
Introduction to Economic Value Added, EVA

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The average return on stock markets

The average long-run return on stock markets has been very stable in the past century. The average return has been about 6 %-points above the return of long risk-free bond. (With the current interest rates this means about 11% per annum.)

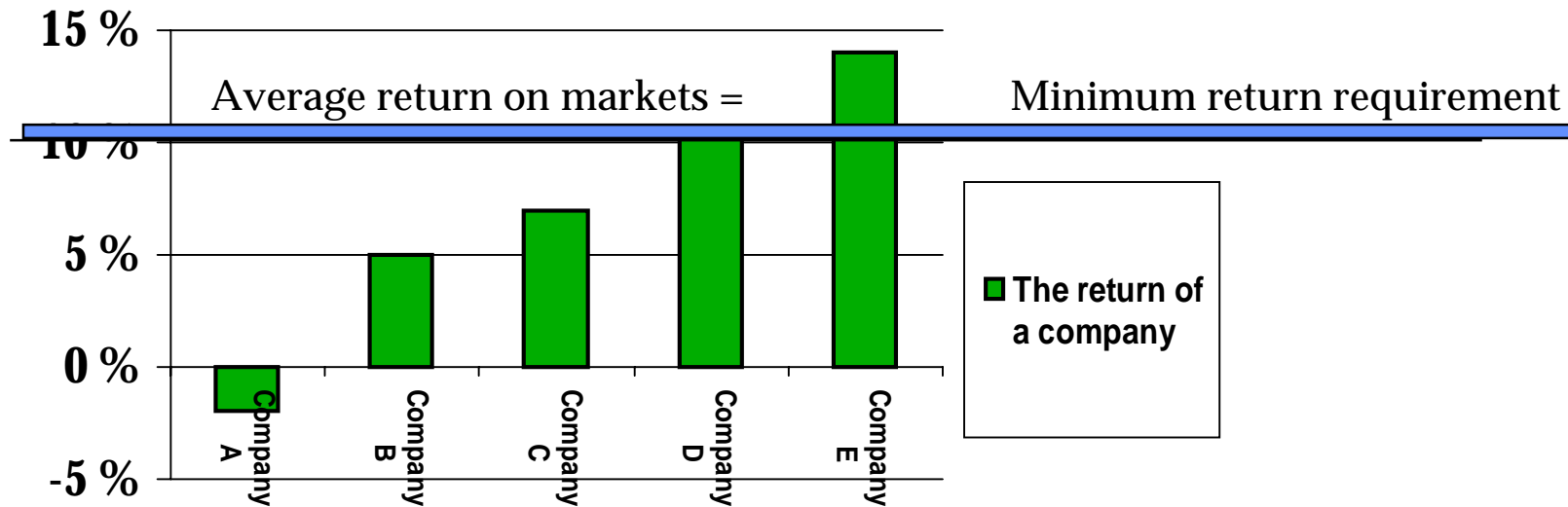
Investors can easily achieve the average stock market return in the long-run (diversified long-term investment in stock index). This average stock market return is thus the alternative return on investors capital

Losing the alternative return or even a part of the easily available alternative return is losing money

Therefore investors and company owners do not (have to) accept below average returns in the long run from any of their companies. The alternative return establishes a minimum return requirement

Return and owners

The companies achieve on average a return of 11% (the alternative return = the minimum return requirement). The following figure shows what kind of attitude the owners take to their companies earning different returns in the long run.



Negative return:
the operation is
closed down

Insufficient return:
Capital is gradually
withdrawn from the
company (at least the
periodic result is taken
out)

Sufficient return:
The operations
are continued as
before

Abnormal return:
The operations are
enlarged if possible

The approach of EVA

Different investments have always some average return

The average return is easily achievable

Therefore it is not wise to accept lower returns

Losing a part of average return is losing capital

Equity has also some alternative return

The company generates a positive result only after it has earned more than the average return (on the other hand earning a "zero-result" is completely acceptable achievement if calculated this way)

The calculation of company's cost of capital

Cost of debt = risk-free rate + company risk premium

Cost of equity (risk-free rate + about 6% equity risk premium)

The equity risk premium is adjusted with the company's risk level

The risk level of a company depends on the business risk (business field) and on the financial risk (solvency)

A company's cost of capital is calculated as a weighted average of the above costs of equity and debt. The cost of capital is calculated with the target solvency ratio (The cost of capital can not be decreased simply by increasing leverage since increasing leverage increases the risk (and cost) of both equity and debt.)

EXAMPLE:

Cost of debt:: $5,2\% + 1\% = 6,2\%$ (in the long run)

Cost of equity: $5,2\% + 1,2 * 6\% = 12,5\%$

Weighted average cost of capital (WACC): $6,2\% * 55\% + 12,5\% * 45\% = \mathbf{9\%}$

A company's cost of capital

The cost of capital is real and it should be treated as any other cost in income statement

All the capital employed by the company has the same cost (WACC)

- ³ Machinery and equipment
- ³ Inventories
- ³ Accounts receivable
- ³ Cash and bank
- ³ Other

The real profit of a company

The real profit that is of interest to investors is the profit after deducting the capital costs. This profit figure is often called Economic Value Added, EVA (or Economic Profit or Residual Income)

An essential component of EVA is the Weighted Average Cost of Capital (WACC) determined with the costs of both debt and equity.

EVA is defined simply :

Turnover	(Sales)
- Operating expenses	(Wages, material, general exp., depr., taxes)
- <u>Capital costs</u>	(WACC x invested capital)
Economic Value Added	

The calculation of EVA

EVA is company's operating profit (after taxes) subtracted with the total cost of capital

Net operating profit after taxes		=> minus Taxes =>	
	Operat. Profit 255 MFIM	-	184 MFIM
-	-		-
Cost of capital	9 % WACC		104 MFIM
	x 1190 MFIM invested capital		
=	=		=
EVA			<u>80 MFIM</u>

OR alternatively:

$$\text{EVA} = (\text{ROI} - \text{WACC}) \times \text{Invested capital}$$

$$(15,5\% - 9,0\%) \times 1190 \text{ MFIM} = \underline{\underline{80 \text{ MFIM}}}$$

EVA vs. other performance measures

Income statement variables: operating profit, earnings, net income

The investors are interested in what kind of resources (what amount of capital) are required to produce certain profit figure. A profit figure alone without capital base is irrelevant.

ROI, RONA, ROCE etc. (Return on invested capital)

All accounting rates of return fail to steer the company correctly i.e. rate of return should not be maximized: Consider a SBU producing ROI of 60%. The SBU faces an investment opportunity producing a return of 30%. Should the SBU undertake the project? How does the project influence the ROI of the SBU?

Capital costs into income statement:

- When the costs of capital are shown in income statement operating people are able to see the importance of capital from the viewpoint of profitability. After realizing the true costs of capital operating people are often able to decrease excess employed capital considerable.
- EVA is much more easy concept of profitability than ROI and furthermore it can be translated into day-to-day operations

EVA and the market value of a company

Theoretically EVA is much better than conventional measures in explaining the market value of a company. Financial theory suggests that the market value of a company depends directly on the future EVA-values:

The market value of a company = Book value of equity + present value of future EVA

The above formula is mathematically equivalent to the standard Discounted Cash Flow (DCF)

Investors and equity analysts use EVA (e.g. CS First Boston, Goldman Sachs, Opstock, Merita Securities)

This means that the valuation of a company is similar to the valuation of a bond (premium if the coupon rate is more than the prevailing interest rate)

EVA and the market value of a company

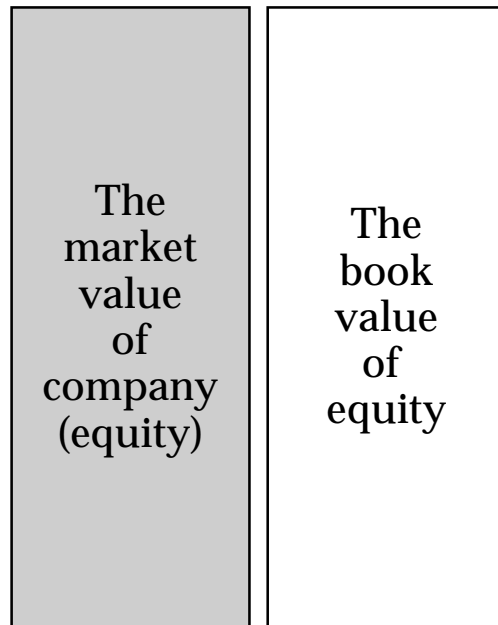
The market value of a company =

Book value of equity + present value of future EVA

$$\text{ROE} = 12,5\%$$

$$\text{RONA} = 9,0\%$$

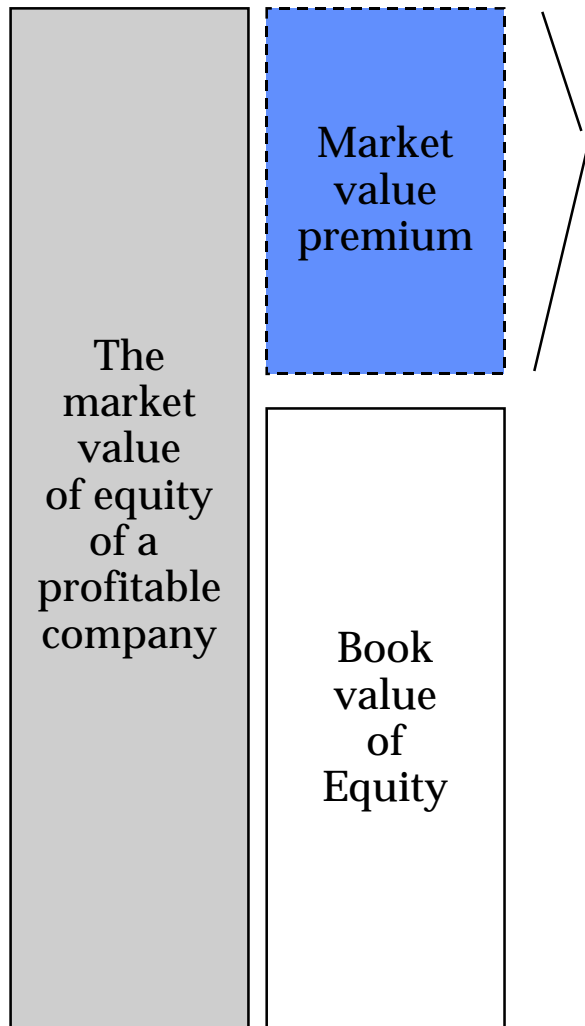
$$\text{EVA} = 0$$



If the company produces a return that is equal to capital costs (equal to investors discount rate). Then the market value of the company will equal the book value of equity (no premium or discount)

I.e. when $\text{EVA} = 0$, then company's market value of equity equals its book value of equity.

EVA and the market value of a company

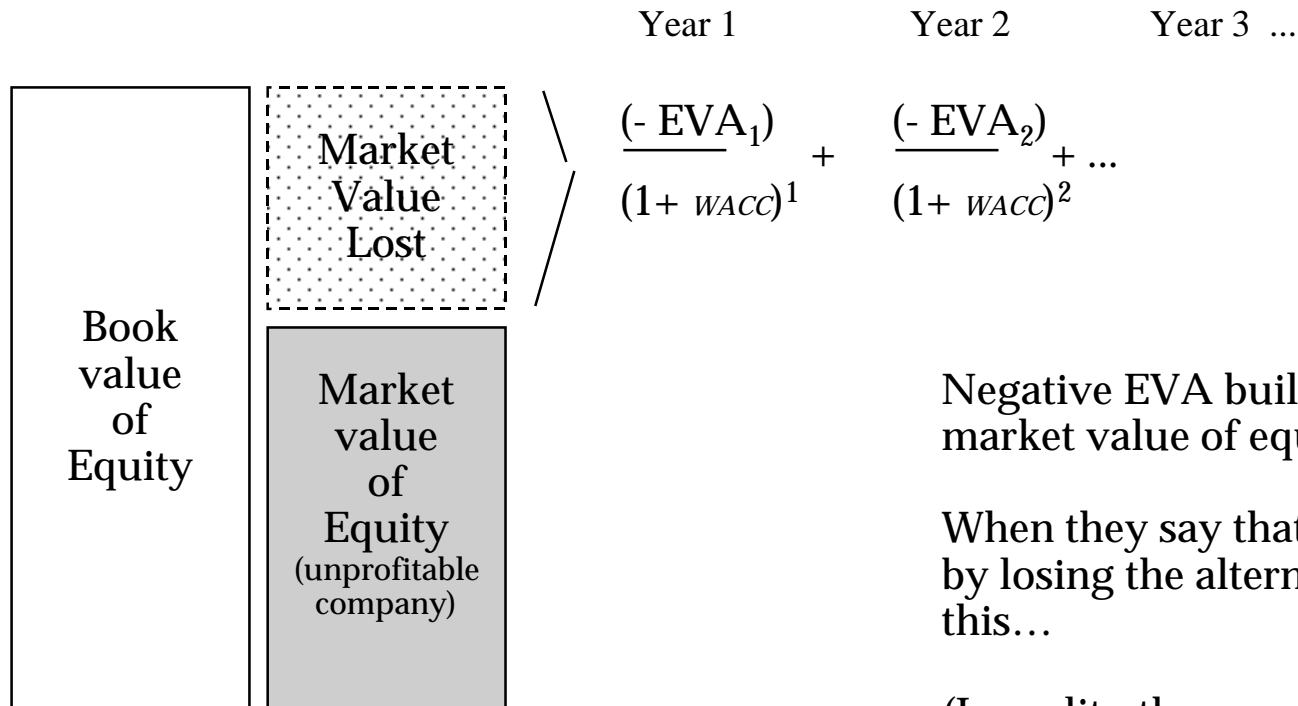


$$\begin{array}{cccc} \text{Year 1} & & \text{Year 2} & & \text{Year 3} & \dots \\ \frac{\text{EVA}_1}{(1 + \text{WACC})^1} & + & \frac{\text{EVA}_2}{(1 + \text{WACC})^2} & + & \dots & \end{array}$$

**The market value of a company =
Book value of equity + present value of future EVA**

Positive EVA builds up a premium to the market value of equity, since investors pay for the excess return.

EVA and the market value of a company

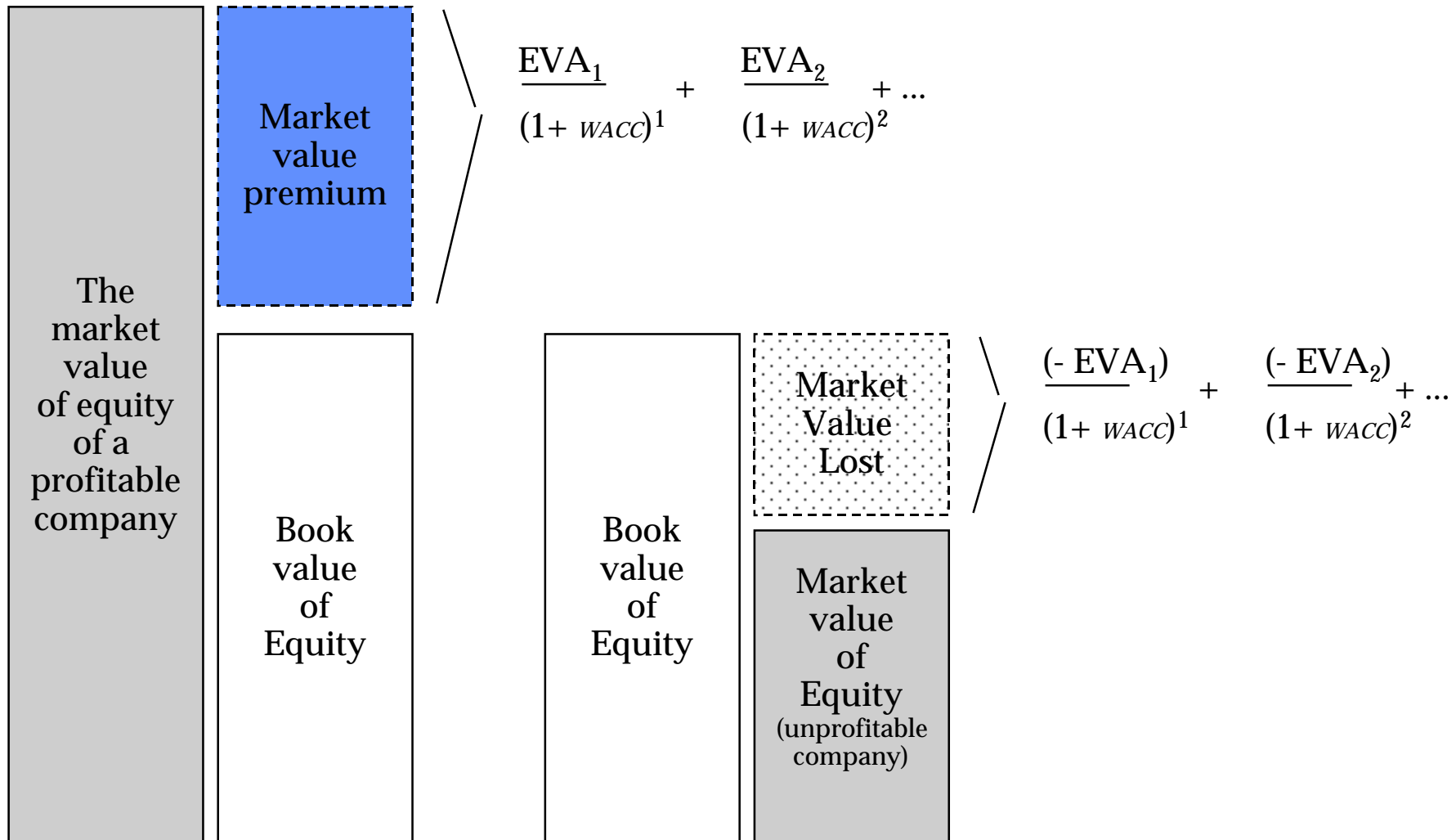


Negative EVA builds up a discount to the market value of equity.

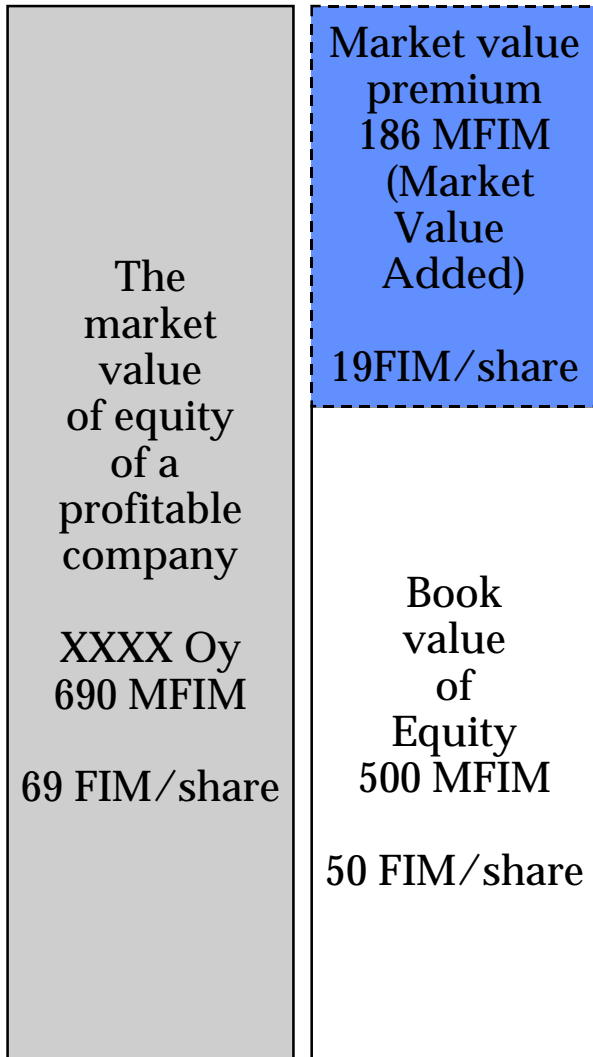
When they say that you can lose money by losing the alternative return, they mean this...

(In reality there are many companies selling below their book value because of insufficient expected return.)

EVA and the market value of a company



EVA and the market value of a company



$$\frac{EVA_1}{(1+WACC)^1} + \frac{EVA_2}{(1+WACC)^2} + \frac{EVA_3}{(1+WACC)^3} + \dots + \frac{EVA_n}{(1+WACC)^n} + 0 \text{ MFIM}$$

80 MFIM /1.0

60 MFIM /1.09

44 MFIM /1.18

28 MFIM /1.29

12 MFIM /1.41

Hypothetical Example: Company XXXX produces positive EVA that decreases to zero during the forecast period. Thus the present value of EVA is:

Year	1	2	3	4	5	6	Future
EVA	80	60	44	28	12	0	0
Discounted EVA	73	51	34	20	8	0	0
Sum of disc. EVA	186						
Equity Book value	500						
Market Value of Equity	686						

EVA and the market value of a company

The market value of equity of a profitable company

XXXX Oy
923 MFIM

92 FIM/share

Market value premium
423 MFIM
(Market Value Added)

42 FIM/share

Book value of Equity
500 MFIM

50 FIM/share

$$\frac{EVA_1}{(1+WACC)^1} + \frac{EVA_2}{(1+WACC)^2} + \frac{EVA_3}{(1+WACC)^3} + \frac{EVA_4}{(1+WACC)^4} + \dots + \frac{40 \text{ MFIM}}{1.68}$$

40 MFIM /1.0

40 MFIM /1.09

40 MFIM /1.18

40 MFIM /1.29

40 MFIM /1.41

40 MFIM /1.68

Hypothetical Example: Company XXXX produces positive EVA that stays constant 40 MFIM from here to infinity. Thus the present value of EVA is:

Year		1	2	3	4	5	6	Future
EVA		40	40	40	40	40	40	444
Discounted EVA		37	34	31	28	26	24	243
Sum of disc. EVA	423	MFIM						(40/0.09 = 444)
Equity Book value	500	MFIM						
Market Value of Equity	923	MFIM						

EVA and the market value of a company

The market value of equity of a profitable company
 XXXX Oy
 1399 MFIM
 140 FIM/share

Market value premium 899 MFIM (Market Value Added)
 90 FIM/share
 Book value of Equity 500 MFIM
 50 FIM/share

$$\frac{EVA_1}{(1+WACC)^1} + \frac{EVA_2}{(1+WACC)^2} + \frac{EVA_3}{(1+WACC)^3} + \frac{EVA_4}{(1+WACC)^4} + \dots$$

40 MFIM /1.0
 42 MFIM /1.09
 44 MFIM /1.18
 46 MFIM /1.29
 49 MFIM /1.41
 51 MFIM /1.68

Hypothetical Example: Company XXXX produces positive EVA that grows steadily 5% a year. Thus the present value of EVA is:

Year	1	2	3	4	5	6	Future
EVA	40	42	44	46	49	51	1 276
Discounted EVA	37	35	34	33	32	30	698
Sum of disc. EVA	899						
Equity Book value	500						(40/(0.09-0.05) =1276)
Market Value of Equity	1 399						

EVA and the market value of a company (summary)

The bigger expected EVA the company has, the bigger is the market value of the company and the stock price

Especially profitable growth (growth in EVA) gears up stock prices. Therefore companies like Intel, Microsoft and Nokia trade many times above their book values.

Stock prices reflect the future EVA expectations. Those expectations are very uncertain and continuously changing and thus also stock prices are volatile. Therefore it might be in short term difficult to see the underlying connection between EVA (financial performance) and stock prices. Long term perspective helps in this sense.

The most empirical studies have supported this theoretical connection between EVA and market value:

Stewart 1990

Lehn nad Makhija (1996)

Uyemura, Kanto and Pettit (1996)

O'Byrne (1996)

Milunovich and Tsuei (1996)

Grant (1996)

EVA and incentive systems

EVA is an ideal bonus base

EVA is by definition the excess return to shareholders (giving away all EVA would leave shareholders with a return of 12,5% with our hypothetical company)

EVA based bonuses to management can turn out to be quite big if management does well. This gives incentive to management to improve profitability and thus the bonuses will be only part of the discretionary value created => this kind of bonuses are good also for owners

This kind of bonus is a way to pay according to true performance

Bonus is objective (there are no subjective budgets determining them)

Bonus has no limits because we do not want to limit company's EVA

Investors and equity analysts tend to take a positive stand to this kind of bonuses (like well designed share options)

Implementing EVA

Especially the key persons (top and middle managers) have to understand and commit to EVA thoroughly

Without the full support of managers there will not be substantial results

Good understanding helps to tailor EVA to the specific need of a company

EVA will be most beneficial if broken down into small parts

Integration to incentive systems for all the employees is a good way to make all the employees to work hard for common goals

The summary of EVA theory

EVA is a method to measure a company's true profitability and to steer the company correctly from the viewpoint of shareholders

EVA helps the operating people to see how they can influence the true profitability (especially if EVA is broken down into parts than can be influenced)

Clarifies considerably the concept of profitability (the former operating profit/capital (ROI %) -observation is turned into EVA (FIM, \$, £) -observation)

EVA improves profitability usually through the improved capital turnover

Companies have usually done a lot in cutting costs but there is still much to do in improving the use of capital

EVA is at its best integrated in incentive systems

More information in my study and in other presentations