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Economics

Original Research Article

The verification of conclusions about financial structure of a company through EVA indicator

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Abstract: The choice of a suitable appraise for company's performance and identification of key performance indicators are among the most frequently discussed topics in the field of corporate management strategizing (Pavelkova et al, 2018). This paper shows how the value-based measure represented by Economic Value Added (EVA) can solve the conflict of objectives in the position of optimization criteria, also referring to how financial leverage affects ROE and NPV.
Keywords: EVA, financial structure, Return on Equity

Introduction

In the valuation of business entity, various methods may be used in connection with valuation purposes. A significant group consists of so-called DCF methods (Discounted cash flows), which derive the value of an enterprise from the present value of future earnings associated with the ownership the business. Economic Value Added (EVA[1]) is the method currently used by investors in advanced market economies. It´s use is not only in relation to the valuation of the business, in relation to its value, but the EVA can also be used in relation to the evaluation of the optimal financial structure as a verifier of conclusions based on the application of other optimality criteria or models, such as model of Neumaiers (Bartosova, 2003).

EVA is the benchmark for enterprise performance in the short term, its capitalized value increased by the present value of growth opportunities (or zero in the case of zero growth) represents the net present value of the enterprise for the owner over a longer period (similar to the value of the enterprise for the owner derived from the present value of future dividend flows). Maximizing the value for the owner considering EVA means maximizing the flows of economic profits to infinity.

The idea basis for this criterion can be found in microeconomics where it is stated that the goal of an enterprise is to maximize profits. Microeconomic theory recognizes an accounting profit as well as an economic profit. While accounting profit is given by the difference between revenues and costs, eventually income and expenses; company reaches an economic profit only when accounting profit exceeds implicit costs of invested capital (Kotulic *et al.*, 2007).

Methodology

Economic profit arises if:

$$\text{total return on capital} > \text{cost of capital}$$

$$\text{economic profit} = \text{total return on capital} - \text{cost of capital}$$

This relationship is the basis for the construction of EVA indicator in its various modifications or application forms. In our model we will work with the following shape of this indicator:

[1] EVA is a registered trademark of Stern Stewart & Company.

$$EVA = (ROE - r_e) \cdot EC \qquad (1)$$

where:
ROE = return on equity (in % multiply by 1/100)
r_e = alternative cost of equity (in % multiply by 1/100)
EC = equity capital (in monetary units)

Verification of the assumptions about the relationship between return on equity and enterprise value is based on working definitions of the N-N model (the relationship of equity capital, interest-bearing foreign sources and free capital). If we consider that the structure of liabilities generates: equity + loans + free of charge external resources (liabilities), then the share of liabilities on assets is considered to be constant, only the structure of the cost capital will be changed, i.e. the ratio of equity to interest-bearing foreign resources. Therefore, the financial leverage will vary due to the change of structure of the cost capital. The N-N model measures the effect of the financial leverage on return on equity and also examines the impact of the financial leverage on the value for the owner (Neumaierova & Neumaier, 2002).

The capital structure affects the value of the business for the owner, i.e. the value of equity, while it does not affect the value of the enterprise as a whole. This is an analogous situation with the influence of the capital structure on net profit and EBIT, optionally with the impact of the capital structure on return on equity and return on assets (production power). The structure of liabilities influences the net profit or ROE, but profit before interest and taxes, or its share in total assets does not change with the change in the financial structure.

From the point of view of value based management, it is not enough to note that an increasing leverage (under the condition that an enterprise has sufficient production power) increases ROE, the impact on the value of the business for the owner is important here.

The share of net profit and equity, which is known as the return on equity, is one of the most important indicators for the owners. However, owners cannot be satisfied only with the positive ROE in the evaluation, such a view is inadequate to control the value. For the assessment of return on equity, it is necessary to compare the ROE with the expected return. It should be remembered that an enterprise is only value for the owners if the return on equity exceeds its alternative cost, when applicable:

$$\frac{NP}{EC} > r_e \quad \Rightarrow \quad ROE > r_e \qquad (2)$$

where:
NP = net profit

For owners, it is desirable that the difference (ROE – r_e) to be as large as possible, at least it should be positive. Only in this case, an investment into a company brings to the owners more than an alternative investment. If the business entity increases profit and at the same time does not increase the spread (difference ROE – r_e), it does not increase the value of its shares. This can be explained through following relations:

$$EVA = (ROE - r_e) \cdot EC \qquad (3)$$

$$\Rightarrow$$

$$EVA = \left(\frac{NP}{EC} - re\right) \cdot EC \qquad (4)$$

$$\Rightarrow$$

$$EVA = NP - EC \cdot r_e \qquad (5)$$

Economic profit EVA accounting profit (NP) and the absolute value of cost of equity ($EC \cdot r_e$). If the net profit does not reach the absolute value of the alternative cost of equity, i.e. the net profit that the owner could obtain by an alternative investment, then an enterprise reduces the value of ownership of its owners by its operation (the owners lose the difference $EC \cdot r_e - NP$).

Based on the above, we will examine the relationship between indebtedness, ROE and the value for the owner, expressed by EVA.

According to the assumptions of N-N model, an increasing financial leverage (while the condition of a sufficient production power of a company is in place) increases return on capital invested into business by the owners. We are interested in the impact on the value of the owner. This impact is different in the short and long term.

The short-term view does not represent the value of the business, it only reflects its short-term growth or decline through the economic value added indicator. The financial structure does not play any role in terms of EVA size.

If the financial leverage increases (i.e. the proportion of equity capital declines in assets) by the current validity of the condition that the return on capital cost exceeds the interest rate on loans, then ROE increases, alternative equity cost (r_e) increases, equity capital decreases and the result is constant EVA.

The long term view is represented by the net present value:

$$NPV = \left(\frac{EVA}{r_e}\right) + PVGO \quad (6)$$

$$NPV = \frac{(ROE - r_e)\cdot EC}{r_e} + PVGO \quad (7)$$

where:
NPV = Net Present Value
PVGO = Present Value of Growth Opportunities

The view of the company's short-term and long-term performance is illustrated in Figure 1:

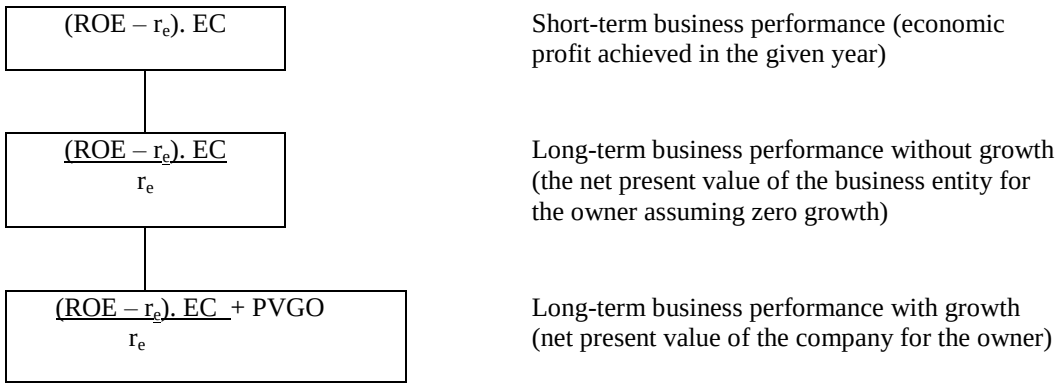

Figure 1: Company performance and value
Source: processed by the authors

Results

The financial structure affects r_e, which also affects the net present value indicator for the owner. The following is valid:

- If EVA is positive, it is important - in terms of value for the owner (NPV) - to reduce r_e, and thus increase the share of equity in the structure of the cost capital (EC + accounting profit).
- If EVA is negative, it is reasonable to reduce the impairment of the value for the owner by increasing r_e, thus to reduce the share of equity capital in the capital cost.

Conflict with EVA pointer leads to three options:

- The enterprise fulfills the condition that the return on cost capital is higher than the interest rate (from which the recommendation to increase the debt resulted from the previous step of the assessment) and achieves the positive value of the economic profit

In this case, an increasing financial leverage has a positive effect on return on equity, ROE is increasing (as expected), EVA is not changing with the change of financial leverage, and the value of the business for the owner is decreasing.

- The enterprise has sufficient production power (fulfills the condition above) but has a negative economic value ROE increases with increasing financial leverage, EVA is not changing and the value of the business for the owner is increasing.
- The enterprise doesn´t fulfill the condition for advantage to be in debt and reaches negative EVA value ROE decreases with increasing indebtedness, the EVA remains constant and the value of the business grows for the owner (it gets smaller negative values).

The overview of these options is in Table 1.:

Table 1: Effect of financial leverage on ROE and NPV

	variant 1	**variant 2**	**variant 3**
	ROCC > interest	ROCC > interest	ROCC < interest
Increasing financial leverage	ROE ↑	ROE ↑	ROE ↓
❑ Suggestion	suitable to get indebt	suitable to get indebt	not suitable to increase debt
	EVA +	EVA –	EVA –
Increasing financial leverage	EVA = const.	EVA = const.	EVA = const.
	NPV ↓	NPV ↑	NPV ↑
❑ Suggestion	maximize the EC share on assets	minimize the EC share on assets	minimize the EC share on assets

EC - equity capital
ROE - return on equity
ROCC - return on cost capital (EC + accounting profit)
NPV - net present value

Source: processed by the authors

Conclusion

For the financial management of an enterprise, this table may contain contradictory recommendations. For example, in case of option 3, the following applies:

1. in relation to the return on equity, the inappropriateness of raising the debt (the proportion of loans in the structure of the cost capital) when the return on cost capital is lower than the interest rate
2. if the EVA reaches the negative value the owner is advised to minimize the equity's share on the assets, which means raising the debt.

Solving the conflict of objectives in the position of optimization criteria is therefore in the hands of business management and the priorities of its financial policy.

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