

Comparative Study of the Investment Analysis between Liquor and Beer Industry--Based on the Application of Capital Asset Pricing Model

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Abstract: The application of Capital Asset Pricing Model in investment analysis can calculate the expected return rate of assets and optimize the allocation of investors for assets. Chinese liquor and beer industry has always been a hot investment field. This research will select the daily closing price of 21 stocks respectively in Shanghai and Shenzhen from the liquor and beer industry from 2012 to 2021. It is interesting to find that there is indeed a positive correlation between the company's stock return rate and the market return rate, but the CAPM model is not suitable for the analysis of the stock value of the liquor industry companies. However, in the beer industry, the situation is quite different. It can be considered that CAPM model can be used to analyze the beer industry. When the investors conduct the investment analysis of the stocks in the liquor and beer industry, they should not only rely on the value to choose the stocks, but also combine the macro environment and the development ability of the enterprises themselves.

Keywords: Capital Asset Pricing Model; Investment Analysis; Liquor and Beer Industry

1. Introduction

The Capital Asset Pricing Model not only defines the relationship between capital risk and return, but also divides the risk into non-system risk and system risk, and distributes the non-system risk through the portfolio. Therefore, the application of Capital Asset Pricing Model in investment analysis can calculate the expected return rate of assets and optimize the allocation of investors for assets. However, in the process of application, its practicality will be seriously weakened by many elements such as the development degree of the investment market. Consequently, it is necessary to put this model into the concrete field to help investors make better decisions.

Chinese beverage industry has always been a hot investment field. In recent years, the beverage industry has achieved good development. Meanwhile, many enterprises seize the opportunity and innovate the product structure, thus leading the market with obvious advantages and effectively driving the steady development of the Chinese beverage industry. In these industries, the liquor industry and beer industry are typical examples which have gradually formed a systematic value-added investment structure and stimulated the investment enthusiasm of countless investors.

This research will focus on whether Capital Asset Pricing Model can effectively help conduct future investment analysis based on the historical data of liquor and beer industry stocks. Meanwhile, this research will analyse possible factors affecting individual stock returns concerning the comparative study of the liquor and beer industry. Then the analysis can be presented to the investors to help them do better investment in the correlated industry.

The dissertation will include five main parts. This part is about the introduction, and the second part is about the literature review. The third part is concerning the research methodology. Results and discussion will be presented in the fourth part. Then the last part will be the statement of conclusions and correlated recommendations.

2. Literature review

The discovery of Capital Asset Pricing Model makes financial researchers around the world carry out a large number of empirical tests to prove the effectiveness of Capital Asset Pricing Model. Wang Yiduo (2016) thought Capital Asset Pricing Model has many problems in its practical application in Chinese beverage stock market. The development of Chinese beverage stock market is not mature enough, deviates greatly from the whole market, and is basically unaffected by the

market, all of which affect the actual application of Capital Asset Pricing Model. Chen Shaohua (2020) found that in addition to the impact of the market yield on the beverage industry stocks, there are also other non-market factors affecting the income of individual stocks. However, he doesn't explore the non-market reasons.

Previous researches have shown the application of Capital Asset Pricing Model in the beverage industry investment has some problems due to the uncertainty of the practical market. However, there isn't any comparative study of liquor and beer industry investment analysis based on Capital Asset Pricing Model. The outcome of this research based on the latest data analysis can further learn more about the application of Capital Asset Pricing Model in practice, analyse the possible reasons behind the phenomenon and help investors better conduct the investment of the stocks concerning the liquor and beer industry.

3. Research methodology

This research will select the daily closing price of 21 stocks respectively in Shanghai and Shenzhen from the liquor and beer industry from 2012 to 2021. Data comes from Wind Information, and the daily closing price of individual stocks is selected as the calculation basis of the stock return rate. In addition, considering the cash dividend, rights issue, stock additional issuance and other factors that may bias the stock yield, this research selects the daily closing price data after the former reinstatement rights, excluding the impact of stock policy changes, and eliminates the impact of the stock policy changes. For individual samples with the absence of data due to suspended trading or ex-rights, etc., the arithmetic average value of the closing price of the previous trading day and the closing price of the next trading day will replace the missing data.

Among the sample of 21 liquor stocks selected in this research, 14 were listed in Shanghai, and another 7 stocks were listed in Shenzhen. Meanwhile, among the sample of 21 beer stocks selected in this research, 12 were listed in Shanghai, and another 9 stocks were listed in Shenzhen. Therefore, the Shanghai and Shenzhen 300 indexes, as the value-weighted indexes of the main stocks in the Shanghai and Shenzhen stock markets, can more appropriately reflect the market impact of the sample stocks. CSI 300 index itself can also reflect the development trend of the market and the overall market, with 182 Shanghai stocks and 118 Shenzhen stocks, and the A-share market overall trend has a good correlation, has the ideal market representative, in a lot of empirical research in the past is repeatedly used by scholars as a representative of the market yield, thus select the CSI 300 index to measure market yields. Data is obtained from Wind Information.

This research will select the legal one-year benchmark interest rate of Chinese financial institutions to measure the risk-free yield. During the sampling period, the financial institutions in RMB legal deposit one-year benchmark interest rate adjusted 13 times, calculated by time empowerment method, the average of 2.968%, excluding after 250 trading days to convert daily risk-free interest rate, get daily average risk interest rate is 0.0119%, namely as a risk-free yield to build a model. Data is obtained from the Bank of China Interest Rate Information Network and the China Statistical Yearbook.

The Ordinary Least Squares method is used to analyze the sample data and establish a unary linear regression equation of daily yield and market yield of individual stocks based on the software of Stata.

The model formula equation is as follows:

$$R_i = R_f + \beta * (R_m - R_f) + u_i$$

R_i is the daily yield of individual stocks,

R_f is the risk-free yield, R_m is the market return,

u_i is a constant containing the residual and random perturbation items, which is the sensitivity factor of individual stocks to the market.

4. Results and discussion

4.1 The CAPM model is not suitable for the analysis of the stock value of liquor industry companies.

According to the data, it can be found that except for alcoholic liquor and Portugal two stocks, the determination coefficient is more than 0.5, the other 19 stocks are relatively low, the lowest is Guyue Longshan, the determination coefficient R^2 is only 0.1833. From the above analysis results, it can be concluded that the beta coefficient of individual

stocks is significantly different from zero, and the goodness of fit of the regression equation is poor. There is a significant linear relationship between explanatory variable $R_m - R_f$ and explained variable $R_i - R_f$, but the beta coefficient cannot better represent the linear relationship between them. These results indicate that the beta coefficient can not effectively explain the change of stock return rate of liquor industry in China.

4.2 The CAPM model is suitable for the analysis of the stock value of beer industry companies.

Among the 21 studied companies, there are three companies including Snow Beer, Tsingtao beer, Yanjing beer whose β value is less than 1, that is to say the price volatility and risk of a stock is less than that of the market as a whole. While the β value of other 18 companies are more than 1 signally. It shows that the volatility of stocks is relatively large, and the system risk is generally higher than the market risk.

The current different situation of the liquor industry and beer industry may lead to this result. The liquor industry hasn't formed a relatively steady industry and is influenced by many uncertain factors, while in the beer industry, three main predominant companies have better investment value with lower risks.

As an ideal model with extremely strict assumptions, the CAPM model has many problems in the practical application in the stock market. China's beverage market is still in the state of weak efficient market, and does not meet the premise of the CAPM model. Therefore, not all investors can correctly and effectively analyze beverage market information and make accurate investment decisions. In most cases, they are likely to follow the trend blindly.

The current stock market is not mature enough, the stock price of liquor industry fluctuates greatly and deviates greatly from the whole market, and is basically not affected by the market, all of which affect the practical application of the CAPM model.

During beverage securities trading, the final yield is not only affected by the investment systemic risk, but also affected by other unsystematic risks in the beverage market. For instance, shares of listed companies may produce a credit risk, financial risk and management risk, which are not part of the systemic risk, will also have an effect on share price movements. In addition, investors' own operational risks will also affect their own investment returns. For the same stock, different judgment standards and operating skills will also have different returns.

5. Conclusions and recommendations

Based on the results and analysis, it is interesting to find that there is indeed a positive correlation between the company's stock return rate and the market return rate, but the CAPM model is not suitable for the analysis of the stock value of the liquor industry companies. However, in the beer industry, the situation is quite different. It can be considered that CAPM model can be used to analyze the beer industry.

The establishment of Capital Asset Pricing Model has extremely strict assumptions, and for the immature beverage stock market in China, there are still many problems in its application. Therefore, when investors conduct the investment analysis of the stocks in the liquor and beer industry, they can not only rely on the value to choose the stocks, but also combine the macro environment and the development ability of the enterprises themselves.

According to the above analysis, this research recommends that the investors should first realize the different market situation between the liquor and beer industry. Then it is wise of investors to analyze the beverage market information and the unsystematic risks effectively instead of following the trend blindly. Moreover, since the liquor industry stocks fluctuates greatly and deviates greatly from the whole market, investors should be cautious about the liquor industry stock investment especially.

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