

# ***Comparison Analysis of the Valuation Difference Between A-Share & Hong Kong Stock***

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**Abstract:** Since the 21st century, China's economy has shown a medium-rapid development trend. To be specific, a large amounts of enterprises have chosen the financing strategy of dual listing in the Chinese market and the international capital market in the development and development process of China's capital market. As a matter of fact, with different trading mechanisms and valuation strategies everywhere, the share price of the same company in different markets is also biased. On this basis, in order to explore this phenomenon, this study selects Tsingtao Beer, the first local Chinese enterprise listed in the A-share market and H-share market in the A-share market, as the research object. The aim is to systematically evaluate the enterprise through the cash flow discount method. According to the analysis, this study compares and analyzes the reasons behind the stock price difference, and gives investors more scientific theoretical investment suggestions. Overall, these results shed light on guiding further exploration regarding to dual listing investment analysis.

**Keywords:** valuation A + H dual listing, Tsingtao Beer, cash flow discount method

## **1. Introduction**

Since the beginning of the 21st century, with the economic development of China, the stock market is also developing rapidly [1-3]. The value of A stock market has exceeded 5 trillion yuan, and the number of Chinese stock investors has exceeded 200 million. With the opening and development of China's capital market, it is difficult for a single stock market to meet the financing needs of companies. More and more Chinese enterprises begin to enter the international capital market in addition to a-share listing [4-6]. The market effectiveness of the a-share market is weak and effective. Due to similar cultural traditions and languages, mainland and Hong Kong are dual listed, and many local enterprises will choose to list in many places. Due to similar cultural traditions and languages, dual listing in mainland and Hong Kong has become one of the most commonly used financing strategies for Chinese enterprises. In 1993, Tsingtao Beer was listed in mainland China and Hong Kong in 1993, becoming the first A + H share.

In the 20 years since the dual listing of A + H, there have been price differences between the dual listed companies in the mainland and Hong Kong stock markets. Theoretically, the same company, listed in both places, based on the law of one price and market arbitrage, should not be much different because of the same shareholder rights. If there is a spread, speculators can make the

spread disappear after arbitrage. However, due to the differences in systems, investment philosophy and other factors between the two places, there are still certain differences in the prices of the companies listed on the Shanghai and Shenzhen Stock Exchange and the stocks listed on the Hong Kong Stock Exchange [7].

Tsingtao beer was formerly founded in Qingdao in 1903 by a joint venture between German businessmen and British businessmen. It is a beer manufacturer with a long history in China. At present, the brand value is 218.225 billion yuan, ranking first in China's beer industry for 19 consecutive years, ranking among the world's top 500 brands. By the end of 2022, Tsingtao Beer has nearly 60 beer production enterprises in 20 provinces and autonomous regions in China, and the company scale and market share occupy the leading position in the domestic beer industry. At present, it has been exported to more than 100 countries in the world and is the fifth largest beer manufacturer in the world. Since its listing, the premium of Tsingtao Beer has been higher than that of h shares. In April 2023, the overall AH ratio of Tsingtao Beer was 1.63 and the AH premium was 62.8 [8-10].

Based on focusing on the premium phenomenon of A and H shares of Tsingtao Beer, this paper first conducts fundamental analysis of the company, and estimates the theoretical valuation range of the company on this basis. Then, the price of A-shares and H-shares is compared with the theoretical valuation range to get which market price can better reflect the real value of the enterprise. Finally, it analyzes the reasons for the valuation difference of A and H-shares of Tsingtao Beer.

## 2. Theory & Method Selection of Value Evaluation

Owen Fisher's theory of capital value expounds the relationship between capital investment and income acquisition. According to the theory, under certain conditions, the value of a company is equal to the present value of its future cash flow discounted at a certain interest rate. The investment condition supported by this theory is when the present value of future cash flow is greater than the investment cost (the net present value is positive). Modigliani and Miller put forward the MM theory, which deeply explained the relationship between enterprise value evaluation and financing decision, from which the relationship between enterprise value and capital structure is obtained. In the taxable valuation model proposed in 1963, it is believed that the best capital structure is that all enterprise financing comes from liabilities, and the value of enterprises is proportional to liabilities, and liabilities can bring certain tax reduction effect to enterprises. Based on the Markowitz asset portfolio theory, Sharpe and Mosin proposed the capital asset pricing model. This theory holds that there are two kinds of risks facing investors: systemic risk and non-systemic risk. Non-system risk can be eliminated through asset portfolio theory, while system risk cannot be eliminated. The model measures the risk and return rate with scientific methods, and effectively improves the accuracy of the discount rate calculation. However, because the capital asset pricing model has the assumption that the market is fully effective, it affects the accuracy of the discount rate in practical application.

The core problem in corporate value evaluation is the method of corporate value evaluation. All the methods of corporate value evaluation can be summarized into three kinds, namely, income method, comparable company law and cost method. The income method refers to determine the value of the evaluated assets by estimating the future expected income of the evaluated assets and converting it into the present value. Cash flow discount method is based on the existing or expected cash flow recovery plan, with a reasonable discount rate for discount. The selection of discount rate can usually refer to the yield curve of the target after the adjustment of the company's internal credit rating, which has certain subjectivity. It can be divided into two forms: free cash flow discount model, equity cash flow discount model. The general expression for the free cash flow discount model is as follows:

$$V = \sum_{t=1}^n \frac{CF_t}{(1+WACC)^t} \quad (1)$$

Where V represents the entity value, CF<sub>t</sub> is the expected cash flow of the company in the t year, and WACC is the weighted average cost of capital of the company. The general expression of the equity cash flow discount model is as follows:

$$V = \sum_{t=1}^n \frac{CF_t}{(1+k_e)^t} \quad (2)$$

Among them, V represents the equity value, CF<sub>t</sub> represents the expected cash flow of the company in t year, and k<sub>e</sub> is the equity capital cost of the company.

Comparable company law holds that investors will not pay a higher price on a commodity in the market than similar products. That is, under similar market conditions, similar products have similar prices. Comparable company law searches the market for one or more businesses similar to the target company according on key variables. There are usually three comparable indicators for comparable companies and target companies: P / E ratio (P / E), price-to-sales ratio (P / S), and price-to-book ratio (P / B). The cost method is based on the reasonable estimation of the assets and liabilities on the balance sheet. Its core idea is to reset the past book value on the balance sheet with the current market value, so as to estimate the value of the company according to the adjusted assets and liabilities.

When selecting the value evaluation by the cost method, it only focuses on the data in the financial statements, and often ignores the impact of factors other than the statements on the enterprise value, such as brand awareness, business philosophy, brand effect, etc., which will affect the accuracy of the valuation to a certain extent. Elected with comparable company analysis for value evaluation, usually need to choose in various aspects of the company, and due to the China securities market started late, the system mechanism is not perfect that the stock clinch a deal the price is not reasonable to the reaction of the market value of the company, and in the beer industry, the production scale of enterprises, business philosophy, enterprise awareness have big differences, the method is applied to the valuation of Qingdao beer rationality is low. Based on the above analysis, only the income method measures the value of the enterprise according to the discounted value of the future income, and it focuses on the future profitability of the company and focuses on the future value of the enterprise. The value of an enterprise is constantly changing in the development. Only the value estimated by the discount method of future income can investors and managers be guided correctly.

### 3. Listing Selection & Performance of Tsingtao Beer

The listing of enterprises is related to the development of development strategy and equity distribution, and different securities markets exist. Listing threshold, issuance of flexibility, financing amount and p / E ratio and other aspects of the difference. Therefore, enterprises should choose the suitable securities market according to the advantages and disadvantages of different securities markets. Tsingtao beer was listed in both Shanghai and Hong Kong at almost the same time in 1993. The reasons for its choice to list in the two places are as follows: First, the threshold for listing in the Hong Kong securities market and listing in the mainland is low, and the procedure and review process are relatively simple. Secondly, H-shares are issued in rich ways, which can be combined through public offering and private placement. In addition, the cultural traditions of Hong Kong and the mainland are basically similar, and Chinese enterprises listed in H shares are easier to

integrate into them. The price of the A share market, the price / earnings ratio has been higher than the H share market, which enables Tsingtao beer to raise more funds.

Tsingtao Brewery was first listed on the Hong Kong Stock Exchange on July 13, 1993. The A-share offering price was 7.9 yuan. Since the listing of H shares, the average price of H shares is 20.33 yuan, the highest is 79 yuan and the lowest is 7.9 yuan. As of December 2022, the stock price was mostly between 20-60 yuan, between 7 and 5 yuan between 1993-2006 and 18-28 yuan between 2007-2018. In 2019, between 2020 and 2022, the stock price was concentrated at 77-79 yuan. Tsingtao Beer was listed on the Shanghai Stock Exchange on August 27, 1993. The A-share offering price was 7.9 yuan. Figure 2.1, since the listing of A shares, the average price of A shares is 29.7, with the highest of 107.5 yuan and the lowest of 3.63 yuan. As of December 2022, the stock price was mostly between 40-69; between 1993 to 2006, the stock price was concentrated at 7-20, and 20-20 from 2007 to 2018. The stock price rose significantly in 2019, reaching 99-107 yuan between 2020 and 2022.

#### **4. Internal Value Evaluation of Tsingtao Beer**

##### **4.1. Economic Environment Analysis**

The company does not exist independently, and its survival and development are always affected and restricted by the macro environment. Investment value is restricted by the macro economy, and the trend of stock price change is also affected by the macro economy. Therefore, macroeconomic analysis is the basis of enterprise investment value.

In 2022, China's GDP is 12,102,072-billion-yuan, GDP growth index is 103, and the growth index is lower than 108.4 in 2021. The main reason is that the severe epidemic situation in 2022, and the overall international financial environment shows a downward trend, but generally speaking, China's contribution to world economic growth is still rising. It is expected that the healthy development trend of steady growth on the whole will continue in the future. According to the data of China Economic Network, the alcohol consumer price index in China shows an upward trend, increasing from 99.9 in 2001 to 102.2 in 2017, thus indicating that the alcohol consumption power of Chinese residents is on the rise, and the alcohol industry is in the stage of vigorous development.

Tsingtao Brewery sticks to its strategic focus, unswervingly promotes the implementation of the high-quality development strategy, and accelerates the construction of a new development pattern. Innovation-driven and digital transformation lead the company to high-quality development. In 2022, the company overcame the adverse impact of market consumer demand fluctuations and the pressure of greatly rising cost, realized the cumulative product sales volume of 8.072 thousand liters, up 1.8% year on year; the operating revenue was RMB 32.17 billion, up 6.65% year on year; the net profit attributable to the shareholders of the listed company was RMB 3.71 billion, up 17.6% year on year; the net profit attributable to the shareholders of the company excluding non-recurring gains and losses of the listed company was RMB 3.21 billion, up 45.4% year on year. Realized the good growth trend of profit growth higher than the revenue growth, revenue growth higher than the sales growth. In the international market, the company continues to deepen and expand the distribution coverage of overseas markets by enriching product lines and carrying out various forms of brand promotion activities, with more international, interactive brand communication, promotion, and channel innovation. During the reporting period, the sales volume of the company's overseas market products increased by 4% year on year. During the reporting period, the company accelerate to digital, intelligent operation transformation, build high level innovation platform, investment construction with industry leading technology research and development ability of Qingdao beer science and technology research and development center, relying on the state key laboratory to further improve and improve resource allocation of science and technology, optimize Qingdao beer

and industry chain upstream and downstream technology innovation, promote the innovation chain and the depth of the industry chain fusion.

#### 4.2. Theoretical Valuation of Tsingtao Brewery Based on Free Cash Flow

According to Kaplan's definition of free cash flow, free cash flow = net operating profit after tax + Depreciation and amortization-Capital expenditure-increase in working capital. In the specific calculation of the report data, the free cash flow formula is further decomposed, Free cash flow = (sales revenue-cost of sales-sales expense-administrative expense-business tax and additional-income tax) + Depreciation and amortization-(capital expenditure + increase in net operating assets). Through the fundamental analysis of and historical sales income of manor ranch, it is speculated that the future growth rate of sales income of manor ranch does not meet the conditions of the early rapid growth of the second stage of free cash flow discount model. Therefore, in order to make the valuation results more objectively reflect the value of the company, this paper selects the free cash flow sustainable model and predicts the theoretical valuation range in different scenarios. There are three scenarios for future revenue growth: optimistic, neutral, and pessimistic. In detail, the growth rate of Tsingtao Brewery in the past three years was 5.28%, -1.02% and 8.54% respectively. According to the discussion and analysis of the management of the annual report, the negative growth of sales revenue in 2020 is mainly due to the impact of the outbreak of COVID-19 on various industries. However, now the COVID-19 situation is getting better, the relevant national epidemic prevention system is also constantly improving, and the development trend of various industries is also steadily improving. Therefore, one judges that the probability of negative sales revenue of Tsingtao Beer in the future is low, so this data is not included in the average value. Therefore, the optimistic assumes future sales revenue growth rate of 8.8% (slightly higher than the record high growth rate), the pessimistic assumes future sales growth rate of 3% (world average GDP growth rate over the past 20 years), taking the average of 5.9% as the neutral sales growth rate.

Table 1: Forecast results after tax.

scene	pessimistic	neutral	optimistic
Sales revenue (RMB ten thousand yuan)	3015458	3100359	3185260
Less: Cost of sales (ten thousand yuan)	1897740.45	1951365.95	2004802
Less: sales expense (ten thousand yuan)	551828	567365	582902
Less: administrative expenses (ten thousand yuan)	180924	186021	191115
Reduction: tax and additional (ten thousand yuan)	251489	258569	265650
Equal to: profit before interest and tax (ten thousand yuan)	133477	137038	140791
Less: income tax expense (ten thousand yuan)	38708	39741	40829
Equal to: operating net profit after tax (ten thousand yuan)	94769	97297	99962
Add: Depreciation and amortization (ten thousand yuan)	485488	499157	512826
Less: Capital expenditure (ten thousand yuan)	183942	189121	194300
Less: Working capital increase amount (ten thousand yuan)	60799	92637	124475
Equal to: forecast cash flow (ten thousand yuan)	335516	314696	294013

In fact, the historical sales cost of Tsingtao Beer in the sales revenue is between 61.6% and 64.1%, with a relatively stable proportion. Although the cost of raw food crops has been increasing in recent years, Tsingtao Beer has a large business scale and has a relatively stable raw material suppliers. To some extent, the cost of raw materials can be controlled, so this paper sets the ratio of Qingdao beer sales cost to sales revenue at the historical average, that is, 62.45%. The Cost of sales in 2022 = 2022 sales revenue forecast cost of sales to revenue ratio. The historical sales expenses of Tsingtao Beer compared to the revenue are relatively average, so the average value of 18.3% is taken as the forecast ratio of sales expenses to the revenue in 2022. The historical management expenses of Tsingtao Beer are stable, taking the average 6.0% as the forecast ratio. The historical business tax and additional income of Tsingtao Beer are relatively stable, so the average of 8.34% is taken as the forecast tax and additional income ratio. The four-year income tax rate of Tsingtao Beer does not fluctuate much in each year, so its average value of 29.78 is taken as the future income tax. The prediction results are summarized in Table. 1.

The historical revenue ratio of depreciation and amortization in Tsingtao Beer shows a slow upward trend, slightly higher than that of 2021. The annual ratio of 16.1% is the ratio of depreciation and amortization in the coming years. The ratio of depreciation and amortization to income in manor ranch generally shows an upward trend, so the 6.1% slightly higher than 2021 is the proportion of depreciation and amortization in the future years. 2022 capital expenditure = sales revenue capital expenditure as a revenue ratio. The ratio of historical working capital to revenue of Tsingtao Beer shows an increasing trend, so the ratio of 37.5% is slightly higher than that of working capital in 2021 as the forecast ratio of working capital to revenue in 2022. Working capital in 2022 = 2022 forecast sales revenue \* forecast proportion

The discount rate refers to the weighted average cost of capital. The following formula is used to calculate the weighted average capital cost of Tsingtao Beer. Weighted average cost of capital (WACC) = cost of debt cost of debt + equity capital cost of equity capital cost and equity capital structure of Tsingtao Brewery will be estimated in turn, and the weighted average cost of capital ratio of Tsingtao Brewery will be obtained. The debt capital cost of the enterprise can be obtained after the tax debt cost method, the specific expression is Debt cost after tax = debt cost before tax (1-income tax rate). The cost of capital before tax debt can be obtained by dividing the interest expense of the enterprise by the interest-bearing liabilities. Among them, interest-bearing debt is generally divided into short-term interest-bearing debt (mainly short-term borrowing) and long-term interest-bearing debt (mainly long-term debt). With short-term borrowing and long-term borrowing; since the short-term and long-term borrowing values come from the balance sheet and the interest expense value comes from the profit statement and interest-bearing liabilities at the end of the year. The specific calculation formula is as follows. Interest-bearing liabilities = (interest-bearing liabilities at the beginning of the year + interest-bearing liabilities at the end of the year) / 2 = (interest-bearing liabilities of the current period + interest-bearing liabilities of the previous period) / 2. Besides, Cost of capital before tax debt = interest expense / interest-bearing liabilities

The pre-tax debt cost of Tsingtao Beer from 2018 to 2021 decreases slightly year by year, taking the conservative estimate of the future pre-tax debt cost from the highest proportion of 4.82% in the past four years. The corporate income tax rate applicable to the manor ranch is obtained above, and the value is 29.78%. Cost of capital after tax = cost of debt before tax (1-income tax rate) = 4.82% (1-29.78%) = 3.38%

The cost of equity capital of a company refers to the cost at which the owner of an enterprise invests the enterprise capital, that is, the expected remuneration of the investor rate. Capital asset pricing model is widely used in the academic and practical circles when estimating equity capital.

However, this paper does not choose to use the capital asset pricing model to calculate the equity capital cost. The reasons are as follows: A + H shares involve two markets, and the different



risk-free return rate, beta coefficient and market average return rate of the two markets will lead to different equity capital costs estimated by the capital asset pricing model: the estimation of cash flow with the equity cost of the farm A shares will lead to the stock price closer to the A-share price. Estimating the cash flow with the equity cost of the manor ranch H shares will bring the share price closer to the H share price.

Since return on input capital (ROIC) is the ratio of used to the associated return (interest). Return on input capital can also reflect the expected return rate. Therefore, the return of investment capital of similar listed companies is selected to replace the expected return rate. The basis for selecting the sample of similar companies is: the same main business composition is more than 75% and includes the companies listed in Hong Kong and mainland China. Finally, four beer industry listed companies, namely Chongqing Beer, Budweiser Asia Pacific, China Resources Beer and Yanjing Beer. According to the above data of 2019-2021, the average value is obtained as the return on invested capital of manor ranch, namely the equity capital cost of Tsingtao Beer. In this paper, the average rate of historical return on capital of similar listed companies from 2019 to 2021 is taken as the equity cost of Tsingtao Beer.

The ratio of liabilities is divided by assets (i. e. asset-liability ratio) and the equity ratio is obtained minus 1. The debt ratio of Tsingtao Beer in recent four years is relatively stable and has slightly increased, so the 49.1% ratio is higher than the future debt asset ratio in 2021. Therefore, it is concluded that the equity ratio =  $1 - 49.1\% = 50.9\%$ . Weighted average cost of capital = debt cost of debt + equity cost of equity =  $3.38\% \times 49.1\% + 19.6\% \times 50.9\% = 11.64\%$

In the free cash flow discounted sustainability model, the sustainable growth rate is consistent with the expected future revenue growth rate. This study will take 8.8% for the optimistic hypothesis, take 3% as the pessimistic assumption and the average 5.9% as the neutral assumption. The value of the farm is estimated by the free cash flow sustainable model. Value = free cash flow / (weighted average cost of capital-sustainable growth rate), Equity value = overall value — debt value and Stock price = equity value / number of tradable shares = equity value / (number of tradable shares of A shares + number of tradable shares of H shares). The results are summarized in Table 2.

Table 2: Theoretical valuation of Tsingtao Brewery.

scene	pessimistic	neutral	optimistic
Forecast of free cash flow	335516	314696	294013
Sustainable growth rate	3%	5.9%	8.8%
Value Overall value (ten thousand yuan)	3883287	5520982	10352570
Debt value	1902810	1902810	1902810
Equity value	1980477	3618172	8449760
Ordinary number of shares (ten thousand shares)	136000	136000	136000
Stock price (YUAN)	14.56	26.6	62.13

### 4.3. Analysis of Deviation

From November 2021 to January 2023, the overall share price of A shares is higher than the optimistic valuation, so it can be concluded that the overall share price of A shares is relatively optimistic. However, the stock price of H-shares is floating in an optimistic valuation, and the overall bias is optimistic. Since the H-share price is lower than the A-share price and hovering around the theoretical value, the H-share price can reasonably reflect the enterprise value than the A-share price.

## 5. Conclusion

In summary, based on China's first A-share and H shares listed companies at the same time, this paper investigates Qingdao beer through earnings method of cash flow discount model of the company valuation, in pessimistic, neutral, optimistic three scenarios of Qingdao beer stock price forecast, data analysis a-share price overall trend is higher than optimistic scenario valuation, concluded that the company's a-share price overall is more optimistic. However, the overall stock price of H shares fluctuates around the optimistic valuation within the theoretical value. It is concluded that the H share price of the company is more reasonable than the A share price, which can more objectively reflect the corporate value of the company. This model also has some limitations, due to the commission difference between Shanghai and Hong Kong, tax difference, short selling system, harden board system and the difference of the disclosure system of market factors such as the valuation of the related parameters differences cannot be reflected in the reasonable reflected in the model, so this article is only theoretical value, ignoring the differences in the market. This paper aims to explore the cause of the valuation differences after investors relatively scientific investment advice, at the same time hope investors when choosing investment target do not blindly follow the public direction, according to the enterprise actual situation and some data support combined with their financial knowledge of reasonable judgment, for the construction of more reasonable and effective stock market contribute their own strength.

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