

Research on the Influential Factors for Hedge Fund Performance in Liquor Industry

Yiwen Hu^{1,*}

¹Mathematics Department, University of Waterloo, N2L 3G1, Waterloo, Canada

*Corresponding author. Email: y379hu@uwaterloo.ca

ABSTRACT

China has a very rich wine culture, and there is even a large amount of famous wine inherited for hundreds of years. Social intercourse at the dinner table is also inevitable in Chinese culture, which means that liquor is an essential consumer goods in daily life. And the general consumer goods will be devalued over time, while liquor, relatively special consumer goods, particularly liquor of high quality, will appreciate in value with the passage of time. Like a bottle of Moutai for decades, of which the price is higher than before. Moreover, the profit ratio of liquor is also very high, many of which have a very obvious brand advantage, such as Moutai and Wuliangye,. Relying on brand advantages, they can get a lot of profits in a long time. Therefore, in the past ten years, numerous top-quality stocks have arisen in the liquor industry, which means it is a very potential sub-industry of consumer goods. Based on the hedge fund's operation mode and the liquor industry's characteristics, this paper constructs a conceptual model of the influential factors of the hedge fund in the liquor industry from three dimensions: market factor, company size and the value factor of the company. Using SPSS software to analyze the correlation among factors, the key common factors were identified, and then the weight was determined as well, as the evaluation was conducted. Finally, the relevant conclusion was drawn based on regression analysis of the influential factors for hedge funds performance in the liquor industry. It is of practical value and theoretical significance to conduct this study.

Keywords: Liquor industry, Hedge funds, Performance, Influence factors, Empirical analysis

1. INTRODUCTION

Hedge funds emerged in the late 1950s and early 1960s, having evolved with the development of capital markets. In the 1990s, hedge funds ushered in a golden period of development as a decisive force affecting financial markets and began to attract the attention of Western scholars. In the initial stage, the hedge fund was considered as a two-way operation to avoid risks and maintain values. With its own continuous improvement and development, hedge funds have lost the original intention of risk hedging, which instead have converted into a sort of profit-oriented financial funds depending on a variety of investment strategies of hedging and arbitraging.

There have been numerous instances of impact from hedge funds' hedge operations on the financial market, of which amazing earnings and losses often receive much attention from the media. In 1992, George Soros's quantum macro hedge fund made \$1bn by shorting the pound. In 1997, Long-term Capital Management

Companies (LTCM) held large amounts of Russian Rubles. However, it encountered a heavy loss due to the devaluation of the Ruble and economic contraction, being on the verge of bankruptcy. During the Asian financial crisis from 1997 to 1998, Soros's macro funds were strongly protested and boycotted by countries for it made profits by speculating on Asian currencies.

In the 21st century, hedge funds have entered a stage of rapid development. Moreover, the worldwide assets of hedge funds have been over trillions, with about 90% in the US, about 9% in Europe, 1% in Asia and elsewhere. The number of hedge funds is two or three times larger than in the mid-1990s, and the vast majority of these hedge funds was less than \$100m in size. Many hedge funds earn double-digit yields ratio for their investors, which seems unrelated to the fluctuation in the general market and has relatively low volatility. In the last two years, affected by the financial crisis, the economic recovery in the western developed countries has been slow, and capital markets have not performed well for years. Furthermore, the outbreak of the

European debt crisis in 2009 has made the pace of economic recovery even slower. However, under such a backdrop of depression, Ray Dalio's Bridgewater fund, the world's largest hedge fund, still returned as much as 23% in 2011 through trading in US treasury bonds, German bonds and the Yen. Scholars from all over the world have paid the development and operation strategy of hedge funds increasing attention.

In the meantime, various conditions for hedging transactions are also being improved in China. On March 31, 2010, a pilot transaction of the margin trading business was launched; on April 16, the Shanghai-Shenzhen 300 stock index futures were officially released; on February 13, 2012, the treasury futures simulation trading was published. On March 7, 2011, "Jun-Xiang Quantification" hedging products of Guotai Junan were issued. In addition, Efonda Asset Management has also designed products with a hedging nature, which indicates that the domestic hedging team continues to grow.

GDP growth has a clear impact on the industry, which shows that the global and China's macroeconomic downturn has slowed the development of the liquor industry. After the baptism of the market economy, the relatively traditional liquor industry is also showing an increasing linkage effect with the overall economic trend. Through the correlation study between growth rates of the liquor production and GDP in the recent 20 years, it was found that the effect from GDP growth on the development of the liquor industry is basically synchronized, which especially demonstrated that the response performance of high-grade liquor on the GDP is more sensitive, while the hysteresis of impact is more significant for mid-range and low-grade products.

After the process of the downward trend of macroeconomic development, the restrictions of relevant policies and the mitigation of overall market consumption demand, the trend of prosperity and development of the liquor industry has been confined to some degree, especially the enterprises which overemphasize the "high-end" and "prestigious" have been hit hard. Besides, the development of the whole liquor industry has also encountered certain challenges. First of all, with the restriction of policies, such as the "prohibition of alcohol" issued to prevent traffic accidents, and the promulgation of some policies of actively limiting the costs associated with hospitality in government to prevent corruption, which now has resulted in a dramatic reduction of the consumption of liquor. Secondly, with the increase of ordinary people's income, low- and middle-income groups are gradually becoming the new group of consumption of liquor. Therefore, this will also provide certain opportunities for the sale of liquor. It is worth noting that a variety of drinks produced by modern society also has a negative impact on the consumption of liquor. In addition,

because people promote a healthy lifestyle, people now pay attention to the taste of wine and lay more focus on what kind of wine is beneficial for their health. So, this is undoubtedly a new challenge to wine enterprises, which means that they need to ensure the taste and the efficacy of wine at the same time. Finally, the future income growth of the liquor industry will mainly come from the increase of residents' income. More specifically, two important consumer groups will arise in recent years: one is the group of consumers with high consumption capacity who replace the previous affluent class of political and commercial consumers, and the other is urban residents after consumption upgrade. The change of consumption structure will make the liquor industry gradually change from the current "dumbbell" structure to the "olive" structure, and medium and high-end liquor enterprises will usher in a period of high-speed growth.

For liquor hedge funds, event-driven strategies can be used to share the "dividend" of event shocks. In any market, events usually firstly affect the expectations of market participants before they affect the fundamentals of the business and then directly impact the share price, and the A-share market is not an exception. Event-driven strategies will produce profits when share prices are hit by some events, like focusing on companies that are or maybe in the process of restructuring, acquisitions, mergers, liquidations, or other special events, and then, look for the next stock reform company during the stock reform period. The search for companies with restructuring themes is the embodiment of event-driven strategy. CITIC Securities Financial Engineering and Derivatives Group has conducted event research on the issuance of separate bonds, dividend distribution, equity incentive, component stock adjustment, etc. The A-share market obtained excess earnings by capturing the impact of events on the stock price in different links. For example, on September 8, 2009, Shuijingfang (600779) announced that the Chinese and foreign shareholders of Quanxing Group would hold formal talks from September 9, 2009. On March 2, 2001, DHHBV would hold a 53% stake in Quanxing Group and would indirectly control 39.71 % of the company currently held by Quanxing Group, triggering a tender offer obligation. The event itself was favorable for Shuijingfang, and the market is expected to be stronger than the industry. Therefore, we can choose to take a long position after the announcement, with short selling of Guizhou Moutai (600519), Wuliangye (000858) and other liquor companies to hedge the risk.

In general, due to policy constraints and limited level of specialization, the development of hedge funds in China currently is in the state of origin. At present, the domestic quantitative analysis of hedge funds is basically blank. Therefore, the analysis of hedge fund trading strategy and performance in this paper, to a large

extent, caters to the development trend of hedge funds in China, which is a reasonable reference both for capital market practitioners, regulators, experts and scholars.

Based on the hedge fund's operation mode and the liquor industry's characteristics, this paper constructs a conceptual model of the influential factors of the hedge fund in the liquor industry from three dimensions: market factor, company size and the value factor of the company. Using SPSS software to analyze the correlation among factors, the key common factors were identified, and then the weight was determined as well, as the evaluation was conducted. Finally, the relevant conclusion was drawn that the company size factor has a moderating effect between the market and company value factors, which is a positive influence. It is of practical value and theoretical significance to conduct this study. Section 1 reviews the research background and significance. Section 2 conducts the literature review and theoretical basis and explores relevant researches of hedging strategies and fund performance. Section 3 designs the assumptions and models in this paper. Section 4 processes the data and analysis. Section 5 discusses the conclusions and prospects.

2. LITERATURE REVIEW AND THEORETICAL BASIS

2.1 Relevant Researches of Hedging Strategies

Treynor and Mazuy first examined the timing of fund managers. The main idea is to judge whether fund managers can accurately predict the market inflection point and make corresponding adjustments [1]. By correctly estimating market movements, investment managers can also improve the performance of funds managed. They need to estimate when a bull market will occur and when there will be a bear market based on their expertise and experience and position their portfolios accordingly, adjusting the equity and cash to suit the market environment.

Stephen and William concluded that the degree of interpretation of change of the earnings of hedge funds could reach at a rate of 20% from the differences in investment styles resulting from different investment strategies used in hedge funds, based on their research on hedge fund monthly historical earnings data from 1989 to 2000 and [2]. They argue that many people are wrong to hold the view that hedge funds often adopt market-neutral strategies to invest. But, hedge funds have at least eight strategy styles, and their risk exposure is largely dependent on investment styles.

Narayan, Tarun, and Maria tried to prove that capacity limits in the hedge fund industry were the main reason for the decline in absolute returns from hedge fund investment strategies [3]. Their research found that in the eight hedge fund investment strategies studies,

four had a significant relationship between the decline of absolute returns and capacity constraints, namely, relative value strategies, targeted trading strategies, emerging market strategies, and fixed income strategies.

Andrew used CS/Trment's yield index to consider hedge fund returns and strategy styles [4]. According to Lo, there are considerable differences among characteristic variables of the historical risk and the yield ratio of different types of hedge funds. No matter it is the annualized mean or volatility of yield, there are always remarkable differences between different strategies. The correlation between the yield of hedge fund strategy and the S&P500 is generally not high, with the largest correlation coefficient of 59.5% of the go long or go short stock type and the smallest one of -75.7% of the short selling stock type. On top of that, hedge funds have an important feature - a fairly fragmented correlation model: while some strategies have high yield correlations (e.g. event-driven and endangered securities), others show strong negative correlations (e.g. event-driven and biased short-selling), which means that the benefits of diversification can be noticeable.

In the field of hedge funds, fund managers control the operation of funds and influence the fund's investment style and strategy to a large extent, which means "the choice of hedge funds is the selection of hedge fund managers". The study of the personal characteristics of hedge fund managers is therefore of great significance. In the existing literature, many scholars have begun to focus on the personal characteristics of fund managers, trying to study the various factors affecting the performance and risk of funds from a microcosmic point of view. In terms of the age of the fund manager, younger fund managers are more motivated to build reputations and attract investors and have more flexible market operations, making it easier to achieve consistently excellent results [5]. In comparison, older and more experienced hedge fund managers are more likely to fail by taking too many risks [6]. Moreover, in regard to the education background, hedge fund managers who enter university with higher SAT scores have higher yields [7], and higher IQ-represented investors perform better [8]. About fund manager's professional experience, those with mutual fund experience perform best overall, followed by brokerages, and the worst are among private individuals [9]. In addition, other factors such as the fund manager's gender and educational background [9-11] also impact the fund's investment style and performance. Furthermore, studies have found that hedge fund managers who look more likely to be trusted may be under-represented by over-absorption of funds, resulting in inadequate management effort [12]. The study of the personal characteristics of fund managers has made considerable progress in various aspects, which further proves that the personal characteristics of

hedge fund managers are critical to the performance of fund products, and follow-up studies have the opportunity to continue to further exploration of the personal impact factors from this perspective.

2.2 Relevant Researches of Fund Performance

Agarwal and Naik studied the sustainability of hedge fund performance over the quarterly, semi-annual, and annual periods by analyzing assemblage sequences that outperform and underperform over the benchmark yield over two, three, and more consecutive periods [13]. In their view, sustained track record tends to be distributed among underperforming hedge funds. It is more consistent over the quarterly period than in the annual period, which means this level of continuity under multi-period conditions is lower than under the two-period analysis. The sustainability of hedge fund earnings is not associated with hedge fund strategy.

Stephen and William argue that the annual continuity of hedge fund earnings is closely related to the management and operation of the investment style of hedge funds [2].

Francis, Winston, and Melvyn analyzed the performance sustainability of Asian hedge funds and tested continuity using the tabulation method of a combination of winners and losers [14]. The study concludes that there is continuity in the monthly and quarterly performance data of hedge funds in Asia. This continuity of the performance is greatly related to the fluctuations in the stock market and the length of the redemption period.

Daniel and Georges collected a lot of hedge fund performance data to analyze its performance [15]. Based on the Carhart model, the authors proposed a new hybrid model by adding different characteristics of hedge funds. After regression analysis, about a quarter of hedge funds showed significant excess returns, which is excellent for hedge funds with global macro strategies, buy and sell hedging leverage strategies, event-driven strategies, etc. For the continuity analysis, the authors argued that high-performing hedge funds tend to have momentum strategies and stick to their original investment ideas. In contrast, underperforming hedge funds hold momentum and contrarian strategies, so those with strong performance (excellent and poor) tend not to have continuity of returns. At the same time, there is limited evidence that normal-performing hedge funds have short-term sustainability.

Martin summarized previous studies on the sustainability of hedge fund performance and concluded that: 1 [16]. The data on the sustainability of hedge fund performance includes only monthly, quarterly and semi-annual data, and there is no continuity in annualized earnings data. Moreover, the significance of continuity of hedge fund performance decreases over

time, and the monthly and quarterly performance sustainability only exists in the short term. 2. The selection of different performance measures will not affect the results of the performance measurement of hedge funds. At the same time, Martin himself believes that the sustainability of hedge fund performance is closely related to the selection of hedge fund strategies, including convertible arbitrage, emerging market investment and other strategies, showing a significant continuity during the study period, while the fund's strategy and equity buy-to-hold strategy shows a lower continuity.

At present, domestic research on hedge funds lags behind. Most of them are prospects for the domestic hedge fund industry and explain the relevant legal regulation of hedge funds. No matter for hedge fund strategy or hedge fund earnings status and its sustainability, there are few relevant literatures of quantitative analysis for reference, so it tends to focus on research results of mutual funds for the reference of domestic literature.

Zou Wei and Lu Ping conducted the research of hedge fund earning based on the six-factor model [17]. The six-factor model used in their study is actually an improvement of the Fama-French model. The authors argue that hedge funds can get excess returns, but the size and frequency of returns vary depending on the investment model of hedge funds. At the same time, hedge funds do well because they can offer high pay to attract professional fund managers. On the contrary, fund managers with poor performance seem to have been unable to emerge from the shadow of failure for years.

Wu Qi-fang, Wang Shou-yang, and Li Jian-qiang simulate the regression calculation and combination operations to test the sustainability of domestic portfolio earnings [18]. They found that returns in the medium and long term (six to twelve months) funds showed stability, and both the long-term and short-term historical returns showed a negative relationship with the short-term returns in the future.

Xiao Qui-xi and Yang Yi-qun test the continuity of open-ended funds in China. The result shows that the continuity of domestic open-end funds is poor [19]. While the continuity occasionally occurs in the short term, fund managers cannot beat the market in succession. Therefore, it is difficult to predict the future funds' performance based on the previous earnings.

2.3 Literature Review

At present, the international research on the performance of hedge funds has begun to bear fruit. In contrast, the current research on hedge funds in China mainly focuses on the regulatory and institutional levels. This paper analyzes the influential factors on the

performance of hedge funds in the liquor industry, adding liquidity factors to the traditional model and establishing a new evaluation model to analyze and explore various factors that affect the performance in depth. In addition, for the four investment strategies of stock shorting, convertible arbitrage managed futures and multiple arbitrage strategy, liquidity factors are introduced in the model to further improve the overall interpretation ability of the model [20].

3. RESEARCH DESIGN

3.1 Research assumptions and models

Based on the hedge fund's operation mode and the liquor industry's characteristics, this paper constructs a conceptual model of the influential factors of the hedge fund in the liquor industry from three dimensions: market factor, company size and the value factor of the company. By using SPSS software to analyze the correlation of factors, the key common factors can be identified. Then the weight can be determined as well as the evaluation can be conducted. To test the stability and reliability of the survey information, the reliability analysis will be carried out on the survey results. By means of the identification of independent variable (market factors), dependent variables (company value factors), and control variables (company size), the regression method for building regression models, and the analysis of the significance of the relationship between the independent and dependent variables, assume the company size has the moderating effect to the value factor of the company, which is a positive influence.

Based on the above research hypothesis, the research model constructed in this paper is shown in Figure 1.

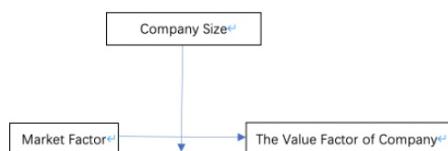


Figure 1. Constructed research model

3.2 Variables and Data

3.2.1 The Market Factor

In the light of the relevant researches, market factors are the critical factors affecting the performance of hedging funds. For instance, most fund managers were inclined to conduct investments on small-cap and high-growth stocks during the past six years to achieve excess earnings. Moreover, taking the momentum effect into account, a large number of fund managers would proactively adopt the momentum and contrarian strategy to improve the performance of funds. In contrast, those

who implement the stock-jobbery, event-driven, or futures-management managers tend to choose the momentum strategy. Besides, the market factor is the essential indicator influencing the hedging funds in a mass of related models that focus on the study of multi-factors. This factor has high explanatory power for many investment strategies. Based on the analysis of momentum indicators, the funds' managers who employ stock-jobbery and futures-management strategies must take advantage of continuous-momentum strategy to stabilize the performance of funds.

3.2.2 The Value Factor of Company

We take the listed company with all the shares in circulation as an example to discuss the relationship between enterprise value and enterprise market value. For this type of enterprise, the enterprise's market value is the enterprise's market value in the stock market.

The value of an enterprise determines the value of the stock of the enterprise. It is generally believed that the total value of an enterprise consists of its equity capital value and debt value. Since preferred shares make up a small proportion of equity capital, we can simplify the value of equity capital to common shares value for research purposes, while for debt, the market price fluctuates very little when the interest rate and default risks are small. Therefore, we can consider that: under the premise that the capital structure of the enterprise remains unchanged, the greater the total value of the enterprise is, the greater the value of its equity capital becomes, and the higher its stock value achieves. Thus, the value of the stock is determined by the value of the enterprise.

The value of a stock determines the price of a stock. In the securities market, stock prices focus on different parties because stock prices reflect shareholders' wealth. In addition, the stock price is actually the investor's expectation of the future earnings of the enterprise, which is the estimation of the market for the value of the enterprise's stock. According to the assumption of the effectiveness of the market, when the market is effective, investors have complete information, of which expectations of the future earnings of the enterprise is fully consistent with the actual situation of the enterprise, so they will only buy and sell stocks at the same price as the value of the stock. At the time, the price of the stock is equal to its value. Therefore, in this kind of market, the stock price is determined by the value of the stock. Of course, in real economic life, the efficient market is an ideal state. However, the price of stocks always fluctuates around their value. When the price of a stock is above its value, the investor will sell the stock, which will make the price tend to approach the value; similarly, when the price of a stock is below its value, investors will buy the stock to make its price tend to approach to the value.

The value of the enterprise determines the value of the stock, and the value of the stock determines the stock price. So, the enterprise's value determines the enterprise's stock price, that is, the market value of the enterprise. The significance of this conclusion is that the corporate value rests on the estimation of bankers and has a market position. For managers, whether they create value for the business can also be tested in the market.

3.2.3 Company Size

Moderator variable, which is that the larger the firm's size is, the better the market factor, and the higher the company value factor will become.

3.2.4 Other Control Variables

Other control variables are qualitative and quantitative indicators.

Quantitative indicators: turnover, sales level, growth rate, yield rate, profit margin rate, coverage rate, capital ratio, disposable cash, cash flow ratio, liquidity ratio, key sector ratio of certain industries, balance sheet adjustment, change in working capital, capital expenditure (maintaining the existing level or change), non-recurring profit and loss, capital flow, including dividends, foreign exchange impact and accounting impact.

Qualitative indicators: industrial sector, major markets, market position, trading scope, geographic diversity, business strategy, company size, trade barriers, competitive advantage, development opportunities, financial policy, quality of management, financial

structure, cash analysis, structure analysis of debt maturity, security analysis, third-party guarantors, legal structure, ownership, corporate governance and regulatory framework.

3.2.5 Data Collection Process

To ensure the availability and accuracy of the sample data, the liquor industry included in this paper needs to meet the following three conditions.

- (1) have the popularity and the base of customers of a certain degree in the industry;
- (2) are listed enterprises;
- (3) of which market value or valuation of \$500 million or less.

Finally, we selected 20 liquor companies as the final target of the survey. Multistage sampling is used for sampling design and survey estimation.

4. DATA PROCESSING AND ANALYSIS

4.1 Questionnaire Design

To ensure the scientificity, integrity, and validity of the questionnaire content, the questionnaire design is mainly based on the relevant research literature, and 13 measurement indicator variables have been set up (see Table 1). Except for the specifications, all the scales are Likert Scale, 1 indicates very disapproval, and 5 indicates very agree.

Table 1. Questionnaire

Number	Question
1	Your gender: male; female;
2	Your age: 18-25; 25-35; 35-50; over 50;
3	Do you know about funds: very well; a little; heard of; no;
4	What type of fund do you prefer: high risk (stock type, index type); medium risk (debt type, bond type); low risk (segregated type, monetary type); fully balanced configuration;
5	When you lose money on your investment, you will experience significant anxiety: less than 10% (inclusive); 10%-30% (inclusive); 30%-50% (inclusive); 50%-70% (inclusive); more than 70%; never;
6	Your purpose of investment: higher returns than banks; education reserves; pension reserves; investment risk diversification; others;
7	What platform do you buy funds from: banks; fund companies; mobile media; others;
8	How you make investment decisions: your own analysis; recommendations from friends; follow online media or investment experts; receive coaching from a professional investment advisor; others;
9	Do you need an investment advisor to provide you with the necessary asset allocation services: very

- necessary; investment advice only; not matter; can invest on your own;
- 10 Your regular investment period is: within 1 year; 1-3 years; 3-10 years; more than 10 years;
- 11 The proportion of your investment capital in your total income is: less than 10% of your income; 10-30%; 30%-50%; and more than 50%;
- 12 When you choose the investment variety, the most important factor is: yield rate; degree of risk; investment period; minimum investment quota; level of convenience of buying and selling; related investment costs;
- 13 Will you buy other funds over the Internet: equity funds; index funds; segregated fund; balanced funds; bond funds;
-

4.2 Reliability Analysis

Table 2. Reliability Statistics

Variable	Cronbach's Alpha	N of Items
Market factor	.951	5
Company Size	.905	4
Company Value Factor	.893	4
Overall	.891	13

As can be seen from the reliability statistics of the research variables, the overall Cronbach's alpha value is 0.891, which is greater than 0.7, and the Cronbach's alpha value of each study variable is greater than 0.7. It can be concluded that the measurement index of the research variable has high inherent consistency confidence, and the survey data is relatively reliable (See Table 2).

4.3 Factor Analysis

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.897
Bartlett's Test of Sphericity	4161.370
df	78
Sig.	.000

The validity test results show that after the validity test of the data, the KMO value is $0.897 > 0.7$; the Sig is 0.000, which is less than the significance level of 0.001,

Validity is a measure of the effectiveness of the results by means of measurement tools or methods and the degree to which the results are consistent with the content of the research. In general, the higher the consistency of the measurement results with the content of the measurement is, the higher the validity will be. We use KMO and Bartlett tests to measure whether the analysis data information can be effective, and the test results are shown in Table 3:

indicating that the effectiveness of the collected and analyzed data is high, being suitable for factor analysis (See Table 3).

Table 4. Communalities

	Initial	Extraction
F1	1.000	.876
F2	1.000	.817
F3	1.000	.816

F4	1.000	.868
F5	1.000	.814
F6	1.000	.803
F7	1.000	.779
F8	1.000	.800
F9	1.000	.767
F10	1.000	.751
F11	1.000	.759
F12	1.000	.782
F13	1.000	.788

Extraction Method: Principal Component Analysis.

This paper uses the public degree of each indicator to test the degree of influence of each indicator scale. Generally speaking, if the extracted communality is greater than 0.4, it indicates that the common factor can explain the original standard well. To ensure the accuracy of the experimental results, if the extraction

communality is less than 0.4, it could be removed. As can be seen from the table above, the degree of extraction of common factors of each question is greater than 0.4 in the 13 scale questions involved in this study, indicating relatively high communalities among variables, which means that the overall effect is greater is relatively ideal. It is suitable to be placed into the factor analysis (See Table 4).

Table 5. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.837	44.901	44.901	5.837	44.901	44.901	4.146	31.891	31.891
2	2.674	20.566	65.467	2.674	20.566	65.467	3.144	24.183	56.075
3	1.911	14.702	80.169	1.911	14.702	80.169	3.132	24.095	80.169
4	.389	2.995	83.164						
5	.333	2.560	85.724						
6	.314	2.416	88.140						
7	.295	2.272	90.412						
8	.255	1.962	92.374						
9	.243	1.867	94.240						
10	.241	1.851	96.091						
11	.214	1.644	97.736						
12	.176	1.355	99.091						
13	.118	.909	100.000						

Extraction Method: Principal Component Analysis.

The system determines the number of main component factors extracted according to the

characteristic value of the matrix. According to the system default, the factor with a characteristic value greater than 1 is extracted. The results show that the number of factors taken is 3, and the cumulative

variance of the first three common factors is 80.169%, far more than 30 per cent. Therefore, the extracted common factors reflect most of the information of the original variable, and it is believed that the three common factors have a good explanatory power to the scale (See Table 5).

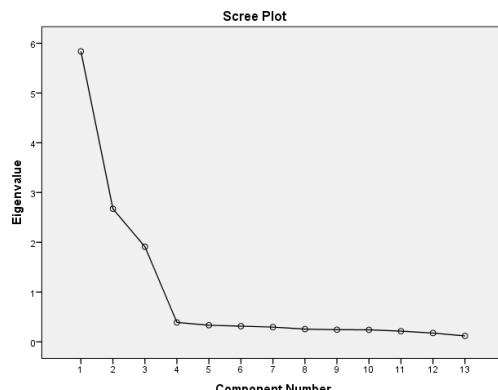


Figure 2. Scree Plot

According to the scree plot of the characteristic value of common factors, the characteristic value of the first three factors is greater than 1, and the slope between the first three factors and the next factor is larger and steeper. From the fourth factor, the scree plot is inclined to be stable. Therefore, it is reasonable to choose the first three criteria to describe it.

The score coefficient matrix is substituted by the following factor scoring model formula:

$$F_j = \sum_{i=1}^4 h_{ij} \cdot x_i \quad (1)$$

F_j is the score of the j th main component, and h_{ij} is the coefficient score of each indicator in the main component F_j , and x_i is the individual indicator. After standardizing all the data, the equation can be used to calculate the weight of each indicator X_i , and the score of each indicator can be standardized to obtain the weight. As shown in Table 7 below.

Table 6. Weight

Target layer (A)	Criterion layer (B)	Measure layer (C)
The Value Factor of Company	Market Factor	Company Size
Weight		
0.4	0.3	0.3

To extract the valid information of the original scale as much as possible and the variables obtained are explained, the rotation method is used for analysis. This

paper uses Varimax with Kaiser Normalization method for analysis, and the results are shown in Table 8:

Table 7. Rotated Component Matrix

	Component		
	The Value Factor of Company	Market Factor	Company Size
F4	.911		
F1	.890		
F3	.881		
F2	.874		
F5	.859		
F8		.895	
F6		.879	
F7		.867	
F9		.847	
F13			.859
F12			.853
F10			.848
F11			.847

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 5 iterations.

In the component matrix, the absolute value of the factor load represents how much information overlaps between the main factor and the variable. The higher the degree of information overlap, the stronger the ability to summarize and interpret the main components will be. The index load at the common divisor is required to be greater than 0.5. Table 8 above is the component matrix after rotation, and all standards meet the requirements. The 13 measurements can be divided into 3 common factors and named after professional knowledge.

The above analysis shows that the size of the fund is

Table 8. Correlations

		Market Factor	Company Size	The Value Factor of Company
Market Factor	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	397		
Company Size	Pearson Correlation	.289**	1	
	Sig. (2-tailed)	.000		.
	N	397	397	
The Value Factor of Company	Pearson Correlation	.443**	.167**	1
	Sig. (2-tailed)	.000	.001	
	N	397	397	397

**. Correlation is significant at the 0.01 level (2-tailed).

From the above table, it can be concluded that the significance of the correlation between any two of the market factor, company size and company value is less than 0.05, where the correlation coefficients are 0.167, 0.289, 0.0443, respectively.

4.5 Regression Analysis

an independent variable, and the net growth rate of the fund is a dependent variable, which is a positive result.

4.4 Correlation Analysis

In the correlation analysis of each numerical variable, the Pearson correlation coefficient is the most used statistical analysis method. It uses numerical quantification to reveal and indicate the degree of correlation among variables. This study investigates the correlation among the independent variable of market factor, the regulated variable of company size and the dependent variable of company value factor. The results are shown in Table 9 below.

Table 8. Correlations

		Market Factor	Company Size	The Value Factor of Company
Market Factor	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	397		
Company Size	Pearson Correlation	.289**	1	
	Sig. (2-tailed)	.000		.
	N	397	397	
The Value Factor of Company	Pearson Correlation	.443**	.167**	1
	Sig. (2-tailed)	.000	.001	
	N	397	397	397

By taking the market factor as the independent variable, the company value factor as the dependent variable and the company size as the control variable, this part studies and analyzes the influence and significance of the independent variable on the dependent variable and whether company size has the moderating effect to the value factor of the company, which is a positive influence.

Table 9. The Moderating Effect of Company Size Between Market Factor and Company Value

	coeff	se	t	p	LLCI	ULCI	R-sq	R ² -chng	F
Constant	3.1986	0.0577	55.4196	0.0000	3.0852	3.3121	0.235		40.2312
Market	0.3822	0.0414	9.231	0.0000	0.3008	0.4636			***
Company Size	0.1062	0.0461	2.3057	0.0216	0.0157	0.1968			
Company Size*Market	0.1306	0.0299	4.3641	0.0000	0.0717	0.1894		0.0317	

From the table, it can be concluded that:

1) The market factor has a significant impact on the company value factor, where the p-value is 0.000, and the 95% confidence interval is (3.0852, 3.3121);

2) The company size has a significant impact on the company value factor, where the p-value is 0.0216, and the 95% confidence interval is (0.3008, 0.4636);

3) The interaction effect between the market factor and company size significantly impacts the company value factor, where the p-value is 0.000, and the 95% confidence interval is (0.0717, 0.1894). Consequently, there exists a moderating effect of company size on the market factor and company value

factor;

4) R^2 is 0.235, which means that the independent variables could explain 23.5% of the dependent variable. The F-statistic is 40.2312 ($p < 0.001$), which indicates that the model can be accepted. The R^2 -chng value of the interaction effect between the market factor and company size is 0.0317. The significance level is 0.000, which achieves the significance level of 0.05 and indicates that the moderating effect exists at high and low levels. Since the coefficient of the interaction variable of the market factor and the company size is $0.1306 > 0$, a positive moderating effect of company size on the market factor and company value factor can be found.

Table 10. Moderating Effect Analysis

Company size	Effect	se	t	p	LLCI	ULCI
-1SD	0.2081	0.0582	3.5741	0.0004	0.0936	0.3226
M	0.3822	0.0414	9.2310	0.0000	0.3008	0.4636
+1SD	0.5562	0.0567	9.8043	0.0000	0.4447	0.6678

From the table, it can be concluded that:

1) the moderating effect of the company size at a low level is 0.2081, where the p-value is 0.0004 and the 95% confidence interval is (0.0936, 0.3226), excluding 0, which indicates that the moderating effect should exist.

2) The moderating effect of the company size at average is 0.3822, where the p-value is 0.0000 and the 95% confidence interval is (0.3008, 0.4636), excluding 0, which reveals that the moderating effect should exist.

3) The moderating effect of the company size at a high level is 0.5562, where the p-value is 0.0000 and the 95% confidence interval is (0.4447, 0.6678), excluding 0, which represents that the moderating effect should exist.

Based on the analysis above, a conclusion can be drawn that the moderating effect should exist no matter the company size is at a low, average, or high level.

In conclusion, our regression model fits well, and the regression results are significantly effective. The market factor as the independent variable has a positive influence on the company's value factor. That is, the better the base market factor is, the larger the company's size is, and the better the company's value factor is, therefore the better the hedge performance in the liquor industry funds will be. In addition, the moderator variable of company size has a significantly positive influence on the company value factor. That is, the larger the company size is, the better the company value factor will be.

5. Conclusions and Prospects

This paper attempts to study and reveal various influential factors on the performance of hedge funds in the liquor industry, filling the research gap in the field of hedge funds in China's capital market. It uses the market factor, company value factor, company size, and other control variables to measure the performance of hedge funds. The results showed that the regression coefficients of the market factor, company size, and the interaction factor of the market value and company size were 0.3822, 0.1062 and 0.1306, and the corresponding Sig. values achieve the significance level under the significance level of 0.05, indicating that the company size factor has a moderating effect between the market factor and company value factor, which is a positive influence. In the correlation analysis, a similar conclusion has been obtained to prove that it shows positive characteristics in the strong-weak relationships of the company's value factor. The liquor industry is an important part of the food industry and a source of tax revenue for the country. From the overall trend, although in recent years, the liquor production has decreased, the scale has been relatively reduced, which has developed from a period of rapid expansion to a relatively stable period, production, output value, taxation, sales revenue, the number of enterprises, and infrastructure investment in this field, etc. are still growing. This paper introduces the market factor and the company size system to analyze its impact on the company's value, and through combining the return rate of these traditional measures with the risks they face, a risk-adjusted performance measure is established, and a favorable interpretation effect of the performance is obtained.

On the study of influential factors on the performance of hedge funds in the liquor industry, this paper uses these multi-factor models to predict performance successfully based on arbitrage pricing theory. Based on this, it tries to introduce liquidity factors to explain hedge fund performance and achieves more ideal results.

REFERENCES

- [1] Treynor, J. L., & Mazuy, K. (1966). Can Mutual Funds Outguess the Market? *Harvard Business Review*, 4, 131-136.
- [2] Brown, S. J., Goetzmann, W. N., & Park, J. (2001). Careers and SURVIVAL: Competition and risk in the hedge fund and cta industry. *The Journal of Finance*, 56(5), 1869–1886.
<https://doi.org/10.1111/0022-1082.00392>
- [3] Naik, N. Y., Ramadorai, T., & Stromqvist, M. (2007). Capacity constraints and hedge fund strategy returns. *European Financial Management*, 13(2), 239–256.
<https://doi.org/10.1111/j.1468-036x.2006.00353.x>
- [4] Lo, A. W. (2008). Hedge funds, systemic risk, and the financial crisis Of 2007-2008: Written testimony for the House oversight committee hearing on hedge funds. *SSRN Electronic Journal*.
<https://doi.org/10.2139/ssrn.1301217>
- [5] Aggarwal, R. K., & Jorion, P. (2010). The performance of emerging hedge funds and managers☆. *Journal of Financial Economics*, 96(2), 238–256.
<https://doi.org/10.1016/j.jfineco.2009.12.010>
- [6] Bernhardt, D., & Nosal, E. (2013). Gambling for dollars: Strategic hedge fund manager investment. *SSRN Electronic Journal*.
<https://doi.org/10.2139/ssrn.2367475>
- [7] Frances, P., Li, H., Sherry, Y., Lee, J., Theresa, & Desaree, F.-D. (2011). The Academic Success Inventory for College Students: Scale Development and Practical Implications for Use with Students. *National Association for College Admission Counseling*.
<https://eric.ed.gov/?id=EJ926821>
- [8] Grinblatt, M., Keloharju, M., & Linnainmaa, J. T. (2011). Iq, trading behavior, and performance. *SSRN Electronic Journal*.
<https://doi.org/10.2139/ssrn.1364014>
- [9] Chen Daolun, Chen Qiang, Chen Gongmeng. "yangguagn simu: xiaowang xianxaing yu xingcunzhe piancha [Yangguang Private Equity: Extinction phenomenon and survivor bias]". *Shanghai Management Science*, 2013, 65-72.
- [10] Gao He, Li Minwen, Gao Feng. "Jijing jingli fengxian pianhao, touzi fengge yu jijing yeji – jiyu xingbie geren tezheng de shijiao [Fund managers' risk preference, investment style and fund performance: A Perspective based on gender and individual characteristics]". *Investment Research*, 2014, (5), 82-96.
- [11] Ai Hongde, Liu Cong. "jijing jingli geren tezheng yu jijing touzi fengge [Personal Characteristics of fund Managers and fund investment style]". *Finance and Trade Economics*, 2008, 000(012), 26-31.
- [12] Pareek, A., & Roy Z., (2013). Trust and investment management: The effects of manager trustworthiness on hedge fund investments, Working paper, Rutgers Business School.
- [13] Agarwal, V., & Naik, N. Y. (2000). Multi-Period performance persistence analysis of hedge funds. *SSRN Electronic Journal*.
<https://doi.org/10.2139/ssrn.190389>
- [14] Teo, Melvyn and Koh, Francis and Koh, Winston T.H., Asian Hedge Funds: Return Persistence, Style, and Fund Characteristics (June 2003). Available at SSRN: <https://ssrn.com/abstract=416960> or <http://dx.doi.org/10.2139/ssrn.416960>
- [15] Capocci, D., & Hübner, G. (2004). Analysis of hedge fund performance. *Journal of Empirical Finance*, 11(1), 55–89.
<https://doi.org/10.1016/j.jempfin.2002.12.002>
- [16] Eling, M. (2009). Does hedge fund performance persist? Overview and new empirical evidence. *European Financial Management*, 15(2), 362–401.
<https://doi.org/10.1111/j.1468-036x.2008.00471.x>
- [17] Zhou Wei, Lu Ping. "jiyu liu yinsu moxing de duichong jijing shouyi yanjiu [Hedge fund returns based on six-factor model]". *Journal of Xiangtan University (Philosophy and Social Sciences)*, 2008, 32(003), 59-63.
- [18] Wu Qifang, Wang Shouyang, Li Jianqiang. "zhongguo zhengquan touzi jijing yeji de chixuxing jianyan [The Sustainability test of Performance of Chinese Securities Investment Funds]". *Management Review*, 2003, (11), 23-28.
- [19] Xiao Kuixi, Yang Yiqun. "woguo kaifangshi jijing yeji chixuxing de yanzheng jianyan [Empirical Test of performance sustainability of Open-ended funds in China]". *Finance and Trade Research*, 2005, 016(002), 55-59.
- [20] Zhou Baicheng, Wang Yiheng, Feng Yanan. "duichong jijing xiaoji yingxiang yinsu yanjiu

- [Research on the influencing factors of hedge Fund performance]". Statistics and Decision, 2014, 160-163.
- [21] Qian Yibing. "duichong jijing jingli chiyou CFA zhengshu dui qi chanpin yeji yu fengxian de yingxiang [The impact of CFA certificate on the performance and risk of Hedge fund managers]". Shanghai International Studies University, 2018.
- [22] Yu Jing. "zhongguo duichong jijing jingli benke biye yuanxiao dui jijing chanpin jixiao de yingxiang yanjiu [Research on the impact of Chinese hedge fund managers' undergraduate institutions on fund product performance]". Shanghai International Studies University, 2019.
- [23] Gei Yongqi. "zhongguo duichong jijing jingli ligong Beijing yu gupiaoxing jijing chanpin jixiao yanjiu [Chinese Hedge fund Manager science and engineering background and equity fund product performance research]". Shanghai International Studies University, 2019.
- [24] Zhang Xinyu. "duichong jijing jingli xiaoyou wangluo zhongxindu yu jijing chanpin jixiao yanjiu [Research on the centrality of alumni network and fund product performance of Hedge fund managers]". Shanghai International Studies University, 2020.
- [25] Sun Min. "zhongguo duichong jijing gongsi gaoguan jianzhi dui jijing chanpin jixiao de yingxiang yanjiu [A study on the impact of executive part-time jobs on fund product performance in Chinese hedge fund Companies]". Shanghai International Studies University, 2020.
- [26] Lu Xingyin. "duichong jijing yu gongtong jijing de chichang pianhao chayi yu jixiao yanjiu [A study on the difference of position preference and performance between Hedge fund and mutual fund]". Shanghai International Studies University, 2020.
- [27] Wang Yiqing "zhongguo duichong jijing jingli congye xiangguandu yu jijing chanpin jixiao yanjiu [A study on the relevance of Chinese Hedge fund Managers and fund product performance]" Shanghai International Studies University, 2020.
- [28] Chen Su. "duichong jijing jingli kuaqun xinxijiaoliu yu jijing chanpin jixiao yanjiu [Research on cross-group Information Exchange and Fund Product Performance of Hedge fund managers]". Shanghai International Studies University, 2020.
- [29] Qi Shu. "zhongguo duichong jijing jingli haiwai jingli yu gupiaoxing jijing chanpin jixiao yanjiu [Overseas experience of Chinese Hedge fund managers and performance of Equity Fund products]". Shanghai International Studies University, 2020.
- [30] Wang Haochen. "woguo duichong jijing pingji tixi goujian yanjiu [Research on the Construction of China's Hedge Fund Rating System]" Shandong University, 2016.
- [31] Fu Fangli. "woguo yangguang simu jijing jixiao ji yingxiang yinsu yanjiu [Research on the performance and influencing factors of Yangguang Private Equity Fund in China]". Southwestern University of Finance and Economics, 2016.
- [32] Liu Ying. "duichong jijing touzi shouyi yu fengxian yanjiu [Hedge Fund Investment Returns and Risk Research]". Tongji University, 2008.
- [33] Guo Guangliang. "zhongguo chanye touzi jijing yunying tixi yanjiu [Research on Operation System of China Industrial Investment Fund]". Beijing Jiaotong University, 2010.
- [34] Cao Jiangang "A gu simu jijing jixiao yanjiu [A share private equity performance research]". Zhejiang University, 2010.
- [35] Zhou Yaofa. "hongguan jingji fengxain dui yangguang simu jijing yeji yingxiang yanjiu [Study on the influence of macroeconomic risk on Yangguang Private equity fund performance]". Dongbei University of Finance and Economics, 2018.
- [36] Shen Nan. "simu jijing jingli geren tezheng dui jijing jixiao yingxaing yanjiu [Research on the Impact of Personal Characteristics of Private Equity Managers on Fund Performance]". Nanjing Normal University, 2014.
- [37] Li Jingcheng. "duichong jijing dui zhongguo A gu shichang de yingxiang yanjiu [Research on the Impact of Hedge Funds on China's A-share Market]". Shanxi University of Finance and Economics, 2013.
- [38] Zhao Li. "duichong jijing ji linglei touzi zuiyou juece wenti de ruogan yanjiu [Research on Optimal Decision of Hedge Fund and Alternative Investment]". Zhejiang University, 2017.
- [39] Li Jinbiao, Liu Jianhe, Cao Jianang. "yangguagn simu jijing yeji chixuxing nengli yanjiu [Research on performance sustainability of Yangguang Private Equity fund]". Chinese and Foreign Entrepreneurs, 2011, 78-80.
- [40] Luo Haibo. "duichong jijing shouyi tezheng de yingxiang yinsu fenxi [Analysis on the influencing factors of hedge fund return characteristics]". Journal of Henan Financial Management Cadre

- Institute, 2007, 88-93.
- [41] Zhu Hongliang, Chen Ying, Shi Yunqing, Liu Kuangmin. "jiyu beiyesi tuiduan de zhengquan touzi jijing jixiao fenxi [Performance Analysis of securities investment Fund based on Bayesian inference]". Chinese Journal of Management, 2012, 1013-1019.
- [42] Ma Qiang, Li Kuijun. "jijing jixiao de gongjice fenxi [Supply side analysis of fund performance]". Financial development research, 2016, 75-80.
- [43] Lu Rong, Wang Ce. "jingrongxue guoji qianyan yanjiu ershinian zhi bianqian – lijie meiguo jingrong xuenianhui zhuxi fayan zongshu [The evolution of international frontier Research in the past twenty years - a review of the chairman's speeches of the American Finance Annual Conference]". Journal of finance and economics, 2016, 108-139.
- [44] Gu Haifeng, Wu Jianming. "jijing touzi fengge piaoyi jiajule woguo gushi bodong fengxian ma – laizi 2006 nian zhi 2016 nian qijian hushen gushi de zhengju [Does fund Investment Style Drift aggravate the volatility risk of China's Stock market? - Evidence from Shanghai and Shenzhen Stock markets from 2006 to 2016]". Financial Regulation Research, 2018, 20-37.
- [45] Zhao Feng, Liu Wenjie, Zhang Jianjun. "zhongguo haiwai touzi qiye de fengxian duichong jixiao [inggu fangfa tanxi – jiyu 274 jia zhongguo haiwai qiye de jiegou fangcheng moxing fenxi [Risk hedging performance evaluation method of Chinese overseas investment enterprises - Based on structural Equation Model analysis of 274 Chinese overseas enterprises]" Reference to Economic Research, 2018, 23-34.
- [46] Tan Huajun. "zhengquan touzi jijing yunyong jingrong yanshengpin de guoji jingyan [International experience of Securities Investment Funds using financial derivatives]". Statistics and Decision, 2008, 134-136.
- [47] Zhang Wei. "guojia shenji weihu jingrong anquan de xinxingshi yu duice [New situation and countermeasures of national audit to maintain financial security]". Audit and Economic Research, 2017, 8-14.
- [48] Xu Longbing, Zhang Dafang. "zhongguo gupiao shichang 'congming touzizhe' xingwei yanjiu [Research on the behavior of "smart investors" in Chinese stock market]". Financial Research, 2017, 96-108.
- [49] Yang Shenggang, Wang Shao, Zhang Xinqi, Yang Yang. "waihui fengxian duizhong, touzi yueshu yu xianjin guli fenpei [Foreign exchange risk hedging, financing constraints and cash dividend distribution]". Economic Review, 201,119-133.
- [50] Yang Shenggang, Li Haitong, Cheng Cheng. "waihui fengxian duichong yingxiang qie jixiao ma [Does foreign exchange risk hedging affect corporate performance?]". Economic Management, 2021, 139-154.
- [51] Yuan Xianzhi, Di Lan, Li Xianglin, Guo Tiexin, Li Bo, Guo Qiqian, Zhang Qianyou, Yan Chengxing, Liu Haiyang, Wu Tong, Zeng Tu, Zhou Yunpeng. "zai dashuju kuangjia xia jiyu jibusi chouyang de suiji sousuo fangfa zai jingrong fengxian tezhong tiquzhong de yingyong [Application of Stochastic search method based on Gibbs sampling in feature extraction of financial risk under big data Framework]". Journal of Econometrics, 2021, 377-408.
- [52] Yi Li, Liao Yinkai, Deng Liming. "jijing jingli zeshi nengli dui kangfangshi jijing yeji de yingxiang – jiyu duiwei shijiao de shizheng jianyan [Fund managers' timing ability and open-end fund performance - An empirical test based on a multidimensional perspective]". Journal of Natural Science, Hunan Normal University, 2019, 64-71.
- [53] Zhao Feng, Zhao Haitao, Li Chunbing "waihui fengxian duizhong yu qiye shuangchong daily chengben: jiangdi haishi zengjia? – laizi Beijing kuajing touzi qiye de jingyan zhengju [Hedging of Foreign exchange Risk and Double Agency Cost: Decrease or increase? Empirical evidence from Cross-border investment enterprises in Beijing]". Research of Financial Theory, 2020, 73-85.
- [54] Chen Yongying, Hu Yang, Zhang Chengjun. "huilv dui lvyou qiye caiwu jixiao de yingxiang [The impact of exchange rate on the financial performance of tourism enterprises]". Tourism Tribune, 2020, 13-26.
- [55] Ma Hong, Li Jie. "shehui zeren touzi de bixian xiaoying he yuqi wucha xiaoyang – jiyu chanpin shichang de jingzheng shijiao [Hedging effect and expectation error effect of socially responsible investment: Based on the perspective of product market competition]". China Industrial Economics, 2015, 109-121.
- [56] Meng Wei, Jiang Guohua, Zhang Yongji. "huilv buqueding yu qiye kuajing binggou [Exchange rate uncertainty and cross-border M&A]". Journal of Financial Research, 2021, 78-96.