



Value Assessment of Information Technology Companies based on the EVA Model

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Abstract. By analysing the EVA enterprise value assessment model and combining it with the case of Company A, this paper discusses the practical application effect of the EVA model in the value assessment of information technology enterprises. It aims to provide a more comprehensive and precise method for the value assessment of information technology enterprises and promote the sustainable and healthy development of information technology enterprises.

Keywords: EVA modelling; Information technology firms; Valuation

1 Introduction

The EVA model calculates the real manufactured economic value of an enterprise by taking into account the cost of capital and based on after-tax operating profit. It not only accurately reflects the profitability and operational efficiency of the enterprise, but also effectively measures the long-term growth potential and innovation ability of the enterprise. For information technology enterprises with large financing needs, there is an urgent need for professional organisations to make a reasonable assessment of their value in order to provide strong support for their financing decisions and enhance their market competitiveness. Therefore, the EVA model has a broad application prospect in assessing the value of information technology enterprises. The research on the value assessment of information technology enterprises based on EVA model aims to provide investors and decision makers with a more accurate and comprehensive basis for value assessment through in-depth analysis of the theoretical basis and application methods of EVA model. It can also promote the healthy development of information technology enterprises and the informatisation process of the whole society.

2 EVA Enterprise Value Assessment Model

2.1 Principle of EVA Model

EVA is essentially the net difference between the return obtained by the enterprise using all its capital and the full cost of capital invested. It mainly measures the excess of

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the return on capital over the cost of capital. Due to the differences between China's accounting standards and international standards, the calculation of EVA needs to be adjusted by the corresponding accounting items. After adjustment, EVA is equal to the difference between the company's net operating profit after tax and the weighted average cost of capital^[1-2]. It reflects the profitability of the company and reveals the real value created by the company in its economic activities. Therefore, EVA, as an important financial indicator, helps investors and managers to have a more comprehensive understanding of an enterprise's business performance and value creation ability. Its calculation formula is as follows:

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

Where NOPAT stands for net operating profit after tax, NA stands for total initial invested capital, and WACC stands for weighted average cost of capital.

In the EVA value assessment model, the enterprise value (V) is the sum of the present value of the enterprise's initial invested capital and the projected EVA, calculated as follows:

$$V = Bt_0 + \sum \left(\frac{EVA_t}{1 + WACC^t} \right) \quad (2)$$

where Bt_0 reaches the initial invested capital of the firm, EVA_t reaches the EVA value of the firm in year t, and WACC denotes the weighted average cost of capital of the firm.

2.2 EVA Model Calculation

In the EVA calculation, it is necessary to clarify the specific calculation of each parameter. As can be seen from the above formula, the calculation steps of NOPAT are: (net profit + income tax + interest expense) \times (1 - tax rate) + amortisation of goodwill for the current year - increase in the balance of various provisions + R&D expenses and minority gains and losses - amortisation of R&D expenses for the current year - Increase in deferred tax debit balance + Deferred tax cargo balance.

The calculation steps for NA are: equity capital (minority interest + common shareholders' equity) + debt capital (short-term and long-term borrowings + bonds payable + long-term borrowings due within one year) + investment capital adjustments (amortisation of accumulated goodwill + R&D expenses + various reserves - Deferred tax debit balance + deferred tax cargo balance) - net value of construction in progress. Net value of construction work.

The formula for WACC is:

$$WACC = \frac{E}{V} \times R_e + \frac{D}{V} \times R_d \times (1 - T) \quad (3)$$

Where E stands for equity capital, D stands for debt capital, V stands for total capital, T stands for corporate income tax rate, R_e stands for cost of equity capital and R_d stands for cost of debt capital.

The formula for R_e is:

$$R_e = R_f + \beta \times (R_m - R_f) \quad (4)$$

Where R_f represents the risk-free rate of return, R_m represents the expected market rate of return, β represents the risk factor, R_e the cost of equity capital and $R_m - R_f$ represents the market risk premium.

The cost of debt capital calculation can be divided into short-term debt weight and long-term debt weight as weights, according to the formaldehyde average approach to the cost of debt capital calculation. Considering that the main source of corporate debt is bank loans, short-term debt cost of capital can be selected as the interest rate of loans within 6 months to 1 year, and long-term debt capital is selected as the interest rate of loans for 3 to 5 years. Corporate income tax should be calculated according to the actual situation of the enterprise^[3-5].

2.3 Classification of EVA Models

Firstly, single stage model. The single stage model is divided into two cases, firstly, the zero growth model. Its formula is:

$$V = Bt_0 + \frac{EVA_1}{WACC} \quad (5)$$

Secondly, steady growth type. As the growth rate of EVA is stabilised at a constant value for smooth uniform growth, let g be the growth rate and the formula is:

$$V = Bt_0 + \frac{EVA_1}{WACC - g} \quad (WACC > g) \quad (6)$$

The second is a two-stage model. Since the second stage of EVA is a steady growth stage, starting in year $t+1$, the growth rate is g_2 ($g_2 > g_1$). The sum of present values of future EVA =

$$\sum_{n=1}^t \frac{EVA_n}{(1+WACC)^n} + \frac{EVA_{t+1}}{(WACC - g_2)(1+WACC)^t} \quad (7)$$

$$V = Bt_0 + \sum_{n=1}^t \frac{EVA_n}{(1+WACC)^n} + \frac{EVA_{t+1}}{(WACC - g_2)(1+WACC)^t} \quad (8)$$

The third is the three-stage model. Since the EVA growth rate in the third stage is in the stabilisation stage with a growth rate of g_3 , the sum of present values of EVA =

$$\sum_{t=1}^m \frac{EVA_t}{(1+WACC)^t} + \sum_{t=m+1}^n \frac{EVA_t}{(1+WACC)^t} + \frac{EVA_{n+1}}{(WACC-g_3)(1+WACC)^n} \quad (9)$$

$$V = Bt_0 + \sum_{t=1}^m \frac{EVA_t}{(1+WACC)^t} + \sum_{t=m+1}^n \frac{EVA_t}{(1+WACC)^t} + \frac{EVA_{n+1}}{(WACC-g_3)(1+WACC)^n} \quad (10)$$

2.4 Value Assessment Procedure Based on EVA Model

To assess the value of an enterprise using the EVA model, it is necessary to collect a large amount of information about the enterprise's operating conditions, analyse and process it with the help of scientific methods, understand the enterprise's development situation, and use the EVA model to predict it, and then assess its value^[6]. The value assessment process of the EVA model is shown in Figure 1.

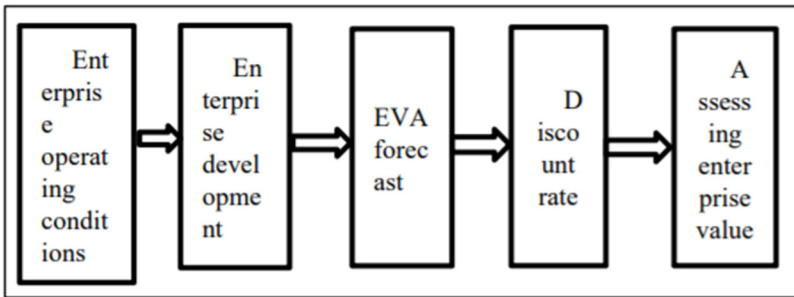


Fig. 1. EVA Value Assessment Flowchart

3 Value Assessment of Information Technology Company (Company A) Based on EVA Model

3.1 Overview of Enterprise A

Enterprise A was founded in 2005 and listed on the Shanghai Stock Exchange in 2015. The company focuses on the research, development, production and sales of high-end printed circuit boards, including multilayer, double-layer and single-layer circuit boards, and provides customised services and solutions. The products are widely used in communication, medical and military industries, and are exported overseas. Since its listing, the company has continued to grow in size and revenue, achieving significant growth in total assets and operating income, as well as an increase in net profit, and is committed to becoming a globally renowned supplier of electronic circuits. Enterprise A is chosen for the study mainly because it is a leading company in the information

technology industry, with representative new and increasing assets and revenues. However, the cash flow fluctuates greatly in 2019, 2020 and 2021, and the traditional discounted cash flow method cannot comprehensively and accurately assess the value of Enterprise A. The EVA valuation model can analyse the cost of capital and operating profit of Enterprise A, which can more accurately and comprehensively assess the value of the enterprise^[7].

3.2 Historical EVA Calculation

By collecting the historical financial data of Enterprise A from 2019 to 2023 and calculating the historical EVA value of Enterprise A according to the above formula, see Table 1. in order to analyse the current operating status of Enterprise A and provide data support for predicting the future development status of Enterprise A.

Table 1. Historical EVA Data Table for Enterprise A from 2019 to 2023 (in millions)

	2019	2020	2021	2022	2023
NOPAT	17893.25	16634.21	17647.26	19382.17	19896.32
NA	112643.58	196854.64	234872.32	289781.68	354897.29
WACC	7.26%	6.87%	7.12%	7.86%	8.04%
EVA	3258.27	2864.32	3108.56	2764.23	2316.14

3.3 Future EVA Forecast and Value Assessment

Due to the rapid development of information technology in recent years, in particular, advanced technologies such as artificial intelligence, big data and cloud computing have been widely used in various industries, providing a favourable development environment for the development of information technology enterprises. At the same time, the State has also promulgated various policies to support the development of the information technology industry. Moreover, as a leading enterprise in the information technology industry, Enterprise A has strong competitive advantages in the market and good resources. On balance, Enterprise A has a good development prospect in the next few years. Take 2019 to 2023 as the historical period, 2024 to 2028 as the expected period, and 2029 and beyond as the perpetual growth period for Enterprise A. The forecast of WACC is taken as the average value of 7.43% from 2019 to 2023, and the EVA related model and formula are used to forecast the EVA value of Enterprise A from 2024 to 2029, which is shown in Table 2.

Table 2. Data table of predicting the future EBA of Enterprise A from 2024 to 2028 (unit: million yuan)

	2024	2025	2026	2027	2028	2029
NOPAT	21365.24	26374.26	29247.16	32682.27	35726.35	38641.21
NA	192745.39	246457.54	296868.32	339382.18	399897.69	432684.28

WACC	7.43%	7.43%	7.43%	7.43%	7.43%	7.43%
EVA	36782.13	43673.36	51026.53	65874.26	86597.17	90215.24

3.4 Analysis of the Results of Enterprise A's value Assessment

Since the enterprise value is mainly the sum of the opening investment capital, the forecast of its EVA discount and the stable growth period EVA discount, according to the above relevant data can be calculated that the value of enterprise A in 2023 is $223452.26+3126.12+341067.26=567645.64$ million yuan. the total number of share capital of enterprise A on 31 December 2023 is 608,292,900 shares, and the closing price on that day is RMB 9.07 per share, so the value of Enterprise A is RMB 551,721,666,000. The value of Enterprise A calculated according to the EVA model of 567645.64 million yuan is slightly higher than the market value, and the calculation error rate is 2.81%. This shows that the value of Enterprise A calculated using the EVA model is similar to the market value with a relatively small error rate, which proves that the accuracy of using the EVA value model to assess the value of information technology enterprises is high.

4 Conclusions and Recommendations

4.1 Conclusion

The EVA model is used to assess the value of the information technology enterprise, and it is understood that the EVA values of enterprise A in recent years are all positive and show an increasing trend. It shows that the business activities of Enterprise A create capital appreciation in practice and its appreciation capacity is increasing. Through the EVA model to assess the value of enterprise A, compared with the market value, although there is a certain deviation, but the error rate of 2.81%, the calculated assessment results are slightly higher than the market value. However, compared with the traditional valuation method, the EVA model assessment is more accurate and comprehensive.

4.2 Recommendations

There are still some limitations in using the EVA model to assess enterprise value. In this regard, it is necessary to take relevant measures to improve and perfect it. Firstly, improve the relevant system. Relevant departments to establish value assessment laws and regulations to promote the improvement of the value assessment system, to ensure that the assessment model is more scientific and reliable. Secondly, conduct EVA model evaluation by industry. Make appropriate adjustments to accounting items according to the strategic objectives, operating modes, and asset configurations of different industries, and reasonably adopt the EVA model. In addition, comprehensively consider the impact of non-financial factors^[8-10]. There is no comprehensive consideration of non-financial factors in the EVA value assessment model, which needs to increase

the application of the balanced scorecard and other evaluation methods in order to supplement and improve the EVA model.

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