises continuously optimize the structure and use of funds in the operation process and rationally allocate capital resources to achieve enterprise growth and profit. Cash flow analysis is fundamentally "financing" among business activities, investment activities and financing. Financing activities refer to the flow of funds in the process of production and operation activities, including the raising of new funds, investment, purchase of raw materials or equipment, etc. The process of company capital operation mainly involves the "investment" link, including direct investment and indirect investment(Jiang et al, 2020).

If managers are not aware of the enterprise's state, the enterprise's operation is likely to be affected (Gurav & Bokade, 2010). Managers should change their way of thinking, establish risk awareness, and ideologically attach importance to cash flow as an important content of enterprise management for analysis and management. By formulating a reasonable budget management system, the use and flow of funds should be strictly controlled to ensure the normal operation of enterprises. In formulating the cash flow management plan, every investment and income should be thoroughly analyzed, a reasonable cash flow budget table should be drawn up according to the actual situation, and the budget cost should be strictly controlled. In the implementation of a specific project, a detailed and specific plan and implementation plan should be formulated. Put forward that attention should be paid to details to ensure that investment will not affect project progress and quality because of insufficient funds; At the same time, attention should be paid to the analysis and management of cash flow risk. Enterprises should strengthen their awareness of cash flow management, set up financial management concepts with cash flow as the core, set up a fund management system based on cash inflow and outflow, and closely cooperate with relevant departments to form a complete set of financial analysis systems. Only by mastering the knowledge of cash flow management and improving risk management ability can cash flow be used rationally.

As the leading enterprise in China's liquor industry, Fenjiu Group in Shanxi Province has been leading the industry in business income and net profit for many years, which not only brings economic benefits to the enterprise itself but also brings demonstration effect to the whole industry, thus promoting the benign development of the whole liquor industry. However, in recent years, companies also encounter certain cash flow risks. In the daily operation process, the company has to pay a large number of funds for the production and sales of products, which also means that the enterprise is facing great financial pressure, so cash flow management is very important for the enterprise. If an enterprise does not have a good cash flow management mechanism, it

will likely put the company into crisis. At the same time, in the company value chain, Randall and Farris (2009) think that cash flow runs through every link in the chain. Therefore, managing cash flow in the company value chain link in daily business activities is important. Based on this status and relevant literature, this study mainly analyzes and discusses the value chain and cash flow risk of Fenjiu Group in Shanxi Province to understand the deficiencies of cash flow management. This paper puts forward optimization suggestions from both internal and external value chains, hoping to bring some inspiration and reference to other similar types of companies. Moreover, the innovative point of this study is to manage cash flow from the value chain perspective, which can help the company make effective management decisions and ultimately maximize the company's value. Second, the capital circulation theory is used to fill in the deficiency of this research on the original basis.

In addition, this chapter mainly clarifies the scope of data collection, the choice of research objects, and analysis methods, further identify the applicability, comprehensiveness and authenticity of the samples, ensures the authenticity and validity of the questionnaire, and finally provides a reasonable explanation for the literature review and hypothesis.

### **3.3 Population and Sampling**

Use a random number table or a computer-generated random number list. It can also be carried out by drawing lots and using paper money. The researcher here is easy access to his sample population by using a quota sample. All individuals in the study population must be counted in ascending or descending order (Etikan & Bala, 2017). The advantage of this method is that it needs to know the population least, has high internal and external effectiveness, and is easy to analyze data. However, the limitation is the high cost and required sampling frames. They often have large sampling errors, and the accuracy is lower than that of end samples of the same size in the stratum (Acharya et al, 2013). The data of this paper are based on 794 sample observation values of Shanxi Fenjiu from 2017 to 2021, and the variables of this paper are effectively analyzed by using SPSS 26.0 software.

### **3.4 Sample Size**

In order to ensure the correctness of the sampling test results, must be two years of deficit and annual accounting statements missing annual screening because this paper is for China Shanxi Fenjiu and chose the 2017-2021 sampling survey, and refer to the China Securities Regulatory Commission guidelines, finally concluded that 794 sampling observations. In this paper, enterprise competitiveness dependent variables, company size, and financial leverage control variables according to the quotas human CSMAR database, combined with the relevant data in the sample company annual report and the variable data of the value chain from the sample company report, annual report, company announcement, through the manual collection, eliminate the ST, \* ST

and abnormal fluctuations of business performance of data, and use the content analysis method for measurement to ensure the accuracy of the empirical analysis.

### **3.5 Data Collection**

Through literature review, analyzes the internal and external factors of the value chain, internal insufficient funds, product problems and after-sales service, external investment failure, policy, according to the needs of this research, to ensure the reliability of the data obtained, data selected from 2017-2021, mainly using the commercial industry research institute database, Shanxi fenjiu group a city stock data and official website to collect related financial data in Excel software, data through SPSS26.0 statistical software data research, and then to analyze the problem of Shanxi fenjiu.

### **3.6 Data Analysis**

According to the literature review, the reviewed theory, combined with the situation of Shanxi Fenjiu to analyze the problem, and review the value chain perspective based on the capital cycle theory as the main theory, combined with the value chain theory and enterprise risk management theory, the internal and external factors of the value chain are analyzed, including insufficient funds, product problems and after-sales service. External investment failure, policy, cash flow risk, but the enterprise value chain management and control advantages greater than disadvantages, including comprehensive product cost management, with the help of the value chain clear authors efficiency activities, fully implement the value chain cost control will make the enterprise value chain system, and then to analyze the problem of Shanxi fenjiu. Therefore, this paper by depicting the willing wine value chain and analyze the cost motivation, clear value-added activities, eliminate not value-added activities, and achieve the effect of authors efficiency, which can help the extension of related theoretical level, help to provide other liquor enterprises in the same industry organized practical theoretical knowledge.

The mathematical statistical analysis tool in this paper is SPSS software, which uses the following analysis methods. The annual report of 2017-2021 was used as the data source to evaluate the financial risks of Shanxi Fenjiu Group over the past 4 years, and the sample data was taken from CSMAR and the official website. With reference to Pan (2016), 16 financial indicators in the four fields of solvency, operating ability, profitability and development ability were finally selected to evaluate Shanxi Fenjiu Group financial risks, and the financial indicators were calculated according to the methods of Lu (2019) and Wang (2016). It should be noted that in the Shanxi Fenjiu Group's financial data, the data in the accounts receivable column for 2016 and beyond is empty. In the item notes on the disclosure of accounts receivable in the consolidated financial statement, the turnover rate of liquor accounts receivable in 2017-2021 was calculated by using the yuan of 3,243,804.243. Here, the explanation and explanation are made first, and then the descriptive statistical analysis is made on the financial data of Shanxi Fenjiu Group.

The above design provides sufficient theoretical basis and analysis ideas, and also lays a solid foundation for the follow-up empirical research.



## Chapter 4

### Result of the Study

#### 4.1 Introduction

The focus of this chapter is on a detailed analysis of the data collected that meet the research criteria and on the analysis and discussion of the research questions and hypotheses presented in Chapter 2. This chapter will use the relevant software to derive the relationship between variables and variables, and then test the hypotheses presented in Chapter 2.

#### 4.2 Description of statistical variables

The descriptive analysis results of each value chain stage, revenue and profit and asset scale of Shanxi Fenjiu Group are shown in Table 4-1.

**TABLE 4-1 Table of the results of the descriptive analysis**

	Minima	Maxima	Mean	Standard deviation
Working capital stage	-1.86	2.31	0.0000	0.72340
Internal and external value chain stage	21.06	13.52	3.262	2.62432
Investment and procurement stage	0.00	18.00	2.1731	2.26524
Production and processing stage	0.00	17.00	1.6346	.418915
Consumer phase	0.00	23.00	3.4904	.439070
Asset size	19.86	25.18	3.4904	3.59070
Contribution to profit	24.83	26.96	4.1835	3.63828
Cash flow	19.73	27.58	4.1462	3.63227

The results of Table 4-1 show that there is a certain gap in the competitiveness of Shanxi Fenjiu Group. Moreover, its average score is about 18 points, less than 50% of the highest score, indicating that the cash flow of Shanxi Fenjiu Group is generally poor and the overall quality is not high. In addition, in terms of specific value chain stage of cash flow, the high maximum is the raw material production stage, production and processing stage and consumption stage of cash flow, lower is working capital stage of cash flow, this shows that Shanxi Fenjiu group in planting food crops, blending food processing and public consumption of cash flow is relatively high, but the current situation of working capital, have some impact on assets and profits, insufficient working capital, prone to cash flow risk, in the long run, will lead to investment is not



enough money, unable to invest success, corresponding hypothesis 2 and hypothesis 4.

### 4.3 Reliability analysis of the scale

Reliability analysis, refers to the consistency and stability of the scale when measuring research variables. In empirical research, the internal consistency coefficient (Cronbach value) is generally used by the academic community to test the reliability of the data. Fan and Xu (2012) also pointed out that "the size of Cronbacha value is related to the number of scale items, so when judging the reliability of the scale, we should first understand the number of scale items, and then test whether it reaches an acceptable level on this basis". Ceccarello et al. (2002) pointed out that Cronbaeha>0.7 indicates a high reliability of data; When the number of items in the measurement scale is less than 6, Cronbacha >0.6 indicates that the data is highly reliable and can be further analyzed.

**TABLE4-2 Reliability analysis**

Item	CITC	Delete the Cronbach's Alpha value for the item	
The internal and external value chain of Shanxi Fenjiu has a significant positive impact on the cash flow risk.	.717	.862	
The internal and external value chain of Shanxi Fenjiu indirectly affects the cash flow risk through the insufficient working capital.	.814	.847	0.87 2
Shanxi Fenjiu investment failure indirectly affects the cash flow risk.	.746	.925	
The internal and external value chain of Shanxi Fenjiu indirectly affects the cash flow risk through the investment failure caused by insufficient working capital.(Intermediary)	.795	.927	

As can be seen from Table 4-2 above, the Krenbach Alpha value is 0.872, which is very consistent with the criteria. In addition, most of the citt places between the observed variables and their potential variables are between 0.6 and 0.8, which preliminarily indicates that the data are significant, and the evaluation index system constructed is scientifically integrated.

Then, KMO test and spherical Bartlett test were performed on the results as follows:

**TABLE 4-3 KMO and Bartlett spheroid test tables**

KMO and Bartlett tests		
Number of KMO sampling suitability quantities.		.937
Bartlett sphericity test	Approximate chi square	9782.426

variance	1328
conspicuousness	.000

As can be seen from Table 4-3, the value of KMO is  $0.937 > 0.8$ , indicating that this data is suitable for factor analysis. Meanwhile, the probability of significance of the statistical value P is 0.000, less than 0.01, indicating that the sampling concentration is good and the data have good correlation. In conclusion, the reliability coefficient value of each data in this study is greater than 0.6, indicating that the reliability quality of the data is acceptable, and the data collection is relatively concentrated and of high quality.

#### 4.4 Correlation analysis

The results of the correlation analysis are shown in Table 4-4, which indicate:

**TABLE 4-4 Table of results of correlation analysis**

	WCS	IEVC	IPS	Pro	Cons	Size	Sale	Cash flow
WCS	1							
IEVC	0.952***	1						
IPS	0.819***	0.876***	1					
Pro	-0.261***	-0.282***	-0.320***	1				
Cons	0.773***	0.830***	0.596***	-0.379***	1			
Size	0.364***	0.634***	0.494***	-0.142**	0.524***	1		
Sale	0.482***	0.499***	0.524***	0.481***	-0.190**	0.208***	1	
Cash flow	-0.172***	0.674***	0.582***	-0.254**	0.353***	0.427***	0.562***	1

\*, \*\*, \*\*\* Represents significant at the 10%, 5%, and 1% level, respectively

(1) Regarding the correlation between IEVC and WCS: the correlation coefficient is 0.952, with a significant positive correlation at the 0.01 level, which verifies the hypothesis of H1 in this paper.

(2) About the correlation between WCS and Cash flow: significant negative correlation, verifying the hypothesis H2.

(3) The significant level of asset scale is 0.01, indicating that the enterprise scale of Shanxi Fenjiu Group is still relatively large, its internal and external value chain is relatively perfect, some investments have no problems, and have a significant impact, and the larger the scale, the enterprise competitiveness may be stronger. However, the cash flow is negatively correlated with the internal and external value chain of Shanxi Fenjiu Group. The larger the asset-liability ratio, the greater the financial risk. The insufficient working capital affects the investment, and the more likely to weaken the specific development of the enterprise, hypothesis 2, hypothesis 3 and hypothesis 4 are verified.

## **4.5 Discussion**

### **4.5.1 Lack of working capital**

First of all, in order to expand the market share and cope with the fierce market competition, the sales scale of Shanxi Fenjiu is constantly expanding. However, the sales scale constantly at the same time, may produce the problem of insufficient working capital, after the above data analysis, Shanxi Fenjiu nearly five years of working capital in decreasing, Shanxi Fenjiu working capital will lead to excessive trading, resulting in lack of working capital, cause cash flow working capital of risk. Second, a large number of credit sales will increase sales, but also lead to the increase in accounts receivable, this is mainly two reasons, one is the COVID-19 outbreak impact on the enterprise, because Shanxi Fenjiu in sales link, pay attention to the increase in sales, a lot of credit sales, and ignored the management of accounts receivable, coupled with Shanxi Fenjiu accounts receivable system imperfect, payment strength is not strong enough, affected the accounts receivable recovery speed, increased the credit risk of enterprise cash flow.

### **4.5.2 Production costs are high and unreasonable**

Shanxi Fenjiu needs to invest a certain amount of raw materials, manpower and material resources in the production link for Fenjiu brewing, and the production link is the intermediary of cash flow circulation (Chen et al., 2019). By purchasing link analysis, Shanxi Fenjiu for communication with farmers is not timely, the backlog of raw materials, coupled with Shanxi Fenjiu inventory turnover nearly five years fell year by year, shows that Shanxi Fenjiu in production inventory control efficiency is low, inventory increase, the product and finished products take up a lot of money, working capital cannot meet the needs of normal production and operation, the cash flow of working capital risk. At the same time, Shanxi Fenjiu attaches great importance to the quality of Fenjiu, and introduced more advanced testing equipment. Although improving the testing ability of Fenjiu, the purchase of fixed assets can not form a profit in the short term, so that the cash inflow lags behind, so that the working capital is occupied, causing the working capital risk of cash flow.

## **4.6 Results of the Study**

Through Shanxi Fenjiu group financial statements, Shanxi Fenjiu controlling assets, found from the perspective of statements, Shanxi Fenjiu group in 2017~2021 regulatory investment amount, asset expansion amount and expansion ratio are on the rise, regulatory investment amount from 253 million yuan to 1.816 billion yuan, asset expansion amount from 1.272 billion yuan to 8.507 billion yuan, expansion rate from 19.89% in 2017 to 21.35% in 2021 (Xu et al, 2022). As can be seen from Table 2, the controlled investment has an obvious effect in promoting asset expansion, with the expansion scale increasing year by year and the ratio gradually increasing, which lays a certain foundation for the company to carry out scale expansion and accelerate the

development speed, as shown in Table 4-5.

**TABLE 4-5 List of controlled assets of Shanxi Fenjiu Group in 2017-2021**

Project	In 2017,	In 2018,	In 2019,	In 2020,	In 2021,
Controlling investment amount (RMB 100 million Yuan)	3.14	0.32	1.08	17.78	18.16
Asset expansion amount (RMB 100 million yuan)	15.69	32.23	45.95	70.15	85.07
Expansion ratio: (%)	20.01	0.96	2.35	25.34	21.35

Then the Shanxi Fenjiu Group profitability analysis, pointed out that the profit margin is an important basis for the company's net profit. If there is not enough operating gross profit margin can not be profitable. According to Appendix A, the gross profit rate of Shanxi Fenjiu Group from 2017 to 2021 was 69.84%, 66.21%, 71.92%, 72.15% and 74.99%, respectively. Despite the small change, it remained at about 66%. Shanxi Fenjiu low return on capital in 2016, gradually rising from 2017,2018-2021; this data has been maintained at 25%, which shows that the company's operating condition is better, can make good use of the money for the company development, enterprise shareholders high return on investment also is beneficial to attract more shareholders, also illustrates the Shanxi Fenjiu return on equity is stable, shows that the company's operating situation and development momentum is stable.

Combined with the relevant knowledge of accounting, the operating ability and profitability are the core competitiveness of the enterprise, and play a vital role in the overall operation of the company. Through the analysis of the operating capacity and profitability of Shanxi Fenjiu Group since 2017, we can find that its overall performance is good, indicating that its management level is high, but there is still a certain gap compared with other companies in the industry.

And from the operating capacity of the indicators, its accounts receivable turnover rate is the best, and increased year by year. Second, the inventory turnover and total asset turnover, indicating that the asset operation efficiency is high; the inventory turnover frequency is also an important indicator to measure the operating capacity of the enterprise, but in recent years, the inventory management of the total asset turnover is relatively small and stable, indicating that the capital turnover is fast in the process of operation. But some scholars put forward, Shanxi Fenjiu group did not consider the daily business activities of liquidity management funds, nor scientific feasibility study of project investment, blindly invest a lot of money cannot get income, but makes the capital chain problems, when suddenly face large compensation, face the market opportunity need money for market expansion, but face no money, will lose development opportunities (Tsai, 2017).On the whole, through the analysis of the operating capacity and profitability of Shanxi Fenjiu Group since 2017, the overall performance of Shanxi Fenjiu Group is good, the overall financial situation is stable,

and can maintain a high level in the future. Finally, combined with the above data and quantitative studies, the specific activities are shown in Table 4-6 below:

**TABLE 4-6 Study hypothesis validation table**

No	Hypothesis	Result
	The internal value chain of Shanxi Fenjiu has a significant positive impact on the cash flow risk.	
H1	H1a:Insufficient funds H1b:Product issues H1c:After sales service	establish
	The external value chain of Shanxi Fenjiu indirectly affects the cash flow risk through the insufficient working capital.	
H2	H2a:Investment failure H2b: Policy	establish

The content of the hypothesis was found to have a positive effect and therefore H1-H4 were all effective. In short, from the above analysis, the performance of Shanxi Fenjiu is good. But combined with quantitative analysis, the enterprise in the process of development is certainly risk, while the enterprise will have certain risk and instability, so Shanxi Fenjiu group should pay attention to strengthen the protection of the interests of shareholders, at this time should pay more attention to the enterprise management ability, improve the solvency of the company, on the premise of guarantee the company's financial stability, the strategic plan to the specific implementation, to ensure that the company's overall financial situation can improve, so as to obtain more market share.

## **Chapter 5**

### **Conclusion and Recommendation**

#### **5.1 Conclusion**

Through the analysis and research on the cash flow risk of Shanxi Fenjiu from the value chain perspective, this paper draws the following conclusions: First, cash flow is the "blood" for the survival and development of enterprises. If the cash flow is adequately managed, it will create value for enterprises (Lee et al, 2017). If the cash flow is not managed correctly, it will generate cash flow risk and damage enterprise value. Effective cash flow risk management is one of the necessary conditions for an enterprise to achieve its security and value creation objectives. Suppose it wants to make an enterprise invincible in the fierce market competition. In that case, it is necessary to effectively manage cash flow risk, control cash flow risk, and ultimately achieve enterprise value. The main goal of cash flow risk management is to reduce the risk caused by cash outflow to the enterprise and achieve the financial security goal by reasonably arranging the financial activities of the enterprise. Specifically, financial risk management includes two aspects: on the one hand, to ensure the liquidity of enterprise funds; on the other hand, to prevent the possible cash flow risk or debt financing ability decline caused by cash outflow. Through the analysis and research of cash flow risk in each link of the Shanxi Fenjiu value chain, after finding out the cash flow risk inducements and main risk factors in each link, corresponding solutions are formulated for each link. Through the analysis of each link of the whole value chain, this paper finds out the two biggest and most important inducements of cash flow problems faced by Shanxi Fenjiu. That is the risk of working capital cost and the decline of sales ability.

Secondly, traditional cash flow risk management is limited to all enterprise's internal value chain activities. With the continuous development of the value chain idea, the overall value chain has attracted more and more attention from enterprises. The value chain includes the internal value chain and the external value chain. In the external value chain, enterprises can reduce the cash flow risk by improving the cash payment ability and reducing the scale of accounts receivable and inventory.

Secondly, financing from the outside of cash flow is a financial management method adopted by most enterprises in China at present, and the capital activities related to the value chain can be considered as a part of the enterprise value chain. By controlling all links in the capital chain, enterprises can keep it in a dynamic balance, thus creating more value for enterprises. In the case of Shanxi Fenjiu, we can see that due to the lack of adequate and effective monitoring of fund management, the scale of accounts receivable needs to be bigger, which has brought great pressure on cash flow. As a leading enterprise in the Baijiu industry, Shanxi Fenjiu will bring great losses to itself if it can not manage its cash flow risk well. Based on the data and relevant research documents of Shanxi Fenjiu Group, this paper starts from the level of Shanxi

Fenjiu Group. It evaluates and analyzes the cash flow risk of each link between its internal value chain and the external value chain.

Finally, from the value chain perspective, this paper studies the cash flow risk of each link in the value chain of Shanxi Fenjiu, and puts forward corresponding countermeasures. Because each link in the enterprise value chain plays a different role in the overall value of the enterprise, this paper conducts a comprehensive study of Shanxi Fenjiu through the cash flow risk analysis of each link. Among them, the evaluation of the external value chain is based on the differences between Fenjiu Group and other Baijiu enterprises and then draws the above conclusions based on the analysis of the influencing factors and reasons for the cash flow risk in each link of the value chain, and finally puts forward the problems and suggestions in the cash flow risk management of Shanxi Fenjiu.

## **5.2 Recommendation**

### **5.2.1 Optimize the production and operation mode and reduce production cost**

Through data and relevant information, we can understand that the inventory turnover rate of Shanxi Fenjiu is facing the limitation of decreasing year by year. Not only that, the efficiency of inventory control in the production process is not high, the production cost is high, and there is a certain risk of cash flow working capital. In order to deal with this cash flow risk, it is suggested that Shanxi Fenjiu mainly starts from the following two aspects: on the one hand, optimize the production and operation mode. Shanxi Fenjiu adopts the production mode of "fixed production based on sales". On this basis, it optimizes production and operation, takes quality technology as guidance, and strengthens the improvement of production process quality, so as to ensure the quality of Baijiu products (Pang et al, 2018). In recent years, all industries have needed to focus on green development. Therefore, Shanxi Fenjiu needs to maintain the concept of green, natural and healthy product ecology, steadily promote the food safety traceability system, make every customer drink natural and green Baijiu, promote sales with high quality, and finally reduce the risk of cash flow with strict quality control measures; On the other hand, after years of development, the Baijiu industry has formed a marketing model dominated by production enterprises, but with the development of the times, the industry has gradually entered the integration stage, and the traditional marketing model will also face transformation. Therefore, in the future Baijiu market, more and more brands will realize a brand image, cultural value and market influence by strengthening their own marketing efforts. At present, Shanxi Fenjiu has set up many branches in various provinces and cities across the country. These branches are one of the earliest and largest institutions in the Baijiu industry, with certain strengths. Reduce production costs, focus on Baijiu brewing and liquor technology, control the expenses consumed in each production process, strive to achieve low-cost production and operation from Baijiu brewing to packaging, reduce the outflow of cash flow in the production process, reduce the risk of cash flow in business activities, improve profitability, establish the awareness of cost control of all employees, comprehensively

carry out cost reduction training, and incorporate cost reduction into employee assessment indicators, So as to effectively reduce costs.

### **5.2.2 Establish a supplier value team and strengthen inventory management**

According to the previous analysis, Shanxi Fenjiu needs more communication with upstream suppliers, has a large inventory backlog and has a certain degree of cash flow liquidity risk. Because suppliers play a critical role in the enterprise's external value chain, good communication between enterprises and suppliers determines the enterprise's payment method, the price and quality of raw materials, and the inventory quantity. Establishing a valued team with suppliers can achieve value sharing for enterprises and suppliers, help enterprises retain cash, delay the payment time of accounts payable, and improve the flow rate of cash flow, Improve the use efficiency of cash flow (Abbasi et al., 2018). Therefore, Shanxi Fenjiu should establish a supplier value chain team. The specific methods are as follows: First of all, in terms of supplier selection, Shanxi Fenjiu should establish a supplier selection system to comprehensively enter the supplier's price, delivery date, delivery method, raw material quality, etc., and do a good job of supplier evaluation and list update. In addition, Shanxi Fenjiu Co., Ltd. should also develop a "Shanxi Fenjiu Supplier Selection and Evaluation Standard". Only in this way can we obtain data based on standardized judgment and screen and classify them through the scoring items in the evaluation standard, and divide them into three types of suppliers. First, strategic cooperative suppliers, which have good credit, good quality of materials and simple delivery methods; Second, large-scale suppliers, which have a large quantity and variety of materials and a large transaction amount; The third is transactional suppliers, which have a small number of goods and materials and low transaction volume. Shanxi Fenjiu can establish a good supplier value alliance according to different types of suppliers. Secondly, develop products together with suppliers. Shanxi Fenjiu takes quality technology as the guide and pays attention to the improvement of product quality. However, market recognition is determined by the quality of Baijiu and by the price is eye-catching. Shanxi Fenjiu can develop Baijiu together with strategic cooperative suppliers. The cost of Shanxi Fenjiu new product development stage should not only consider the development technology but also consider the price of raw materials. However, the R&D personnel of new products are only responsible for brewing technology and lack the professional skills to control the cost of raw materials. The participation of strategic cooperative suppliers in developing new products can effectively control the development cost, thus reducing the outflow of cash flow in the development process and the risk of cash flow. In addition, work with strategic suppliers to jointly supervise the logistics, payment and warehousing of material procurement, establish a procurement supervision and operation team, and timely feed back the procurement information to the procurement department of Shanxi Fenjiu and the sales department of strategic suppliers, so as to share the procurement information, which not only improves the procurement efficiency of Shanxi Fenjiu, but also reduces the procurement cost, management of the sales department of strategic suppliers has



been strengthened, and both parties have achieved a win-win situation. On the whole, the establishment of the procurement supervision and operation team reduces the flow path of cash flow, improves the flow rate of cash flow, and helps to prevent cash flow risk.

### **5.2.3 Adjust the sales policy, improve the level of sales collection**

From the previous analysis, we can see that the sales revenue of Shanxi Fenjiu has been declining, which has affected the quality of sales revenue. Therefore, enterprises need to guide sales policies further and encourage customers to pay for goods in time to reduce the risk of poor cash recovery. For customers who cannot pay cash, try to get them to sign and issue bank acceptance bills to ensure the collection of enterprises. The enterprise also needs to promote the advance payment model further, encourage customers to pay part of the payment in advance, and give corresponding discounts according to the proportion of the advance payment. Enterprises can also issue pre-sale notices of some hot commodities, and consumers can preempt the preferential quota by paying a deposit in advance so as to improve the cash inflow in the sales process of enterprises (Jiang et al, 2020). At the same time, we should also control the number of accounts receivable and continuously improve the collection ability of accounts receivable. We can use the recovery rate of accounts receivable as a basis for assessing and promoting sales staff to promote the recovery of accounts receivable and improve the level of sales cash. In addition, the quality of operating revenue is not high, resulting in low total profit. After all, sales revenue accounts for a large proportion of total revenue and shows a downward trend year by year. Therefore, it can be judged that its impact on the company's profit is large. It can be seen from the cash flow statement that the net cash flow of Shanxi Fenjiu in the sales phase is far less than the cash flow in the sales phase. That is to say, the higher the sales expense rate, the more the enterprise needs to invest in marketing activities to promote sales business growth. The enterprise also needs to make continuous and effective investments in improving sales cast ability. Enterprises need to invest a lot of money in the process of expanding the production scale. While expanding the production process, they also need to ensure the stable development of a certain scale.

## **5.3 Further Study**

With the development of the economy and the progress of society, the theoretical and practical circles at home and abroad pay more and more attention to the exploration of financial risks caused by the cash flow risk of enterprises. Although the research results at home and abroad have high accuracy and discrimination rate, they still have certain limitations:

On the one hand, many Chinese scholars have certain defects in the research methods, especially in the analysis of data, which has resulted in a large number of repetitive research methods, so that without taking into account the social background at home and abroad, the application of foreign research results to Chinese companies has not achieved any results and results.

On the other hand, most of the financial indicators selected in most models are based on the "accrual basis", while only a few use cash flow indicators. Financial early warning indicators are established based on the study of enterprise cash flow. The current enterprise financial early warning system mainly uses some ratios to early warnings, such as solvency indicators, profitability indicators, etc., but there is no comprehensive financial early warning system based on cash flow. These indicators are easy to be manipulated by operators and cause information distortion, thus affecting the early warning effect, so future research can start from this perspective.



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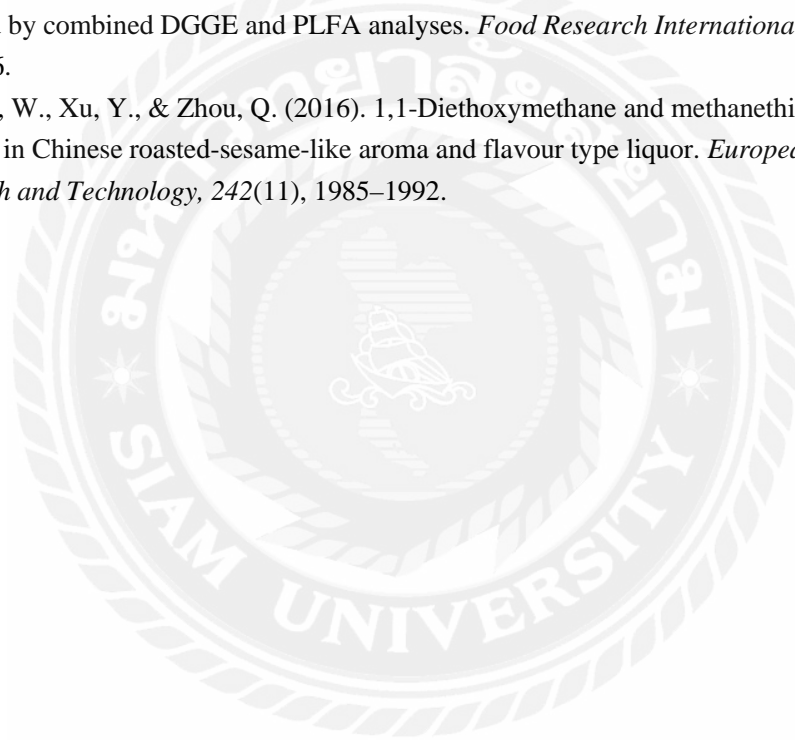
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## Appendix

### Appendix A:

#### Shanxi Fenjiu (600809) Cash Flow Statement

Unit: 10000 yuan

Report Date	2022-09-30	2022-06-30	2022-03-31	2021-12-31	2021-09-30
<b>1、 Cash flow from operating activities</b>					
Cash received from sales of goods and provision of labor services	2,247,607.52	1,469,456.64	887,173.42	2,504,809.20	1,883,532.99
Refunds of taxes	2,683.10	1,679.05	2,124.264	3,104.28	3,789.18
Other cash received related to operating activities	50,686.90	38,320.44	19,861.73	27,352.47	20,355.37
Subtotal of cash inflows from operating activities	2,300,977.51	1,509,456.12	907,248.31	2,535,265.95	1,907,677.54
Cash paid for purchasing goods and accepting labor services	343,286.11	269,178.28	128,392.48	522,645.06	331,806.21
Cash paid to and for employees	231,171.84	158,697.57	109,153.41	275,985.90	191,211.15
Various taxes paid	809,588.75	571,315.02	281,812.65	870,939.81	686,470.22
Other cash paid related to operating activities	102,814.09	42,016.16	34,039.64	101,184.68	85,790.75
Subtotal of cash outflows from operating activities	1,486,860.80	1,041,207.02	553,398.19	1,770,755.44	1,295,278.34
Net cash flow from operating activities	814,116.72	468,249.10	353,850.12	764,510.51	612,399.21
<b>2、 Cash flow from investment activities</b>					
Cash received from investment recovery	2,107,600.00	1,085,300.00	137,000.00	1,124,607.00	388,550.00



Shanxi Fenjiu (600809) Cash Flow Statement

Unit: 10000 yuan

Cash received from investment income	21,027.83	11,828.17	1,194.57	9,803.59	3,545.46
Net cash received from disposal of fixed assets, intangible assets, and other long-term assets	--	--	--	1,069.79	15,627.72
Net cash received from disposal of subsidiaries and other business units	--	--	--	970,000.00	1,603,357.00
Other cash received related to investment activities	--	--	--	1,069.79	15,627.72
Subtotal of cash inflows from investment activities	2,128,627.83	1,097,128.17	138,194.57	1,135,330.86	392,130.02
Cash paid for the acquisition and construction of fixed assets, intangible assets, and other long-term assets	69,590.11	2,213.50	1,069.79	15,627.72	6,206.04
Cash paid for investment	2,840,400.00	1,396,800.00	970,000.00	1,603,357.00	870,700.00
Net cash paid to acquire subsidiaries and other business units	--	--	--	--	--
Other cash paid related to investment activities	--	--	--	--	--
Subtotal of cash outflows from investment activities	2,909,990.11	1,399,013.50	971,069.79	1,618,984.72	876,906.04
Net cash flow from investment activities	-781,362.28	-301,885.33	-832,875.22	-483,653.86	-484,776.02
<b>3、 Cash flow from financing activities</b>					
Cash received from investment absorption	--	--	--	--	--
Including: Cash received from subsidiaries absorbing minority shareholder	--	--	--	--	--

Shanxi Fenjiu (600809) Cash Flow Statement

Unit: 10000 yuan

investments					
Cash received from borrowings	--	--	--	--	--
Cash received from issuing bonds	--	--	--	--	--
Other cash received related to financing activities	--	--	--	--	--
Subtotal of cash inflows from financing activities	--	--	--	--	--
Cash paid for debt repayment	--	--	--	--	--
Cash paid for distributing dividends, profits, or paying interest	217,388.26	194,896.69	--	17,430.21	17,472.34
Including: Dividends and profits paid by subsidiaries to minority shareholders	--	--	--	--	--
Other cash payments related to financing activities	1,334.36	seven hundred and fifty-nine point eight zero	--	888.92	32.40
Subtotal of cash outflows from financing activities	218,722.62	195,656.49	--	18,319.12	17,504.75
Net cash flow from financing activities	-218,722.62	-195,656.49	--	-18,319.12	-17,504.75
4、 Effect of exchange rate changes on cash and cash equivalents	--	--	--	-41.79	--
5、 Net increase in cash and cash equivalents	-185,968.19	-29,292.72	-479,025.10	262,495.73	110,118.44
Add: Balance of cash and cash equivalents at the beginning of the period	599,215.98	599,215.98	599,215.98	336,720.25	336,720.25
6、 Balance of cash and cash	413,247.80	569,923.27	120,190.88	599,215.98	446,838.69

Shanxi Fenjiu (600809) Cash Flow Statement

Unit: 10000 yuan

equivalents at the end of the period					
note appended					
Net profit	--	505,486.30	--	538,966.92	--
Minority shareholders' equity	--	--	--	--	--
Unrecognized investment losses	--	--	--	--	--
Provision for asset impairment	--	--	--	--	--
Depreciation of fixed assets, depletion of oil and gas assets, and depreciation of productive materials	--	7,473.06	--	15,905.79	--
Amortization of intangible assets	--	517.54	--	1,079.41	--
Amortization of long-term unamortized expenses	--	--	--	92.19	--
Decrease in deferred expenses	--	--	--	--	--
Increase in accrued expenses	--	--	--	--	--
Losses on disposal of fixed assets, intangible assets and other long-term assets	--	0.08	--	228.87	--
Loss on retirement of fixed assets	--	--	--	-2,752.58	--
Loss from changes in fair value	--	--	--	--	--
Increase in deferred income (less: decrease)	--	--	--	--	--
Estimated liabilities	--	--	--	--	--
Financial expenses	--	-9,115.71	--	-8,270.98	--
Investment losses	--	-23,529.03	--	-42,796.56	--

Shanxi Fenjiu (600809) Cash Flow Statement

Unit: 10000 yuan

Decrease in deferred income tax assets	--	--	--	595.30	--
Increase in deferred income tax liabilities	--	-37,039.56	--	-183,544.70	--
Decrease in inventory	--	-37,039.56	--	-183,544.70	--
Decrease in operating receivables	--	234,221.13	--	-45,243.46	--
Increase in operating payables	--	-210,467.73	--	465,593.52	--
Decrease in completed but unsettled accounts (less: increase)	--	--	--	--	--
Increase in settled but not completed accounts (Minus: decrease)	--	--	--	--	--
other	--	981.28	--	23,903.74	--
Net cash flow from operating activities	--	468,249.10	--	764,510.51	--
Debt converted to capital	--	--	--	--	--
Convertible corporate bonds maturing within one year	--	--	--	--	--
Fixed assets under financing lease	--	--	--	--	--
Closing balance of cash	--	569,923.27	--	599,215.98	--
Opening balance of cash	--	599,215.98	--	336,720.25	--
Closing balance of cash equivalents	--	--	--	--	--
Opening balance of cash equivalents	--	--	--	--	--
Net increase in cash and cash equivalents	--	-29,292.72	--	262,495.73	--

## Appendix B:

In recent years, sales of high-end liquor have been greatly affected due to the reform of the consumption structure of the liquor industry. Listed companies in the liquor industry have experienced large fluctuations in the stock market in the past year. For example, the stock price of Moutai fell from RMB 2,680.59 on February 26, 2021 to RMB 1,620.72 on August 6, 2021, a drop of approximately 39.54%. Even since 2012, the liquor industry has not experienced such a big market shock since it entered a period of deep adjustment. As a result, the financial risks of listed companies in the liquor industry have attracted a great deal of attention from the industry and academia.

Shanxi Fenjiu 600809	<b>278.90</b>	-5.40% - 1.90%	Volume: 55418 (hands)	Volume: 154990 (ten thousand yuan)
2023-03-02 15:59:54				
Today's opening: 284.91 Yesterday's closing: 284.30 Maximum: 284.98 Minimum: 277.08				
Handover: 0.46% P/E: 45.11 Volume ratio: 1.58 Amplitude: 2.78%				

Financial risk in a broad sense is considered to be a risk that runs through all aspects of business development and is not limited to the financial risk caused by liabilities. Specifically, it refers to the possibility that an enterprise may suffer losses due to changes in the internal and external environment and various factors that are difficult to predict or control, which may cause the enterprise's operating income to deviate from the expected income (Xu and Wnag, 2008; Zhou, 2004; Huang, 2013).

Therefore, evaluating the financial risks of listed liquor companies has the following advantages. First, it provides investors with scientific and reliable decision-making. Second, it can identify potential financial risks for listed liquor companies. Third, it can remind corporate managers to adjust operational strategies in a timely manner and improve their ability to resist risks, thereby promoting the healthy development of listed liquor companies. This paper constructs a financial risk evaluation model for listed liquor companies in China based on principal component analysis, and evaluates their financial risks in four aspects, namely, solvency, operating capacity, profitability and development capacity, in order to provide relevant reference materials for listed liquor companies and investors.

Because the financial information of listed companies is relatively complete and public, and the data sources are more convenient and reliable, this paper selects the listed companies in the liquor industry in the A shares of Shanghai and Shenzhen from 2011 to 2020. At present, there are 20 listed companies whose main business is liquor, including Moutai, Wuliangye, Yanghe shares, Luzhou Laojiao, Gujing tribute wine, Fenjiu, Yingjia Gongjiu, Kouzijiao, Jinshiyuan, Laobaigan, Jinseed, Elite, Highland barley wine, Shede Wine Industry, Shuijingfang, Jiuguijiu, Huangtai Liquor, Shunxin Agriculture, Weiwei, and Jinhuijiu. Of these, Shunxin Agriculture and Weiwei, are included in the analysis mainly because the brands of liquor they produce are more well-known or representative of the region, such as Niulangshan Erguotou and Guizhou Alcohol. Companies with less than 10 years of data observations were excluded, including Jinshiyuan, Jinhuijiu, Kouzijiao and Yingjia Gongjiu; Weiwei was excluded because it was ST; 15 companies' annual observations were finally obtained. Therefore, a total of 15 listed liquor companies were selected as the sample in this paper (see Table 1).

Table 1. Sample companies studied in this paper

code	company name	code	company name
002646	Highland barley wine	600809	Shanxi Fenjiu
002304	Yanghe shares	600779	Shuijingfang
000995	Huangtai Winery	600702	Shede Wine Industry
000860	Shunxin Agriculture	600559	Laobaigan
000858	Wuliangye	600519	Kweichow Moutai
000799	Alcoholic drink	600199	Golden seed wine
000596	Gujing tribute wine	600197	Elite
000568	Luzhou Laojiao		

The annual reports from 2011-2020 were used as the data source to evaluate the financial risk of listed liquor companies in the past 10 years, and the sample data were taken from the CSMAR and the relevant financial reports made public by listed companies. Referring to Pan(2016), 16 financial indicators in four areas of solvency, operating capacity, profitability and development capacity were finally selected to evaluate the financial risk of listed liquor companies (see Table 2), and the financial indicators were calculated with reference to the methods of Xu (2008), Qi (2018), Lu (2019), Pan (2015) and Wang (2016). It should be noted that in the financial data of Kweichow Moutai, the data in the accounts receivable column for 2016 and later is empty. In the item notes of the consolidated financial statements about the disclosure of accounts receivable, RMB 3243804.43 is used instead to calculate Kweichow Moutai Accounts receivable turnover ratio from 2016 to 2020.

Table 2. Selection of financial indicators

Indicator type	variable	Indicator name	Indicator calculation method
solvency	X1	current ratio	Current Assets/Current Liabilities
	X2	quick ratio	(Current Assets - Inventory)/Current Liabilities
	X3	cash ratio	Closing balance of cash and cash equivalents/current liabilities
	X4	Assets and liabilities	Total Liabilities/Total Assets
Operating capacity	X5	Accounts Receivable Turnover	Operating Income/Average Occupied Accounts Receivable
	X6	Inventory turnover	Operating cost/average inventory occupancy
	X7	current asset turnover	Operating Income/Average Occupation of Current Assets
	X8	total asset turnover	Operating Income/Total Average Assets
Profitability	X9	return on assets	(Total Profit + Finance Expenses)/Total Average Assets
	X10	Roe	Net profit/average balance of shareholders' equity
	X11	Operating gross profit margin	(operating income - operating costs)/operating income
	X12	Operating net profit margin	Net profit/operating income
development ability	X13	capital accumulation rate	(Total owner's equity at the end of the current period-total owner's equity at the beginning of the current period)/total owner's equity at the beginning of the current period
	X14	total asset growth rate	(Total assets at the end of the current period - total assets at the beginning of the current period)/Total assets at the beginning of the current period
	X15	Net profit growth rate	(Amount of net profit for the current year - amount of net profit for the same period of the previous year) / amount of net profit for the same

		period of the previous year
X16	Total operating income growth rate	$(\text{Total operating income for the current period of the year} - \text{total operating income for the same period of the previous year}) / \text{Total operating income for the same period of the previous year}$

This paper will analyze the profitability of Fenjiu Group in recent five years from the enterprise's sales profitability, asset profitability, and investor profitability. The financial indicators used are operating profit rate, gross profit margin, return on total assets, return on equity, and earnings per share.

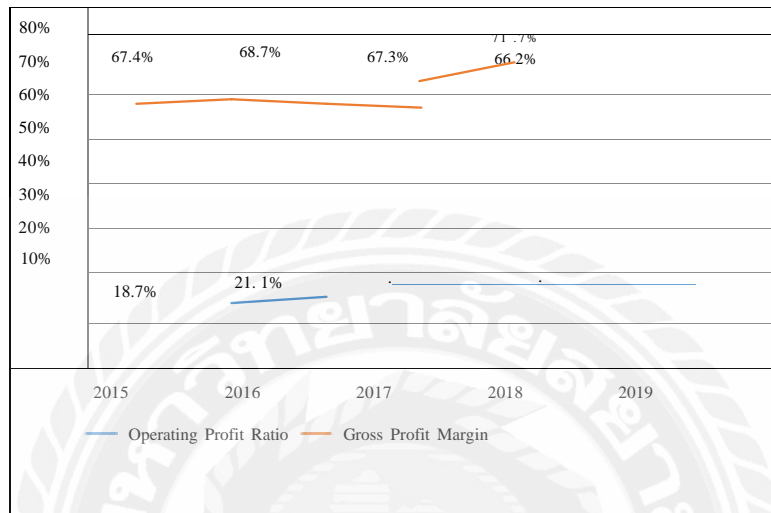


Fig. 1. Sales profitability of Fenjiu Group

The utilization efficiency of enterprise funds is low. From 2015 to 2018, the net assets of enterprises have maintained a growth rate of about 55%, with a large increase. In 2019, the company's net profit increased by 28.63%, a smaller increase which is lower than in former years. At the same time, corporate assets are growing continuously. Therefore, the decline of the company's net profit growth and total assets increase directly lead to the decline of the return rate on total assets. And the main reason for the decline is that the scale of assets continues to expand but doesn't bring the corresponding scale of profit.

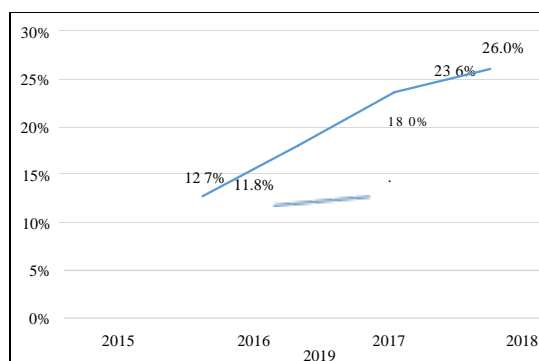
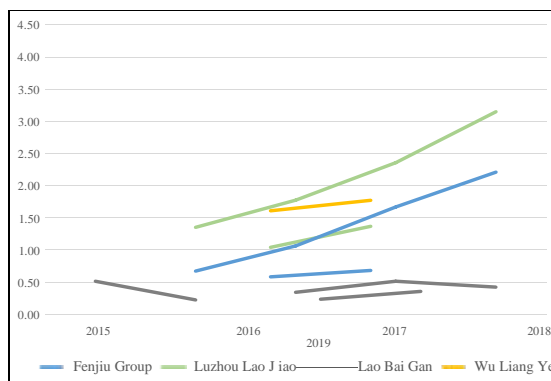


Fig. 2. ROE of Fenjiu Group



**Fig. 3.** EPS of Fenjiu Group, Luzhou Lao Jiao, Lao Bai Gan, and Wu Liang Ye

### Main Business Scope | Analysis of Main Business Composition | Business Review

Main business scope: production and sales of Fenjiu, Zhuye Qingjiu and their series of liquors. Concurrent business: research, development, production, and application of high and new technologies and products in alcohol industry; Investing in enterprises and related consulting services; Sales of by-products such as distiller's grains, raw and auxiliary materials for production, and packaging materials; Road general cargo transportation.

#### Analysis of main business components

2022-06-30	Main business composition	Main business income (yuan)	Income ratio	Main operating cost (yuan)	Cost ratio	Main operating profit (yuan)	Profit ratio	Gross profit margin (%)
Classification by product	Fenjiu series	14 billion 200 million	92.58%	--	--	--	--	--
	Bamboo Leaf Green Wine Series	548 million	3.57%	--	--	--	--	--
	Xinghua Village Wine Series	483 million	3.15%	--	--	--	--	--
	Other (supplementary)	106 million 800 thousand	0.70%	19 million 390 thousand	100%	87 million 430 thousand	100%	81.85%
Classification by region	Markets outside the province	9 billion 592 million	62.56%	--	--	--	--	--
	Provincial market	5 billion 634 million	36.75%	--	--	--	--	--
	Other (supplementary)	106 million 800 thousand	0.70%	19 million 390 thousand	100%	87 million 430 thousand	100%	81.85%
2021-12-31	Main business composition	Main business income (yuan)	Income ratio	Main operating cost (yuan)	Cost ratio	Main operating profit (yuan)	Profit ratio	Gross profit margin (%)
Classification by industry	Food manufacturing industry	19 billion 810 million	99.19%	4 billion 955 million	98.89%	14 billion 850 million	99.29%	74.99%
	Other (supplementary)	162 million 700 thousand	0.81%	55 million 750 thousand	1.11%	107 million	0.72%	65.74%
Classification by product	Fen Wine	17 billion 920 million	89.73%	4 billion 202 million	83.86%	13 billion 720 million	91.70%	76.55%
	Mixed liquor	1 billion 250 million	6.26%	453 million 700 thousand	9.05%	796 million 400 thousand	5.32%	63.71%
	Series liquor	637 million 900 thousand	3.19%	299 million 200 thousand	5.97%	338 million 700 thousand	2.26%	53.10%
	Other (supplementary)	162 million 700 thousand	0.81%	55 million 750 thousand	1.11%	107 million	0.72%	65.74%
Classification by region	Outside the province	11 billion 740 million	58.77%	2 billion 874 million	57.37%	8 billion 863 million	59.25%	75.51%
	Province	8 billion 70	40.41%	2 billion 80	41.52%	5 billion 990	40.04%	74.22%



region		million		million		million		
	Other (supplementary)	162 million 700 thousand	0.81%	55 million 750 thousand	1.11%	107 million	0.72%	65.74%
2021-06-30	Main business composition	Main business income (yuan)	Income ratio	Main operating cost (yuan)	Cost ratio	Main operating profit (yuan)	Profit ratio	Gross profit margin (%)
Classification by product	Fen Wine	11 billion 30 million	91.05%	--	--	--	--	--
	Mixed liquor	671 million 800 thousand	5.54%	--	--	--	--	--
	Series liquor	305 million 500 thousand	2.52%	--	--	--	--	--
	Other (supplementary)	107 million 100 thousand	0.88%	27 million 810 thousand	100%	79 million 240 thousand	100%	74.02%
Classification by region	Markets outside the province	7 billion 294 million	60.19%	--	--	--	--	--
	Provincial market	4 billion 718 million	38.93%	--	--	--	--	--
	Other (supplementary)	107 million 100 thousand	0.88%	27 million 810 thousand	100%	79 million 240 thousand	100%	74.02%
2020-12-31	Main business composition	Main business income (yuan)	Income ratio	Main operating cost (yuan)	Cost ratio	Main operating profit (yuan)	Profit ratio	Gross profit margin (%)
Classification by industry	Food manufacturing industry	13 billion 850 million	98.99%	3 billion 836 million	95.79%	10 billion 10 million	100.27%	72.30%
	Other (supplementary)	141 million 800 thousand	1.01%	168 million 600 thousand	4.21%	-26.8 million	-0.27%	-18.91%
Classification by region	Outside the province	7 billion 852 million	56.13%	2 billion 105 million	52.57%	5 billion 747 million	57.56%	73.19%
	Province	5 billion 996 million	42.86%	1 billion 731 million	43.22%	4 billion 265 million	42.71%	71.13%
	Other (supplementary)	141 million 800 thousand	1.01%	168 million 600 thousand	4.21%	-26.8 million	-0.27%	-18.91%