Coffee Industry Investment Analysis Based on Indicators: Evidence from Dutch Bros., Starbucks and Luckin Coffee

Yingqi Wu

Department of Risk and Insurance Management, Hongkong Lingnan University, Hongkong, China

yingqiwu2@ln.hk

Abstract. Coffee industry has developed for dozens of years and coffee is very popular for workers and students. However, due to the spread of COVID-19, the operation of coffee industry has been greatly impacted. This paper selects three company of coffee industry as samples to give investment analysis and suggestions. This paper uses the data collected from Yahoo Finance and basic formulae of six indicators (i.e., debt-to-equity ratio, cost of equity capital, levered beta, unlevered beta, weighted average cost of capital and return on assets). From the comparation results, Dutch Bros. was at economic loss. Starbucks had high liability but it won't affect its normal operation and this corporation had relatedly impressive return rate. Luckin Coffee was at the stage of steady development but it had potential for progress because of its operating philosophy. This paper aims to analyze and compare the indicators of three companies in 2021 and then gives economic evaluation and investment suggestions. These results provide reference for future academic research and investment.

Keywords: Coffee Industry, Investment Analysis, Indicators.

1. Introduction

Coffee is one of three most popular drinks around the world. With the development of society and the progress of thoughts of human beings, coffee has become nearly one of necessaries for people. Coffee is made from roasted and ground coffee beans and the caffeine contained in coffee beans has a refreshing effect, which is able to last two to three hours. Therefore, it is widely drunk by workers or students who have relatively high pressure. The sales volume of Coffee have always been the top one among the beverages. However, the income scale of the whole industry has declined under the impact of COVID-19. In this situation, the environment of investment has been riskier.

This article selects three representative corporations in the coffee industry for comparative study, which is Dutch Bros., Starbucks and Luckin Coffee. Dutch Bros. was founded in 1992 by the Brothers Dane and Travis Broersma and it is a relatively very young coffee corporation. However, it is currently the largest automobile restaurant coffee enterprise in the United States. This corporation uses a unique strategy to enter the market, which is committed to creating a mafia style logo and special advertising slogans for attracting customers [1]. Starbucks is an international coffee enterprise, The first shop of it opened in Seattle. Its main strategy is to develop high-quality products and expand to the international market. Starbucks has already become the leader of international coffee industry after fifty years' development [2]. Luckin Coffee was founded by Zhiya Qian in Xiamen, China. This corporation is the representative of the new retail coffee chain and makes coffee more affordable. Luckin Coffee has paid lots of attention to the digital marketing strategy, which has played a huge role in promoting the transformation of the traditional coffee industry [3].

Heitzman and Huang stated that the information available to investors can be divided into internal and external information when they make decisions [4]. The share price of a company is the most common external information but most of the internal information is unknown. However, investors may evaluate the company by analyzing its economic indicators. Han concluded that the company's financial indicators are highly available even though they cannot decide everything. Nevertheless, they play a decisive role in roughly determining and evaluating firm value and future development [5]. The study of Lee et al. used the index of global stock market to predict the future market trend and it was found that the investment with short-term fluctuations performs better [6]. It means that

the indicators of stock market are effective for investors to analyze their investment in the near future and then avoid some risks. Ortiz-Molina and Philips had found that a significant reason for the rise of a company's cost of assets capital would be the lack of real asset liquidity [7]. Additionally, the basic reason is that a company under the situation of low liquidity may have less opportunities to receive external capital to support operating activities. Besides, it possibly causes a vicious circle, even bad for the one which is closer to default. Bowman and Bush mentioned that the cost of equity capital is still an important tool for evaluating the performance of a company [8]. Gallinger and Patrick mentioned that the return on assets (ROA) is one of the most appropriate indicators for measuring returns and evaluating a company's performance [9]. It is widely used by economists and scholars to measure the proportion of generate return based on the total assets. Shamsudin et al. had proved that Return on Assets (ROA) is proportional to the company's performance but inversely proportional to Price-to-Earning Ratio (PE), which means a good ROA may provide proper reasons for investment with investors [10].

The research significance of this study is to provide a reference evaluation and give investment suggestions by using data in 2021 to analyze the indicators of the three representative companies in the coffee industry. It can provide reference value for scholars and investors when they need it. The rest part of the paper is organized as follows. The Sec. 2 will give the data of Bros., Starbucks and Luckin and indicators formulas. The Sec. 3 will provide the results and discussion. The Sec. 4 will reflect on the limitations of this paper and express the outlook for the future. Eventually, a brief summary is given in Sec. 5.

2. Data & Method

2.1. Data

As shown in Table 1, all the financial data of three companies (i.e., Dutch Bros., Starbucks and Luckin Coffee) are collected from https://finance.yahoo.com, which are useful for the following calculation of indicators and analysis. In order to ensure the results have more value for comparation, this paper select final reports of the same year in 2021. Based on these data, recent 10-year treasury rate of United States is utilized (3.82%), because all the three stocks of the companies were listed in the United States. Moreover, this study defines the average return rate of S&P 500 index (28.58%) in 2021 as expected return on market.

Table 1. Basic data of the three corporates

	Dutch Bros.	Starbucks	Luckin Coffee
Assets	553,700,000	31,926,600,000	12,312,490,000
Assets for previous year	259,659,000	29,374,500,000	9,322,399,000
Liability	343,514,000	36,707,100,000	8,681,353,000
Shareholders' equity	210,186,000	-5,314,500,000	3,631,137,000
Total debt	150,687,000	23,804,800,000	4,104,518,000
Pretax income	-121,605,000	5,356,900,000	622,517,000
Net income	-12,914,000	4,199,300,000	686,270,000
Tax provision	-1,628,000	1,156,600,000	-63,861,000
Interest expense	7,093,000	469,800,000	335,490,000
Beta levered (βL)	1.78	0.86	-0.79
Marginal corporate tax rate	1%	21%	10%

2.2. Indicators Formulae

This paper uses debt-to-equity ratio, cost of equity capital, levered beta, unlevered beta, weighted average cost of capital and return on assets indicators. Debt-to-equity ratio (D/E ratio), which is the ratio between total debt and shareholders' equity, is used to analyze a company's related risk like default and it has positive correlation with financial leverage. The expression can be given as follows:

$$D/E\ ratio\ =\ D\ /\ E \tag{1}$$

Where D is book value of total debt and E is book value of shareholders' equity. Cost of equity capital is nearly stand for the required return rate for shareholders. In this paper, CAPM model is used to measure it when levered beta is known:

$$Re\ =\ Rf + \beta L(Rm - Rf) \tag{2}$$

Here, Re is the cost of equity capital, Rf is the risk-free rate, βL is the levered beta (equity beta), and Rm is the expected return on market. Normally, cost of equity happens when the debt of company is relatively heavy or the company makes profit for its shareholders. The formula related to cost of equity capital is:

$$Rd\ =\ Annual\ Interest\ Expense\ /\ Total\ Debt \tag{3}$$

Unlevered beta, which is asset beta, doesn't include the risk only caused by company assets compared with equity beta (levered beta) and it is calculated according to the beta levered:

$$\beta U\ =\ \beta L/[1 + (1 - T)D/E] \tag{4}$$

Here, βU is the unlevered beta (asset beta), T is the marginal corporate tax rate. The ratio between the capital received from two ways and total capital is defined to calculate weighted average cost of capital (WACC) as following formula:

$$WACC\ =\ E/V \times Re + D/V(1 - T)Rd \tag{5}$$

Where V is total market value of equity and debt (V = E+D). Return on assets is most widely used for measuring ability of a company making a profit. The calculation is following formula:

$$ROA\ =\ Net\ Income\ /\ Average\ Assets\ of\ the\ recent\ two\ years \tag{6}$$

3. Results & Discussion

Based on the data of Table 1, the indicators of Dutch Bros., Starbucks and Luckin Coffee, which are D/E ratio, cost of equity capital, cost of debt capital, unlevered beta and weighted average cost of capital can be calculated through above formula. The indicators of the three companies are gotten in the Table 2 (all data below keep two decimal places).

Table 2. Indicators of three companies

Indicators	Dutch Bros.	Starbucks	Luckin Coffee
Debt-to-equity ratio	0.71	-4.48	1.13
Cost of equity capital	47.89%	25.11%	-15.74%
Cost of debt capital	4.70%	1.97%	8.17%
Unlevered beta	1.13	-0.33	-0.41
Weighted average cost of capital	28.54%	-5.21%	-3.96%
Return on assets	-3.17%	13.70%	6.34%

Seen from Figure 1, the D/E ratio of Bros. is 0.72 which means this corporation had relatively strong ability for paying its debt. However, it also stands for low usage of market capital. Luckin Coffee's is 1.13 and it is still under the degree of 2, which stands for high risk to default. Both of Bros. and Luckin's are in common level and it seems that they have a nearly even mix of debt and equity. Nevertheless, Starbucks' (-4.48) is in a special situation that its amount is negative. From Table 1, the shareholders' equity is negative and total debt is 23,804,800 even larger than its total asset. It means that the debt ratio of Starbucks is over 100%, which may weaken the ability to resist risks and this corporation will go bankrupt at any time. Huang analyzes that Starbucks has been implemented the plan of capital return for dozens of years and it causes this situation happened for recent five years [11]. It should be mentioned that the management of Starbucks seems to have confident to go concern.

Cost of equity is also called minimum annual yield and used to measure the return for shareholders' equity and investment risk. As shown in Figure 2, the cost of equity capital of Bros. is 47.89% which is about double of the amount of Starbucks' 25.11%. It required a relatively high payment back to its shareholders' equity. Luckin's is -15.73% based on the negative levered beta. A negative levered beta signals that this corporate is negative correlated with market performance during the same period. Nevertheless, the proportion is small.

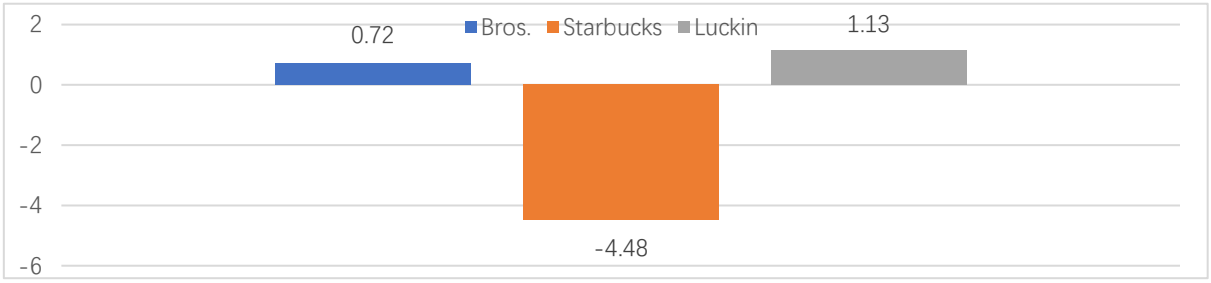

Figure 1. D/E ratio

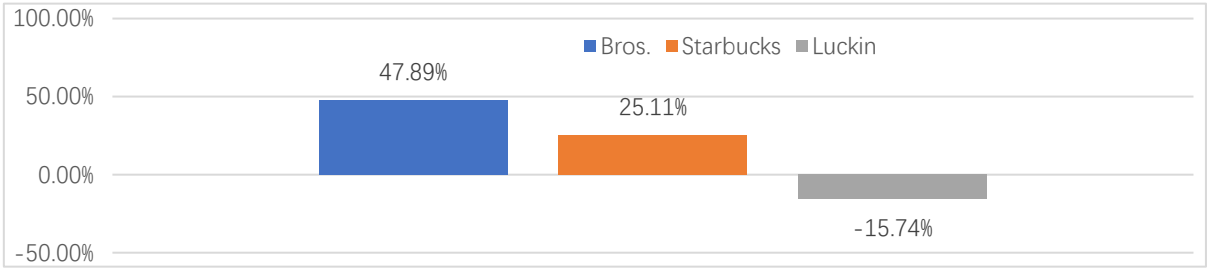

Figure 2. Cost of equity capital

Cost of debt capital refers to the required return for the market and used to compare investment value of the project with others' for investors. As illustrated in Fig. 3, the cost of debt capital of Bros., Starbucks and Luckin is all in a low level with 4.70%, 1.97% and 8.17%, respectively. Luckin is the highest of all and Starbucks' is the lowest. According to Hyytinen and Pajarinen's paper, a company getting older has great influences on reducing the cost of debt capital. Luckin is a relatively young company which has operated only below 5 years and Bros. has about 30 years' history. Starbucks has been built up for more than 50 years and it is well-founded that it has a lower cost of debt capital.

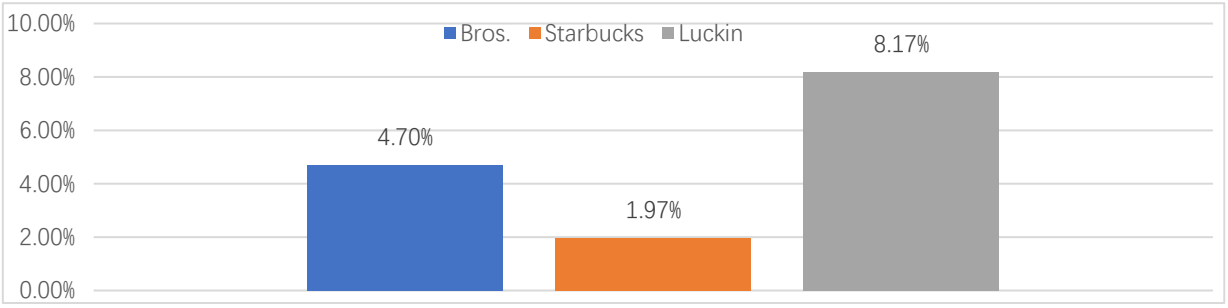

Figure 3. Cost of debt capital

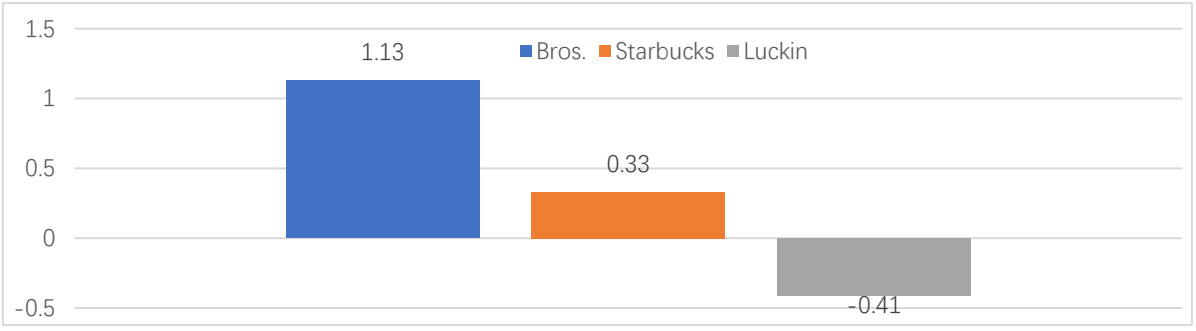

Figure 4. Unlevered beta

Unlevered beta removes the impact of financial leverage and isolates the risk caused by corporate assets. It only measures how much risk the shareholders' equity contributes to. Therefore, unlevered beta is more accurate in measuring a company's performance based on the market than levered beta. According to Fig. 4, the unlevered beta of Bros. is 1.13 whose volatility is greater than the market, which means it is hard for investors to analyze its future and development through the market performance. Starbucks' is 0.33 which is between 0 and 1. It has positive correlation with the market. Luckin's is -0.41 which is negative and it may attract investors when the stock price declines. Typically, investors want to invest in this company during the period of "bear market".

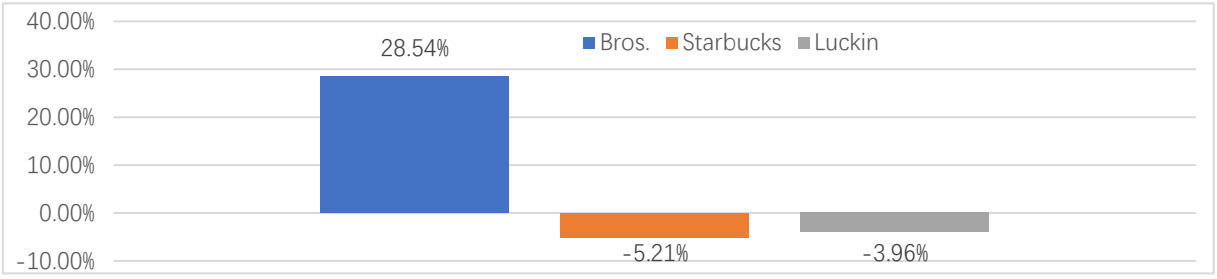

Figure 5. Weighted average cost of capital (WACC)

Weighted average cost of capital is the method to calculate a company's cost of capital by weighting all kinds of capital. As depicted in Fig. 5, the WACC of Bros. is 28.54% which is a little high in a normal range. However, both of Starbucks and Luckin's are negative and they have different reasons. The debt of Starbucks is so far larger than its capital, which causes the equity is negative. Luckin's is because of its negative levered beta. Meanwhile, the cost of equity capital is negative and greater than the cost of debt capital. Normally, both of them cannot measure the performance of the companies.

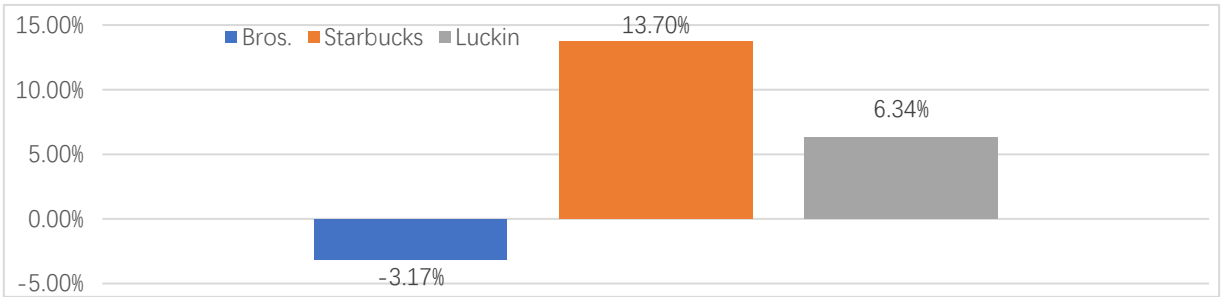

Figure 6. Return on assets (ROA)

Return on assets is an indicator to show the ability the company create value for shareholders and creditors. Therefore, it is better for investors and creditors if the return of assets is higher. Referring to Fig. 6, return of assets of Bros. is -3.17% which means this corporate was losing money during 2021. Starbucks' ROA was 13.70% which is over double of Luckin's. Moreover, Starbucks' total asset is about triple of Luckin's. Obviously, Starbucks made the most profit of the three corporates.

From the comparation of above six indicators, Bros. had relatively lower ability to face market risk and its losses happened based on the situation they just listed. Starbucks' return was active during 2021 even though it met a situation of insolvency, but it is caused by the return of capital instead of mismanagement. Luckin had good return on assets and it was negative correlated with market performance. In addition, it had made innovation in operating concept.

4. Limitations & Prospect

Admittedly, the limitations still exist even though this paper selects six indicators to do investment analysis for three corporates of the coffee industry. The data of the three corporates are all based on the income statement and balance sheet from finance of Yahoo. All the indicators are in the ideal states without any unexpected situations and risks. On this basis, this paper can only provide reference

for investment activities. In order to solve these limitations, some considerably work needs to be carried out to improve the research. Firstly, more related indicators should be calculated to analyze the company more precisely. Then, one ought to keep the objectivity to ensure results of the research are truer when collect the data and proof. Secondly, some practical research for investment is needed and it is the way to test the accuracy of the research results.

5. Conclusion

In summary, this paper investigates investment potential evaluation of the coffee industry based on the comparation and analysis between Dutch Bros., Starbucks and Luckin Coffee. According to the analysis, Bros. was affected by the economic environment based on new listing. In addition, Starbucks was influenced by their own policy decision which was equity return, but its future development prospects were optimistic. Moreover, Luckin's development was in a normal state and had completely different and novel operating philosophy. Nevertheless, the results and analysis are not completely accurate. In the future, more precise indicators should be combined and implemented with empirical research. Overall, these results offer a guideline for investment suggestions of the coffee industry and provide reference value for further academic research.

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