

**VOLKSWAGEN**

AKTIENGESELLSCHAFT

Financial Control System of the Volkswagen Group

## Financial Control System of the Volkswagen Group

Third Edition

Publisher

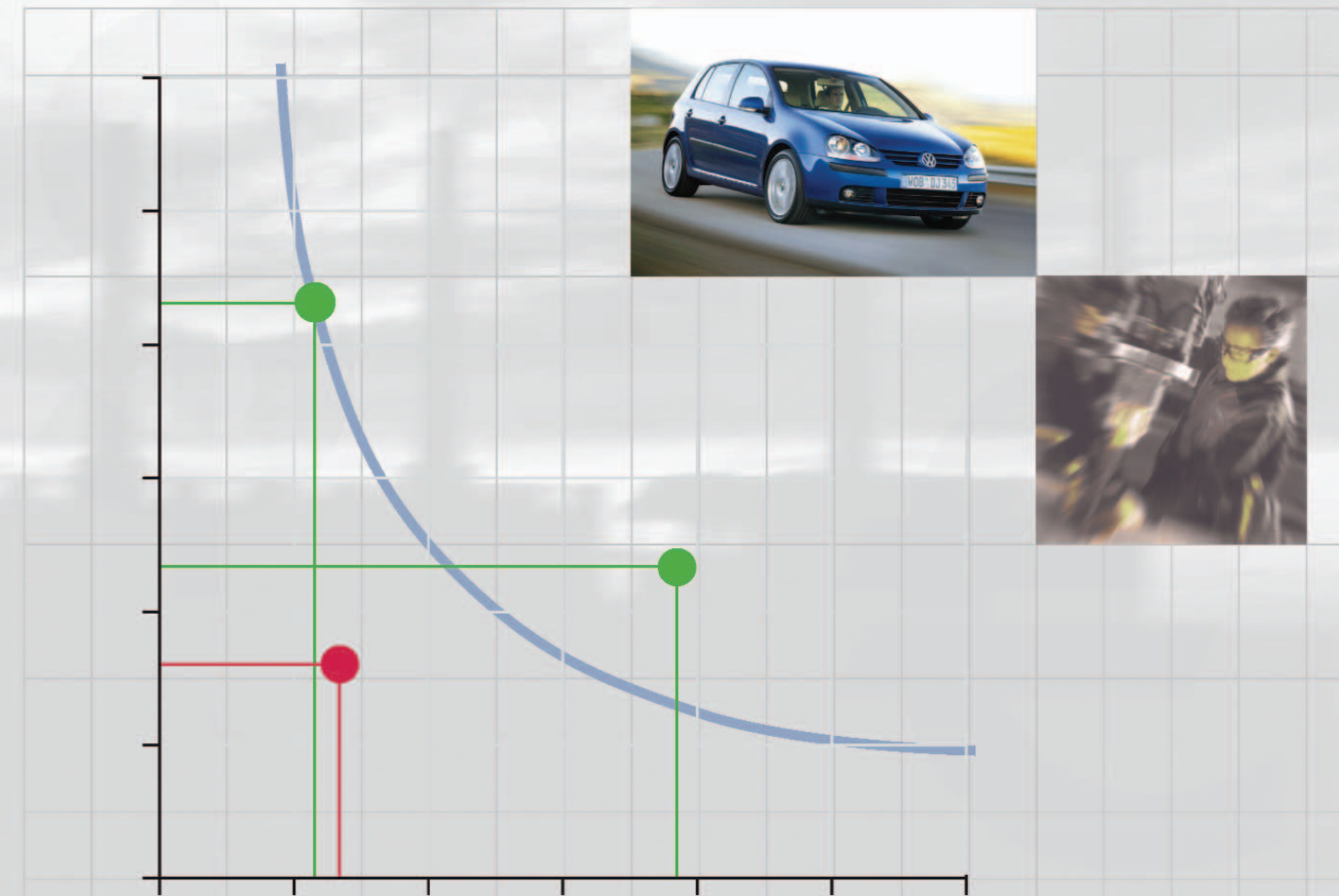
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Group Controlling

Letter box 1846

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3rd Edition 2010





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## Preface

### Dear Reader,

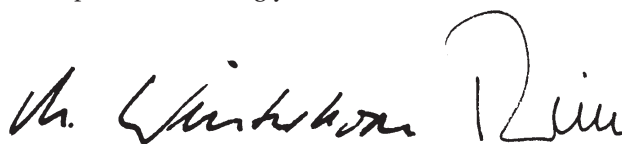
Volkswagen is a global company operating in local markets for individual customers. That is the guiding principle to which we adhere with our products and services in the markets throughout the world in the competition to win and retain customers. It is the way in which we safeguard the success of the company and thus the future livelihoods of its employees.

In order to preserve the independence of Volkswagen and to achieve success in the capital markets, we must continually and persistently enhance the value of our business. Only an appropriate level of earning power will enable us also to finance future projects as well as our technical innovations by way of the capital markets. Capital investment and innovation are the twin pillars of the company's ongoing development.

Consequently, the financial control system is focussed on increasing the value of the business. To that end, we have defined a control variable, the Economic Value Added (EVA<sup>®</sup>), which is aligned to the cost of capital and which enables us to measure the success of the Group as a whole and its constituent business units, as well as that of our individual products and projects.

In 2001 the Volkswagen Group restructured its accounting systems in line with International Accounting Standards (IFRS). The associated period-specific presentation of the company's economic position means that the previous normalisation of operating profit and invested capital in line with accounting and valuation requirements pursuant to German commercial law (HGB) is no longer necessary. These adjustments were subject matter of the second edition.

For the calculation of the operating profit after tax and in reference to the determination of the required rate of return, an average income tax rate of 35% across all group companies (based on internationally different tax rates) was assumed. It was reduced to 30% as a result of the German corporate tax reform in 2008. Due to the developments in the capital markets, the general risk premium related to the German stock market index DAX was adjusted from 6% to 5.5%. The present 3rd edition has been updated accordingly.



Prof. Dr. Winterkorn

H. D. Pötsch

Wolfsburg, June 2009



## 1. Introduction

The financial control system of the Volkswagen Group is based on an integrated system of financial ratios. Up to the end of the 1990s **PROFIT MARGIN** with the target variables of **SALES REVENUE** and **PROFIT BEFORE TAX** was the focus of operating control. This system of financial ratios for the Group's financial control has been successful. It contains meaningful benchmark variables for external comparisons and it is easy to communicate. These three key financial variables, however, do not provide any information on the extent to which the capital employed in the company is earning a reasonable rate of return - viewed from the financial market and the investors' perspectives. Likewise all business units and product lines of the Group have to be measured by whether, and the extent to which, they generate a reasonable rate of return on the capital employed.

With the development and introduction of our value-based financial control concept, beginning in 1998, we therefore focus more on a capital market-oriented **REQUIRED RATE OF RETURN** on the capital employed in our key financial analysis. Over and above this

required rate of return we will aim for the **HIGHEST POSSIBLE INCREASE IN THE MARKET VALUE** of the Group and of its constituent parts. All this is ultimately in the interests of all stakeholders. Such an increase in the market value ensures the continuation and independence of the Group in the long run. It also ensures that shareholder value will increase and employees will retain their jobs and will have rising incomes.

Since the fundamental implementation of the financial control system, the Group's accounting system has undergone a number of methodological adjustments in line with the switch to IAS accounting standards. The tried and proven system of value-based management has been retained, however. Volkswagen's value-based management concept is outlined on the following pages. Information relating to the respective financial years can be found in the Volkswagen AG Annual Report.

## 2. Value-based management

The group profit determines the development of the value of the group

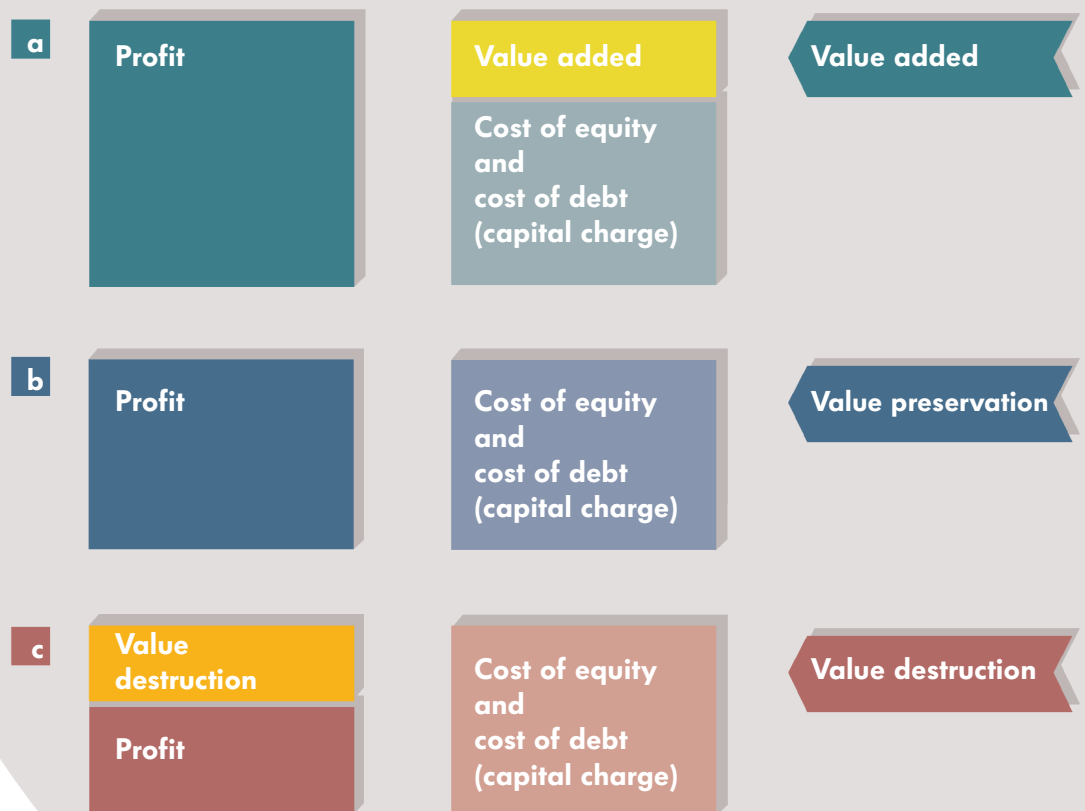


Figure 1



## 2.1. Importance of Economic Value Added (EVA®) in corporate management

Development in the value of capital employed and/or any Economic Value Added (EVA®) that arises therefrom is based on a comparison of profit against capital charge (Figure 1):

- a** If a profit is generated that exceeds the cost of debt and equity, as well as covering all other expenses, value is created;
- b** If only the cost of capital is generated, the value is merely preserved;
- c** If less than the cost of capital is generated, value is destroyed.

The **COST OF CAPITAL** that needs to be generated is the result of the required rate of return that the investors expect and of the relative proportions of **SHAREHOLDERS'** equity and debt.

From the perspective of the **SHAREHOLDERS** it is the return on equity derived from dividends and share price increases that is important. The value of a firm – and therefore the value of their equity investment – is the market value of equity, i.e. the market value of all shares outstanding.

From the perspective of the **DEBTHOLDERS** it is the return on their investment – i.e. the debt invested in the Group - that is important. In this context, the book value and market value of debt are assumed to be equal.

Shareholders' equity and debt form the Group's capital. This capital employed has to earn the required rate of return. The total capital has to generate a return based on its market value, as the investors expect a return on the market value of their investments. Therefore, the Group's objective is to achieve at least the required rate of return that reflects the specific investment risk of the equity and debt investors. If this **MARKET-BASED REQUIRED RATE OF RETURN** is related to the capital employed then this provides the cost of capital that has to be generated.

## 2. Value-based management

The cost of capital determines the required rate of return

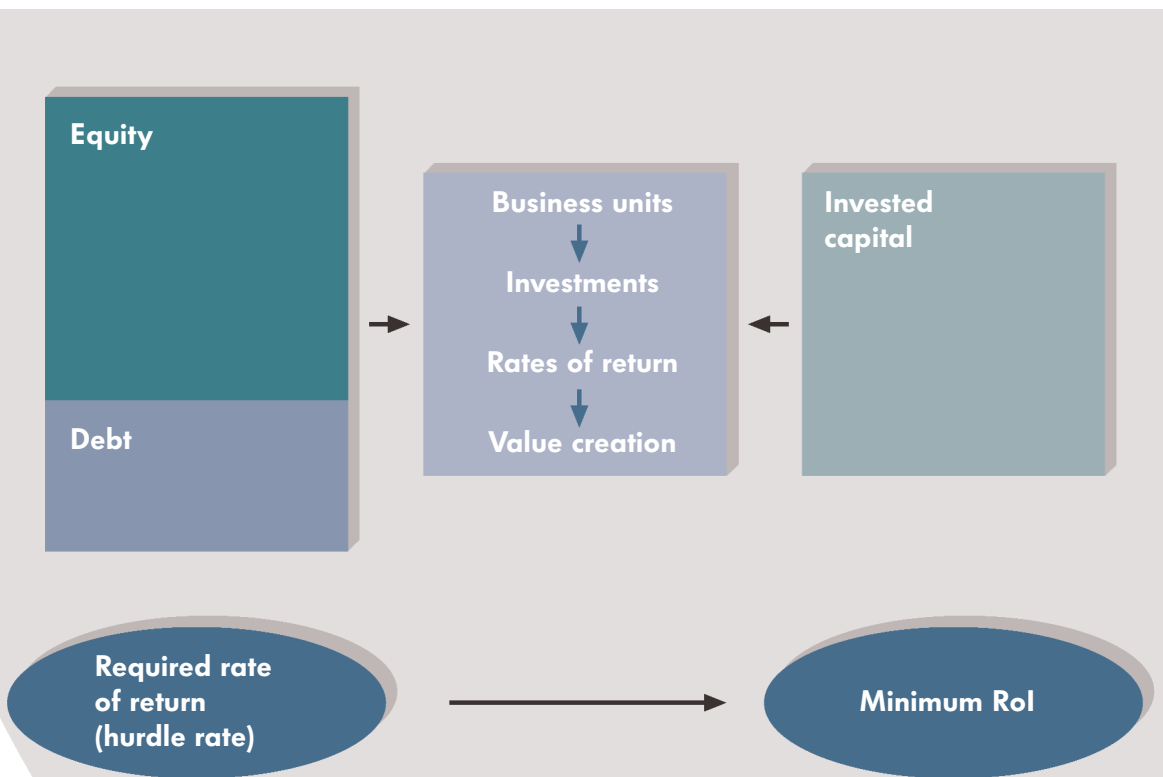


Figure 2



## 2.1. Importance of Economic Value Added (EVA®) in corporate management

The cost of capital thereby generated as a percentage of the invested capital produces the minimum RoI (Return on Investment) (Figure 2).

An increase in the value of the invested capital and/or any EVA® achieved occurs if the realised RoI exceeds the minimum RoI (the required rate of return).

Consequently, the EVA®, or ECONOMIC VALUE ADDED, can be determined IN TWO WAYS:

**EVA® = Operating profit after tax - cost of capital**

*or*

**EVA® = (RoI - Required rate of return) x Invested capital**

Factors that influence the development of value are thus:

- ⊖ Operating: Profit, invested capital
- ⊖ Financial: Capital structure and capital cost rate

Starting from these basic influencing factors, the specific value drivers for the strategic and operational management of the Group have to be derived.



## 2. Value-based management

The capital market determines the cost of capital

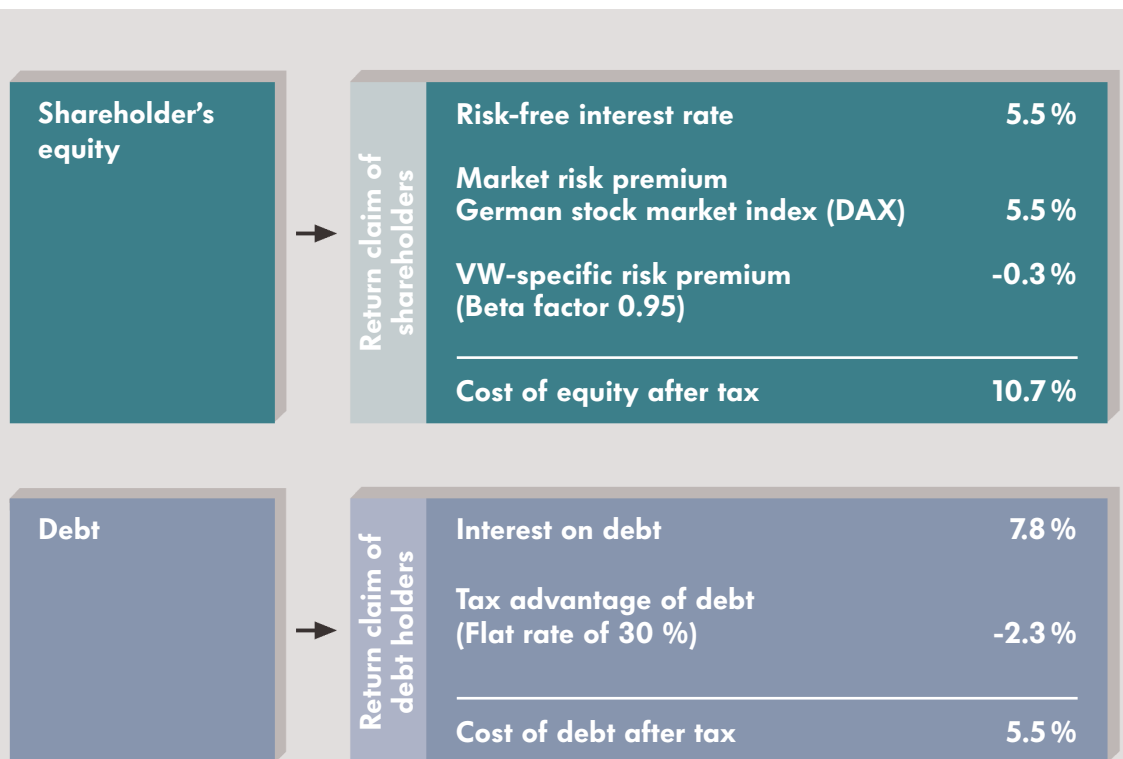


Figure 3



## 2.2. Market-based capital cost rate as the required rate of return

### 2.2.1. Including the capital-market-based risk premium in the required rate of return

The cost of capital is the weighted average of the cost of debt and the cost of shareholders' equity. This **WEIGHTED AVERAGE COST OF CAPITAL (WACC)** of the Group serves as a **GENERAL PERFORMANCE TARGET**. It is important that the long-term expected weighted average cost of capital is applied. Thus, it is not intended to adjust continuously the cost of capital to short-term fluctuations in the financial markets (Figure 3).

The **COST OF DEBT** is calculated as the average interest rate for long-term debt. Because interest payments on debt are tax-deductible, the cost of debt is included on an after-tax basis.

The **COST OF EQUITY** is calculated by applying the Capital Asset Pricing Model (CAPM). The starting point in the model is the risk-free interest rate, because the shareholders could invest their funds risk-free in fixed income securities. The investor will engage in more risky investments only if he is rewarded for the higher risk by a higher rate of return.

This higher risk is included in the model by two factors:

- ⊕ a market risk premium that reflects the general risk of investing in the stock market. The stock market is usually proxied by a market index, e.g. the DAX and
- ⊕ a Volkswagen-specific risk premium that reflects the risk of the Group relative to the stock market and is determined by the so-called Beta factor.

The Beta represents the so-called systematic risk of the Volkswagen stock. It is determined by the fluctuations of Volkswagen's stock returns relative to the stock market returns as measured by a market index, e.g. the DAX. Thus, this factor expresses the risk that the investor takes when making an equity investment in Volkswagen relative to the market. A Beta of 0.95 has been applied.

Because interest rates and the risk premium of the stock market fluctuate in the short and medium term, but performance targets for long-term corporate management cannot be a constantly changing variable, the cost of equity for Volkswagen is defined as 10.7%. The cost of equity is an after-corporate-tax rate.

## 2. Value-based management

The capital structure influences the required rate of return

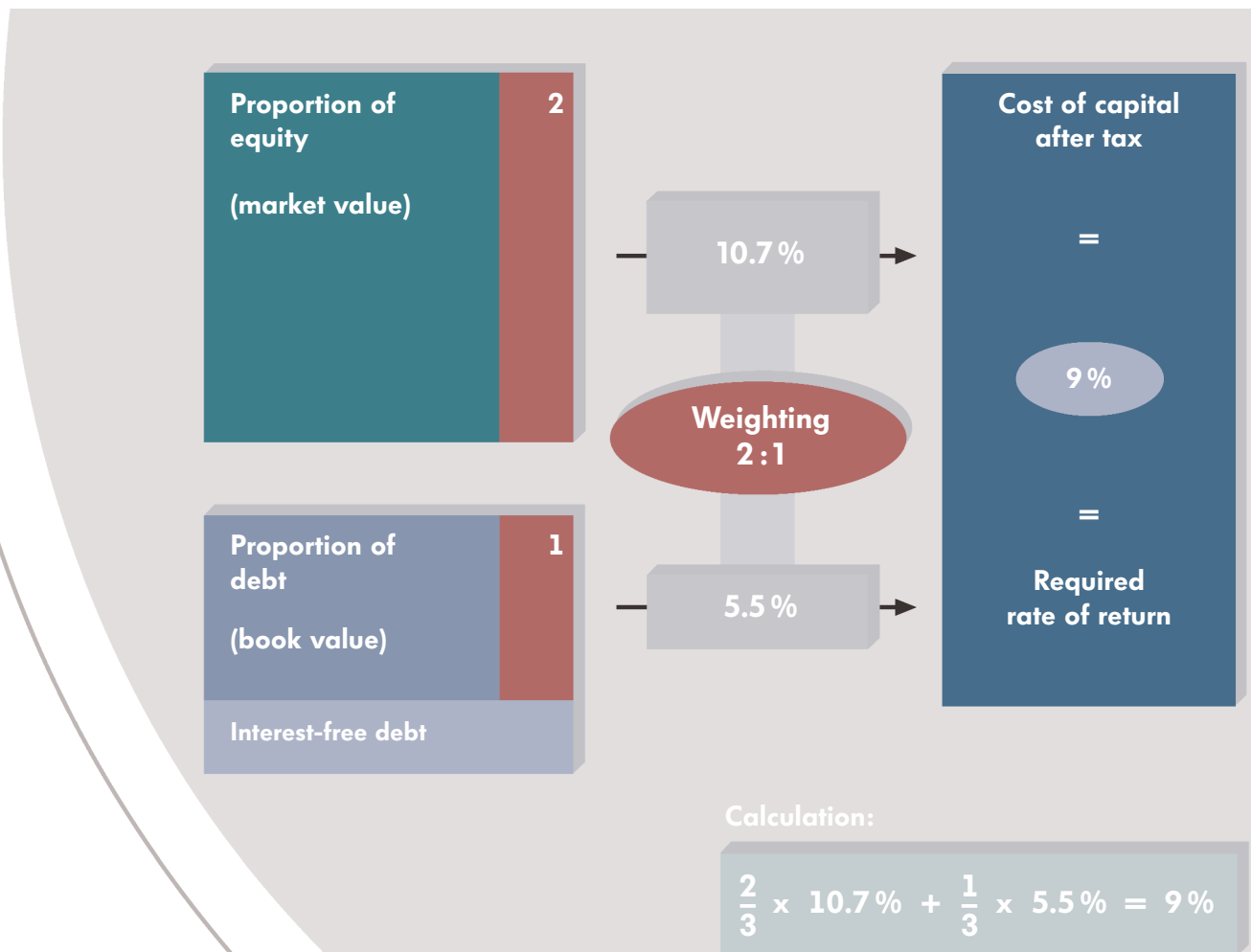
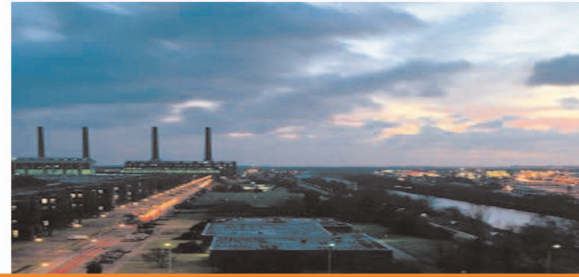


Figure 4



## 2.2. Market-based capital cost rate as the required rate of return

The cost of equity and the cost of debt, weighted by their relative proportions of the total market value of the Group, result in the weighted average cost of capital after tax (Figure 4). The rates of return of the various components are weighted by the market value of capital instead of the book value, because only market values are relevant to the investors. When employing the current capital market based capital structure (equity: debt = 2:1) as a basis, the result for Volkswagen is a Weighted Average Cost of Capital after tax of 9%, which we define as the required rate of return.

### 2.2.2. Including regional risks in the required rate of return

The economic risk of the Group also depends on the location of the facilities and thus influences the potential risk for the investors. In particular, there are country-specific risks in individual regions; especially the currency risk represents an important and latent economic risk to the Group. Because the capital is exposed to different kinds of risks in the regions, the Volkswagen Group's required rate of return has to be adjusted for investments in particular countries.

## 2. Value-based management

The cost of capital for certain regions is higher due to the higher risks

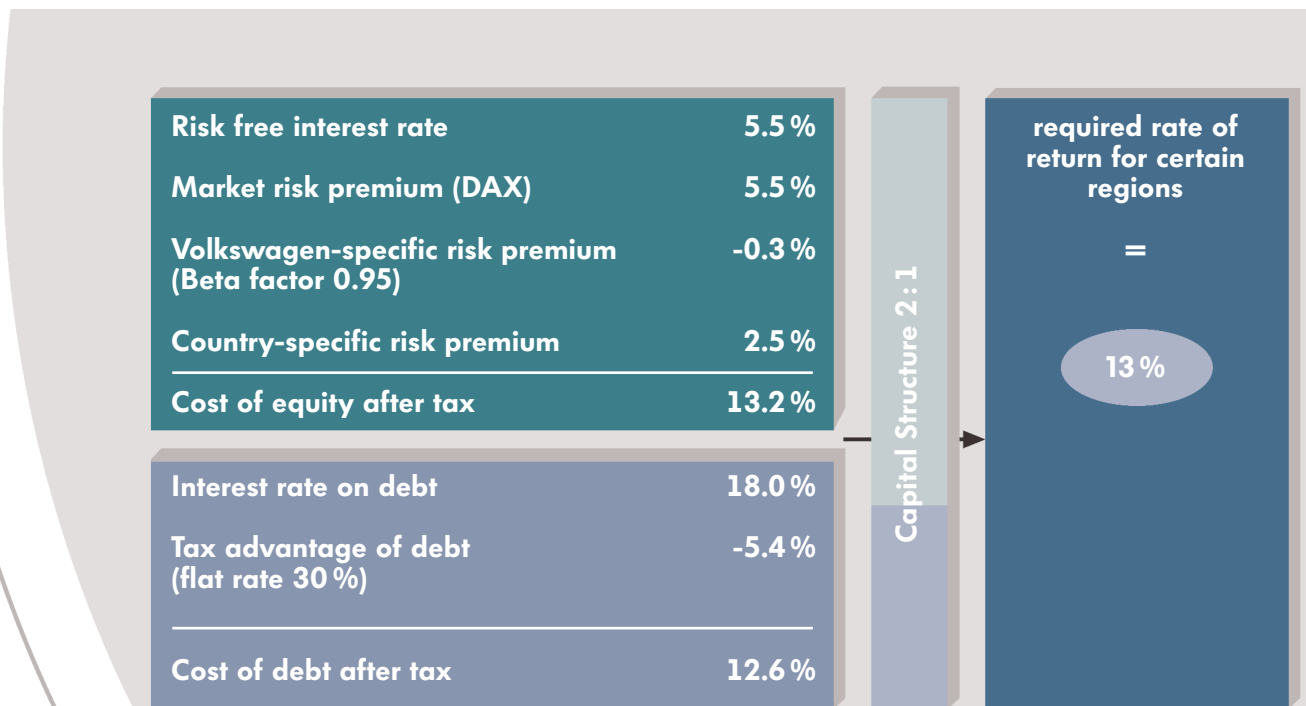


Figure 5



## 2.2. Market-based cost of capital as the required rate of return

Based on a country-specific risk premium of 2.5% and an assumed cost of debt of 18%, the **REQUIRED RATE OF RETURN FOR INVESTMENTS IN CERTAIN REGIONS** increases to **13% AFTER TAX** (Figure 5).

For the Volkswagen Group this applies particularly to subsidiaries in

- ⊖ Brazil
- ⊖ Argentina
- ⊖ South Africa
- ⊖ China

The risk assessment for all countries is examined regularly and as a result of such examinations the required rate of return is adjusted accordingly.

## 2. Value-based management

The Return on Investment (RoI) is determined by the operating profit margin after tax and the asset turnover

14 |

$$\frac{P}{S} \times \frac{S}{CE} = \frac{P}{CE}$$

Operating profit margin after tax    X    Asset Turnover    =    Return on Investment  
= RoI

P = Profit = Operating Profit after tax  
CE = Capital employed = Invested capital  
S = Sales Revenue

Figure 6



### 2.3. Operating profit margin, return on investment, and required rate of return

The Return on Investment (RoI) indicates in the financial statements the required and/or realised rate of return on the invested capital for a period. It facilitates the comparative assessment of investment projects of different types and size in relation to the required rate of return on the capital committed to them.

Accordingly, the return on investment is determined, on the one hand, by the level of profits generated by each unit of sale, and on the other hand, by the level of sales achieved by one unit of invested capital. Sales, operating profit margin and capital invested – and thus the profit margin and asset turnover – determine the return on investment.

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$$\text{Return on Investment} = \frac{\text{Operating profit after tax}}{\text{Invested capital}} \times 100\%$$

If the return on investment exceeds the capital cost rate as required by the financial markets, an increase in shareholder value is achieved for the Group.

According to the RoI formula, the Return on Investment can be separated into the two components: operating profit margin and asset turnover (Figure 6). The concept of value-based management extends the operating profit margin component to include the capital employed to achieve the return.

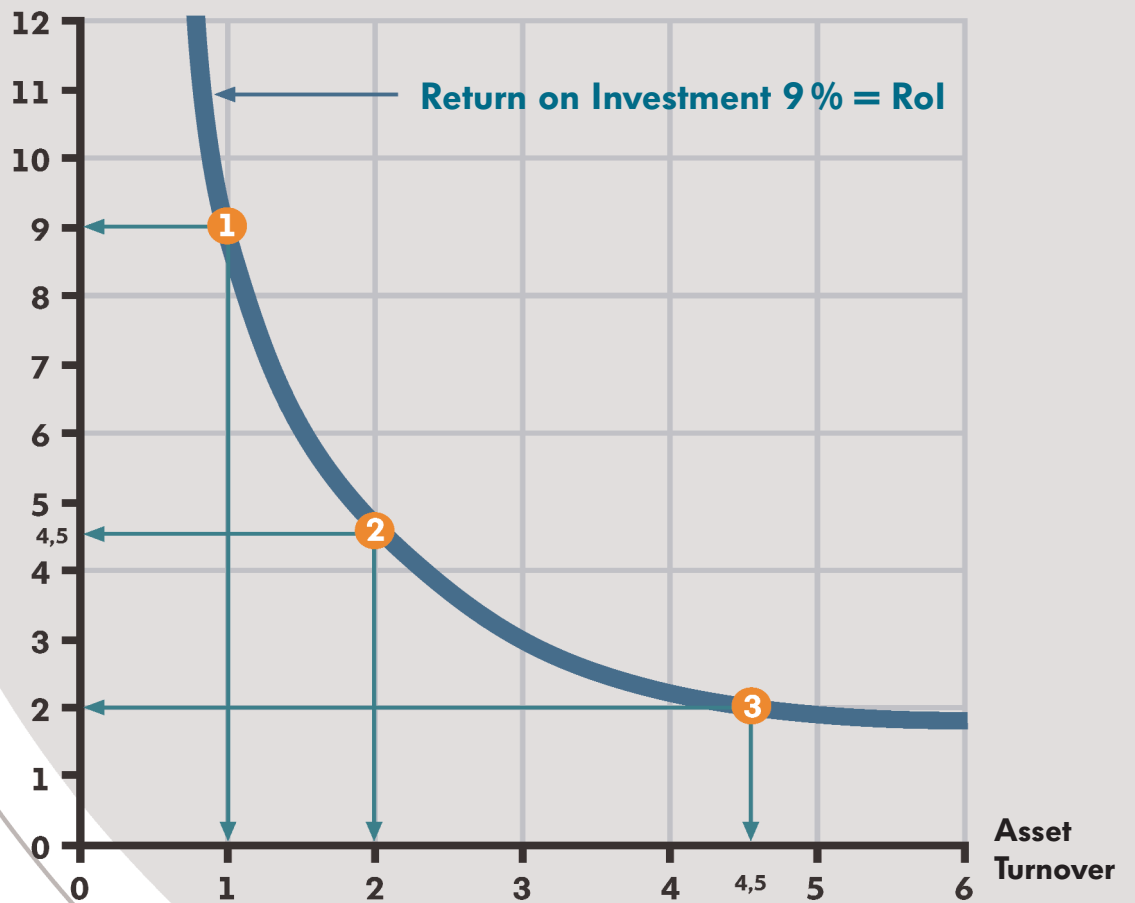
In this respect the operating profit margin retains its own significance as a financial measure in the Group. Moreover, the operating profit margin, based on the published income statements, is still essential in its present application as a standard for comparison in external analyses. Return on investment and therefore operating profit margin are based on the operating profit after tax.



## 2. Value-based management

Operating profit margin and asset turnover are the results of different business structures

Operating profit margin  
after tax (%)



Examples:

- 1 Operating profit margin after tax 9.0% x Asset turnover 1.0 = RoI 9%
- 2 Operating profit margin after tax 4.5% x Asset turnover 2.0 = RoI 9%
- 3 Operating profit margin after tax 2.0% x Asset turnover 4.5 = RoI 9%

Figure 7



### 2.3. Operating profit margin, return on investment and required rate of return

The return on investment serves as a performance target. It also measures the achievement of objectives with respect to the Automotive Division and to individual business units as well as to product lines and products. Moreover, the ROI does permit a return-oriented comparison of the performance of production and selling companies and of production companies with various levels of manufacturing integration (Figure 7).

## 2. Value-based management

### Invested Capital

<b>Tangible fixed assets</b>	<b>Fixed assets</b>
<b>+ Capitalised development costs</b>	
<b>+ Intangible assets</b>	
<hr/>	
<b>+ Net inventory</b>	<b>Current assets</b>
<b>+ Trade receivables</b>	
<hr/>	
<b>= Operating assets</b>	
<b>- Deduction capital</b>	
<b>of which: Non-interest-bearing trade payables</b>	
<b>Non-interest-bearing advance payments received</b>	
<hr/>	
<b>= Invested capital</b>	

Figure 8



## 2.4. Components of the Economic Value Added (EVA®)

In order to apply the EVA® as a strategic and operating financial tool based on the calculation of the required rate of return the following items have to be specified in detail:

- ⊕ Operating profit
- ⊕ Impact of taxes
- ⊕ Invested capital.

### 2.4.1. Operating profit

With its implementation of the International Financial Reporting Standards (IFRS), the Volkswagen Group has come into line with the accounting practices of major international corporations. This provides greater comparability of the Group's asset, financial and earnings position, thereby meeting the needs of a broad spectrum of interested parties as a basis for commercial decision-making. Accounting in line with IFRS is oriented closely to the in-period statement of results, in particular with regard to development costs, which are capitalised and written off on a pro rata basis comparable to capital investments. IFRS data can therefore be used directly for value-based financial control. The normalisation required under German commercial law (HGB) is no longer necessary.

### 2.4.2. Taxes

Operating profit is first of all profit before tax. However, investors and companies are, in the end, interested in profit after tax. To simplify matters for this exposition, an average **TAX RATE OF 30%** is assumed for the Automotive Division and its business units, which is made up from the various tax rates applying to Volkswagen AG and its international subsidiaries. Tax losses are not carried forward.

### 2.4.3. Invested capital

The invested capital (Figure 8) is the result of

- ⊕ the assets on the balance sheet that serve the Group's specific operating purposes (operating assets);
- ⊕ and the reduction of both these items by non-interest-bearing capital (deduction capital).

This figure for **INVESTED CAPITAL** corresponds to the **CAPITAL EMPLOYED** requiring a return.

## 2. Value-based management

Cost of capital as the product of invested capital and capital cost rate

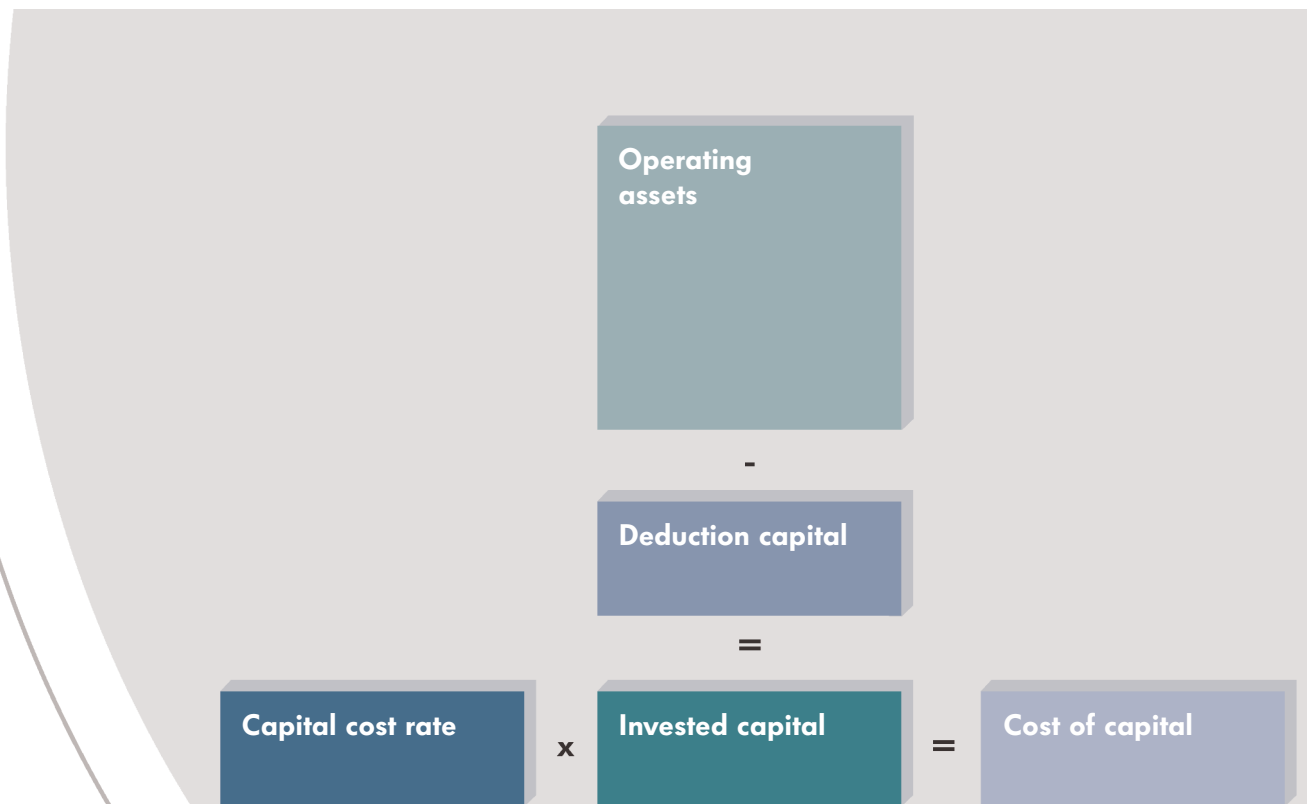


Figure 9



## 2.4. Components of the Economic Value Added (EVA®)

Due to the alignment of the value-based management concept – and thus of the Return on Investment and EVA® –with the operating business, only the fixed assets (tangible fixed assets, capitalised development costs, intangible assets) and current assets (net inventory, trade receivables) serving the actual business operating purpose are included. The operating assets include the net amount of the capitalised development costs (additions - write-downs). The returns on assets that are related to associated company commitments and investment of liquid funds are shown and measured separately as income from associated companies or net interest.

Trade payables and advance payments received are operating liabilities arising out of normal business activity. They represent

a non-interest-bearing credit to the company and must therefore be deducted from the operating assets.

Provisions must be treated as interest-bearing debt. The discount rate, i.e. the component cost of debt relevant for this item, is below the calculated rate for long-term debt. However, for reasons of simplification such differentiation is neglected in determining the cost of debt. The expense arising from the annual accrual of long-term provisions is not included in the operating result, but in line with IFRS forms part of the "Other financial result".

### 2.4.4. Cost of Capital

The cost of capital is the result of the capital cost rate as required by the financial market multiplied by the invested capital (Figure 9).

## 2. Value-based management

The operating profit must at least cover the cost of capital

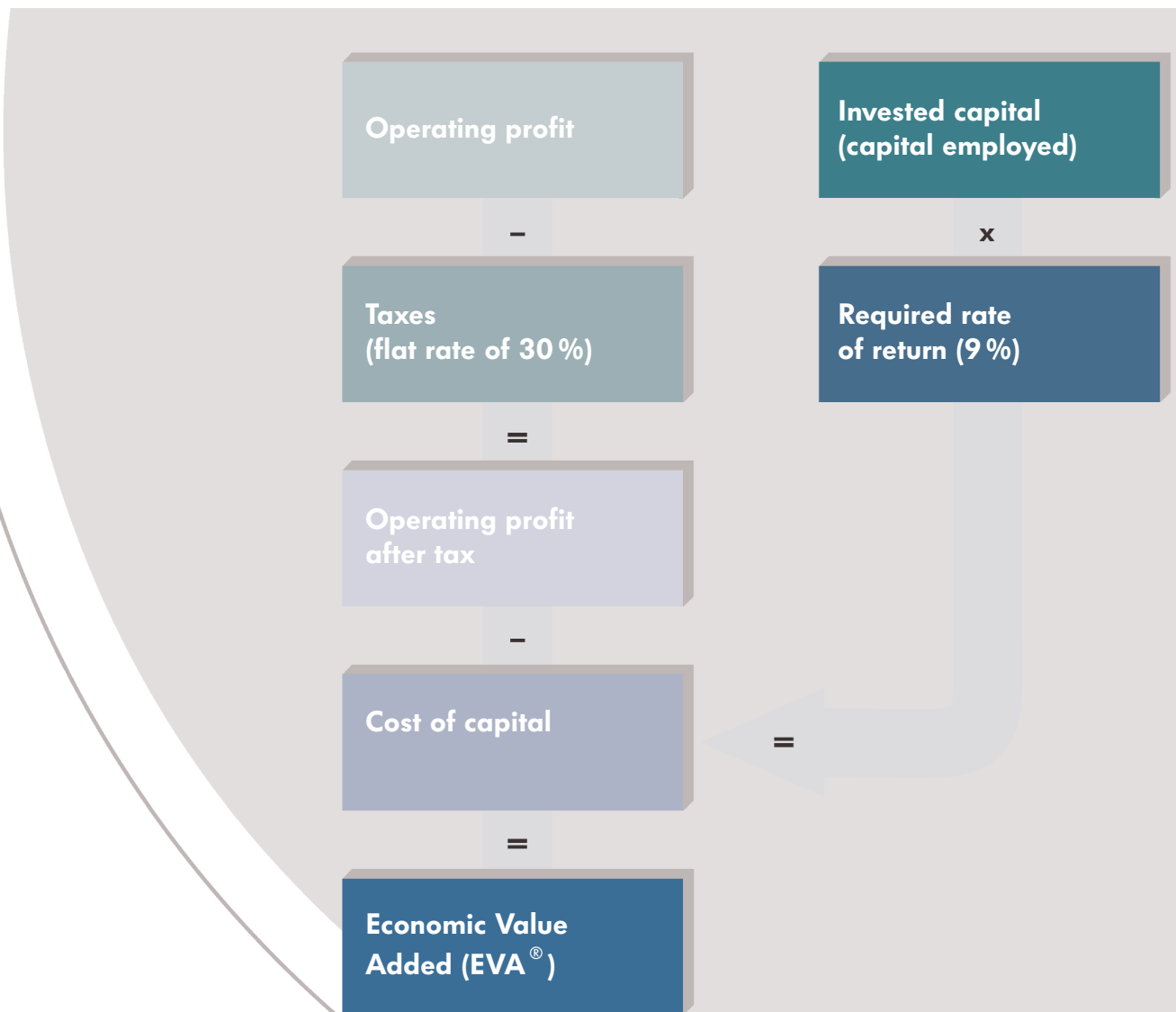


Figure 9



## 2.5. Economic Value Added (EVA®): Operating profit after tax and cost of capital

The calculation of the EVA® starts with the revenues of a period from which then all expenses are deducted that can economically be attributed to that period. This forms the key financial target measure for the continuation and successful development of the Group. The EVA® is calculated by deducting taxes (at a flat rate), and the cost of capital from the operating profit (Figure 10).

**Calculation:**

**Operating profit**

– Taxes (flat rate)

– Cost of capital \*

---

**= EVA®**

\* Capital cost rate x capital employed

The EVA® can also be calculated as the difference between the return on investment and the cost of capital, i.e. the spread multiplied by the invested capital:

$EVA^{\circledR} = (\text{Return on investment}^* - \text{Capital cost rate}) \times \text{Invested capital}$ :

\* Operating profit margin after taxes x Asset turnover

### Planned or realised

$$\text{Return on Investment (RoI)} = \frac{\text{Operating profit after tax}}{\text{Invested capital}}$$

Capital cost rate = Required rate of return as determined by the capital market



## 2. Value-based management

The net present value of the discounted EVA<sup>®</sup> represents the increase in the value of a company or project in a multi-year cycle

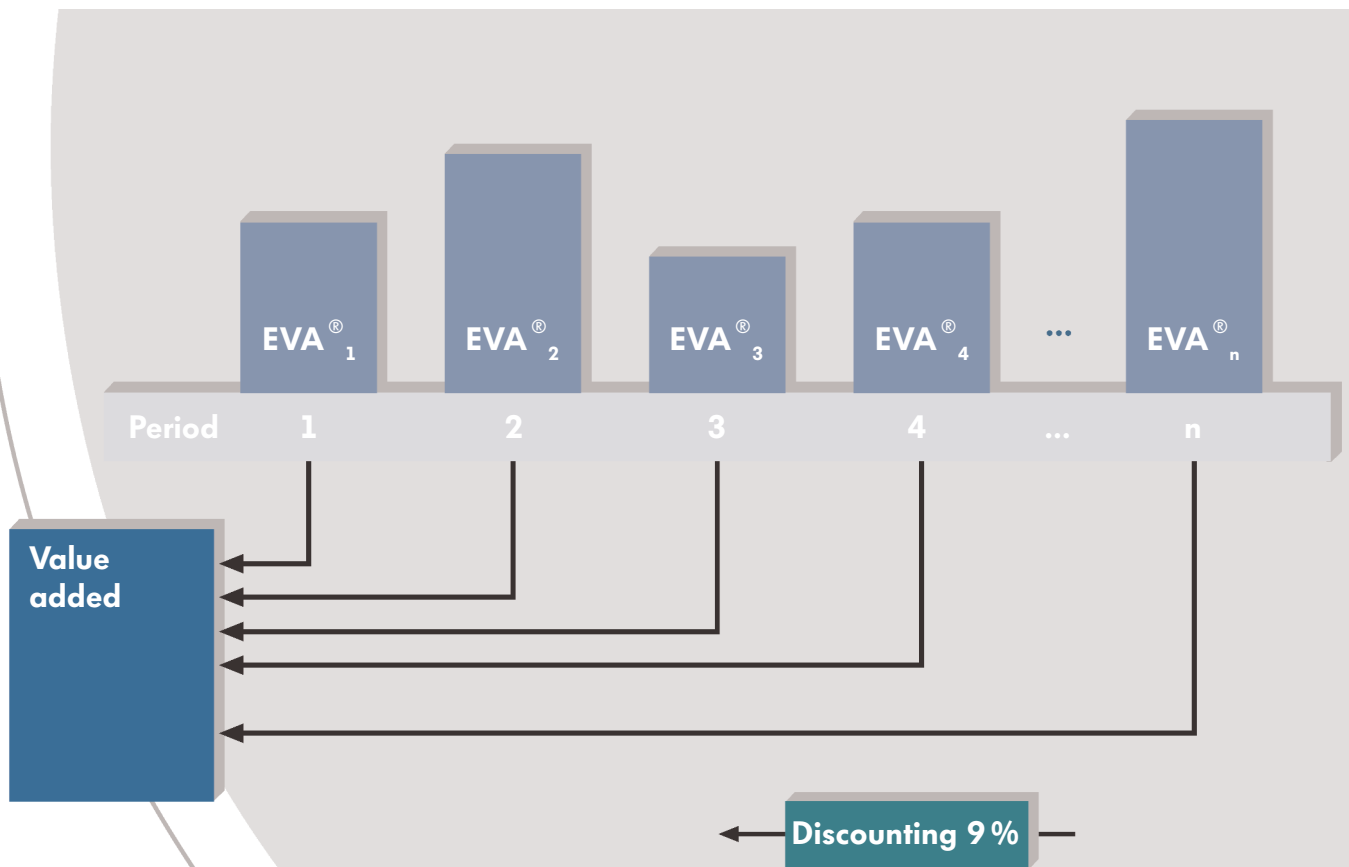


Figure 11



## 2.5. Economic Value Added (EVA®): Operating profit after tax and cost of capital

Returns on Investment (RoI) that are higher than the cost of capital - the required rate of return as determined by the capital market - represent increases in value. EVA® and **PROFIT RATIOS** can be calculated in the period accounting statements for the Automotive Division and the business units as well as for product lines and products.

The sum of the discounted future periodic EVA® is equivalent to the expected value creation of the invested capital (Figure 11).

The **VALUE ADDED** is equivalent to the net present value that is calculated according to the **DISCOUNTED CASH FLOW METHOD** on the basis of cash inflows and cash outflows, discounted at the required rate of return or weighted average cost of capital. This discounted cash flow method is applied primarily for product and capital budgeting decisions.

A positive net present value indicates an increase in value, a value contribution. It is the result of a higher return on investment than the required rate of return as expressed in the discounting rate. If the discount rate is increased step by step above the required rate of return to the point where the net present value becomes zero, we obtain a specific discount rate that is called the internal rate of return - an additional and easily understood information tool.

### 3. Importance of the required rate of return for operating and strategic control

#### Application of the required rate of return within the Group

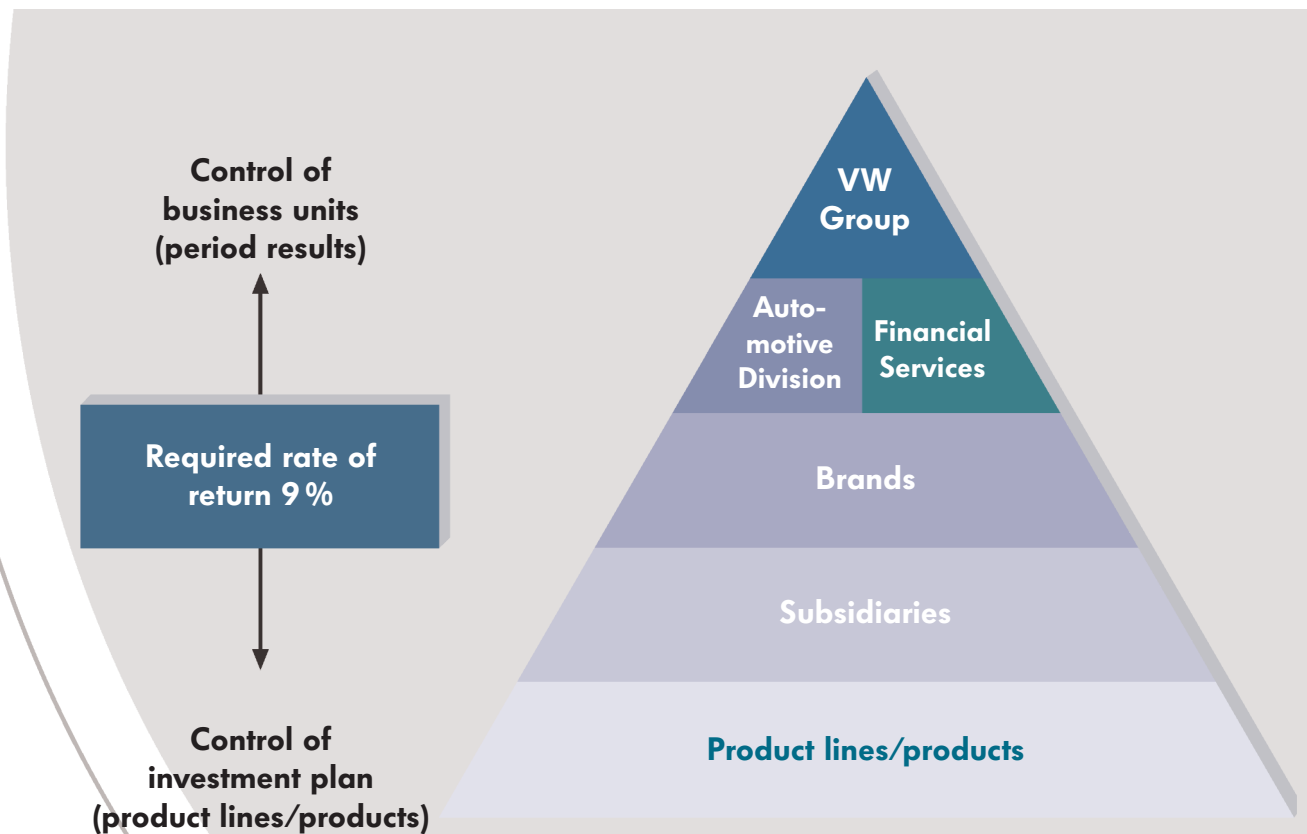


Figure 12



The required rate of return on capital employed defined for the Group applies, on the one hand, to business units and on the other hand, to individual Group products/product lines (Figure 12). Thus, the operating and strategic control of the Group is integrated by the expected and realised return on investment. This provides the opportunity to combine the control of business units and the control of investment projects with particular emphasis on product projects - with a consistent performance measure.

### 3. Importance of the required rate of return for operating and strategic control

#### Financial analysis

Key Figures	June		January to June			July	Aug.	Sept.	Full year		
	actual	b/ (w) budget	actual	b/ (w) budget	b/ (w) prior year	Estimate			Fore- cast	b/ (w) budget	b/ (w) prior year
Vehicle sales (000 units)											
Production											
Employees (000)											
<b>Sales Revenue</b> (€ million)											
Contribution margin											
- as % of sales revenue											
Fixed costs											
- as % of sales revenue											
Capitalisation/depreciation of development costs											
Other costs/adjustments											
Provision for risks											
<b>Operating profit</b>											
- as % of sales revenue											
Income from participations											
Interest Result											
Other Financial Result											
Profit before tax											
- as % of sales revenue											
Profit after tax											
Gross cash flow											
Change in working capital											
Cash flows from operating activities											
Cash flows from investing activities											
Nat cash flow											
Self-financing											
Gross liquidity											
Total Third-party borrowings											
Net liquidity											
Invested capital											
Operating profit after tax											
Cost of capital (at 9%)											
Economic Value Added (EVA®)											
Return on Investment (RoI) (%)											

Figure 13



### 3.1. Financial control for business units

The Group's control focuses on the core business of the business units of the Automotive Division. Consequently the Return on Investment and the EVA<sup>®</sup> as target variables and the target achievements are component elements of financial planning and analysis (Figure 13).

The starting point is the operating profit after (flat rate) tax, which must cover the cost of capital of the capital employed and should contribute to the increase in value of the Group as a whole. If the latter is the case, then the Return on Investment (RoI) is greater than the capital market-based required rate of return - the weighted average cost of capital.

### 3. Importance of the required rate of return for operating and strategic control

The profits from product lines as a whole determine the value of the group

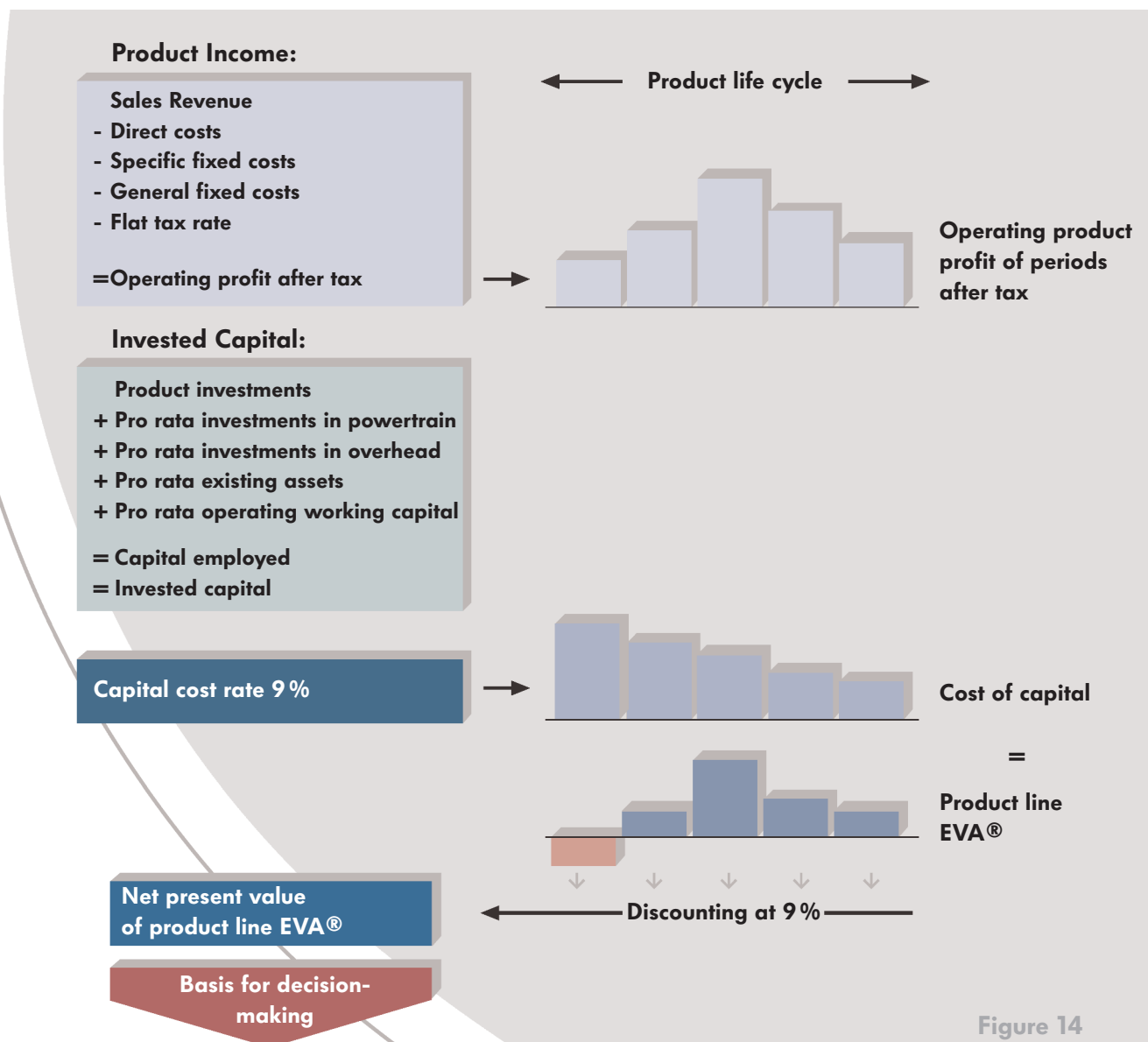


Figure 14



### 3.2. Product Income

The Group's required rate of return also applies without restriction to the invested capital in individual product lines.

The particular value of the expected rate of return lies in this identity of defined goals and objectives for company and product returns. In the case of **RETURN ON INVESTMENT** of individual product lines the whole life cycle of these product lines must be considered. The results of individual periods have only limited value for decisions on products.

The object of product line accounting is, on the one hand, accounting for the product up to the operating profit after tax, and on the other hand, it is accounting for the invested capital in the product line. In this case - as in the case of allocating fixed costs - there exists the particular problem of allocating the appropriate costs to a product. The allocation to any product must include both, the assets that are directly deployed (for example, special operating resources), and the proportion of other capital (for example from powertrain and

general operating assets including the working capital tied up in the products). The objective is to allocate the assets to product lines according to their utilisation. To avoid unjustifiable expenditure on data gathering, simplifications and key codes for the allocation to all products of a business sector are used.

First of all product profit and investment accounting obtain their data from the period result. The EVA<sup>®</sup> of the products/product lines results from the difference between the product profit and the cost of capital in the individual years of the product life cycles.

As individual years provide only limited information with respect to the return on a product project, its EVA<sup>®</sup> has to be discounted over its entire life cycle. The sum of these present values indicates whether a **VALUE ADDED** will be achieved over the entire life cycle. This product EVA<sup>®</sup> forms the financial basis for decision-making (Figure 14).



### 3. Importance of the required rate of return for operating and strategic control

#### Simplified calculation of the Return on Investment

$$\begin{aligned} \emptyset \text{ Return on investment for model life cycle} &= \\ \frac{\sum \text{ Operating profits after tax for model lifecycle}}{\sum \text{ Net Book Value over model life cycle}} \\ &= \frac{\sum (\text{Fixed assets} + \text{new expenses})}{} \end{aligned}$$

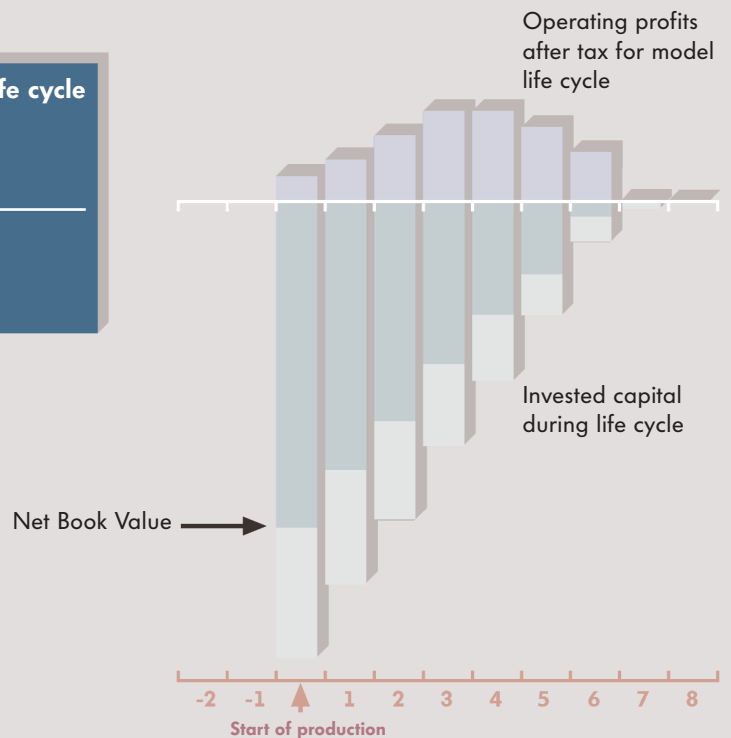


Figure 15



### 3.2. Product Income

Product decisions of lesser importance (individual features, new product actions) are made in product line profit calculations in the form of a **MARGINAL CALCULATION**. In this case only the **ADDITIONAL** revenues/expenses are compared with the **ADDITIONAL** invested capital in the context of a decision-oriented analysis. Thereby the allocation of existing fixed costs and of existing assets is avoided.

As a simplification, the RoI can also be determined in **THE FORM OF AN AVERAGE RETURN ON INVESTMENT** during the model life cycle (Figure 15). For this it is necessary to allocate expenses – including one-time expenses for planned new product actions and facelift programmes – according to IFRS periodic accounting over individual years of the whole model life cycle, whereas in product accounting the emphasis is on the model lifecycle.

This method has the advantage that the necessary **PRODUCT COST CALCULATION IS MADE** for a "normal" year based on the average periodical assessment of the one-time expenses. All in all, this leads to a unified control system that integrates company results, product line results and product cost calculations as well as product operating profit.

### 3. Importance of the required rate of return for operating and strategic control

#### Application of the required rate of return for investment decisions \*

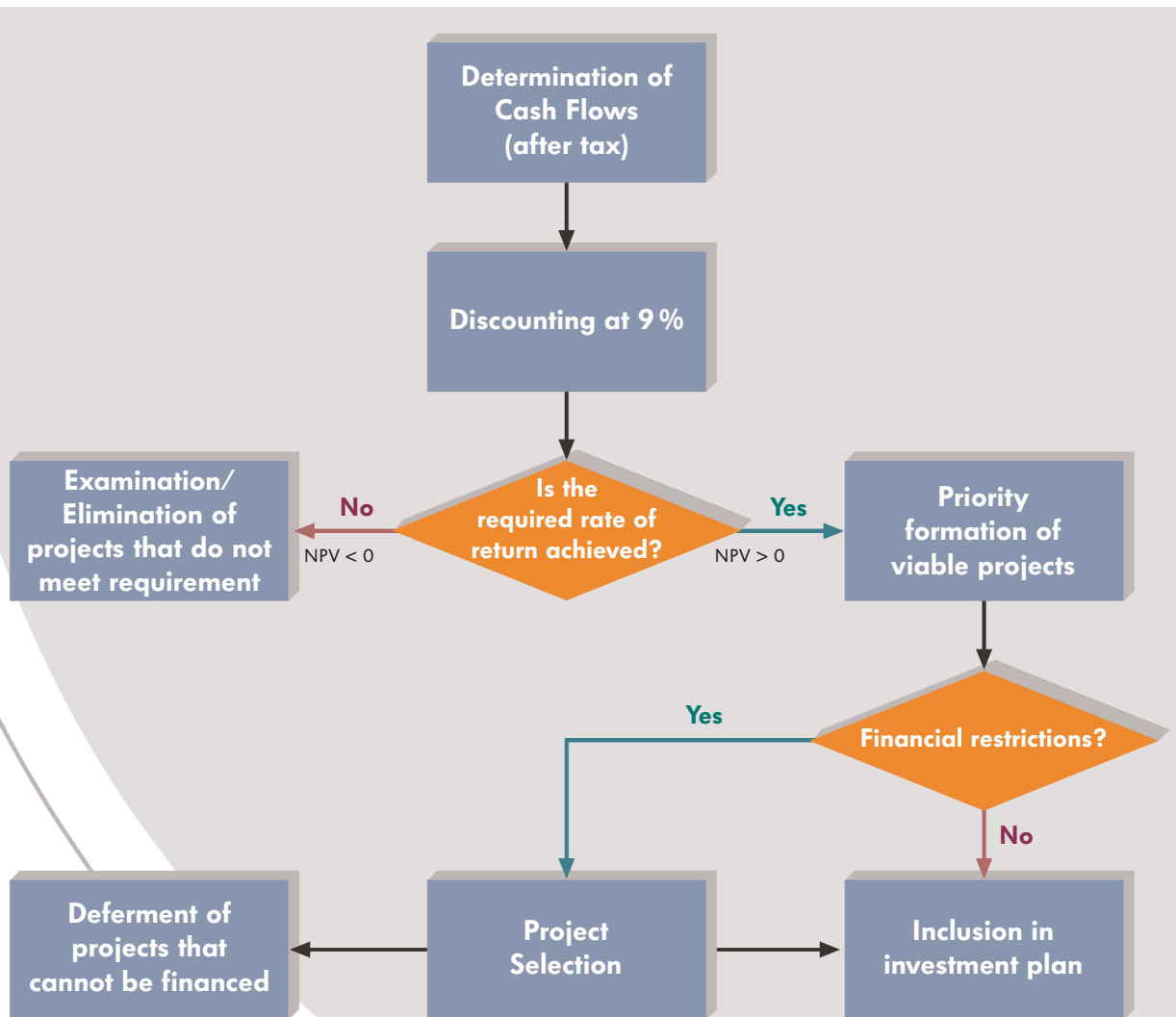


Figure 16

\* Action valid for investments with assignable cash flow. Remaining investments must be examined separately.



### 3.3. Capital Budgeting

Valuation of products/product lines and other investments (investments in infrastructures) are also made on the basis of dynamic investment statements - or the **DISCOUNTED CASH FLOW METHOD** (DCF Method). In this approach the expected cash flows are discounted at the required capital cost rate. The result is the net present value of future cash inflows and cash outflows. Interest payments are not included in the cash outflows in order to avoid double counting.

If the net present value is

**> 0**, the rate of return of the investment project exceeds the required rate of return and leads to an increase in value,

**= 0**, merely the cost of capital is generated,

**< 0**, the investment project does not generate the cost of capital for the capital employed. An acceptance of the project would lead to the destruction of value.

The entrepreneurial process of investment planning then comes into action:

- ⌚ Renewed examination of those investment projects that do not fulfil the requirements.
- ⌚ Establishing priorities when financing restrictions exist.

In this context too the application of a uniform figure for the cost of capital ensures the consistency of the control system (Figure 16).

## 4. Key financial control variables of the Volkswagen Group - Summary

### Key financial control variables of the Volkswagen Group

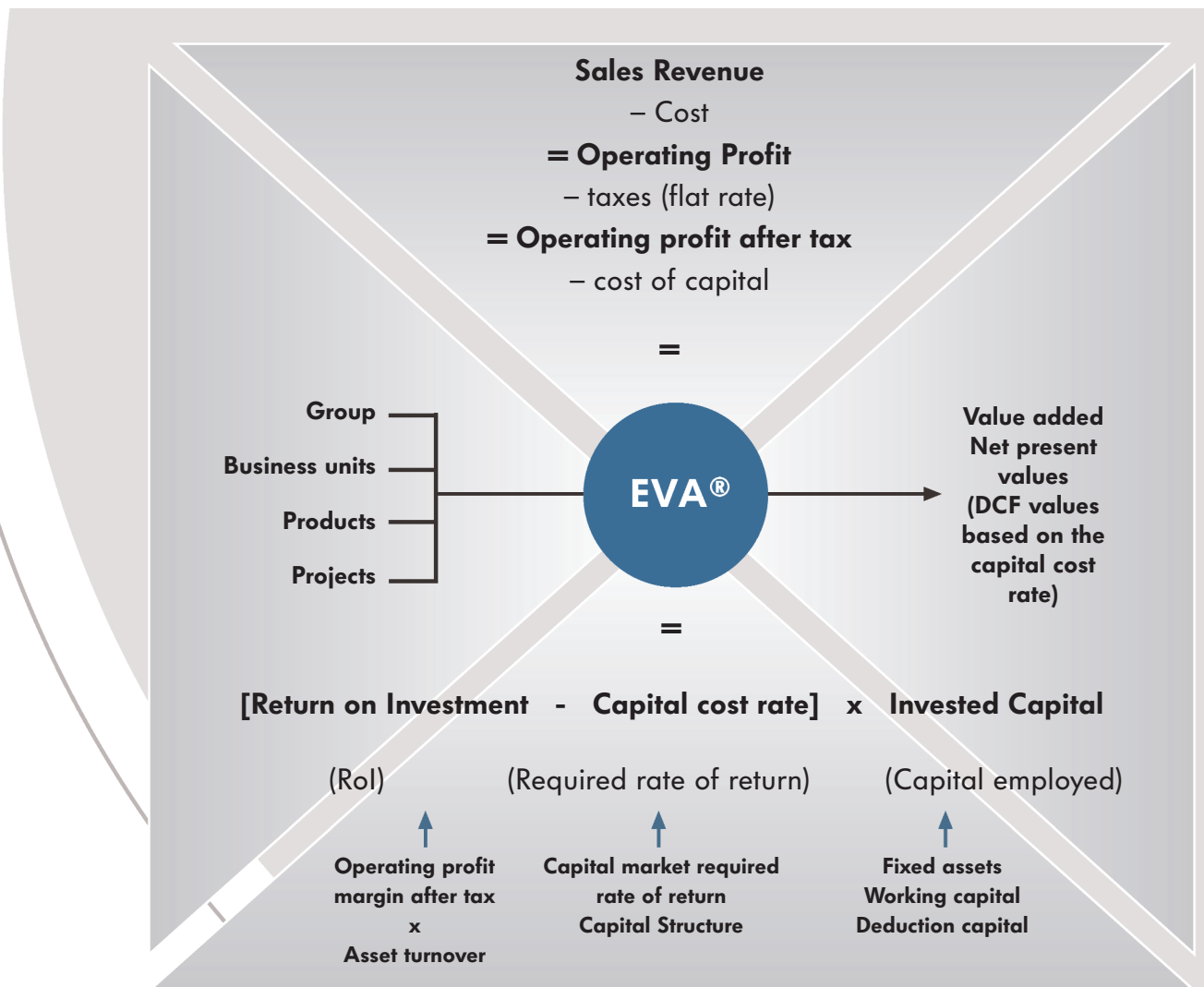


Figure 17



The EVA<sup>®</sup> is the key financial measure of the financial control system. It is determined by starting with **SALES REVENUE** and **OPERATING PROFIT**. These variables and the derived **OPERATING PROFIT MARGIN** are traditional control parameters and are externally comparable. Conversely, the EVA<sup>®</sup> control variable is the **OPERATING PROFIT AFTER TAX AND COST OF CAPITAL**. This variable, however, can only be determined and compared specific to a company.

The capital market determined **CAPITAL COST RATE** is the **KEY FINANCIAL MEASURE** that links **ALL VALUE-BASED STATEMENTS** that are calculated within the **GROUP**:

- ⊕ The capital cost rate is multiplied by the invested capital to calculate the cost of capital.
- ⊕ The capital cost rate is applied as the **DISCOUNTING RATE IN DISCOUNTED CASH FLOW STATEMENTS**.
- ⊕ The capital cost rate serves as a benchmark for comparing **RETURNS ON INVESTMENT (RoI)** that are planned or realised.

The result is a consistent control system in which **SINGLE-PERIOD** assessments of success are possible for the Group and for its business units. Furthermore it allows for **MULTI-PERIOD** assessments of success for products/ product lines and projects. Moreover, the derivation of product cost calculations including the cost of capital are possible as well.

The **FINANCIAL CONTROL SYSTEM** therefore links both, on the one hand **ABSOLUTE** parameters of success such as EVA<sup>®</sup> and net present values, and on the other hand, **RELATIVE** parameters of success such as returns on investment and operating profit margins. It is designed in a standard way for **BUDGET AND ACTUAL RESULTS** (planning/ actual results). It is therefore also suitable for the determination and analysis of variances.

Together with specific contribution margins and/or profit contributions, the financial control system includes all necessary monetary variables necessary for **STRATEGIC** and **OPERATIONAL DECISIONS**.

## Glossary

### Asset deployment statement

= Allocation of invested assets (assets directly assigned and assets allocated by key codes) to a product or a product line in relation to their deployment.

### Asset Turnover

= The ratio of sales revenue to invested capital. It indicates the level of sales revenue achieved with one unit of capital.

### Beta factor

= It measures the relative volatility or risk of a stock. It expresses the systematic risk of a stock or the fluctuation of the company's stock return relative to the stock market return as measured by an index, e.g. the DAX.

### Capital Asset Pricing Model

= Model for pricing individual securities or assets. The risk of an individual stock is included in the form of an additional risk premium that is the product of the market risk premium times the firm's Beta.

On that basis, the Cost of equity is determined as follows:

$$E(r_{EK}) = r_f + \beta_{VW} \times [E(r_{DAX}) - r_f]$$

where

$E(r_{EK})$  = Return on investment expected by investors

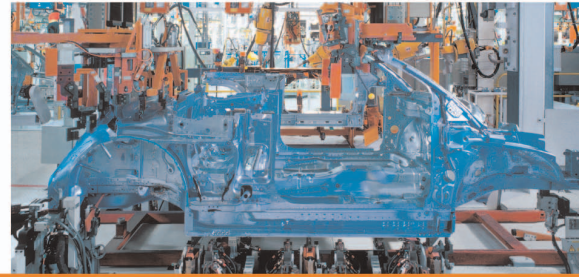
$E(r_{DAX})$  = Return on investment expected by the stock market as a whole

$r_f$  = Interest rate on zero-risk investments

$\beta_{VW}$  = Beta factor of Volkswagen share

### Capital cost rate

= The required rate of return on the capital employed that is expected by the company's investors. It is determined as a long term expected weighted average cost of capital (WACC), where the component costs of capital are the shareholders' return in form of dividends and stock price increase and the interest payments to debt holders. The weights are the market value of each component - shareholders' equity and debt - relative to the company's market value. The capital cost rate multiplied by the capital employed results in the cost of capital that has to be generated.



## Glossary

### **Cost of debt**

= The interest payments to debt holders on their financial holdings, reduced by the corporate tax advantage of debt, because of the tax deductibility of interest payments.

### **Cost of equity**

= Capital market determined required rate of return based on the market value of the equity. The return to shareholders is generated in the form of share price increases and dividends.

### **Deduction capital**

= Trade payables and advance payments received that are available to the company on a non-interest-bearing basis. These items are deducted from the capital employed.

### **Discounted Cash Flow Method**

= Method to calculate the net present value of future cash inflows and cash outflows (excluding interest payments) at the appropriate discount rate, i.e. the after-tax cost of capital.

### **Economic Value Added (EVA<sup>®</sup>)**

= Difference between the operating profit after tax and the cost of capital, i.e. the capital cost rate times the capital employed, also termed "value contribution". Positive EVA<sup>®</sup> is generated when the Return on Investment (RoI) exceeds the cost of capital. EVA<sup>®</sup> is a registered trademark of Stern Stewart & Co.

### **Internal Rate of Return (IRR)**

= Discount rate at which the present value of all the cash flows of a capital project is equal to the initial investment outlay.

### **Invested capital**

= Total assets of the balance sheet that serve the company's operating purposes. The capitalised expenses are added and the non-interest-bearing liabilities are deducted. The invested capital must at least generate the minimum return on investment or the capital cost rate. For the term Invested Capital other frequently used terms are necessary Operating Assets, Net Assets or Capital Invested. However, some distinctions between these terms are made when appropriate.



## Glossary

**Market value of shareholders' equity**

= Value at which all the company's shares are traded in the stock market at a specified point in time. It is the result of the number of shares outstanding and the current stock price.

**Net present value**

= Present value of cash flows discounted with the capital cost rate less the initial investment outlay at the beginning of the investment period.

**Operating profit**

= Describes the core business of the company, indicating the economic output of core business.

**Operating profit margin**

= The quotient of operating profit and sales revenue. It indicates the level of profit generated by each unit of sale.

**Present Value**

= Discounted value of a future cash flow at a specific reference date.

**Product profit statement**

= Determination of the operating profit for a product or product line.

**Return on investment**

= Operating profit after tax as a percentage of invested capital. It indicates the rate of return earned on the invested capital in a period (RoI).

**Required rate of return**

= Minimum rate of return on invested capital (RoI) or capital employed. It is equivalent to the capital-market-based cost of capital.

**Risk premium**

= Additional rate of return required by investors on their equity investment due to the higher risk of investing in stocks compared to an investment in risk-free securities.

**Value Added**

= Value added in one period. It is the present value of all discounted EVA<sup>®</sup> in future periods.



## *Notes*