

September 1999, Esa Mäkeläinen, M. Sc. (Econ)

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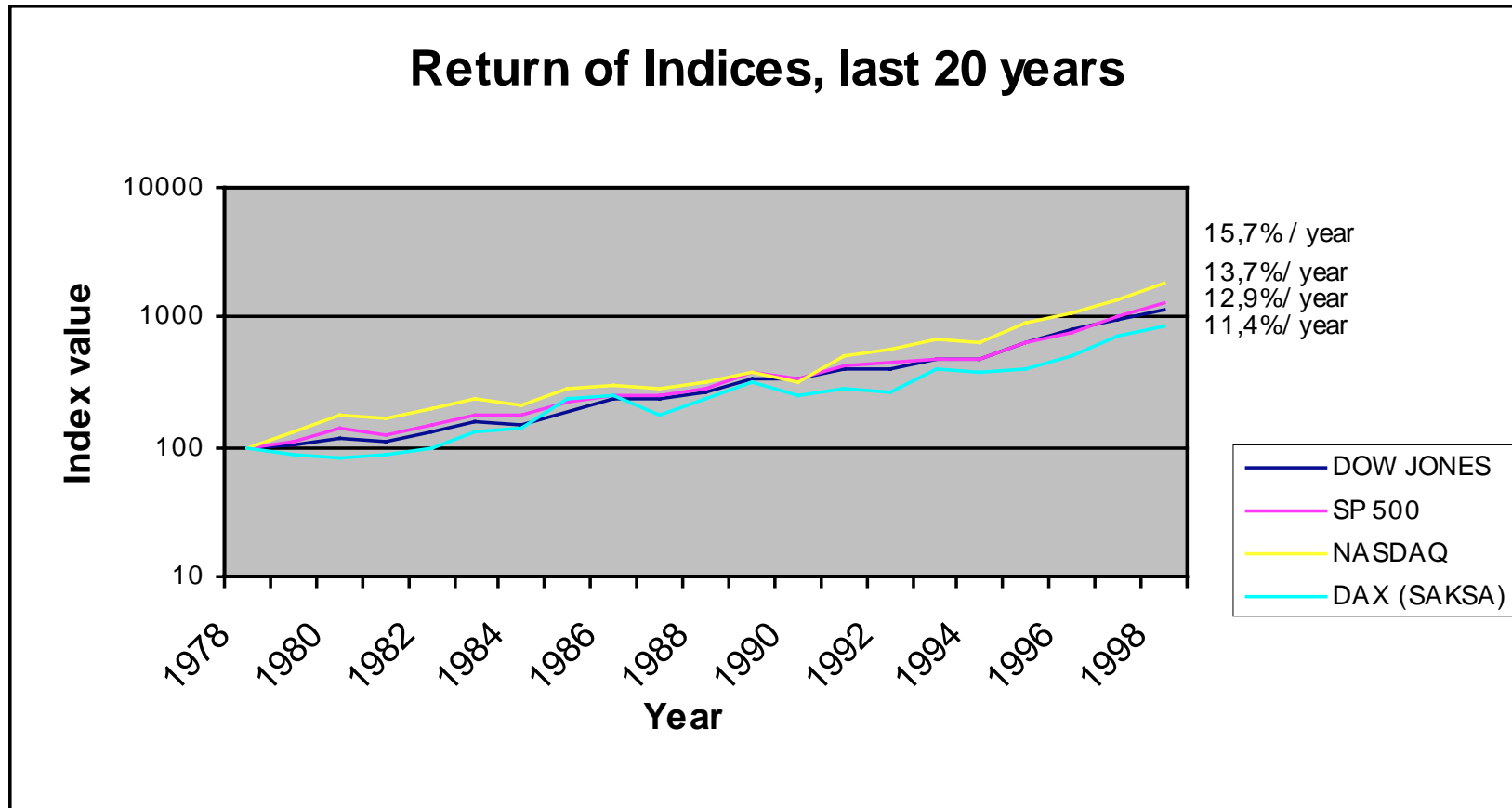
- Old concept ($\text{Residual Income} = \text{Operating profit} - \text{capital costs}$)
 - However: the development level of capital markets, estimation of cc, Shareholder Value -approach. were not supporting it those days
- In the late 1980's Stern Stewart & Co (U.S.)
 - name and trademark EVATM (Economic Value Added)
 - presented the superior characters in perform. measurement, link to market values (the bigger EVA, the bigger m-cap), bonus systems
 - presented some very successful EVA management and bonus systems (e.g. (Coca-Cola, WalMart, Briggs & Stratton, AT&T)
 - During 90's to almost every big US-company (most used measure)

What EVA has had to give in order to expand like this?

- Superior performance measure compared to e.g. operating profit, profit after fin. items, EPS, ROI, ROE... (explained later in detail why)
 - Still very simple and operatively practical
 - Improves profitability normally first through improved capital turnover
 - Very suitable for bonus systems (logically after the first point)
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The basis of EVA: The average return on stock market

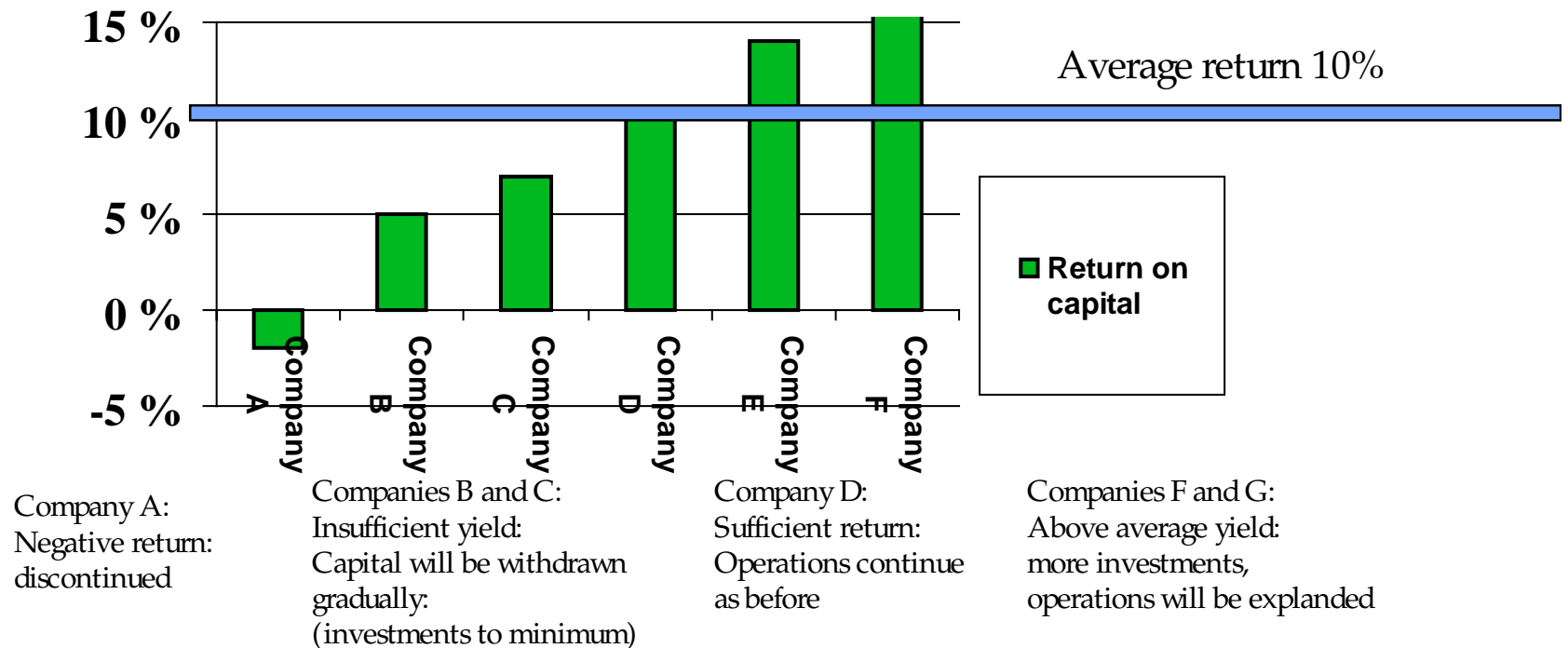
- The return of the most important stock indices during the last 20 years



The basis of EVA: The average return on stock market

- The return on stock markets has always (whole 20th century) been stable in the long term (about 6%-points above the long-term risk-free rate)
 - Nominal yields are not reliable comparison basis without considering inflation, therefore it is easier to talk about return above the risk free rate)
- Investors can easily achieve the average index return with long-term investments (diversified portfolio)
- Therefore owners do not in the long-term have to accept returns below this average ==> the average long term equity return is also the alternative return for equity investments. Keeping money in companies producing less in the long-term is not sensible

- Let us assume that the companies at the market achieve a return of 10% on average. The following figure represents how the owners treat their holdings in different companies



Average cost of capital

- The cost of capital of a company is the average cost of equity and debt
- The cost of debt should be defined as the (long term) risk free rate + company premium, e.g. 5% + 0,5% = 5,5%
- Cost of equity -> average return on similar risky investment
 - Cost of Equity: (long term) risk free rate + beta x (equity risk premium) =>
 - 5% + 1,3 x 6% = 12,8%
- Cost of capital (with target solvency) : $(45\% * 12,8\%) + (55\% * 5,5\%)^1 \approx 9\%$

Assets		Liabilities		
Fixed assets		Equity		} Cost 12,8%
Land	90	Share capital	200	
Real estate	110	Retained earni	250	
Machinery	220			
Working capital		Debt		} Cost 5,5%
Inventories	310	long-term	250	
Sales recieval	220	short-term	200	
Cash and ban	50	other	100	
Total assets	1000	Total assets	1000	

WACC
9,0%

¹Tax-schild of debt
not included here

Cost of capital (summary)

- Every company has certain average cost of capital which depends only on operative risk and long term interest rate levels (9% in the example)
 - In operations only thing that matters is the average cost of capital (9%), the individual costs of debt /equity and the actual solvency can be ignored at this level
- Cost of capital means the minimum return requirement, which must be achieved in order to get the owners to keep their money in these operations
- The cost of all assets is the same (9%)
- Cost of capital should not be mixed up with the return objectives of the company
 - If company produces good return on capital and big EVA, the profit objectives/targets should be given as big EVA targets and not by increasing the cost of capital

EVA vs. traditional performance measures

- Measures from income statement; operating profit, profit before extras, net income, earnings per share
 - The investors are interested mainly on how much resources are employed by generating the profits (what is the return on their capital)
 - Absolute terms (euros, dollars) make these measures good from operative perspective
- ROI, RONA, ROCE, ROIC...
 - Fixed the main deficiency of income statement measures; capital was brought into the picture
 - Are still not measures that could be maximized (steerign failure)
 - Unillustrive and non-practical in operative level

Traditional performance measures

Income Statement

Net sales
- Variable costs
- Fixed costs
Gross profit
- Depreciation
Operating profit
- Financial items
Profit before extras and taxes
- Extraordinary items
Profit before taxes
- Taxes
Net profit

Assets

Land
Buildings
Machinery and equip.
Material
WIP-inventory
Finished goods
Sales receivables
Cash and bank

Total assets

Liabilities

Share capital
Retained earnings
Excess derpeciation
Long-term debt
Short-term debt
Advances received
Accounts payable
Deferred items

Total assets

$$ROI = \frac{\text{Operating profit}}{\text{Capital employed}}$$

$$= \frac{\text{Operating profit}}{\text{Total assets - non-int. bearing items}}$$

EVA vs return on investment (steering failure)

- Example: ROI 30%. How ROI and EVA change after an investment producing a return of 20% ?

Situation in the beginning

Operating profit	30 000		
Capital employed	100 000	ROI	30 %
Cost of capital	10 %	$0.1 * 100\ 000 =$	10 000
EVA		$= 30\ 000 - 10\ 000 =$	20 000

Investment opportunity

Operating profit	4000		
Required capital employed	20 000	(offers a return of	20 %)

Situation if investment done

Operating profit	30 000	+	4000	=	34 000		
Capital employed	100 000	+	20 000	=	120 000	ROI	28 %
Cost of capital	10 %			$0.1 * 120\ 000 =$	12 000		
EVA				$= 34\ 000 - 12\ 000 =$	22 000		

- ROI does not take into account the increase or decrease in invested capital. Therefore it does not necessarily describe whether the profitability has decreased or improved
=> non-optimal controlling tool and bonus base

Calculation of EVA

Income Statement

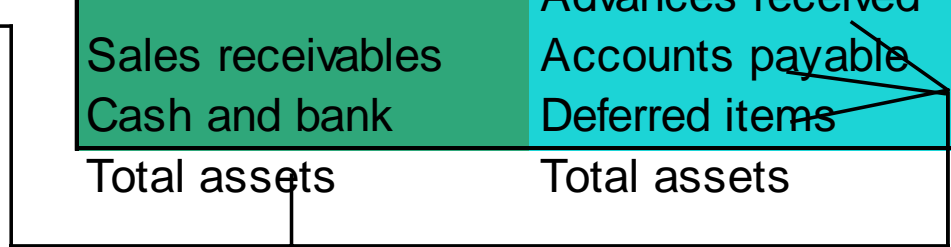
Net sales
- Variable costs
- Fixed costs
Gross profit
- Depreciation
Operating profit
- fixed assets x WACC
- Materials x WACC
- Finished goods x WACC
- Sales receivab. x WACC
+ Accounts payabl. x WACC
- Taxes
EVA

Assets

Land
Buildings
Machinery and equip.
Material
WIP-inventory
Finished goods
Sales receivables
Cash and bank
Total assets

Liabilities

Share capital
Retained earnings
Excess depreciation
Long-term debt
Short-term debt
Advances received
Accounts payable
Deferred items
Total assets



EVA vs ROI, ROCE, RONA in operative level

- Return on capital is very unillustrative measure in operative level
 - The costs/costsavings of some process, function or line (production line, sales department etc.) is very difficult to convert into change in ROI. Even if this would be done the result is very uninformative
 - With the EVA concept all costs, costsavings, increased revenues and costs of employed capital are comparable and are in terms of final profitability (in absolute terms like EVA itself)
- Usually the importance of capital efficiency has been left aside as it has not been understood on operative level in ROI-steered companies
- Therefore usually implementing EVA improves first capital turnover (decreases working capital) as the cost of employed capital comes clear to operative people (after these costs are taken in the income statement)

Summary: EVA as a measure of profitability

- First financial performance measure that can be maximized as a sensible objective
 - Capital and the growth of capital employed is integrated (compared to Operating profit and ROI)
- Simplifies the whole concept of profitability
 - With traditional measures this concept has been ambiguous and complicated
- Integrates the effects of profitability and growth into same measure
 - The main objective of any company is to increase the value of the company. EVA measures value creation and by maximizing long-term EVA the company is maximizing its own value
- Very suitable as a bonus base
 - logically after the first point above
 - Unifies the goals of the owners and the company
 - Compensation tied to increasing the value of the company

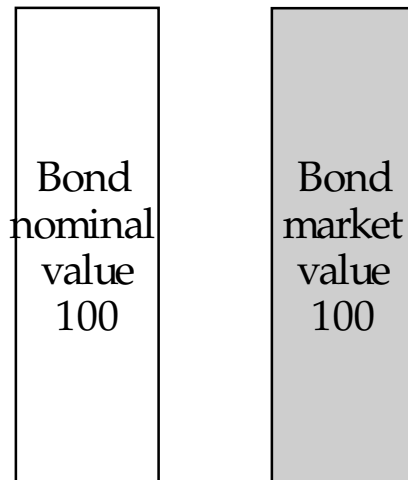
- Financial theory suggests that the value of the company depends directly on the future EVA:
- The value of the company =
Book value of equity + the value of future EVA
 - Mathematically equal to Discounted Cash Flow -formula
 - Investors and analysts use EVA heavily (e.g. CS First Boston, Goldman Sachs, Morgan Stanley, Merita Securities Ltd., Mandatum Stockbrokers, Opstock)
 - Compare to the valuation of a bond (next slide)

Value of a bond

- The bond is valued with a premium or a discount depending on the relationship between current interest rate on markets and coupon rate

Interest rate (market) 5%
Coupon rate 5%

Coupon rate =
market rate



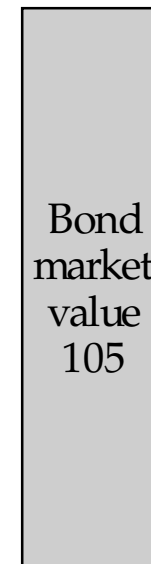
Interest rate (market) 10%
Coupon rate 5%

Coupon rate <
market rate



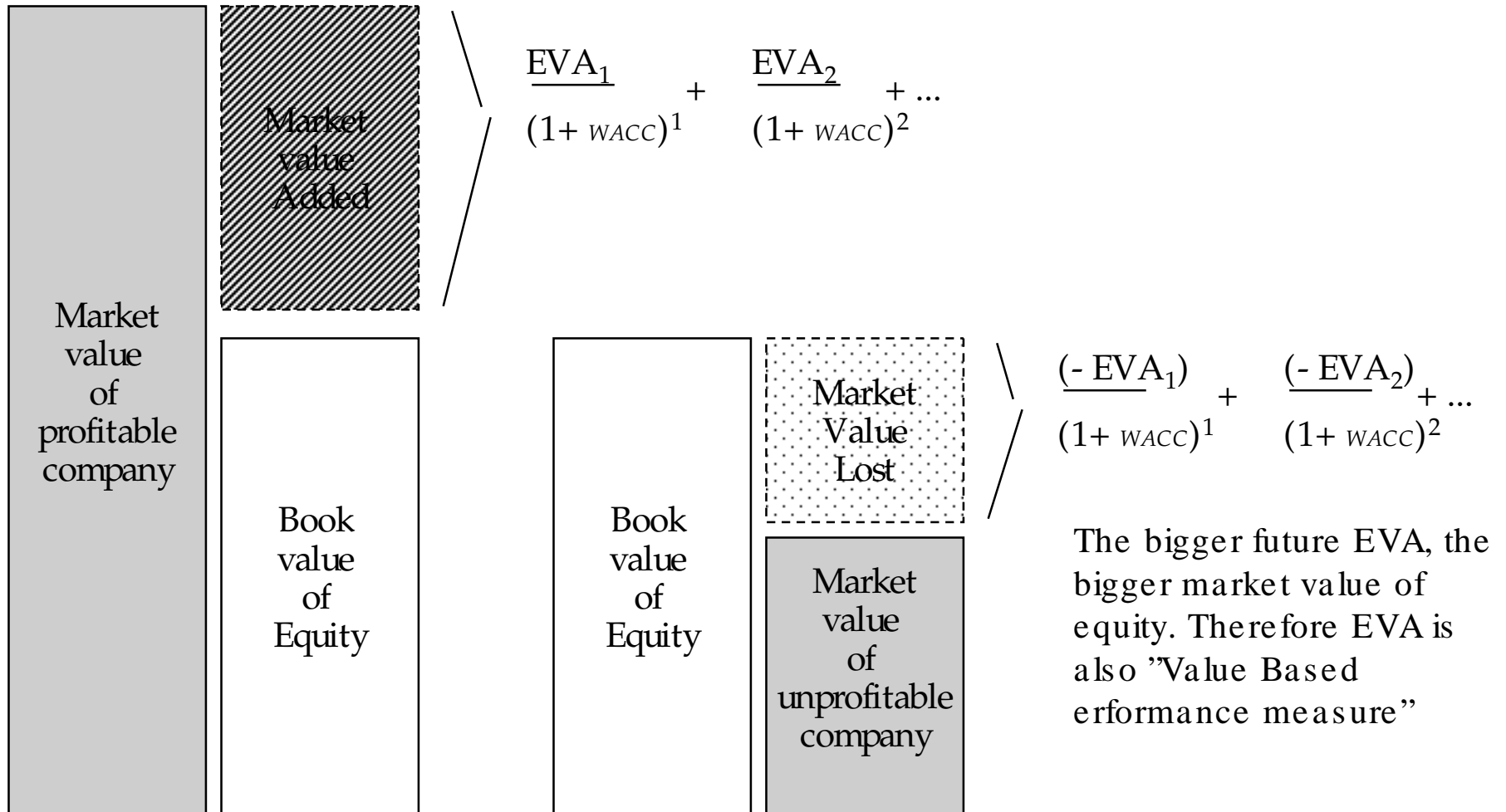
Interest rate (market) 4%
Coupon rate 5%
Coupon rate > market rate

Market
value
premium

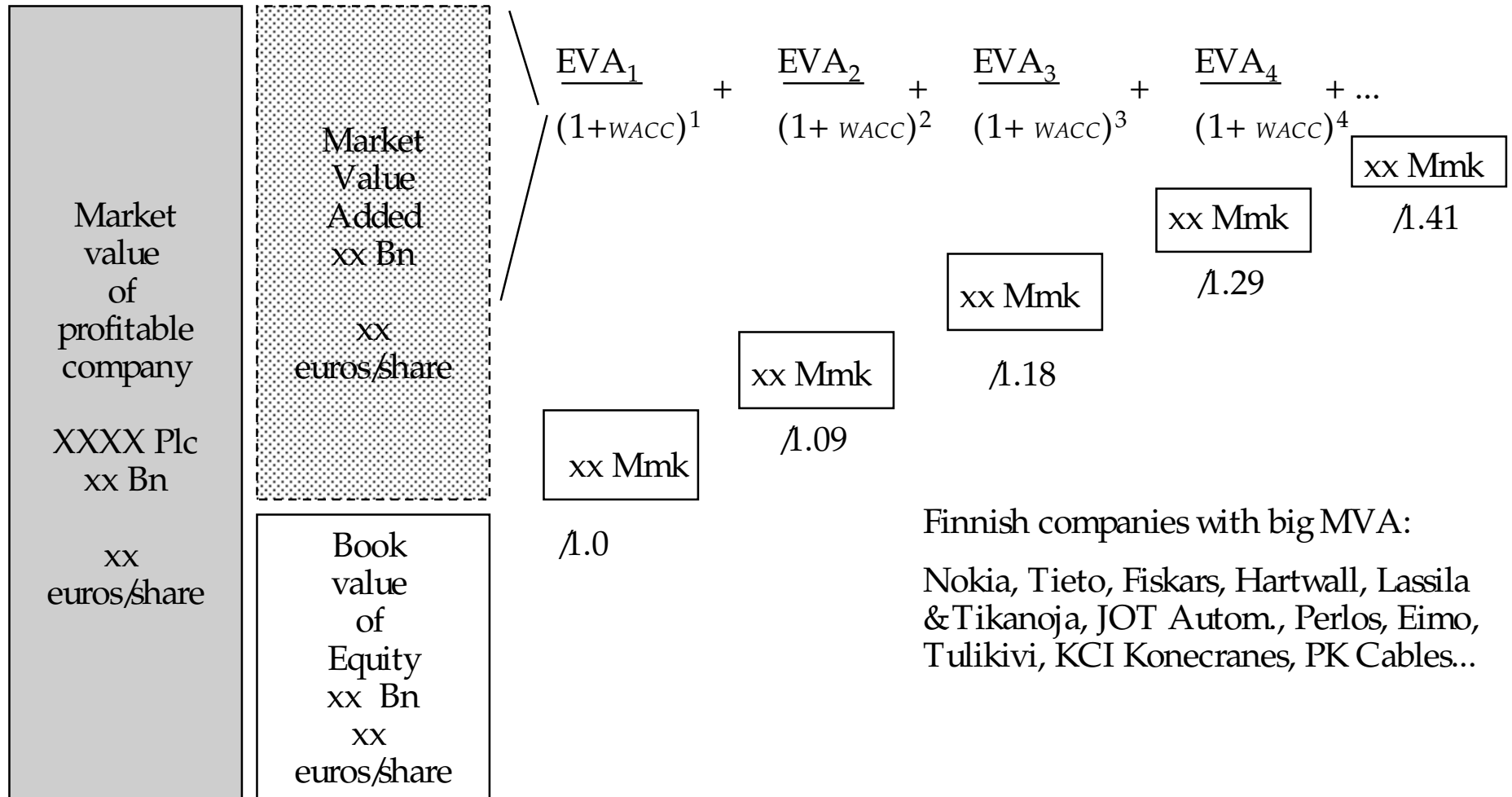


EVA and market value of a company

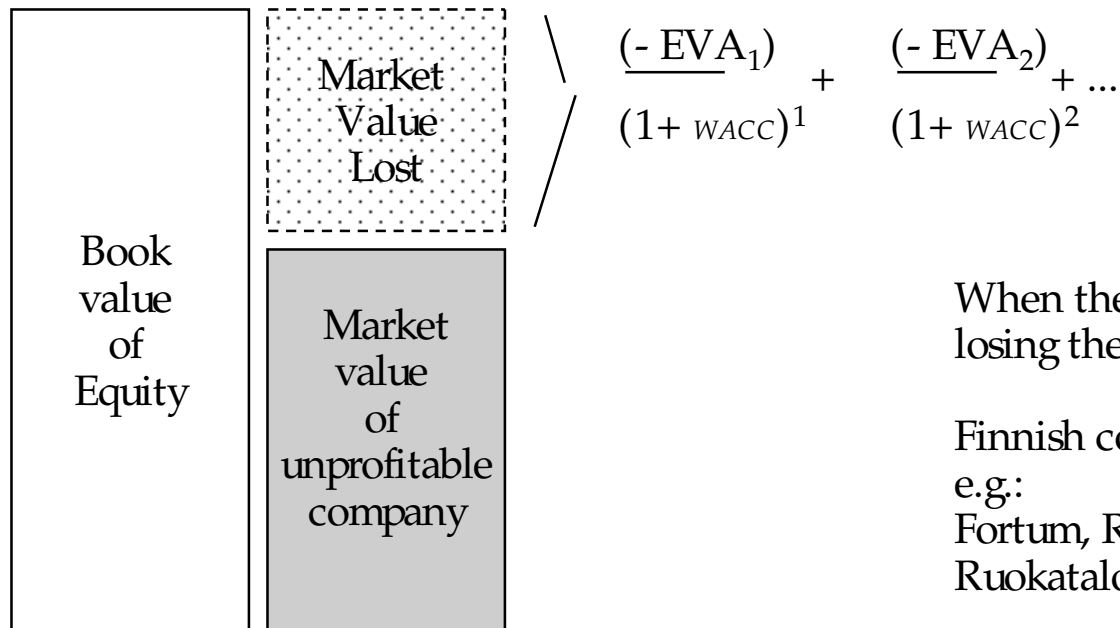
Market value of a company = Book value of equity + discounted value of future EVA



EVA and market value of a company

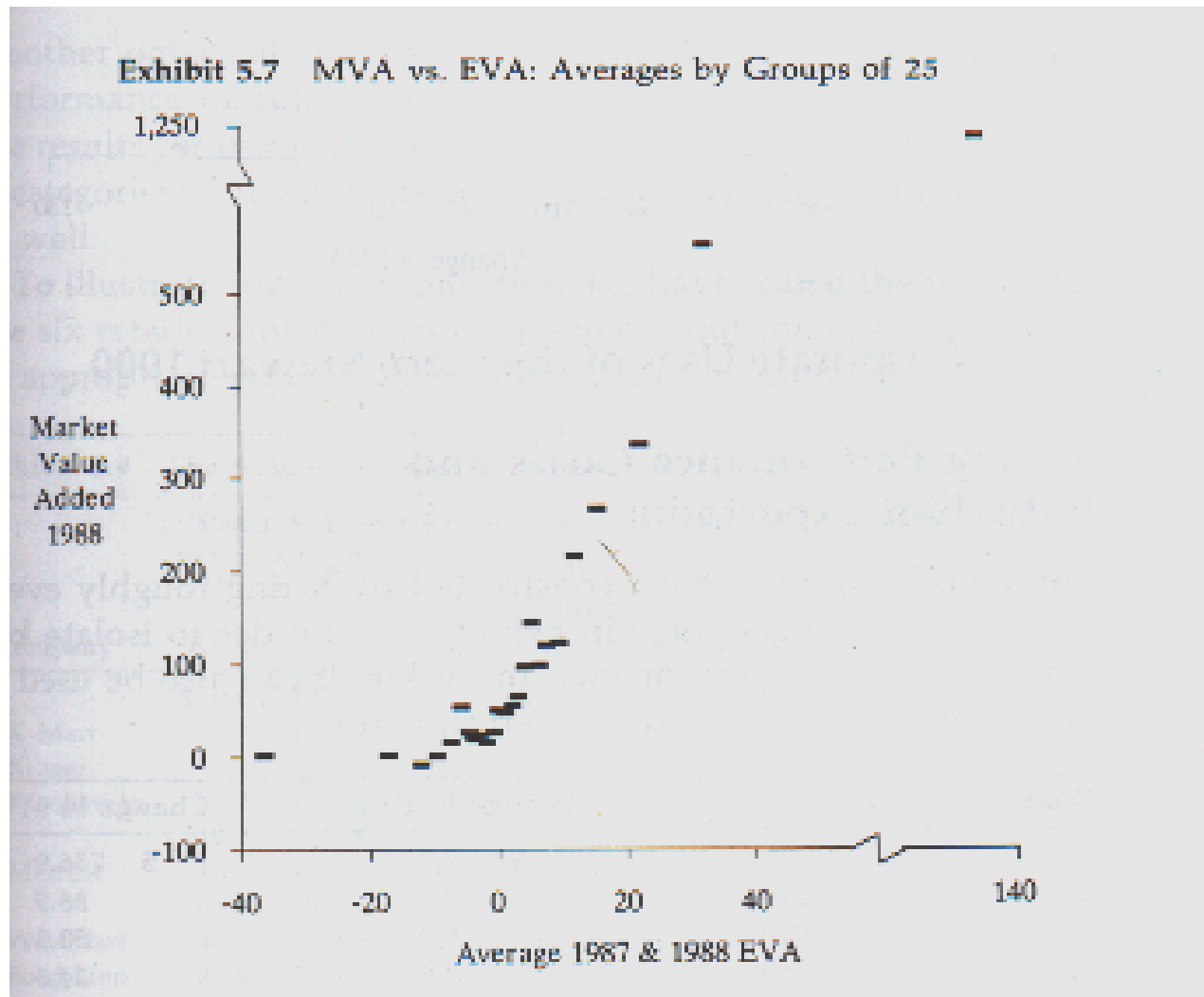


EVA and market value of a company



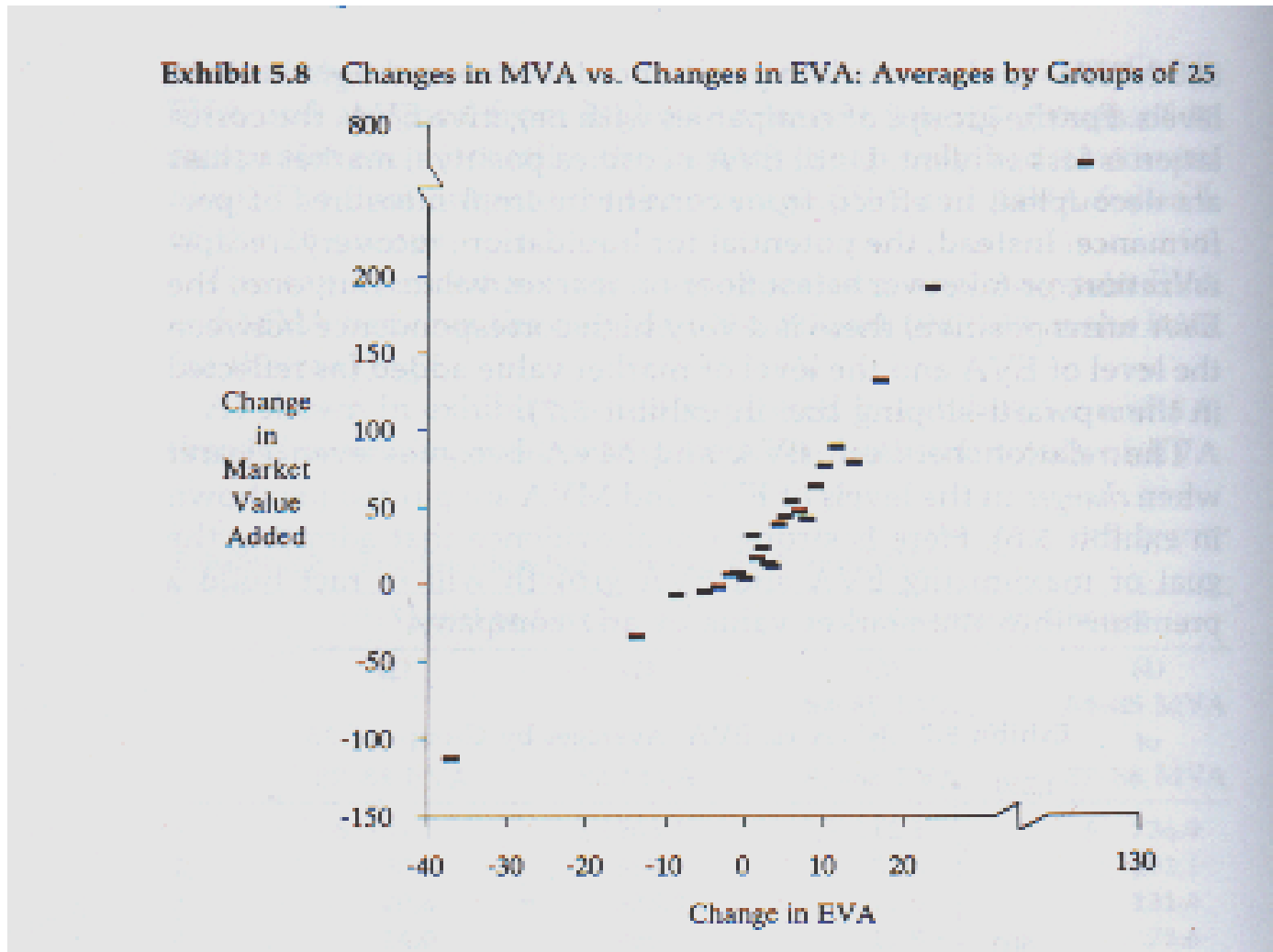
When they say, that you can lose money by losing the alternative return they mean this...

Finnish companies in this situation currently
 e.g.:
 Fortum, Rautaruukki, Metsä-Serla, HK
 Ruokatalo, Neptun Maritime(Silja) ...



Source: Stewart 1991

Change in EVA vs change in MVA

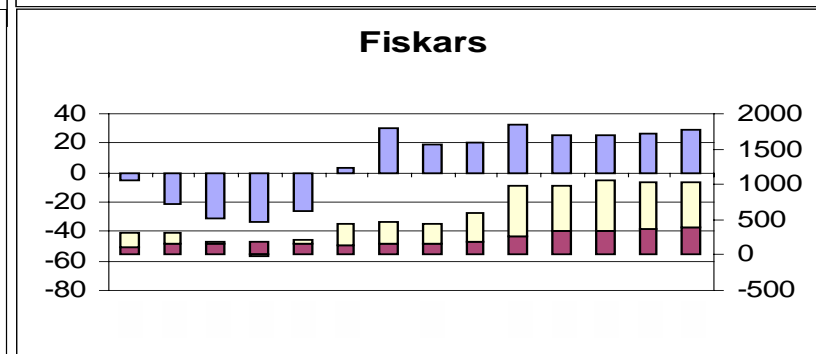
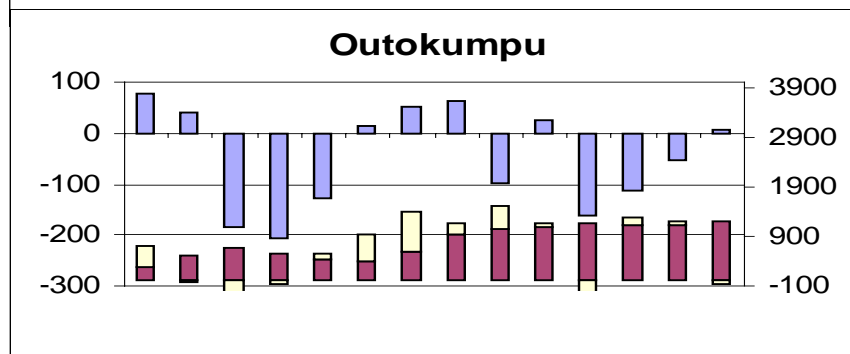
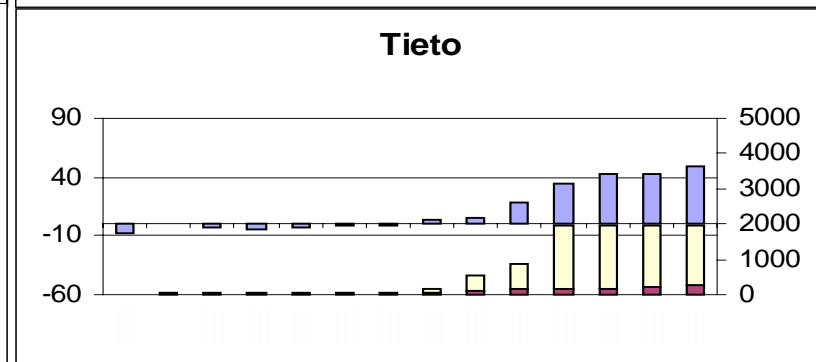
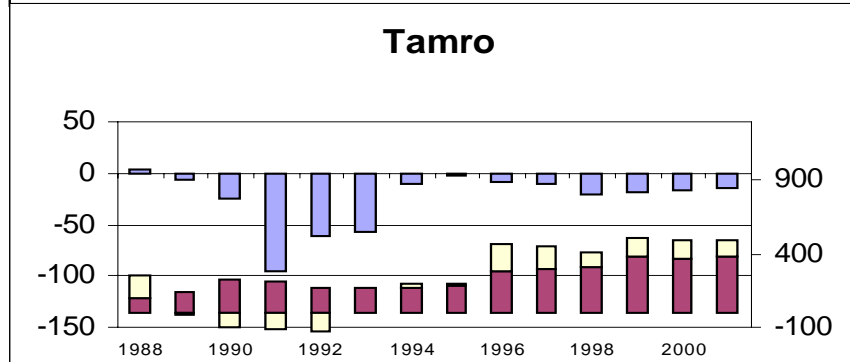
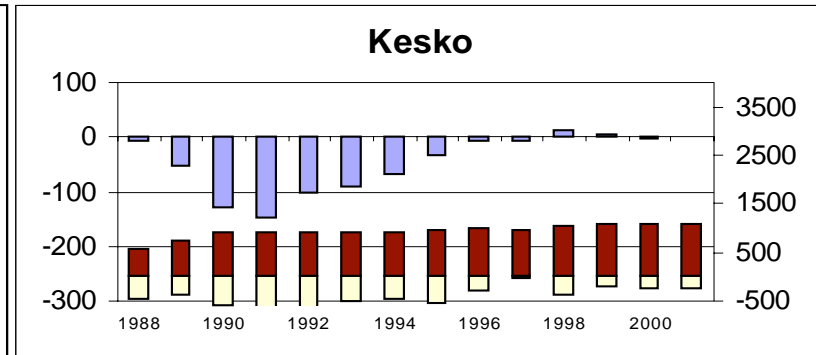
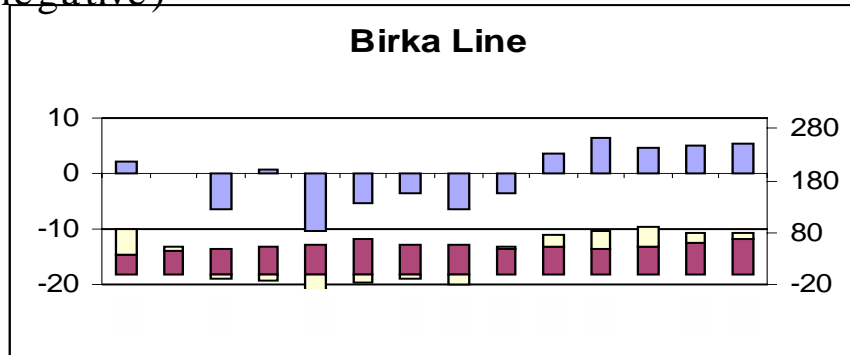


Source: Stewart 1991

EVA vs market value with Finnish companies 1/2

Right scale: EVA - Blue bars (million euros)

Left scale: Market value: Dark bars - book value, Yellow bars - MVA (up if positive, down if negative)

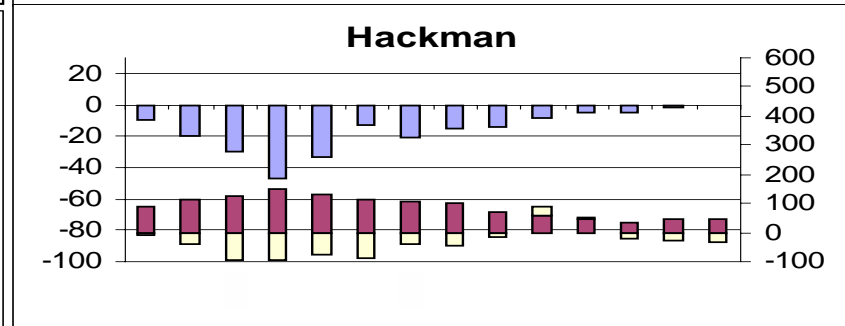
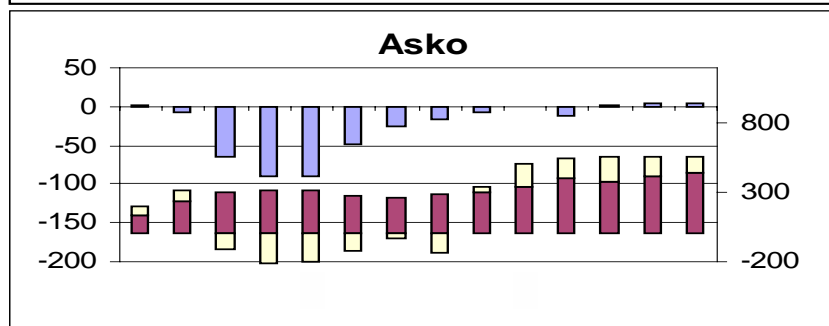
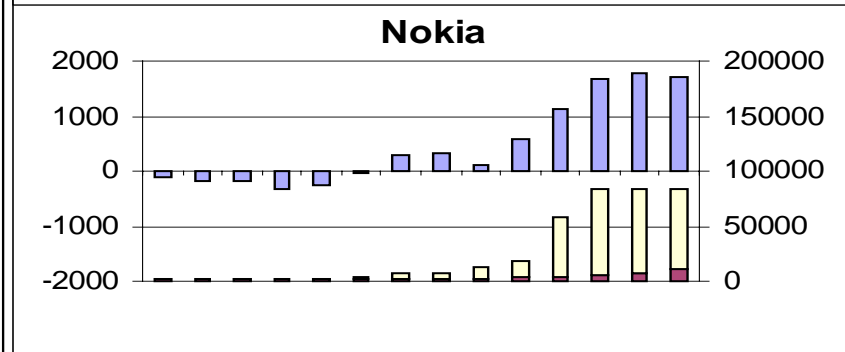
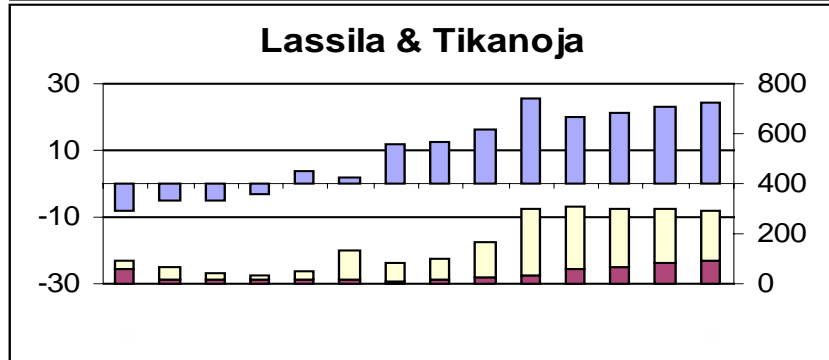
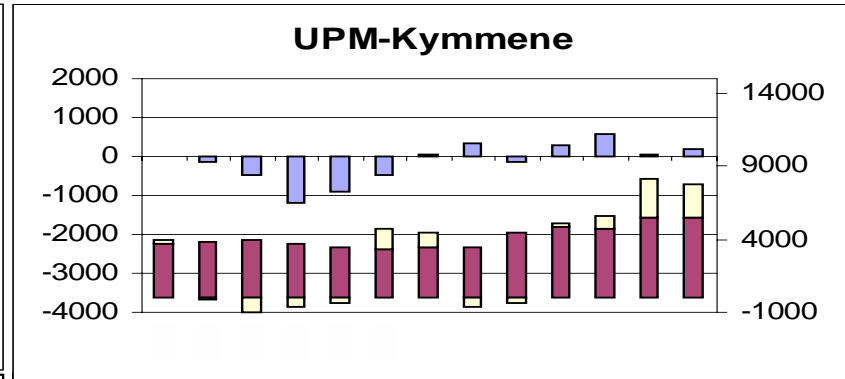
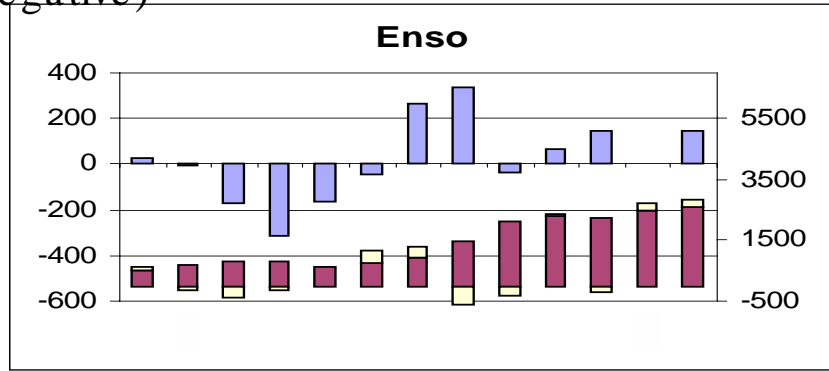


Source: Merita Securities 1999

EVA vs market value with Finnish companies 2/2

Right scale: EVA - Blue bars (million euros)

Left scale: Market value: Dark bars - book value, Yellow bars - MVA (up if positive, down if negative)



Source: Merita Securities 1999

- Adequate level
 - As a kind of "excess return" EVA is very suitable for bonus base, it does not give bonuses if the shareholders can not get adequate returns in relation to risk involved
- Steering:
 - Increase in EVA (in long-term) means also increase in profitability and company value (in contrary to traditional performance measures)
- Objective level
- Features above enable also big bonuses if the shareholders first benefit clearly
 - The management is often able to achieve big increases in shareowners' wealth
- Bonuses should not be limited as we do not want the EVA to be limited
- Compensation systems the most essential area of EVA
 - Academic reaseach (e.g. Wallace 1997) gives empirical support

- The benefits of EVA materialize as the key persons of the company:
 - Understand what real profitability is all about
 - Get motivated to improve profitability
- This provides that:
 - Key persons must understand what EVA is: where cost of capital comes from, why EVA is an important measure and better than traditional measures
 - EVA is shown also in operative level reports
 - The compensation is tied to EVA or to its drivers
- If the implementation of EVA is failed the reasons have normally been the lack of EVA training among key persons or the lack of commitment from the whole upper management team

1. Defining EVA calcul. and reporting procedures (0,5 - 1 days)
 - Defining capital costs, items included, reporting formats

2. EVA training (0,5 - 2 days)
 - The basic premise, rough calculation and the importance of EVA should be trained to all key persons. Ideal trained group is 10-15 persons and the training takes about two hours per group.

3. EVA compensation systems (0,5 - 1,5 days)
 - The main guidelines: based on positive EVA, increase of EVA or the increase of EVA that exceeds certain growth rate, long-term and bonus bank, treatment of goodwill and strategic investments etc.

- Fees
 - Project 2000 euros/day + VAT + travelling expences
 - If the "project" consists only one day, then the cost per day would be 3000 euros
- The fees can be
 - According to actual days, which in turn would be done according to rough implementation plan (normal)
 - Fixed in advance permanently (no matter of the days done)
 - Fees can also be substituted either partly or totally with comission tied to results (e.g. tied to EVA improvement, future EVA level, share price development, working capital reduction etc...)

Kamensky Consulting and EVA implementation (example)

- Implementation project: 3 SBUs ---> defining the calculation and reporting, training of key persons in each unit, the framework for EVA compensation system
 - 0,5 days EVA-introduction with the management team
 - 0,5 days definitions with the CFO and his/her department
 - 0,5 days EVA training (1. SBU key persons)
 - 0,5 days EVA training (2. SBU key persons)
 - 0,5 days second round with the EVA calculation and reporting procedures (with CFO and his/her staff)
 - 0,5 days EVA training (3. SBU key persons)
 - 0,5 days the rough framework for EVA bonuses in each SBU
 - 0,5 days extra training for "EVA-officers" (every SBU has one)
 - optional 0,5 days ; solving of the open questions confronted (normally linked to bonus systems)
- **Altogether: 4,5 days: 9.000 euros + VAT + travelling expences**