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Enterprise Value Analysis: The Case of PepsiCo

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Abstract: This paper has researched the Pepsi company value by using the discounted free cash flow (DCF) method and adjusted present value (APV) method. This paper has explained why company valuation is important at first. Then, discussed how the company valuation affects investors and managers. Finally, use DCF and APV methods to value Pepsi company based on the sales growth model and analyzed the research results. In order to obtain a relatively accurate result, this paper has forecasted the next five years' sales revenue and calculated the free cash flow to estimate the company value. The result is that the company value calculated by these two methods is higher than market value. The reason is that the sales revenue is estimated to continue to grow, and the free cash flow neglects the other comprehensive incomes. According to the analysis of the valuing results, it could be concluded that managers should pay more attention to the company financial structure and business environment. At the same time, the managers should also expand the company market share to attract more consumers to achieve constant sales growth.

Keywords: company valuation, discounted free cash flow, adjusted present value

1. Introduction

In the stock exchange and investment market, a great number of investors want to receive a high expected return. A company which has a higher valuation and growth potential may create more profits for investors. Pepsi is a famous consumer products company which has over 1000 products [1]. As a large, listed company, PepsiCo is probably one of the typical companies in the food industry that represents a consumer products company. Valuing PepsiCo could be helpful in understanding the market trend and investment direction in the comparable industry. In the listed company valuation, although the company information has high transparency, the growth potential and profitability cannot be reflected completely in the public information. The executive compensation change is internal information in a company, which is a relatively opaque factor in company valuation [2]. In addition, evaluating a company with an appropriate valuing method could be helpful in making distressed companies solve financial problems. And can help the distressed company identify the internal management problem to maintain operations [3]. In that case, valuing a company accurately with an appropriate valuation method could be helpful to earn higher returns at lower prices and avoid risks for investors. On the other hand, reasonable company valuation can also help managers understand asset situations and make decisions. Therefore, company valuation is a pivotal indicator for company decision analysis and financing. This paper has selected Pepsi Corporation as the research object and used Discounted Free Cash Flow method (DCF) and Adjusted Present Value method (APV) to value

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the company. Then, this paper analyzed the factors which may influence the company valuation. Finally, this paper gave suggestions on how to maintain the company valuation for managers and investors.

2. Methods

This paper has used the two valuation methods mentioned above to value the corporate valuation of PepsiCo. The DCF method is based on the theory that the value of an asset is equal to the expected future yields discounted to today [4]. The DCF method usually has two stage processes:

$$PV=\sum \frac{FCF_t}{(1+WACC)^t}+\frac{PV_t}{(1+WACC)^t} \quad (1)$$

In the DCF model, PV is the company value, PVt represents the terminal value of a company in a time period. FCFt is the free cash flow for different years, and WACC represents the weighted average cost of capital which is used as a discount rate. According to the calculation of free cash flow and terminal value in the future, the company value could be estimated. Free Cash Flow (FCF) is the remaining cash flow after the need for general operation and development in a company. Free cash flow is used to repay the debt or pay the dividends, which is a main indicator in enterprise value assessment [5]. The free cash flow can be expressed as the difference between operating cash flow and the capital expenditures:

$$FCF=EBIT(1-T_c)+Depreciation-Capital\ expenditures-\Delta Working\ capital \quad (2)$$

The EBIT is yields before interest and taxes, Tc represents the tax rate in local, capital expenditures represent the investment of fixed assets, and the Δ working capital is the net increase of working capital. In this model, the capital expenditures are represented by the change value of total fixed assets. The free cash flow for Pepsi on December 31, 2022, can be calculated as 5.86 billion dollars. The discount rate is WACC (Weighted Average Cost of Capital), which is used to calculate the weighted average of different capitals:

$$WACC=r_D*\frac{D}{V}*(1-T_c)+r_E*\frac{E}{V} \quad (3)$$

The D/V is represented as the percentage of debt to total financing, and E/V is the percentage of equity in total financing. TC is the corporate income tax rate which is about 18.14%. rD is the cost of debt in a company, which represents the interest rate paid by a company for debt. In order to estimate rD, it is necessary to find the type of bonds that a company has issued and determine the interest rates as the expected return of bonds. rE is the cost of equity, which determines the return investors expect to earn by investing in a company. The rE can be estimated by the CAPM model (a method used to estimate the relationship between the yield of assets and risks), which is an effective way to estimate the cost of equity and evaluate the systematic risk.

$$r_E=r_f+\beta*(r_m-r_f) \quad (4)$$

In the CAPM model, rf represents the zero-risk rate, which is the minimum expected yield when risk is zero. In this paper, rf is regarded as the treasury bond rate. β is the systematic risk factor that cannot be diversified. rm is the yield of market investment. To calculate the cost of equity (rE), this paper has selected a risk-free rate from Federal Reserve (2022), which is the long-term government bond yields. The risk-free rate is 3.75% on December 31st, 2022 [6]. And the β was estimated by

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using the data from Finbox in the last 5 years [7]. In order to maintain the stability of rE, the β has been calculated by using average values from the past 5 years. Thus, the systematic risk (β) of Pepsi is 0.58. This paper has selected rm = 13.66% as the market investment yield, which is from Stock Analysis Database [8]. Finally, based on the CAPM model, the cost of equity rE = 9.50% can be calculated.

After calculating rE, the next is to estimate the weighted average cost of capital to discount cash flows. According to the analysis of Pepsi's 2022 balance sheet, debt and equity can be estimated. In addition, according to the bonds issued by Pepsi in 2022, the cost of debt rD can be estimated as 4.40% [9]. Hence, the discount rate WACC can be estimated as 5.44%. Suppose that PepsiCo is continuously operating, valuing the company by sales revenue forecast could be effective. In order to obtain relatively reliable results, this paper has chosen 5 years as the forecast horizon, which can avoid long-term uncertainty and short-term underdevelopment. According to the analysis of the growth of sales revenue in the past decade, suppose that the average growth of revenue is 2.92% in the next 1 to 3 years. And the growth rate of revenue is 4 % in the next 4 to 5 years. In addition, assuming that the sales revenue is lasting growth, then the growth rate of sales is set to 3% after the fifth year. The terminal value can be represented as:

$$PV_t = \frac{FCF_{t+1}}{WACC\text{-}g} \tag{5}$$

Based on the analysis of the US food industry growth rate, the annual growth rate of the food industry is about 3.40% [10]. Thus, the perpetuity growth rate g=3% is in line with the development of the US food industry.

The Adjusted Present Value is a company's net present value (NPV) plus the other present value of financing side effect. The net present value of a company is represented as the base-case company value, and the formula is:

$$APV = PV(Base\ Case\ Company\ Value) + PV(Financing\ Side\ Effects) \tag{6}$$

The APV method has used opportunity costs of capital as the discount rate, which can be viewed as an unleveled WACC.

$$Opportunity\ cost\ of\ capital = r_D \frac{D}{V} + r_E \frac{E}{V} \tag{7}$$

The financing side effect means that when a company conducts financing activities, the tax shield, equity costs (rE), and debt costs (rD) could be changed and further affect company valuation. Thus, the APV method should consider the effects of the debt interest tax shield, which is the interest that companies raise funds through liabilities [11]. The debt interest tax shield could be useful for companies to reduce tax payments by paying for debt interests.

$$Debt\ Interest\ Tax\ Shield = Debt * r_D * T_c \tag{8}$$

The APV method considers the risks of different assets, which could be flexible to adjust company valuation and reduce errors.

3. Results

According to the analysis of the research results, the company valuation of PepsiCo is about 428.31 billion as shown in Table 1. In 2022, the outstanding shares of PepsiCo are about 1.38 billion [12]. Thus, the value per share of PepsiCo is approximately 310.37 dollars per share. By contrast, the real

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stock value of Pepsi is 189.71 dollars per share. The company value in the results is more than the real value. It is because the revenue growth is not constant, and the sales growth rate varies continuously. On the other hand, in the process of free cash flow calculation, the capital expenditures could be larger than the real value. It is because in order to compute the investment in fixed assets easily, the gross fixed assets have been replaced by company assets in the long term. All of the company's long-term assets include more extensive assets such as goodwill and a part of intangible assets. Thus, the real investment in total assets could be smaller than the calculation. Although using the total long-term assets may lead to smaller free cash flow, it could still be valid to decrease the unclear asset differentiation. For example, in some cases, the distinction between fixed assets and current assets may not be clear; companies may consider certain high-value assets as current assets [13]. In the process of sales revenue growth forecast for the next 5 years, this paper assumed that the sales revenue is continuously growing. However, based on the analysis of PepsiCo's sales revenue in the past 10 years, it could easily find that PepsiCo's sales revenue growth has shown significant volatility. In order to reduce the volatility and achieve a stable forecast, this paper has decided the growth rate based on the US food industry growth rate and average sales growth rate for Pepsi. It could be helpful to obtain accurate results when choosing a sales growth rate that aligns with industry development. Furthermore, due to the unstable market environment and economic situation, the company value of Pepsi is different every year.

Table 1: DCF valuation results.

Setting: billion	0	1	2	3	4	5	6
Sales	43.00	44.26	45.55	46.88	48.76	50.71	52.23
EBITDA	13.80	14.20	14.62	15.04	15.65	16.27	16.76
Depreciation & Amortization	1.26	1.30	1.33	1.37	1.43	1.49	1.53
Profit before tax (EBIT)	12.54	12.91	13.28	13.67	14.22	14.79	15.23
Income Tax	2.12	2.09	2.16	2.22	2.31	2.40	2.47
Profit after tax	10.42	10.81	11.13	11.45	11.91	12.39	12.76
Investment in fixed assets	1.64	2.65	1.43	1.47	2.08	2.16	1.68
Investment in working capital	0.27	0.08	0.09	0.09	0.13	0.13	0.10
FCF	9.78	9.37	10.94	11.26	11.14	11.58	12.50
PV(FCF) (1-5)	46.16	8.88	9.83	9.59	8.99	8.86	500.06
PV Horizon value	382.61						
PV (company)	428.77						

The adjusted present value (APV) for Pepsi is 420.2 billion dollars in Table 2, which is less than the DCF valuing results. According to the summary of the results, it could be found that in the process of APV method for valuation, the company value has been divided into base-case company value and the sum of net effect of debt. In addition, the APV method also considers the debt interest tax shield, which could be useful to decrease the tax burden. However, the DCF method is mainly focus on the free cash flow in the company operation, which neglects the effects of debts or tax. On the other hand, DCF used WACC as discount rate, which assumes the debt ratio and financial structure are constant. In that case, when the debt changes over time, different results may be obtained by using DCF method. In the APV calculation, assume that the debt is continuously changing, and the opportunity cost of capital is the discount rate. Then, the discounted value of debt interest tax shield is the financing side effect. In general, APV method has considered more about debt tax shield rather than single operation activity. Furthermore, APV method could be helpful to distinguish the value-adding factors and value-decreasing factors for managers.

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Table 2: APV valuation results.

Setting: billion	0	1	2	3	4	5	6
Free Cash Flow	9.78	9.37	10.94	11.26	11.14	11.58	12.50
Debt	39.07	37.51	36.01	34.57	33.18	31.86	
Interest		1.72	1.65	1.58	1.52	1.46	
Interest Tax shield		0.28	0.27	0.26	0.25	0.24	
PV (Interest Tax Shield)	1.04	0.26	0.24	0.16	0.20	0.18	
PV(FCF1-5)	45.51	8.84	9.74	9.46	8.82	8.65	500.06
PV Horizon Value	373.67						
PV(Company)Base	419.18						
APV	420.22						

4. Conclusion

This paper has researched the company value of Pepsi Corporate by using the discounted free cash flow (DCF) method and adjusted present value (APV) method. According to the summary of valuing results and compared with Pepsi's value from NASDAQ, this paper yields a higher value for Pepsi than the market value. It could be concluded that Pepsi may have greater upside in the future operation. In addition, this paper has forecasted the free cash flow in the next 5 years based on the sales growth rate, which can reflect the financial stability and development of Pepsi. However, in the calculation of discounted free cash flow, the EBITDA, capital expenditures, and the value of change in working capital are all estimated as a percentage of sales revenue. As sales revenues are assumed to be continuously growing, the free cash flow will also show continuous growth. In that case, the company value calculated by the DCF method may be higher than the real value. Similarly, the APV method has also used free cash flow from the result of the DCF method. The company value calculated by using APV method is also higher than market value. Although the higher company value of Pepsi may be subject to error, it can still help investors understand the financial situation of Pepsi corporate. In other words, sales revenue is a direct indicator reflecting the company's operation and market competition. Investors can understand the financial structure easily and make decisions quickly based on this indicator. Therefore, using the sales growth rate to estimate the free cash flow and company valuation could be useful for investors to analyze the company's market position. According to the analysis of Pepsi valuation, it could be concluded that the company value is related to financial situation, which is always reflected in the free cash flow. In addition, the industry development and environment can also affect company valuation. If a company is operating in a poor market environment, the demand of consumers and corporate competitiveness will be influenced, the company may suffer a decline in sales and an increase in debt. In that case, expand the market share and enhance talent management could be effective to improve the company valuation.

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