

Research on Enterprise Value Evaluation Based on EVA Model Taking Three Squirrels Inc. as an Example

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Abstract: With the rapid development of e-commerce, all industries in China have joined the army of e-commerce, and the food industry is no exception. E-commerce in the food industry can effectively broaden food sales channels, and the industry has great potential for development. As a food e-commerce company with the highest sales scale in China, Three Squirrels has a good representation in the food e-commerce industry. Therefore, selecting it as a case study for enterprise value evaluation is of reference significance for investors and managers to comprehensively and accurately assess the value of food e-commerce enterprises. This paper takes Three Squirrels Co., Ltd. as an example to explore the application of EVA model in food e-commerce enterprises and verify its applicability in the valuation of e-commerce enterprises.

1 INTRODUCTION

With the continuous improvement of China's economy and the upgrading of consumer philosophy, the market development potential of the casual food industry is huge, and the competition among major casual food brands is becoming more and more intense. Yio believes that the development potential of China's casual snack food industry is large and is expected to maintain a compound growth rate of more than 6%, and it is estimated that the domestic casual snack food market will reach 4 trillion yuan by 2025 [1]. At the same time, with the rapid development of e-commerce, various industries have joined the army of e-commerce, and the food industry is no exception. Food e-commerce is important for improving food logistics and expanding food sales channels, and can effectively combine all aspects of the food industry organically, so it has great development prospects [2]. Therefore, it is very important for both business managers and investors to accurately understand the financial status of food e-commerce enterprises and reasonably measure the enterprise value of food e-commerce enterprises.

At present, in the domestic capital market, enterprise value assessment is based on the income approach and the market approach [3]. This traditional appraisal method easily leads to unreasonable pricing of enterprise value, making the appraised value of the enterprise deviate significantly from the actual value of the enterprise [4]. With the gradual adoption of EVA as a performance evaluation standard by central enterprises, the concept of EVA for enterprise value assessment is gradually developing. The empirical study of EVA by Chengfeng Long et al. [5] shows that compared with traditional evaluation indicators, EVA performance evaluation

indicators are more effective.

EVA is an evolution of the discounted cash flow model, which adjusts the statement from the perspective of economic profit and better reflects the intrinsic value of the enterprise. By applying different evaluation methods and exploring suitable approaches for evaluating food e-commerce enterprises, we can not only improve the effectiveness of valuation of such enterprises but also provide new ideas for evaluating this type of enterprise [6].

2 Overview of EVA Enterprise Value Evaluation Method

2.1 Meaning of EVA

EVA refers to the return on investment over the cost of capital, i.e., the difference between the net operating profit after tax and the cost of capital. When the difference is positive, the shareholder value increases accordingly; on the contrary, when the difference is negative, the shareholder value decreases accordingly [7]. The advantage of the EVA model is that it comprehensively considers the cost of capital and avoids overestimation of the final assessment results. EVA does not negate the traditional accounting, but adjusts the accounting treatment method, and comprehensively considers the balance sheet and the income statement in the calculation, to eliminate some negative effects on the business performance of the enterprise [8]. Under this method, the corporate profit is defined from the shareholders' perspective, which allows for a better examination of a company's ability to create value for shareholders [9].

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2.2 Calculation of EVA

The formula for calculating EVA is:

$$EVA = NOPAT - TC \times WACC \quad (1)$$

Among them, NOPAT is net operating profit after tax; TC is total capital; WACC is weighted average capital cost.

3 Enterprise Value Evaluation of Three Squirrels

3.1 Introduction to Three Squirrels

Founded in 2012, Three Squirrels Inc. is currently the largest food e-commerce retailer in China. Its main business model is to use the Internet for online product sales, and its main business includes nuts, dried fruits, puffs, and other full varieties of casual foods. on July 10, 2019, Three Squirrels Co., Ltd. announced that it will issue common shares, and on July 12, 2019, it was

successfully listed on the GEM of the Shenzhen Stock Exchange, becoming the "first national snack stock ". Currently, Three Squirrels has become the first company in the snack food industry to break the threshold of USD 10 billion [10].

3.2 Financial Analysis of Three Squirrels

The analysis of Three Squirrels' financial indicators such as gearing ratio and net sales margin from 2017-2021 shows that the company's debt-paying ability, profitability, and operating capacity indicators in recent years are relatively reasonable and stable, with the indicator values fluctuating within a small range. Therefore, the company can ensure continuous operation, has a stable external environment and capital structure in the industry and has the prerequisites for applying the EVA method. The main financial indicators of Three Squirrels, as shown in Table 1.

Table 1. Financial indicators of Three Squirrels in 2017-2021

Project		2017	2018	2019	2020	2021
Debt-paying Ability	Current Ratio	1.63	1.46	1.54	1.69	1.60
	Quick Ratio	0.53	0.67	0.48	0.74	0.27
	Asset-liability Ratio (%)	0.63	0.64	0.61	0.52	0.55
Profitability	Net Profit Margin (%)	5.44	4.34	2.35	3.08	4.21
	Return on Equity (%)	37.38	27.33	12.60	14.37	18.21
Operational Capacity	Accounts Receivable Turnover	39.61	31.55	36.08	40.94	47.55
	Inventory Turnover	4.92	6.02	5.47	5.06	6.38
	Total Assets Turnover	2.57	2.65	2.56	2.12	2.07

3.3 EVA analysis of Three Squirrels

3.3.1 Calculation of net operating profit after tax (NOPAT)

Net operating profit after tax (NOPAT) is a reflection of the profitability of a company's operations and is not directly reflected in the income statement. EVA focuses on the net profit generated from operations. NOPAT is based

on the net profit on the income statement published by the enterprise in the reporting period, calculating the sum of net profit and interest expense items, and then adjusting some items of accounting accounts to arrive at the final value of NOPAT, which reflects the operating profitability of the enterprise. The NOPAT is based on the net income of the reporting period, the sum of net income and interest expense, and the adjustment of some accounting items to arrive at the NOPAT value. An analysis of the adjusted net operating profit after tax of Three Squirrels and the specific calculation process is shown in Table 2.

Table 2. Calculation of net operating profit after tax in 2017-2021 (Unit: million yuan)

Project	2017	2018	2019	2020	2021
Operating profit	40,726	39,785	29,973	39,216	46,807
+Interest expense	--	--	--	--	--
+Income tax expense	10,431	9,797	6,847	9,920	13,214
Earnings before interest and taxes	51,157	49,582	36,820	49,136	60,021
×(1 - Income tax rate)	0.75	0.75	0.75	0.75	0.75
Profit after interest and tax	38,368	37,187	27,615	36,852	45,016
+ R&D expenses	1,677	3,412	5,022	5,252	5,754
+ Non-operating expenses	398	136	157	726	1,234
+ Advertising cost	107,538	146,071	229,782	171,225	207,204
+ Increase in property depreciation preparation	271	400	534	348	264
+ Increase in deferred income tax liabilities	--	--	10	--	--

- Increase in deferred income tax assets	724	1,171	1,415	3,631	8,647
- Non-operating income	304	535	906	1,563	8,751
Net operating profit after tax	147,224	185,500	260,799	209,209	242,074

3.3.2 Calculation of total capital (TC)

According to our accounting standards, the assets in the accounting statements are not equal to all the assets used

by the enterprise for operating activities, and accounting adjustments need to be made to the relevant asset items in accordance with the EVA value concept. The total capital analysis table and specific calculation process of Three Squirrels are shown in Table 3.

Table 3. Calculation of total capital in 2017-2021 (Unit: million yuan)

Project	2017	2018	2019	2020	2021
Short-term borrowing	--	--	14,525	--	30,000
Bonds payable	--	--	--	--	--
Non-current liabilities due within one year	--	--	85	85	7,951
Long-term borrowing	25,400	25,000	25,000	22,900	19,900
Debt capital	25,400	25,000	39,610	22,985	57,851
Common shareholders' equity	80,792	111,178	189,529	209,640	225,792
Minority interests	--	--	--	--	--
Equity capital	80,792	111,178	189,529	209,640	225,792
+ Property depreciation preparation	271	400	534	348	264
+ R&D expenses	1,677	3,412	5,022	5,252	5,754
+ Deferred income tax liabilities	--	--	10	--	--
+ Non-operating expenses	398	136	157	726	1,234
- Construction in progress	1,922	18,825	16,343	14,854	20,678
- Deferred income tax assets	724	1,171	1,415	3,631	8,647
-Non-operating income	304	535	906	1,563	8,751
Total capital	105,588	119,595	216,188	218,903	252,819

3.3.3 Calculation of weighted average cost of capital (WACC)

The Weighted average cost of capital (WACC) consists of two components: the firm's cost of equity capital, which refers to the rate of compensation required by shareholders; and the cost of debt capital, which refers to the amount the company pays for issuing bonds or borrowing. The formula for calculating the weighted average cost of capital is as follows:

$$WACC = \frac{E}{E+D} \times K_e + \frac{D}{E+D} \times (1 - T) \times K_d \quad (2)$$

Among them, E is equity capital; K_e is the capital cost per equity unit; D is debt Capital; K_d is the capital cost per unit of pre-tax debt; and T is the corporate income tax rate.

K_e can be calculated from the capital asset pricing

model by the following formula:

$$K_e = R_f + \beta \times (R_m - R_f) \quad (3)$$

Among them, R_f is the risk-free rate of return, which is generally taken as the short-term treasury rate; R_m is the market rate of return on securities; $R_m - R_f$ is the risk premium, which reflects the compensation for market risk, using the growth rate of our GDP as a proxy; β is the volatility of a stock relative to the market. The β of Three Squirrels can be queried to be 1.16, i.e. $\beta_a = 1.16$, which is β of the asset, and we should apply β_e , the β of equity capital, when calculating the cost of equity capital. β_e can be calculated as follows:

$$\beta_e = \beta_a \times \left[1 + \frac{D}{E} \times (1 + T) \right] \quad (4)$$

The analysis of the weighted average cost of capital of the three squirrels in 2017-2021 is shown in Table 4.

Table 4. Calculation of weighted average cost of capital in 2017-2021

Project	2017	2018	2019	2020	2021
Debt capital	25,400	25,000	39,610	22,985	57,851
Equity capital	80,792	111,178	189,529	209,640	225,792

Total capital	106,192	136,178	229,139	232,625	283,643
Debt capital ratio (%)	23.92	18.36	17.29	9.88	20.40
Equity capital ratio (%)	76.08	81.64	82.71	90.12	79.60
Risk-free interest rate (%)	3.97	3.97	3.97	3.97	3.97
Equity risk premium (%)	6.9	6.7	6.1	2.3	8.1
β_a	1.16	1.16	1.16	1.16	1.16
β_e	1.43	1.36	1.34	1.26	1.38
Cost of debt capital (%)	4.65	4.65	4.65	4.65	4.65
Cost of equity capital (%)	8.17	7.67	6.83	1.87	9.68
Weighted average cost of capital (%)	7.05	6.90	6.25	2.03	8.42

The EVA values of Three Squirrels for 2017-2021 can be obtained by using formula (1), and the calculation process is shown in Table 5.

3.3.4 Enterprise value evaluation of Three Squirrels

Table 5. Calculation of Annual EVA of Three Squirrels in 2017-2021 (Unit: million yuan)

Project	2017	2018	2019	2020	2021
Net operating profit after tax	147,224	185,500	260,799	209,209	242,074
Total Capital	105,588	119,595	216,188	218,903	252,819
Weighted average cost of capital (%)	7.05	6.90	6.25	2.03	8.42
EVA	139,780	177,244	247,286	204,759	220,791

The enterprise value evaluation model is:

$$V = T_0 + \sum_{t=1}^n \frac{EVA_t}{(1+WACC)^t} \quad (5)$$

Where V is the enterprise value; T_0 is the initial investment cost. The value of Three Squirrels can be calculated by using formula (4):

$$V = 105588 + \frac{139780}{1 + 7.05\%} + \frac{177244}{(1 + 6.90\%)^2} + \frac{247286}{(1 + 6.25\%)^3} + \frac{204759}{(1 + 2.03\%)^4} + \frac{220791}{(1 + 8.42\%)^5} = 128860.98$$

According to the above estimates, the enterprise value of Three Squirrels in 2022 is expected to be 12.89 billion yuan, with a market value of 5.68 yuan per share.

3.4 Analysis of evaluation results

In 2022, the total number of outstanding shares of the Three Squirrels is estimated to be 227 million. The enterprise value of 1.289 billion yuan calculated by the above estimation model is divided by the number of shares, and the market value is 5.68 yuan per share. The current average market share price is 23.29 yuan per share. However, the market price is higher than the actual value of the enterprise, indicating that there is a fictitious component of the enterprise market value, mainly due to the project investment of the enterprise in recent years caused by the shareholders EVA valuation method can not

reflect the impact of all factors on the enterprise value. There are certain risks, such as choosing accounting accounts and determining the cost of capital.

4 CONCLUSION

Through the study of this paper, it is found that there are still significant differences in the application of EVA model for enterprise value assessment for Three Squirrels. At present, EVA theory is not fully researched in China's food e-commerce industry, and there are not enough objective and perfect applications of EVA models today. In the calculation of enterprise value assessment, the year-by-year EVA forecasts for the future high growth period and the annual EVA values for the stable growth period are very important, and they will have a great impact on the enterprise value. However, today's models do not provide a unified and scientific standard for EVA forecasting, which may lead to deviations between the evaluated valuation and the true value of the enterprise. Therefore, we should make reasonable improvements to these deficiencies in the future to improve the universality and accuracy of EVA models.

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