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EVA for value management capability evaluation of automotive logistics enterprise

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ABSTRACT

Value management capabilities is an important part of automotive logistics enterprise strategic objectives management, is a reflection of enterprise operating performance, is the importance reflection of corporate business, management support and adapt to environment development. Value Management capabilities not only to reflect the effectiveness of automotive logistics enterprises allocation of resources, but also provide a scientific basis for strategic decisions of automotive logistics enterprises. Therefore, scientific and effective evaluate value management capabilities of automotive logistics enterprise both the need of automotive logistics enterprise strategic management, but also the need to achieve enterprise value objectives. This paper is mainly analysis and design automotive logistics enterprise value management capability evaluation index model based on EVA (Economic Value Added), including capital value management model, MM model and Miller model, discounted cash flow model, residual income model analysis, valuation evaluation model analysis and index design of automobile logistics enterprises.

KEYWORDS

Automobile logistics enterprises; Valuation management model; EVA; Pathway; Evaluation.



INTRODUCTION

Sullivan^[1] (2000) for D Motor Company conducted in-depth research, especially the status of management's salary incentive is analyzed, on the basis of the former salary system, propose management personnel salary incentive system of EVA index as the core, to determine the " base salary + KPI achievement rate annual salary + EVA annual salary " salary structure ; introduced EVA annual salary, design unique uncapped bonus banking system, to further strengthen the interest links between managers and shareholders, corporate managers to make long-term interests of the owners as the core objectives of management, so that promote companies long-term stable and rapid development ; For the core part of the optimized management salary incentive system - EVA annual salary data calculations, determine the value of parameters, proposed salary system optimization program implementation may encounter problems and risks, and should take appropriate countermeasures. Peppard^[2] (2001) for M automotive group autonomous system under subsidiaries actual operating conditions, compared its EVA calculation results of independent and joint systems, make a comprehensive analysis for enterprise comprehensive performance evaluation system based on the balanced scorecard and salary incentives mechanism of autonomic system senior managers. In summing up the experience at home and abroad, based on the combination enterprise business model and automotive system development strategy of the M automotive group as a whole listing, presented the EVA into the balanced scorecard performance evaluation system, this assessment of automotive system tenure senior managers, and try to establish an equity incentive plan, adjust the performance and salary relationship of the operator's, form a scientific capital management incentive and restraint mechanisms. Harley^[3] (2001), analysis mainly from the status of China's auto industry independent innovation, for inadequate performance evaluation ability of the automotive industry independent innovation, combined with EVA theory analysis, think that EVA not only can be used as indicators of evaluate corporate performance, but also as a management thinking unified enterprise's goal and promote enterprise's culture. Firer^[4] (2003) analyzed the characteristics of automotive industry first, a clear idea of constructing the index system, and from the three aspects of the EVA -related indicators, traditional financial indicators and non-financial indicators design performance evaluation index system of the auto companies. Meanwhile, analysis the salary strategy choice of the corporate life cycle at different time, then from three dimensions of short- salary incentives, long-term salary incentive, other incentives constitute the auto companies salary system, which long-term salary incentive includes the design of EVA bonus bank, EVA virtual stock options.

THE TYPICAL ENTERPRISE VALUE EVALUATION MODEL

Capital value evaluation model

Irving • Fisher (Irving Fisher) in 1906 published a monograph, "The nature of capital and income", systematic exposition the relationship between capital and income, analysis the source of enterprise to create value through capital operation, pointed out: The future income capitalization (discounted value of income) is the value essence of capital. In 1907, he published "Interest rate: the nature, the decision and its relationship with economic phenomenon," analyzes the nature of interest rate and its role in value management, to further explore the relationship between capital income and capital value. In 1930 his book "Theory of Interest," put forward enterprise value management evaluation techniques and methods under deterministic conditions, laid the foundation for enterprise value, value management capability assessment. Fisher believes that people's investment decision-making process start from the feelings of revenue, a series of events that people feel the real daily constitutes the final income of each person, these revenues can be divided enjoy income, real income and money income, while the formation of capital value is the result of the capitalization of future income. Fisher believes that enjoy income is the most fundamental thing of income, its constitutes covers a range pleasant feeling or experience; monetary income refers to use the actual dollar amount of each period measure consumer income, real income is to take the purchasing power of money ; when monetary income greater than the actual income, people will be savings or investment, and the value of the investment

capital is essentially the discounted value of future income ; interest rates have a greater impact on the value of the capital, when interest rates fall, the value of capital will rise, when interest rates rise, the value of capital will decline. Fisher's enterprise value evaluation model as follows:

$$V = I + NPV \quad (1)$$

I for investment; NPV for net increment of enterprise value.

MM model and miller model

In 1958, the American economist Modigliani (Modigliani) and Merton • Miller (Miller) published the "capital cost, corporate finance and investment management," the premise of in a variety of theoretical assumptions, established a MM model with no corporate taxes, obtained conclusions that in the absence of corporate taxes premise the total value of the enterprise is independent from capital structure. In 1963, The model was further amended by Modigliani and Merton •Miller, adding the influence factors of income tax, and think that in the case of corporate income tax premise capital structure of enterprise affect its value, debt management can to bring tax savings effects. In 1976, Miller expanded the MM theory, purpose Miller model under the premise of the corporate income tax and personal income tax exist at the same time, to estimated liability leverage to influence the value of the enterprise.

When no corporation tax, MM model can be expressed as:

$$V_L = \frac{EBIT}{K_{SU}} \quad (2)$$

When has corporation tax,MM model can be expressed as:

$$V_L = \frac{EBIT(1-T_c)}{K_{SU}} + TD \quad (3)$$

Miller model can be expressed as:

$$V_L = \frac{EBIT(1-T_c)(1-T_s)}{K_{SU}} + [1 - \frac{(1-T_c)(1-T_s)}{1-T_d}]D \quad (4)$$

V_L was the value of liability companies; D for the value of liabilities; K_{SU} was the cost of equity of no liability companies at the established risk level; T_c was corporation income tax rate; T_s was stock investment income tax rates for individuals; T_d personal bonds investment income tax rate; $EBIT$ as earnings before interest and tax.

Discounted cash flow model

Discounted cash flow model (Discounted Cash Flow, DCF) discounted the expected future cash flows at a specific period in the enterprise as the current present value, by evaluating corporate investment income to evaluate the intrinsic value of the enterprise. Its basic principle is: the value of enterprise is equal to the present value of expected future cash flows generated. Formula is as follows:

$$V = \sum_{t=1}^n \frac{CF_t}{(1+i)^t} \quad (5)$$

Discounted cash flow model including equity valuation and the valuation of enterprise overall. Equity value by the cost of equity capital for expected equity cash flows discounted to obtain. The

overall value of the enterprise can use the cost of weighted average capital for the enterprise expected cash flows discounted to obtain. Using discounted cash flow model for equity capital valuation and overall valuation, involved in enterprise free cash flow, equity free cash flow, the cost of equity capital, the cost of weighted average capital and operating period (including the stable growth stage, two-stage and three-stage). Free cash flow shows the cash enterprise can freely disposable, used to measure their actual held cash that can return to shareholders, if free cash flow is rich, the business can repay the debt, develop new products, buy back stock, increase dividend payments to create value for shareholders. The whole free cash flow refers to enterprise deducting all operating expenses, the investment needs and taxes, the remaining cash flows before pay off the debts; equity free cash flow is the remaining cash flows of deduct all expenses, tax payments, investment needs and interest and amortization charges.

$$\text{Corporation free cash flow} = \text{Operating cash flow} - \text{Capital expenditures} - \text{Net increase in working capital} \quad (6)$$

$$\text{Equity Free Cash Flow} = \text{Net income} + \text{depreciation} - \text{debt principal repayments} - \text{the amount of additional working capital} - \text{capital expenditures newly issued debt} - \text{Preferred Dividends} \quad (7)$$

Method to estimate the cost of equity capital, the most commonly used are the dividend growth model, the capital asset pricing model and the arbitrage pricing model.

(1) Dividend growth model:

$$R = \frac{DPS}{P} + g \quad (8)$$

R is the cost of equity capital; P is the current stock price; DPS is expected to pay dividends next year; g is the growth rate of dividends.

(2) Capital Asset Pricing Model:

$$R = R_f + \beta(R_m - R_f) \quad (9)$$

R_m was The average yield for the stock; R_f was risk-free return rate; β was risk factor for the system.

(3) Arbitrage Pricing Model:

$$R = R_f + \sum_{i=1}^k \beta_i [E(R_i) - R_f] \quad (10)$$

$E(R_i) - R_f$ was the risk compensation rate of i risk factors; β_i was β coefficient of i risk factors; k was the number of risk factors.

The weighted average cost of capital (WACC) is a weighted average of cost of all various issuance securities by which enterprise to raise funds, including the cost of equity capital and cost of long-term debt capital. Formula is as follows:

$$WACC = \sum_{i=1}^n R_i W_i \quad (11)$$

The steady growth model of free cash flow valuation, assuming enterprise free cash flow to keep growing at a steady rate g, formula is as follows:

$$V = \frac{FCF_0 \times (1+g)}{r-g} = \frac{FCF_1}{r-g} \quad (12)$$

r as the discount rate; g as the growth rate; FCF_0 for the current free cash flow; FCF_1 as free cash flow of expected the next issue.

Two-stage model is suitable for growth presenting two-stage companies, the high growth rates in initial phase, the growth rate of the follow-up phase is relatively stable, and long duration. The usual practice is to forecast the time period n years of supernormal growth (set g), after the company places a relatively stable growth rate (set g_n) in the development, the enterprise value is equal to the present value of extraordinary growth stages plus free cash flow present value of continued growth phases. The formula is:

$$V = \sum_{t=1}^n \frac{FCF_t}{(1+r)^t} + \frac{FCF_{n+1}}{(r-g_n)(1+r)^n} \quad (13)$$

Three-stage model express corporate growth in three phases, namely the high-growth stage, the conversion phase of growth rate decline and steady growth phase. Three-stage model is applicable to enterprise growth changes over time. Its value model is expressed as follows:

$$V = \sum_{t=1}^m \frac{FCF_0(1+g)^t}{(1+r)^t} + \sum_{t=m+1}^n \frac{FCF_t}{(1+t)^t} + \frac{FCF_{n+1}}{(r-g_n)(1+r)^n} \quad (14)$$

m is the end of initial high growth phase; n is the final of convert stage.

Residual income model

(1) Residual income EBO model

Based on the study of traditional enterprise value management valuation model, Edward, Bell and Ohlson^[5] (1994) proposed the accounting valuation model use accounting data to estimate the value of the company, collectively EBO model of residual income (ie, Edward-Bell-Ohlson model). Residual income EBO model is deformed from the dividend discount model to get, the intrinsic value of the enterprise will be expressed as the sum of net investment income and the present value of future excess returns. Enterprise implied terminal value based on EBO model refers to the sum of present value of the T years to the ∞ -years excess return after the forecast period, the greater the implied terminal value, which means that companies with more sustainable profitability. Residual income EBO model can be expressed as:

$$\begin{aligned} V_t &= \sum_{i=1}^{\infty} \frac{NI_{t+i} - (B_{t+i} - B_{t+i-1})}{(1+r)^i} \\ &= B_t + \sum_{i=1}^{\infty} \frac{NI_{t+i} - rB_{t+i-1}}{(1+r)^i} \end{aligned} \quad (15)$$

Bernard (1994) converted the residual income EBO model into specific accounting ratio expression forms. Namely:

$$V_t = B_t + \sum_{i=1}^{\infty} \frac{(ROE_{t+i} - r)B_{t+i-1}}{(1+r)^i} \quad (16)$$

NI_{t+i} as net investment income for the period $t+i$; B_t as the company equity book value during the period t ; ROE_{t+i} as return on equity for the period of $t+i$; r equity capital cost rate.

Calculating the equity capital cost rate r generally use Sharp (1964) and Lintner (1965) Capital Asset Pricing Model CAPM to estimate, calculated as follows: $r = R_f + \beta(R_m - R_f)$ type: R_f is the risk-free return rate; β indicates systemic risk of enterprises; R_m said the average yield of market.

(2)Residual income Ohlson (1995) model

Ohlson made three assumptions are: (1) the present value of the expected dividend determine value of the stock; (2) accounting data to comply with the net surplus relations, the changes of equity book value is equal to earnings minus the dividends; (3) a random sequence of excess earnings follow a linear relationship.

According to the first, two assumptions can be obtained:

$$V_t = \sum_{i=1}^{\infty} \frac{D_{t+i}}{(1+r)^i} \tag{17}$$

$$B_t = B_{t-1} + X_t - D_t \tag{18}$$

X_t is the surplus of t period; D_t are dividends for the period t;

By the formula 17 and formula 18:

$$\begin{aligned} V_t &= B_t + \sum_{i=1}^{\infty} \frac{X_{t+i} - B_{t+i}}{(1+r)^i} \\ &= B_t + \sum_{i=1}^{\infty} \frac{X_{t+i} - rB_{t+i-1}}{(1+r)^i} \end{aligned} \tag{19}$$

$X_{t+i} - rB_{t+i-1}$ represents the excess surplus or residual income.

According to the third assumption, we have:

$$X_{t+1} - rB_t = \omega(X_t - rB_{t-1}) + v_t + \varepsilon_1 \tag{20}$$

$$v_{t+1} = \gamma v_t + \varepsilon_2 \tag{21}$$

v_t as additional information except for the excess surplus; ε_1 and ε_2 as disturbance variables to mean 0; ω and γ is constant and $0 \leq \omega < 1, 0 \leq \gamma < 1$.

The Ohlson (1995) model can be expressed as:

$$V_t = B_t + \frac{\omega}{1+r-\omega} (X_t - rB_{t-1}) + \frac{1+r}{(1+r-\omega)(1+r-\gamma)} v_t \tag{22}$$

Model analysis

(1)Analyze the capital value assessment model. Fisher established enterprise valuation model from the relationship between capital income and capital value, opened the first of enterprise valuation, and laid the foundation for the development of modern enterprise valuation techniques and establishment of theoretical system. But Fisher's valuation model, only departure from the perspective of increased shareholder wealth. In accordance with Fisher's valuation model, the purpose of shareholders' investment is to increase wealth, as long as the return on investment is greater than the cost of capital, profits and value of shareholder will increase. Internal return rate of investment and capital market

interest rate determines the optimal investment amount, but only when internal return rate equal to market interest rates, achieve the optimal investment, therefore maximize the value of the enterprise has nothing to do with the enterprise's capital structure, In fact, due to the presence of environmental uncertainty, the opportunity cost of debt and equity are very different, but Fisher was not able to establish a relationship between capital structure and cost of capital, can not determine the capitalization rate of enterprise value. For automotive logistics enterprises, Fisher's valuation model provides ideas of value analysis, but can not make use of Fisher's valuation model to do exact calculations.

(2) Analyze the MM model and Miller model. MM model and Miller model uses mathematical models to reveal the nature of the debt to create value in capital structure. According to MM model and Miller model, the existence of the tax led to defects imperfect capital markets, so that the capital structure affect the value management of enterprise. Therefore, the value management of enterprise and the cost of capital changes with the changes of capital structure, the value of have debt leverage enterprise to create in excess of the value of no debt-leveraged companies to create, more debt, the greater the value created by the enterprise, when the debt ratio reaches 100%, the value created by companies reached a maximum. But Miller MM model and the model implied the assumption of personal tax can replace corporate tax, assumption of the company expects operating profit EBIT unchanged, assumption of liability companies or individuals without risk are not realistic, at the same time, MM model and the Miller model ignores transactions cost, financial constraints cost. Therefore, for the automotive logistics enterprises, MM model and Miller models provide a strategic thinking of create value by optimizing the capital structure, but can not be used as a basic tool of value management analysis.

(3) Analyze the discounted cash flow model. Discounted cash flows are comprehensive reflection of corporate profitability, financial condition and future prospects for the development, it achieve the enterprise value management assessment by the coupling value of assets and the present value of future cash flows, its theoretical value and application results have practical significance, Discounted cash flow model is more suitable for the assessment of enterprise's current cash flow is positive, future cash flows and the risk can be estimated reliably, and can calculate the discount rate based on risk. And China's automotive logistics enterprises generally in expansion phase, mostly negative cash flow, and thus discounted cash flow model have not adapt to the present value management's assessment of automotive logistics enterprises. In addition, the discounted cash flow model is valid on the entire cycle and point of value management assessment, but it is difficult as a tool of oversee the implementation process to achieve value.

(4) Analyze the residual income model. Residual income is balance of deducting the cost of ownership capital from accounting (or adjusted accounting income), which is the excess revenue after enterprises through value create to compensate for all cost of production factors, is enterprise value management capability index derived from the residual income model. Enterprise determined value in accordance with the residual income model reflects the ability of enterprises to get residual income, is the fundamental reflection of enterprise's value management capabilities. The basic meaning of the residual income model include : enterprise value reflects the sum of the current value of net assets book and future create value of enterprise or growth net present value ; investor wants to pay higher than the price of enterprises net assets book value, companies must obtain the margins higher than the cost of capital. However, residual income of residual income valuation model used requirements the relationship of the book value and the accounting gain is a clean surplus relationship, calculated directly from the value of book equity and the book accounting income, does not make accounting adjustments. For automotive logistics enterprise, residual income indicators reflect the input-output relationship, residual income

model provides value management assessment tool, and for value management analysis has important guiding significance.

EVA FOR AUTOMOTIVE LOGISTICS ENTERPRISE VALUE MANAGEMENT CAPABILITY EVALUATION MODEL

EVA enterprise value assessment model

EVA enterprise value basic assessment model is:

$$\begin{aligned}
 V_t &= I_0 + \sum_{t=1}^{\infty} \frac{EVA_t}{(1+WACC)^t} \\
 &= I_0 + \sum_{t=1}^{\infty} \frac{NOPAT_t - I_{t-1} \cdot WACC}{(1+WACC)^t} \\
 &= I_0 + \sum_{t=1}^{\infty} \frac{I_{t-1}(ROIC - WACC)}{(1+WACC)^t}
 \end{aligned}
 \tag{23}$$

I_{t-1} is the invested capital of the t-1 final; $ROIC$ as return on invested capital; $WACC$ as weighted average cost of capital; $NOPAT_t$ as operating net profit after tax for the period t.

The EVA expected growth rate of enterprise as a fixed value g , obtained a single stage EVA valuation model, namely:

$$V_t = I_0 + \frac{EVA_1}{WACC - g}
 \tag{24}$$

The formula (23) deformed obtained enterprise valuation model as follows:

$$\begin{aligned}
 V_t &= COV + FGV \\
 &= I_0 + \frac{EVA_1}{WACC} + FGV \\
 &= I_0 + \frac{EVA_1}{WACC} + \frac{NOPAT_1}{WACC} \times \frac{g(ROIC - WACC)}{ROIC(WACC - g)}
 \end{aligned}
 \tag{25}$$

COV as current operating value; FGV as forecasted growth values.

The EVA expected growth rate of enterprise in two phases, EVA rapid growth during n years of the first phase, the expected growth rate to a fixed value g , EVA stable growth in the second phase, the growth rate is a fixed value g_n . Two-stage EVA enterprise valuation model can be expressed as:

$$V_t = I_0 + \frac{EVA_1}{WACC - g} \times \left[1 - \frac{(1+g)^n}{(1+WACC)^n} \right] + \frac{EVA_{n+1}}{WACC - g_n} \times \frac{1}{(1+WACC)^n}
 \tag{26}$$

The EVA expected growth rate of enterprise in two phases, EVA rapid growth during n years of the first phase, but the growth rate is not a fixed value, but the higher growth rate g decreased over time, EVA stable growth in the second phase, the growth rate is a fixed value g_n . Two-stage EVA enterprise valuation model can be expressed as:

$$V_t = I_0 + \sum_{t=1}^n \frac{EVA_t}{(1+WACC)^t} + \frac{EVA_{n+1}}{WACC - g_n} \times \frac{1}{(1+WACC)^n} \quad (27)$$

Assuming the EVA expected growth rate of enterprise followed by experiencing high growth phase, decline transition phase and sustained in the low growth three stages. EVA enterprise value evaluation model of three-stage can be expressed as:

$$V_t = I_0 + \frac{EVA_1}{WACC - g} \times \left[1 - \frac{(1+g)^m}{(1+WACC)^m} \right] + \sum_{t=m+1}^n \frac{EVA_t}{(1+WACC)^t} + \frac{EVA_{n+1}}{WACC - g_n} \times \frac{1}{(1+WACC)^n} \quad (28)$$

EVA valuation model theory is: rational investors expect their income of capital invested in excess of the opportunity cost of capital, that is to get incremental revenue, an enterprise value management process is completed only for investors in the true sense create wealth. Therefore, value management is the basis for assessing enterprise operation activities. All capital of enterprises, whether its' source is equity capital or debt capital, all have cost. Only enterprises to create profits over all cost of capital, including equity and debt costs, surplus are the real value management. EVA valuation model express clearly the role of accounting data in the enterprise valuation. In the financial theory use future cash flows (dividends) discounted to estimate the enterprise value, but the future cash flows of each period constantly changing and can not be obtained from the current financial reports, and need for more predictive information to determine, Thus, the role of accounting information in assessing the value would be difficult to achieve. In EVA, the book value may be obtained directly from the balance sheet, the future expected return on capital can be derived based on the current situation. Therefore, provide a model of use existing accounting data to estimate, the internal mechanism of accounting data effect on enterprise value clearly expressed. EVA valuation model is a true reflection of the value created by the enterprise. EVA is true reflection of the enterprise value and enterprise profitability, fully consider the cost of equity capital, a true reflection of enterprise profitability on the financial statements make the necessary adjustments, so that the adjusted data to better reflect the company's true performance. First, adjustment to reduce the opportunities of managers smooth profits, management earnings ; Second, through the adjustments of research and development costs, goodwill and others to eliminate the concerns of managers to such investments ; Third, through adjusting the book value of assets to economic value, specifically managers' responsibility of maintains value rise in value for enterprise' capital of actual investment.

Therefore, the data after adjusting are more realistic and objective reflection of enterprise real operating results. Try to eliminate the impact of GAAP, making EVA valuation model to more accurately reflect the intrinsic value and the fair value of the enterprise. Traditional accounting profit targets without considering the opportunity cost of equity capital, the profit is balance only after deducting the cost of debt. To profit indicators to evaluate the performance of managers give people the impression that their shareholders' funds is free. The EVA considers all the cost of capital, that is debt cost and opportunity cost of equity capital. In addition, EVA valuation model from the perspective of the enterprise as a whole, considering profitability of corporate all the assets expected, corporate quality, financial condition and operating environment and other factors, by capitalization the expected return on all assets to determine value of the corporate, to consider corporate's combination of value and value-added ability, fully reflects the overall characteristics of corporate valuation.

EVA for Automotive logistics enterprise value management capability evaluation model design

EVA enterprise valuation model contains a reasonable part of the enterprise value management capability, the EVA enterprise valuation model transformation, we can get the sum of EVA discounted

value of automotive logistics enterprises value management each year use VC_{car} said, then $VC_{car} = V_t - I_0$. The sum of discounted value of automotive logistics enterprises value management's the invested capital IC use IC_{car} , the automotive logistics enterprise value management capability evaluation index based on EVA is represented by $VCEI_{car}$. The basic model of automobile logistics enterprise value management capabilities evaluation index based on EVA can be expressed as:

$$VCEI_{car} = \frac{VC_{car}}{IC_{car}} = \frac{\sum_{t=1}^{\infty} \frac{EVA_t}{(1+WACC)^t}}{\sum_{t=1}^{\infty} \frac{IC_t}{(1+WACC)^t}} \tag{29}$$

Assuming the expected growth rate of automotive logistics enterprise capital investment in each year to a fixed value f , EVA expected growth rate to a fixed value g , available single phase automotive logistics enterprise value management capability evaluation index model based on EVA can be expressed as:

$$\begin{aligned} VCEI_{car} &= \frac{EVA_1}{WACC - g} / \frac{IC_1}{WACC - f} \\ &= \frac{EVA_1}{IC_1} \times \frac{WACC - f}{WACC - g} \end{aligned} \tag{30}$$

Assuming the expected growth rate of automotive logistics enterprise capital investment in each year to a fixed value f , EVA of automotive logistics enterprises expected growth rate in two stages, EVA rapid growth in the n years during the first phase, the expected growth rate to a fixed value g , in the second stage EVA of automotive logistics enterprises steady growth rate to a fixed value g_n . Two-stage EVA automotive logistics enterprise value management capability evaluation index model can be expressed as:

$$\begin{aligned} VCEI_{car} &= \left\{ \frac{EVA_1}{WACC - g} \times \left[1 - \frac{(1+g)^n}{(1+WACC)^n} \right] + \frac{EVA_{n+1}}{WACC - g_n} \times \frac{1}{(1+WACC)^n} \right\} / \frac{IC_1}{WACC - f} \\ &= \frac{EVA_1}{IC_1} \times \frac{WACC - f}{WACC - g} \times \left[1 - \frac{(1+g)^n}{(1+WACC)^n} \right] + \frac{EVA_{n+1}}{IC_1} \times \frac{WACC - f}{WACC - g_n} \times \frac{1}{(1+WACC)^n} \end{aligned} \tag{31}$$

Assuming the expected growth rate of automotive logistics enterprise capital investment in each year to a fixed value f , EVA of automotive logistics enterprises expected growth rate in two stages, EVA rapid growth in the n years during the first phase, but the growth rate is not a fixed value, the higher growth rate g decreased over time, in the second stage EVA of automotive logistics enterprises steady growth rate to a fixed value g_n . At this time of the two-stage EVA automotive logistics enterprise value management capability evaluation index model can be expressed as:

$$\begin{aligned} VCEI_{car} &= \left\{ \sum_{t=1}^n \frac{EVA_t}{(1+WACC)^t} + \frac{EVA_{n+1}}{WACC - g_n} \times \frac{1}{(1+WACC)^n} \right\} / \frac{IC_1}{WACC - f} \\ &= \sum_{t=1}^n \frac{EVA_t}{(1+WACC)^t} \times \frac{WACC - f}{IC_1} + \frac{EVA_{n+1}}{IC_1} \times \frac{WACC - f}{WACC - g_n} \times \frac{1}{(1+WACC)^n} \end{aligned} \tag{32}$$

Assuming the expected growth rate of automotive logistics enterprise capital investment in each year to a fixed value f , the EVA expected growth rate of automotive logistics enterprises experienced

high growth phase, decline transition phase and sustained in low growth three stages. The EVA automotive logistics enterprise value management capability evaluation index model of three-stage can be expressed as:

$$\begin{aligned}
 VCEI_{car} &= \left\{ \frac{EVA_1}{WACC-g} \times \left[1 - \frac{(1+g)^m}{(1+WACC)^m} \right] + \sum_{t=m+1}^n \frac{EVA_t}{(1+WACC)^t} + \frac{EVA_{n+1}}{WACC-g_n} \times \frac{1}{(1+WACC)^n} \right\} \\
 &\quad / \frac{IC_1}{WACC-f} \\
 &= \frac{EVA_1}{IC_1} \times \frac{WACC-f}{WACC-g} \times \left[1 - \frac{(1+g)^m}{(1+WACC)^m} \right] + \sum_{t=1}^n \frac{EVA_t}{(1+WACC)^t} \times \frac{WACC-f}{IC_1} \\
 &\quad + \frac{EVA_{n+1}}{IC_1} \times \frac{WACC-f}{WACC-g_n} \times \frac{1}{(1+WACC)^n}
 \end{aligned} \tag{33}$$

CONCLUSION

Automobile logistics enterprises play a crucial role in operation system of automobile industry. On the one hand, development situation of automobile logistics enterprises decides comprehensive strength of a nation or district. On the other hand, value management capability is the core factor of generating competitive advantages and winning competition for automobile enterprises. Exploration and research on value management puzzles of automobile logistics enterprises based on EVA is the fundamental need of enhancing rational knowledge, playing competitive advantage and promoting China's automobile logistics enterprise scientific development. It is also the premise and security to achieve economies of scale and auto power. Through theoretical analysis and empirical research, this paper systematically studies the value creating mechanism of automobile logistics enterprise value management, analyzes the efficiencies and evaluates the capacity of it, on the basis of constructing automobile logistics enterprise value management theory framework based on EVA, using the methods of literature research, logical analysis, qualitative analysis.

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REFERENCES

- [1] P.H.Sullivan; Value-Driven. Intellectual Capital: How to Convert Intangible Corporate Assets into Market Value. New York: John Wiley & Sons, (2000).
- [2] J.Peppard, A.Rylander; Leveraging Intellectual Capital at Apian. Journal of Intellectual Capital, 2(3), 225-235 (2001).
- [3] E.Harley, A.Roy; The Influence of Firm and Manager-Specific Characteristics on the Structure of Executive Compensation. Journal of Corporate Finance, 7, 101-123 (2001).
- [4] S.Firer, S.M.Williams; Intellectual Capital and Traditional Measures of Corporate Performance. Journal of Intellectual Capital, 4(3), 348-360 (2003).
- [5] T.A.Stewart; Your Company's Most Valuable Asset: Intellectual Capital. Fortune, 130(7), 68-74 (1994).