Research approach of The Value Group

Date: 21.03.2016

The company

The Value Group is an independent company, specialising in asset advisory in the area of extra-financial research and the development of financial products. It is characterised by a unique approach to company valuation in the area of extra-financials. The research data is examined in relation to its effect on performance, and thus supports investors and analysts in the valuation and selection of companies for the purposes of investment decisions. The development of valuation standards for extra-financials and the examination of their relevance to the capital market are advanced in close reference to theory.

The Value Group is, among other things, project leader of a research project of the German Federal Ministry of Education and Research (BMBF), supported practically and in terms of content by a joint research group made up of departments from the areas of finance, financial services, accounting and controlling from various German tertiary education facilities. The focus of this research is also the examination of the relevance of intangible assets to the capital market.

Until now there have been only a few academic studies in Germany which have examined the relationship between extra-financials and company value. Many studies in the area of extra-financials have been conducted for US companies and the results are based on time series in US listed companies. The Value Group concentrates on the identification and recording of extra-financials for German and European companies and examines to what extent research results from the US can be transferred to Europe. The knowledge gained and correlations identified are integrated on an ongoing basis into the valuation approach

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and company ranking system of The Value Group. Conversely, The Value Group also provides data to European companies relating to extra-financial indicators, which serves as a basis for further theoretical, but also practical, analysis.

Method: Quantification and comparability ensure the objectivity of results

The analysis and valuation of extra-financials is subject to particular requirements. It is incomparably more difficult than the analysis of financials, as there are no market prices available for extra-financials, standardised valuation methods are largely lacking and some extra-financials only disclose their impact in combination with other factors.

A highly **quantitative** and objectively **comprehensible** procedure characterises the research of The Value Group and the valuation of extra-financial information conducted therein. The background and motivation of all analysis is the identification of individual indicators and combinations of indicators in the area of extra-financials, which have been proven to have a relationship with both share performance and company success in the sense of fundamental growth.

With an individual database and on the basis of a total of approximately 120 criteria, the substantial extra-financial characteristics of companies in the areas of corporate governance, human capital, innovation capital and image & brand, as well as in the areas of stakeholders and corporate risk, are recorded and summarised in standardised valuation tables. These are intensively examined in terms of statistics, and consolidated and expanded on an ongoing basis.

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Source: The Value Group

The focus of the data collection lies in the consideration of criteria oriented towards the capital market. Thus, for example, the criteria applied to the valuation of companies in the area of corporate governance are considerably stricter and more oriented towards the capital market than simply the fulfilment of the German Corporate Governance Code.

Information is taken from audited data sources

The information is sourced primarily from company publications. The following publications are drawn upon as a data basis for the company analysis: Company reports, sustainability reports, corporate responsibility reports, corporate governance reports, compliance statements, form 20-Fs, internet reports and statements and SEC filings.

Further information sources are company positions in so-called lead tables and rankings, databases (e.g. patent databases) as well as external data providers. All data is publicly available, and can thus be reproduced and examined at any time.

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In some particular cases, The Value Group also approaches the company directly – as a rule, the Investor Relations department. Such an enquiry will be necessary if statements or reference values in relation to company data are missing. Interviews are not conducted and internal information only accessible to some individuals is not considered, in order to guarantee the highest possible degree of comparability and objectivity of the data.

Industry-specific valuation and consideration of growth over time

For each company analysed, a ranking according to individual indicators, as well as an overall ranking on the basis of all indicators, is available. Each company is compared to the industry average and the average of all analysed companies. Thus, important company characteristics and strength and weakness profiles can be displayed with individual extra-financial indicators and in the overall ranking.

It is not only company figures at the time of valuation which are incorporated in the analysis. The development of extra-financials in the preceding financial years, and the growth momentum in comparison to competitors, are also considered. In this process growth can be arranged on a time axis, thus enabling more precise judgments of relative competitive strength.

The research results of The Value Group are compressed into company rankings and detailed company and industry reports. Through the systematic and quantitative collection and evaluation of data, the extra-financial valuation results can be ideally combined with the results of traditional financial analysis and methods of company analysis.

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Rating System of The Value Group (TVG) - Exemplary for the Indicator "Innovation Capital"

There are several steps to get from the raw data to the composite rating:

1st step: Collecting raw data

For the data collection, the TVG uses several kinds of …

… data sources (exemplary):

- Company publications (e.g. financial reports, corporate governance reports)
- External data providers (e.g. Thomson Financial Datastream)
- External databases (e.g. German and European patent database)
- Lead tables and rankings

… data types (exemplary):

- Metric data (e.g. financial data, ratios)
- Different scenarios
- Binary scenarios/ yes/no-scenarios

Raw data collection for the indicator "Innovation Capital" (exemplary):

- R&D-expenditures (from financial reports or external data providers)
- Patents (from the German and European patent office)
- Number of R&D-employees (from company publications)

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2nd step: Building ratios and growth measures out of the raw data

Indicator "Innovation Capital" (exemplary):

- R&D-intensity, e.g. $\frac{R\&D-expenditures}{sales}$
- Change in R&D-expenditures (1 year): $\frac{R\&D-expenditures_t}{R\&D-expenditures_{t-1}}-1$
- Change in patents (1 year): $\frac{Patents_t}{Patents_{t-1}}-1$

3rd step: Calculation of average values

In a next step, the TVG is calculating sector specific mean values for different ratios and growth measures:

Indicator "Innovation Capital" (exemplary):

- $\frac{R\&D-expenditures}{dividends}$ (sector specific)
- $\frac{R\&D-expenditures}{total\ costs}$ (sector specific)
- $\frac{R\&D-expenditures}{sales}$ (sector specific)

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4th step: Valuation of ratios, growth measures and scenarios

In the 4th step, the TVG is giving point values between 0 (insufficient) and 10 (excellent) for each criterion according to the particular characteristic. In most cases, the valuation process is sector specific. The point value distribution occurs according to scientific research and mathematical distributions which are reviewed and adjusted annually.

Indicator “Innovation Capital” (exemplary):

- R&D-intensity (sector specific):

$$x = \frac{\frac{R\&D - expenditures}{sales}}{sector\ specific\ mean\ value}$$

x < 0	→	0	points
0 < x <2	→	x * 5	points
x > 2	→	10	points

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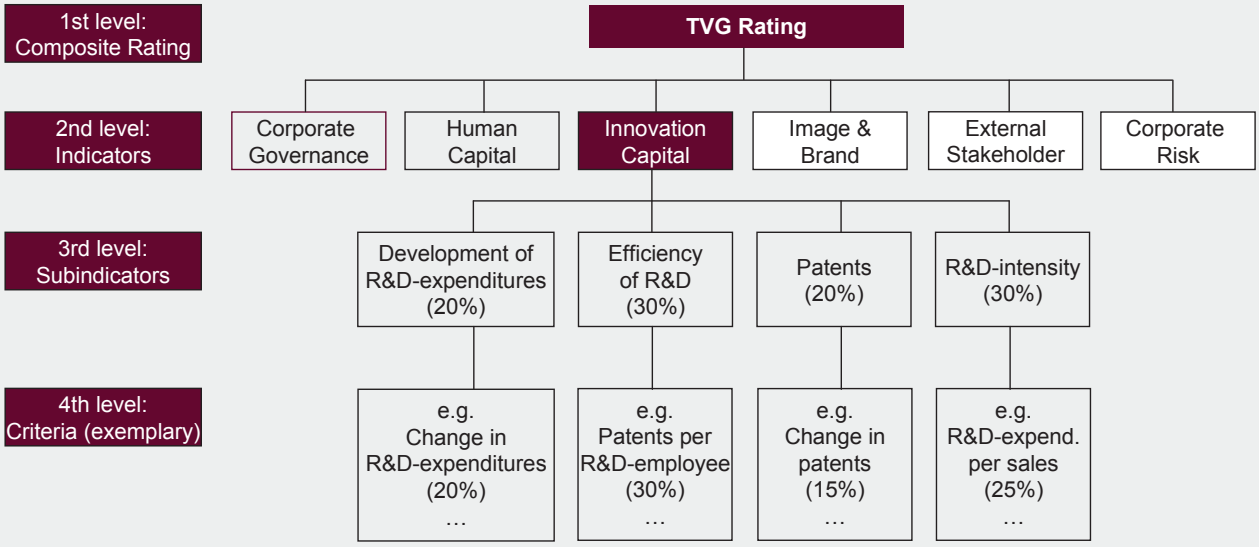
5th step: Weighting according to scientific research and empirical results

The last step to get the composite rating is the aggregation of approximately 120 single criteria to an overall company rating.

Originally, the TVG used over 200 criteria, but reduced them to 120 criteria that are the most performance relevant according to empirical performance tests und scientific literature.

The weighting of the remaining criteria also follows a scientific and empirically tested approach. The rating system all in all is divided into 4 levels: All criteria are aggregated over the subindicator and indicator level to the composite/ overall rating.

1st example: Indicator “Innovation Capital”:



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2nd example: Indicator “Corporate Governance”:

TVG Rating

I. Indicator

Corporate Governance	Human Capital	External Stakeholder	Image & Brands	Innovation Capital	Corporate Risk

II. Sub-Indicator — **Board Structure** - Score based on **mathematical Formula**

Weighting: 30%

III. Criterion — **Term of Office of the CEO**

Weighting: 20%

IV. Criterion-Definition

CEO was appointed this year	→	0 Points
Number of years as CEO (y)	→	y*1,5 Points
Number of years as CEO > 6	→	10 Points

II. Sub-Indicator — **Remuneration** - Score based on **Ratio**

Weighting: 30%

III. Criterion — **Trend of CEO remuneration to company‘s Net Income**

Weighting: 18%

IV. Criterion-Definition

$$\left(\frac{\text{Net Income}_t}{\text{Net Income}_{t-1}} - 1\right) - \left(\frac{\text{Remuneration CEO (fix}_t + \text{variable}_t)}{\text{Remuneration CEO (fix}_{t-1} + \text{variable}_{t-1})} - 1\right) = y$$

y < 2	→	0 Points
y < 0	→	5+(y*2) Points
y ≥ 0	→	10 Points

II. Sub-Indicator — **Shareholder Structure & Rights** - Score based on **Scenario**

Weighting: 20%

III. Criterion — **Shareholder Structure**

Weighting: 100%

IV. Criterion-Definition

• The entrepreneurial familiy is the largest shareholder and has representatives in the top management.	→	10 Points
• The entrepreneurial familiy is the largest shareholder.	→	9 Points
• The entrepreneurial familiy is one of several large shareholders.	→	8 Points
• Few but large shareholders with a significant stockholding by management.	→	7 Points
• Few but large shareholders.	→	6 Points
• Several small shareholders.	→	5 Points
• Free float with a significant stockholding by management	→	4 Points
• Free float.	→	3 Points
• The government is one of the shareholders.	→	2 Points
• The government is the largest shareholder.	→	1 Points
• The government is the largest shareholder and has privileges.	→	0 Points

II. Sub-Indicator — **Transparency** - Score based on **Yes or No Criteria**

Weighting: 20%

III. Criterion — **Regulations on the activity of the external auditors**

Weighting: 30%

IV. Criterion-Definition

The company has an internal regulation limiting non-audit services of the external audit firm.	→	10 Points
The company does not have an internal regulation limiting non-audit services of the external audit firm.	→	0 Points

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Database of The Value Group

Date: 21.03.2016

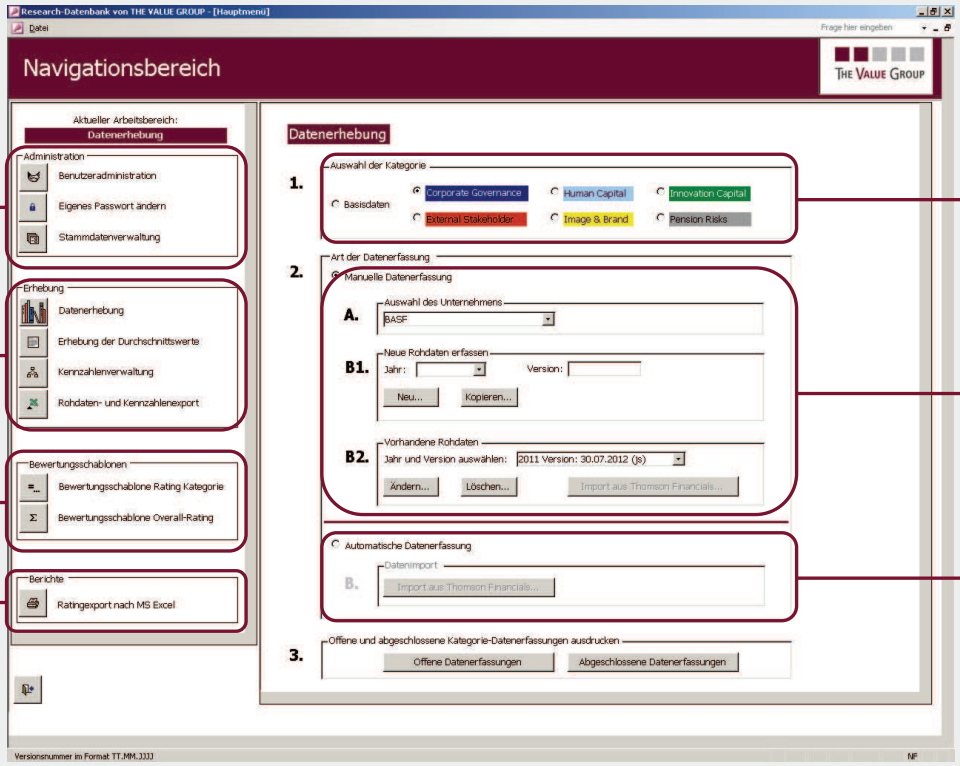
Navigation-Field:

Administration: User, Password, Master Data

Data Collection: Raw Data, Ratios

Valuation Templates: Overall, Indicators

Rating-Export to Excel



Choosing Indicator for Data Collection

Manual Data-Input: Choosing Company, Year, Version, Staff Identification Code

Automatic Data-Input from Datastream

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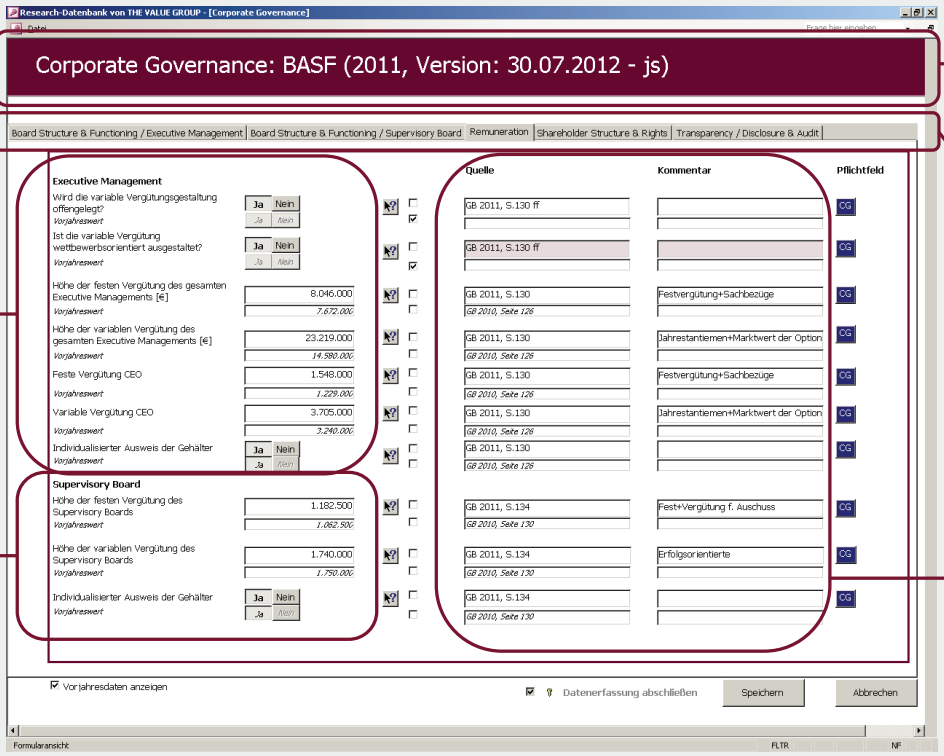
Data-Input-Field:

Indicator: **Corporate Governance**

Sub-indicator: **Remuneration**



Remuneration Executive Management

Remuneration Supervisory Board

Indicator, Company, Fiscal Year, Version, Staff Identification Code

Sub-indicators: Board Structure Executive Management, Board Structure Supervisory Board, Remuneration, Shareholder Structure, Transparency

Source and Comments

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Indicator: **Innovation Capital**

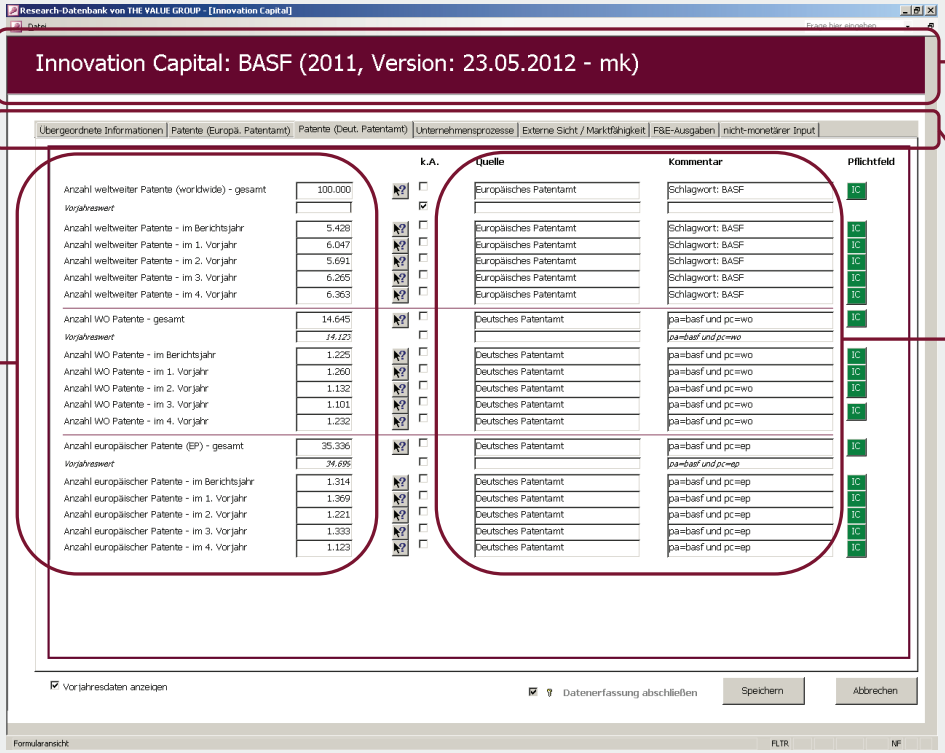
Sub-indicator: **Patents**

Indicator, Company, Fiscal Year, Version, Staff Identification Code

Sub-indicators: Patents, R&D-Expenditures, R&D-Staff, ...

Source and Comments

Patents: German and European Patent Database



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