



USING OF THE ECONOMIC VALUE ADDED MODEL FOR VALUATION OF A COMPANY

Doc. Ing. Eva Kislíngerová, CSc.
Prague University of Economics

Introduction

There is possibility to use, with respect to the object of valuation, several methods for valuation of a company in practice. One of the most important and highly used group of methods are yield methods. They are usually called Discounted Cash Flows (DCF) methods. Value of a company is derived from present value of future incomes connected with the ownership of a company. The core of these models is working with time value of future incomes investor gets in case of realization of an investment. There are several possibilities to work with future incomes in DCF models, like using cash flow, free cash flow or in some cases dividends. These are models with construction and way of using well known to professional public, therefore the aim of this article is to focus on model called EVA – Economic Value Added, which is recently highly used by investors coming from developed market economies.

EVA measure

The basic idea of this criteria is possible to find in microeconomics where it is said that the main goal of a company is maximalisation of profit. However it does not mean book profit (the difference between revenues and costs) but economical profit. The difference between economical and book profit is that economical profit is the difference between revenues and economical costs, which are book costs and opportunity costs. Opportunity costs are presented by the amount of money lost by not investing sources (like capital, labour, etc.) to the best alternative use. Opportunity costs are in reality represented mainly by interests from equity capital including risk reward and sometimes lost wage, too. This relation is possible to describe in following way:

$$\text{Book profit} = \text{Revenues} - \text{Costs}$$

$$\text{Economical profit} = \text{Total revenues from capital} - \text{Costs of capital}$$

This leads to the conclusion that economical profit appears when its amount is higher than „normal“ profit derived from average cost of capital invested both by creditors (cost interests) and owners – shareholders (opportunity costs). This is a basic idea of new measure – EVA. It was first published by Shawn Tully in the Fortune magazine in an article „The Real Key to Creating Wealth“. The broad publicity and success of EVA is result of work of a consulting company Stern Stewart management Services.

A basic construction of EVA measure is clear from the following formula:

$$\text{EVA}_t = \text{NOPAT}_t - C_t \times \text{WACC}_t$$

where NOPAT_t is Net Operating Profit After Tax,

C_t is long term capital,

WACC is Weighted Average Cost of Capital.

If $\text{EVA} > 0$ than we can say a company is successful. This is the only case wealth of shareholders increases because they gain more than what their original investment was. The service to creditors is included there, too. In case $\text{EVA} = 0$ a company produced just as much as it was invested and $\text{EVA} < 0$ leads to destroying of wealth of shareholders.

From above mentioned construction it is clear that EVA concentrates all important aspects of business, like:

- the amount of capital involved to business and its internal structure (talking about proportion of D/C and E/C),
- cost of capital (shareholders' and creditors' capital), which is price a company must pay for using resources (WACC),
- effective employment of invested resources – NOPAT.

Companies which can gain the highest level of profit (NOPAT) while using minimum of „cheap“ capital will experience positive results. It is possible in case investments are consistently driven by criteria of net present value.

Therefore EVA represents an interesting measure of judging the performance of companies. It can be also used for measuring the value of a company. However now we have to rise a question of filling the parameters of the EVA model.

NOPAT can be defined as a result of the following formula:

$$\text{NOPAT} = \text{EBIT} (1 - t),$$

where EBIT is Earnings Before Interest and t is tax rate.

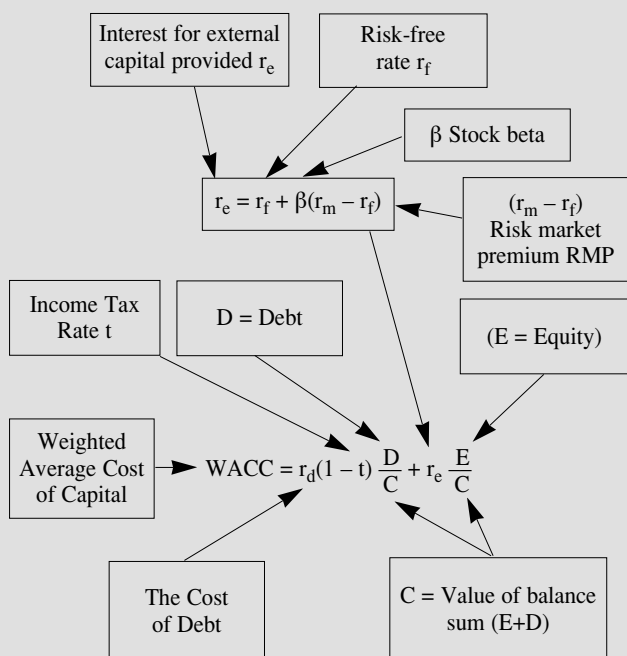
NOPAT derived this way includes both effect reached by using assets of a company (its technical-production base for owners) and interest paid to creditors.

Parameter C_t represents long term invested capital. It is sum of equity and invested capital. The other way of defining C_t is to summarize fixed assets and net working capital (net working capital = current assets – short term liabilities). Both approaches offer the same results.

In EVA model Weighted Average Cost of Capital (WACC) is used for calculation of economic value added and as a discount rate transferring future values of EVA to present value to the date of valuation.



Figure 1 Definition of Weighted Average Cost of Capital (WACC)



EVA model for assessment of value of a company

In previous paragraph there were defined all entries which would be used in a model for assessment of value of a company. First let's state general formula. What is the form of a model mostly used in Czech companies? With respect to transformation of economy and consequent necessity of reorganization and rebuilding of most of the companies it seems to be most appropriate to use so called two-phase model.

At first we introduce general formula:

$$\text{Value of a company} = \text{Capital Invested} + \text{PV}^1(\text{EVA})$$

If we implement above described entering parameters, then

$$\text{Value of a company} = C_t + \sum_{t=1}^n \frac{\text{EVA}_t}{(1 + \text{WACC}_t)^t} + \frac{\text{EVA}_n / \text{WACC}_n}{(1 + \text{WACC}_n)^n}$$

where n is a length of forecasted period.

From above mentioned relationships it is clear that total value of a company consists of book value of invested capital and present value of future EVA. Calculation in two phases means that in the first phase presents a planning horizon derived from period like strategic financial plan. For example entering data are derived from Pro Forma sheets. The second phase is represented by period where each entering parameter is not specified for each period but it is presumed that expected yield lasts forever. It is possible to meet several forms of calculation used for the second phase which usually takes into account the growth rate of a company. For our purposes we use form of perpetual bond.

As a result of the application of this model we get the value of a company as a whole. We have to subtract value of debt from this value and then we get value of equity. If we di-

vide value of equity by number of shares we get value of a share, too.

Sample

Entering data: set the value of ALFA, Ltd. to the Dec. 31, 1998 if you know following data:

a) Information from the balance sheet:

Debt (D)	55 mil. Kč ⇒ D/C = 0.29
Equity (E)	134 mil. Kč ⇒ E/C = 0.71
Long Term Invested Capital (C)	189 mil. Kč ⇒ Σ = 1.00

b) After – Tax Debt Cost

Cost of External Capital r_d	15 %
Income Tax Rate (t)x100	35 %
Effective Cost of Debt r_d	$15(1 - 0.35) = 9.75 \%$

c) Cost of Internal Capital

Cost of Internal Capital r_e (CAPM ² model)	$18.42\% = 10.5 + (1.1 \times 7.2)$
– Risk-free rate r_f (by CNB to Dec.31. 98)	10.5 %
– Stock beta (β) (by Broker's company)	1.1
Equity risk premium in CR ($r_m - r_f$)	$5.5\%^3 + 1.7\%^4$

d) Information from financial strategy of ALFA, Ltd. made for the period of 1999 – 2001:

YEAR	NOPAT	Capital Invested (C)
1999	41	205
2000	44	222
2001	48	241
2002	50	260

Work schedule

1. Calculation of Weighted Average Cost of Capital (WACC)

We implement entering data introduced in above to the equation:

$$\text{WACC} = 9.75 \times 0.29 + 18.42 \times 0.71 = 2.83 + 13.08 = 15.91\%$$

WACC is 15.91%.

2. Calculation of EVA for the period of 1999 to 2001 and after

ALFA, Ltd. presumes that the structure of the capital will remain stable (it corresponds with the planes of a company), it does not expect any change in risk and therefore in cost of capital, too. WACC can be therefore used for the second phase of the calculation, too.

YEAR	EVA = NOPAT – WACC x C	
1999	$8.38 = 41 - 0.1591 \times 205$	} the first phase
2000	$8.68 = 44 - 0.1591 \times 222$	
2001	$9.66 = 48 - 0.1591 \times 241$	
2002	$8.63 = 50 - 0.1591 \times 260$	– the second phase

¹PV is a shortcut for Present Value

²CAPM means Capital Assets Pricing Model, the author of this model is Sharp.

³Equity risk premium ($r_m - r_f$) in the most developed economy in the USA is 5.5%. It represents the difference between total market rate and risk free rate.

⁴Rating agencies set long term rating of each country for investors. It represents the portion of a risk connected to the investment in given area. The Czech republic was given rating A – to the end of 1998 by the rating agency Standard & Poor's. It represents the extra premium for the risk of the area of 1.7%, in total 7.2%.