

Application of EVA in the Performance Evaluation of the State-Owned Enterprises: Case in Eastern Airlines Corporation Limited

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Abstract

With rapid improvement of China's market economic operation mechanism, competition of enterprises is growing. Traditional evaluation indicators that measure performance of enterprise have become increasingly prominent defects. In this paper, we use the emerging evaluation method of enterprise performance—Economic Value Added (EVA) to study the performance of the state-owned listed companies. We make China Eastern Airlines Corporation Limited as an example to study the performance of state-owned enterprises. This study helps to regulate corporate financial management behavior, so that corporate investment decisions are consistent with the funding decisions.

Key words: EVA; Performance; Financial; State-owned enterprise

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INTRODUCTION

As China's capital market matures, the value of investment in China's capital market dominance. Since the state-owned enterprises has unparalleled technical advantages, personnel and financial advantages, the state-

owned enterprises occupies an important position in China's capital market. At present, the existing methods that are used to measure the value of corporate often are based on accounting performance indicators and market indicators. But accounting performance indicators, such as return on assets, return on net assets, is not based on cash flow. They can not consider all of the cost of capital. As the speculation of China's stock market is strong, the phenomenon that stock price deviates from the company's fundamentals situation often occurs, and the volatility of the stock price is larger. So the market performance indicators can not reflect the real situation of the company. There is a large deviation whether the accounting indicators or market index, which may lead to a certain extent from the actual occasion. Taking into the defects of the accounting indicators and market indicators, researchers tried to use a new method to measure the company's performance. EVA method is currently the most widely used. In the *Harvard Business Review*, American father of management Peter Drucker wrote that "As a key indicator to measure total factor generation efficiency, EVA reflects the value of all aspects of management." American Stern Stewart Company believes that EVA is superior to other indicators. EVA is able to assess both the value of corporate strategy and operations and the value of the internal management evaluation. The advantage of EVA has been confirmed by many empirical (Bain, 1954; Cowling & Waterston, 1976; Hou & Robinson, 2006; Kong & Xiao, 2011; Byrne, 1996; Biddle, Bowen, & Wallace, 1997; Yang & Li, 2000; Feng & Jiang, 2001; Shen & Ye, 2004; Li, Zhang, Cao, & Zhang, 2006; Lu, 2012; O'Byrne, 1996; Lehn & Makhij, 1997; Zaima, 2008; Ding, 2010; Altendorfer & Jodlbauer, 2011; Ricci & Magni, 2006).

Since the assessment of the intrinsic value of state-owned enterprises related to the security of state-owned assets and operational efficiency. How to accurate estimate the value of state-owned has been the focus of the

SASAC. In order to further standardize the management of state-owned enterprises philosophy, the SASAC introduced EVA as the value assessment indicators of central enterprise in January 2010. This showed that the EVA indicator has been gradually taken seriously by the SASAC. In this paper, the idea that we use EVA to measure corporate performance was inspired by some of the research literature. Zhu and Song (2001) took book value as an indicator to analyze the performance of the company. The results showed that in the appliance industry, in which there were more fierce competition, the company's ownership structure and corporate performance was not significantly correlated. However Li, Zhu and Zhang (2006) adopted EVA as a measure of corporate performance and found that in the appliance industry, the company's ownership structure on firm performance had a significant impact. This showed that the different indicators of corporate performance to study on the same issue may get different results. So scientific method to assess corporate value will be crucial to conclusions of the study. At present, there existed many difficulties that EVA method is used to Chinese enterprise. The main reason is that China's capital market is incomplete. The domestic enterprises have many different characteristics of western companies. The contribution of this paper is that in view of current situation of Chinese enterprises, we used EVA approach to estimate the enterprise value. In this paper, we used EVA method to study the performance of state-owned enterprises. China Eastern Airlines Corporation Limited was studied as an example. This study helps to regulate corporate financial management behavior. This research can help government decision-making departments to develop industry development plans and understand the expansion of state-owned monopoly and competition.

Rest of the paper is organized as follows: the first part of the description, we analysis the principle of EVA methods. In the second part, we make China Eastern Airlines Corporation Limited as an example to analysis state-owned enterprise value. The third part is the conclusion of this paper.

1. RESEARCH METHODS

EVA, also known as economic profit, surplus profits or economic value added, is the profit concept of economic sense. EVA is balance, which is equal that the after-tax operating profit of adjustment deduct enterprises of all capital costs (including the cost of debt capital and equity capital costs), or that the accounting net income of adjustments deduct equity capital.

Since the concept of EVA was extended, the EVA-based evaluation methods have made great success in theoretical research and practical applications. Many large companies believe that EVA is the cornerstone of management strategies. For example, Coca-Cola Company

earlier applied the EVA method to estimate the corporate performance. After corporate governance, restructuring and expansion following the principles of EVA, Coca-Cola Company's share price increased 20-fold in 15 years. Siemens introduced EVA concept in 1998, Siemens found that EVA is core strategy to ensure the success by business practices. On Wall Street, Goldman Sachs, Credit Suisse First Boston and other investment banks have put EVA as the basic criteria to evaluation of the company.

According to the advantage of EVA, this paper use EVA method to evaluate the company's performance. The followings are the basic formula for calculating (Huang, 2007)

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

Where *NOPAT* is net operating profit after tax, *WACC* is weighted average cost of capital, and *K* is total capital.

The advantage of EVA method lies in its accounting principles of corporate profits, which is different from traditional accounting. Traditional final accounting profit of enterprise refers to the after-tax profits. Since after-tax profits do consider the cost of capital, it does not fully reflect the ultimate profitability. In the calculation principles of EVA, the cost of capital is deducted in the after-tax profits. The method of EVA reveals a more scientific value of the enterprise.

However, in view of the actual situation of Chinese enterprises, there are still some questions to apply the method of EVA: First, in China's current system, after-tax profits refer to the balance that the total profit deducts the income tax. The after-tax profits including formula (1) is the balance that operating profit deducts income tax. Second, in China's current system, operating profit does not include interest expense, and total profit excludes interests also. The operating profit of the above formula refers to EBIT, i.e., operating profit includes interest expense. Finally, in the above formula, average capital cost rate is a weighted average, which Based capital (or equity) expense ratio, expense ratio, debt ratio and debt capital structure constituted rate. So how to correctly determine the capital (or equity) expense ratio and debt expense ratio is the key to calculate average capital cost rate. Despite these problems, something about the current domestic EVA calculations usually ignores these problems. This leads to the deviation to calculate enterprise value.

In specific calculations, the after tax profit has excluded the interest already. If we reduce cost of borrowing, double-counting will appear. Similarly, that after tax profit subtracts capital costs is also duplicate computational problems. Furthermore, some think that the cost of equity (or expense ratio) is defined as the ratio of the total amount of stock dividends and corporate total assets, borrowing costs (or liability expense ratio) is defined as the ratio of the loan interest and the total assets, then the weighted average cost of capital calculated average rate is calculate through the cost of equity and borrowing

costs. This is obviously wrong. To reduce bias, this paper references the calculation of EVA by Huang (2007). Without loss of generalization, in this paper, the tax rate, which does not consider all possible tax incentives, is in accordance with the 25%. According to the balance sheet, income statement and cash flow statements, we calculated the indicators *NOPAT*. In practice, how to determine the *WACC* has been a controversial topic. Because the variables involve too much to calculate *WACC*, the *WACC* is not easy to grasp. In 2009 and 2010, when calculated the EVA of State-owned enterprises, the SASAC used weighted average cost of capital rate of 5.5%. We also adopt the same simplified approach SASAC. The weighted average for all enterprises cost (WACC) is assumed to be 5.5%.

2. CASE STUDY

2.1 China Eastern Airlines Corporation Limited Profile

China Eastern Airlines Corporation Limited is headquartered in Shanghai, China's state-owned airline, in 2002 in the former China Eastern Air Holding Company, based on the merger and China Northwest Airlines and Yunnan Airlines from the reorganization. Civil Aviation of China Eastern Airlines is the first in Hong Kong, New York and Shanghai, the three listed airlines, February 4, 1997, the 5th and November 5, China Eastern Airlines Corporation Limited, respectively, on the New York Stock Exchange (NYSE : CEA), the Stock Exchange of Hong Kong Stock Exchange (HKEx: 0670) and the Shanghai Stock Exchange (the Shanghai Stock Exchange: 600115) successfully listed. It is one of the China's three major state-owned aviation enterprises (the remaining two are Air China, China Southern Airlines Company Limited).

As one of China's three major airlines, China Eastern Airlines operates more than 430 aircraft. China Eastern

Airlines route network around the world 187 countries and 1000 destinations worldwide. China Eastern Airlines have nearly 80 million passenger service each year, and its passenger transport volume is among the world's top five. As a member of the SkyTeam alliance, "Eastern Miles" frequent flyers can enjoy 19 SkyTeam member airlines' interests and 525 airport lounges worldwide. As of the end of 2012, China Eastern Airlines has four consecutive years Class A in central enterprises of SASAC. 2012 China Eastern Airlines was named "Top 50 Most Valuable Chinese Brands" by the global brand communications agency WPP, and was rated the highest award "Golden Tripod" in the eighth annual meeting of China's securities market. China Eastern Airlines appeared in the *Fortune* magazine (Chinese Edition) 2013.

2.2 Designed

According to 2001-2012 annual balance sheet, income statement and cash flow statement of China Eastern Airlines Corporation Limited, we adopted EVA method to analysis the value of the company. The data come from the CSMAR Solution of China. First, according to the EVA method, which has been analyzed in the first part of this paper, we calculated the value of the China Eastern Airlines from 2005 to 2012. Then, the calculated results of the EVA method are compared with the traditional indicators of performance evaluation. Through comparing the company performance results of different methods, we showed the superiority of EVA index.

2.3 EVA Indicators and Comparative Analysis of Other Financial Indicators

According to the method of EVA, which was given in the first part of this paper of this paper, we used Matlab and Eviews software as an auxiliary tool to calculate total after-tax profits, capital and EVA values. Table 1 showed the performance of EVA and various traditional corporate financial indicators (net profit by NP, total assets by TC, and return on investment rate by IV).

Table 1
Annual EVA and Other Financial Indicators of China Eastern Airlines Corporation Limited From 2005 to 2012

Time	EVA	NP	TC	IV
2005-9-30	3.07	2.83	570.83	0.00
2005-12-31	4.04	0.96	575.59	0.00
2006-3-31	-0.03	-9.73	587.81	-0.02
2006-6-30	1.07	-15.52	593.16	-0.03
2006-9-30	2.57	-10.37	615.03	-0.02
2006-12-31	-9.07	-28.61	601.29	-0.05
2007-3-31	-0.33	-5.51	612.89	-0.00
2007-6-30	-0.64	0.16	621.71	0.00
2007-9-30	3.20	10.38	671.42	0.02
2007-12-31	-1.35	6.11	671.42	0.01

To be continued

Continued

Time	EVA	NP	TC	IV
2008-3-31	-6.14	2.06	665.04	0.00
2008-6-30	-10.60	0.43	684.84	0.00
2008-9-30	-12.14	-23.35	737.72	-0.03
2008-12-31	-35.20	-140.46	754.71	-0.19
2009-3-31	2.63	0.11	731.84	0.00
2009-6-30	6.98	12.06	726.58	0.02
2009-9-30	8.96	12.63	729.73	0.02
2009-12-31	9.64	5.59	711.88	0.01
2010-3-31	5.58	7.87	1017.53	0.01
2010-6-30	9.43	21.19	1028.61	0.02
2010-9-30	15.63	54.39	1008.10	0.05
2010-12-31	13.63	57.03	720.19	0.08
2011-3-31	2.38	10.50	1029.34	0.01
2011-6-30	3.76	25.21	1064.28	0.02
2011-9-30	8.30	59.13	1124.31	0.05
2011-12-31	1.57	49.02	1122.15	0.04
2012-3-31	2.71	1.80	1145.79	0.00
2012-6-30	7.94	8.89	1180.84	0.01
2012-9-30	20.08	36.31	1203.51	0.03
2012-12-31	12.03	33.00	1209.62	0.03

Note: The unit of EVA, NP and IV are 100 million in Table 1.

2.3.1 Comparison of EVA Index and Net Profit

Figure 1 and Table 1 showed that compare with the net profit, EVA performance evaluation results revealed far. From second quarter of 2007 to the second quarter of 2008, the NP of China Eastern Airlines Corporation Limited was always greater than zero, but the EVA of the company was negative in the same period. During this period, the company's positive net value indicated the company had better profitability from the second quarter of 2007 to the second quarter of 2008. But a negative EVA value meant that the actual results of enterprises was falling, and not to create real wealth for the shareholders, in other words, if we consider the cost of equity capital, the amount of profits and losses can not be offset for China Eastern Airlines Corporation Limited.

There are two main reasons to lead to the opposite conclusion. On the one hand, because the net is only recognition and measurement of the cost of debt capital, and it doesn't deducted the cost of equity capital. The data reflects that the net value is greater than EVA. In fact, compensation cost of equity capital is much higher than the net, which resulted in a profit of illusion. On the other hand, the net profit that is measured accordance with the accounting principles of conservatism is less revenue recognition and multi-metering costs. R&D advertising costs and all the costs of the reserve will distort the true performance of the enterprise, which lead to outputs

misleading information on the financial statements. The EVA that is adjusted by accounting matters considers the cost of real results of operations. So it is closer to reality. Compared to the net profit, EVA is a more difficult target to be manipulated, more accurate and objective reflection of China Eastern Airlines operating results.

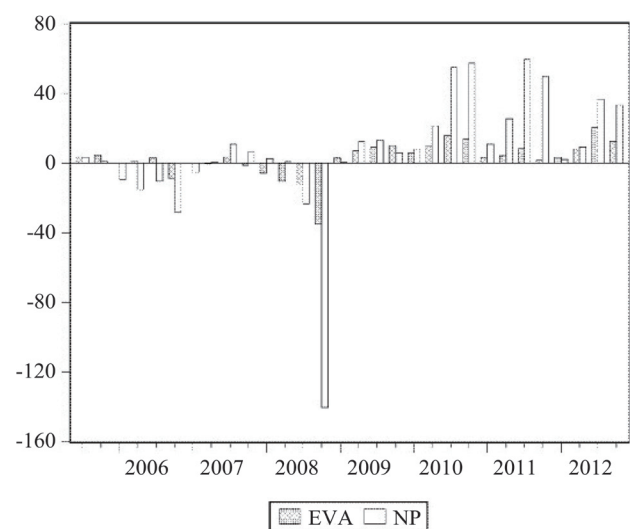


Figure 1
The EVA and Net Profit (NP) Of China Eastern Airlines Corporation Limited From 2005 to 2012

2.3.2 EVA Indicators Compared With IV

Figure 1 and Table 1 showed that compare with the IV, EVA performance evaluation results revealed far. Most of the time from 2005 to 2008, both EVA and IV were basic positive (except in 2008), which showed that China Eastern Airlines had more investment value. In 2008, a negative EVA value indicated that actual performance of enterprises was falling, and the enterprise did not create real wealth for the shareholders. In other words, if we considered the cost of equity capital, the amount of profit of China Eastern Airlines Corporation Limited did not offset the loss in 2008. Then the return on investment was still positive in 2008, which showed that the IV did not reflect the value of the company.

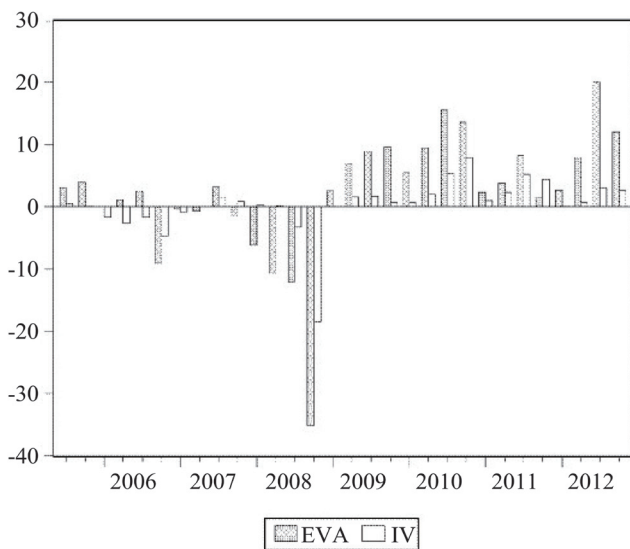


Figure 2
EVA and IV of China Eastern Airlines Corporation Limited From 2005 to 2012

CONCLUSION

As a measure indicators of company performance, EVA is gradually used by more and more foreign companies, and not a few domestic companies have begun to use EVA to estimate the value of company in recent years. This thesis attempted to provide a more accurate approach to estimate the value of listed companies. The following conclusions were obtained:

First, the EVA model has been widely in the world's attention, but the research that EVA theory was applied to evaluate the value of the state-owned enterprise was relatively small. In this paper we introduced the core concepts of EVA, and also introduced how to determinate of adjusting events parameter.

Second, this analysis showed that in evaluating corporate performance, EVA had many advantages. By considering the cost of equity capital, EVA indicators objectively reflected the true operating results. Accounting

statements for revisions and adjustments, EVA index excluded the distortion effects of accounting distortion and reduced agency costs.

Finally, EVA is a financial index, and it does not consider factors other than financial indicators. Therefore, it is not all-powerful indicators. That corporate increased investment in security and employee compensation will reduce the numerical of EVA. If the company is over-reliance on EVA, the long-term development of corporate may be damaged.

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