



Cost of Capital Study 2020

Global economy – search for orientation?



This study is an empirical investigation with the aim of analyzing management practices. Information provided and explanations offered by the study do not offer a complete picture for deriving financial forecasts or costs of capital nor for proper actions or interpretation of the requirements for impairment tests, other accounting-related questions or business valuations for accounting, tax or other purposes.

When considering the following analyses, it should be noted that the company data presented here stems from companies from different countries, partially with different currencies and at varying points in time. Furthermore, it should be noted that not all participants of the study have answered all questions.

The data presented in this study does not necessarily reflect KPMG's view on future-oriented assessments or on the cost of capital in the survey period.

Preface

Dear readers,

It is our pleasure to present you with the results of the fifteenth edition of our Cost of Capital Study. With 309 participating companies, the number of participants remained relatively stable compared to the previous year (312). We would like to express our heartfelt gratitude to all those companies which took part in this study despite the special circumstances under the COVID-19 pandemic and the associated challenges. The large number of participants demonstrates once more that the study is a fixed component in your practical valuation work. We therefore hope that this year's study and the key topics contained therein will be of particular interest to you.

In the current issue, we examine the effects of an increasingly changing economic environment, including the impacts of the COVID-19 pandemic on business models, financial forecasts and long-term return expectations (cost of capital).

Consequently, we have chosen the motto "Global economy – search for orientation?!" for this year's Cost of Capital Study. Based on this theme, we focus on the following subjects:

- The world is changing
- Goodwill – steady in turbulent times?!
- Exceptional times – new valuation methods?

As a reference point, the collection of empirical data is based on the IFRS (International Financial Reporting Standards) impairment test, as this test itself and its related valuations are mandatory for all IFRS users.

Supplementary to the current study, we would like to direct you [to the interactive opportunities for analysis of the data](#). There you can compile the parameters relevant for your company and/or industry and use them to perform your own, tailor-made assessment.

Furthermore, with KPMG Valuation Data Source you have access to reliable parameters on the cost of capital for more than 150 countries – anywhere and anytime.

We hope that this year's Cost of Capital Study also meets your expectations and serves as interesting reading. We will gladly discuss the results with you within the framework of a personal appointment and are, of course, available for any questions and comments you may wish to offer.

With best regards,



Prof. Dr. Marc Castedello

Partner
Deal Advisory, Valuation
KPMG AG Wirtschafts-
prüfungsgesellschaft



Stefan Schöniger

Partner
Deal Advisory, Valuation
KPMG AG Wirtschafts-
prüfungsgesellschaft

Recent editions of the Cost of Capital Study by KPMG

'16



'17



'18



'19



'20



Highlighted subjects of the study

- New methods for value measurement?!
- Big Data and business analytics tools
- Risk transparency and risk management
- Value-based management systems 2.0

- Macroeconomic uncertainties – part of financial forecasts
- Microeconomic change – predictability of disruptive business models
- Cost of capital – the challenges of low interest rates, populism, and new technologies
- Cost of capital – comparative measures in a world that increasingly defies comparison
- New valuation methods in disruptive times?

- Innovative business models – opportunity and risk at the same time
- Disruptive business models – one person’s joy, another’s suffering
- Internationalization of business models – opportunity and risk at the same time
- The optimal company portfolio – necessity of quantifying strategies

- Changing markets and industries?!
- A changing landscape for the automotive industry
- Data driven omnichannel models
- Chemical industry and the challenge of climate change
- Finding the balance in industry 4.0

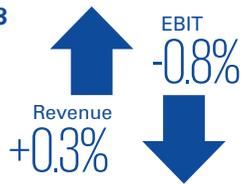
- The world is changing
- Goodwill – steady in turbulent times?!
- Exceptional times – new valuation methods?

Summary of Findings

> Growth expectations

In the industries under consideration, different expected growth rates were forecasted for EBIT and sales. COVID-19 effects are only reflected to a minor extent within the growth expectations. The highest EBIT growth is expected in the Media & Telecommunication and Health-care sectors and the lowest EBIT growth in the Real Estate sector.

Page 13

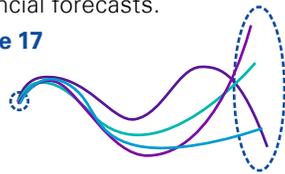


> Planning uncertainty

Planning uncertainty at the macroeconomic level continues to increase. The current uncertainty showcases the importance of considering an increased number of risks when performing financial forecasts.

On a microeconomic level, risks related to innovative technologies and digitalization are increasingly considered in financial forecasts.

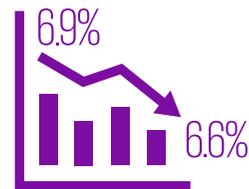
Page 17



> WACC

The average WACC across industries decreased from 6.9 percent in the previous year to 6.6 percent. The highest decrease compared to the previous year was observed in the Automotive sector, followed by the Chemicals & Pharmaceutical, and the Media & Telecommunication sectors.

Page 19



> Risk-free rate

After remaining nearly constant at 1.2 percent in the last year, the risk-free rate decreased significantly to 0.5 percent. In recent months the risk-free rate declined further to 0.0 percent in the Euro zone and to -0.3 percent in Switzerland.

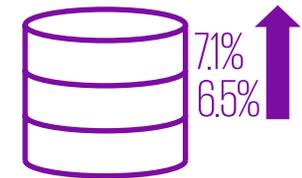
Page 21



> Market risk premium

The average market risk premium increased significantly compared to the last year due to the increased bandwidth recommended by the FAUB.

Page 22



> Beta factor

The highest unlevered beta factors were applied by the Technology and Automotive sectors; the lowest for this survey period was measured in the Real Estate as well as in the Energy & Natural Resources sectors.

Page 25



> Cost of debt

The average cost of debt continued its downward trend decreasing from 2.9 percent to 2.3 percent.

Page 29



> Impairment Test

In the last four years, the number of companies that recognized an impairment of goodwill or assets has significantly decreased.

Page 34

Only around 15 percent of the participating companies reported having an impairment on goodwill.

> Triggering event

An extraordinary impairment test (based on a so-called triggering event) was performed by only about a third of the participating companies.

The majority of causes of triggering events were poorer long-term expectations.

Page 37



> Sustainability

Especially, the relevance of environmental issues on future business developments is rated particularly high in most industries.

Page 42



1 Introduction



Study participants

With a total of 309 participating companies (previous year: 312) including 242 participants from Germany, 32 from Austria and 35 from Switzerland, this year's Cost of Capital Study again attracted a large number of participants.

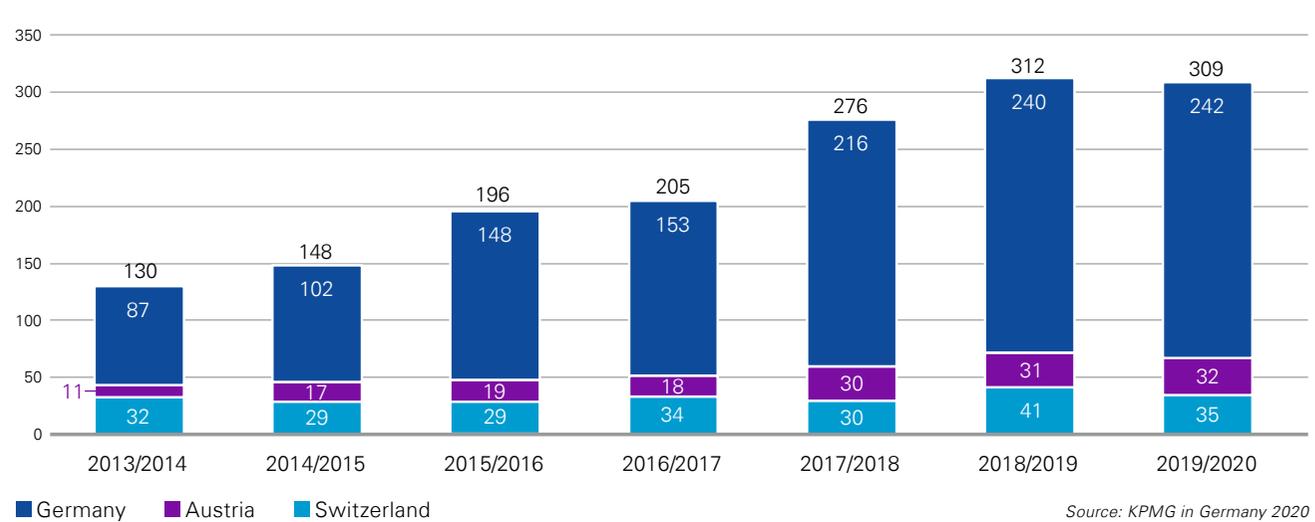
Compared to the previous year, the response rate of DAX-30 companies slightly declined to 23 companies (previous year 25), which resulted in a participation ratio of 77 percent. A similar development was observed for MDAX and FamDAX companies, where the participation ratio decreased from 68 and 50 percent in 2019 to 54 and 40 percent in 2020, respectively. Response rates of companies listed at the SDAX and TecDAX remained relatively constant compared to last year.

In addition, the participation ratio of companies listed in the ATX and SMI reached a total of 40 percent and 55 percent, respectively.

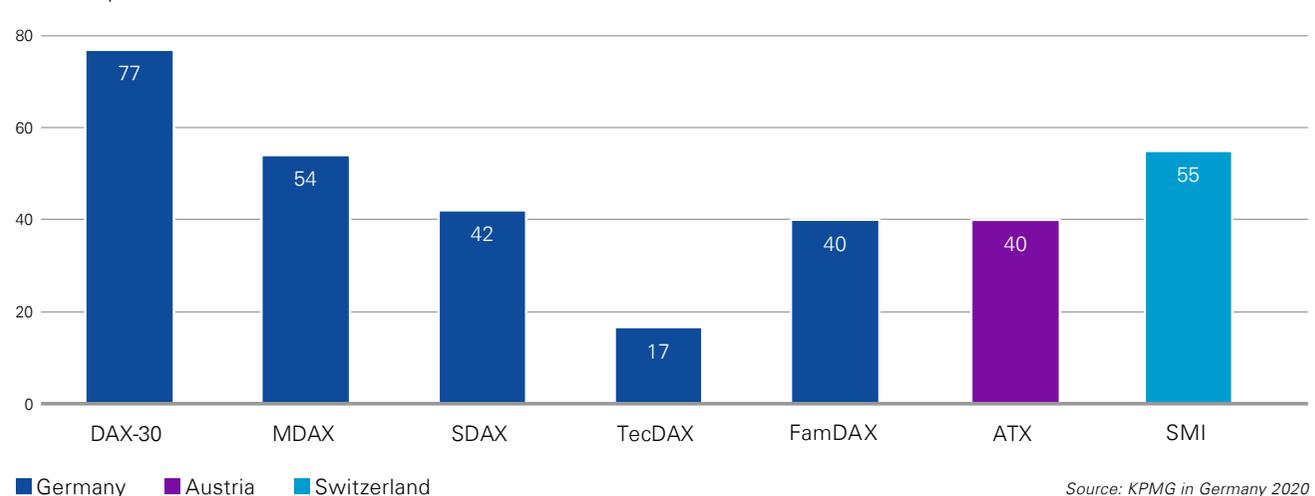
Survey period

The period during which companies could participate in the study occurred between March and July 2020. The reporting dates of consolidated financial statements considered for the study were between 30 April 2019 and 31 March 2020.

01 Study participations by region



02 Participation rates by index



Analyses

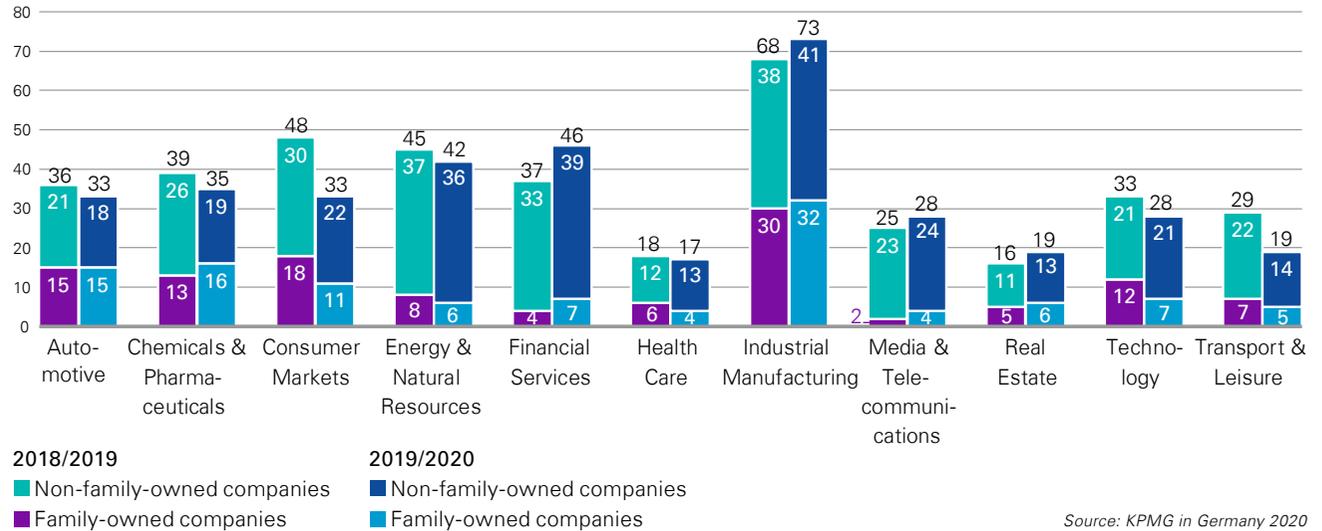
Based on the operating activities of the companies, participants were asked to assign themselves to selected industries. This makes it possible to distinguish between and compare industries for material parameters regarding financial forecasting and cost of capital.

The overall picture of participants of different industries is heterogenous compared to the previous year. In particular, the number of participants within the Consumer Markets and Transport & Leisure sectors decreased. This could be related to the fact that those industries were primarily affected by the economic shutdown due to the COVID-19 pandemic. The Financial Services sector at the same time shows a significant increase in participants.

The companies participating in the Cost of Capital Study are mostly medium to large companies with more than 500 employees, operating in more than 10 countries and with revenues over EUR 50 million.

03 Study participations by industry

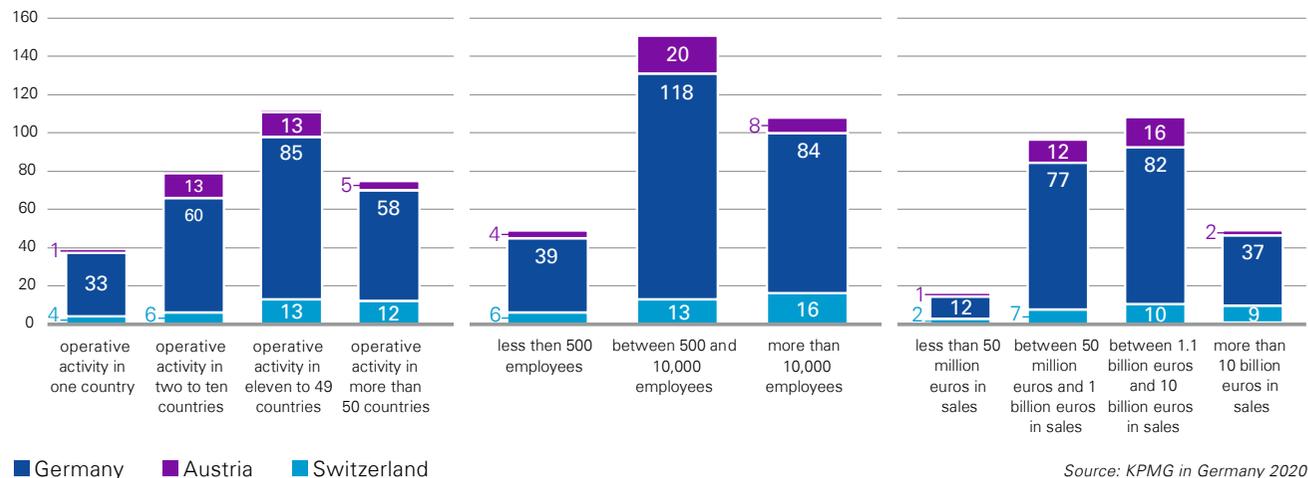
Total (multiple choices possible)



Source: KPMG in Germany 2020

04 Study participations by number of countries with operational activity, number of employees and revenues

Total



Source: KPMG in Germany 2020

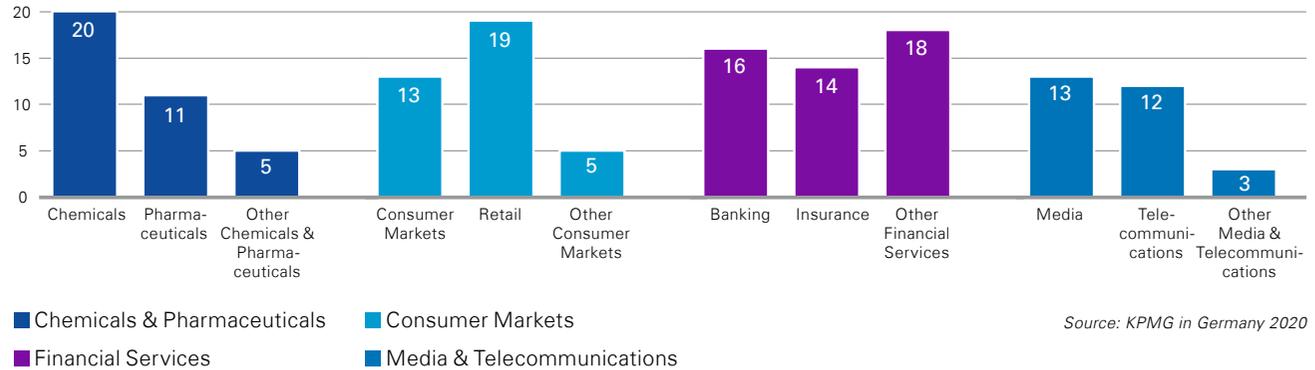
Online industry analyses

The latest study results and those of previous years can be accessed via the following link: www.kpmg.de/cost-of-capital-study. The results include a detailed overview of financial forecasting and cost of capital parameters, which are presented in a self-explanatory manner. Additionally, these figures can be viewed for individual industries as well as the sub-sectors of Consumer Markets, Chemicals & Pharmaceuticals, Media & Communication and Financial Services.

In addition, an individual and interactive data analysis of the study results is provided. Individual search criteria can be selected that generate the desired output and enable tailored analyses such as historical developments of cost of capital parameters for certain industries or countries. As a new feature, in this year's study data can also be filtered by the size of companies.

Additional insights regarding the performance of impairments tests are also accessible on the website (also compare chapter 4 for selected results on this topic).

05 Study participants by sub-sectors Total (multiple choices possible)



Source: KPMG in Germany 2020

2

Derivation of the Cash Flows

2.1 Preparation of the Financial Forecasts

2.2 Growth Expectations

2.3 Determination of Expected Values

2.4 Consideration of Risks



2.1 Preparation of the Financial Forecasts

Financial forecasts are characterized by the difficulties of predicting economic developments resulting in planning uncertainty.

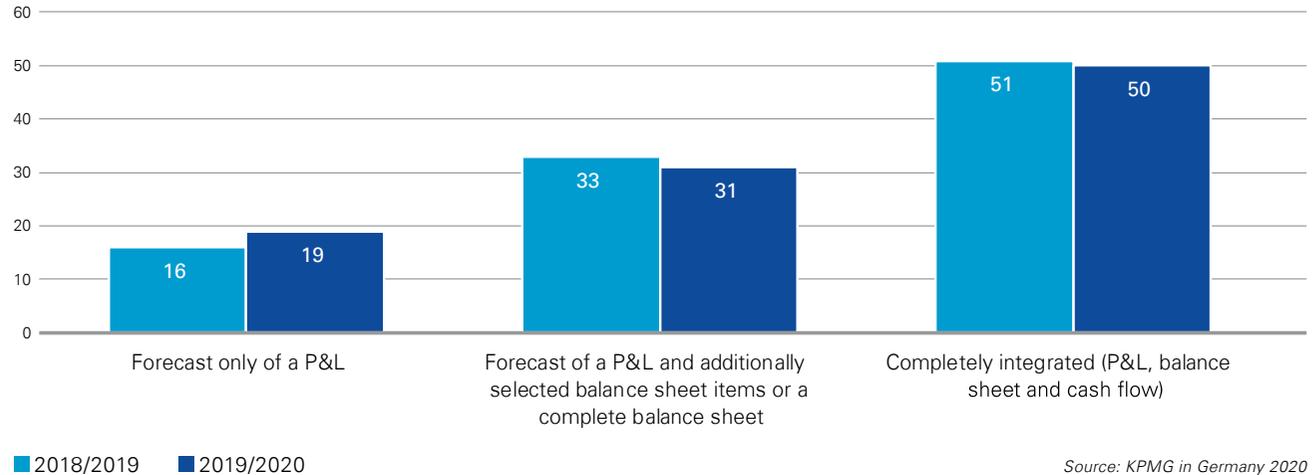
With that in mind, it is necessary that expectations of the underlying assumptions regarding operating performance and risk drivers are reflected properly in financial forecasts. In order to further increase accuracy, planning figures should be prepared in an integrated and sufficiently detailed manner.

Sensitivity and scenario analyses are able to capture future fluctuations of the company's performance and therefore provide a suitable framework to account for uncertainty in enterprise valuations.

In order to properly account for cash flow sensitivity, a simultaneous adjustment in the cost of capital is required. The adjustment ensures risk equivalence of numerator and denominator and leads to unbiased valuation results.

06 Degree of detail of the financial forecast

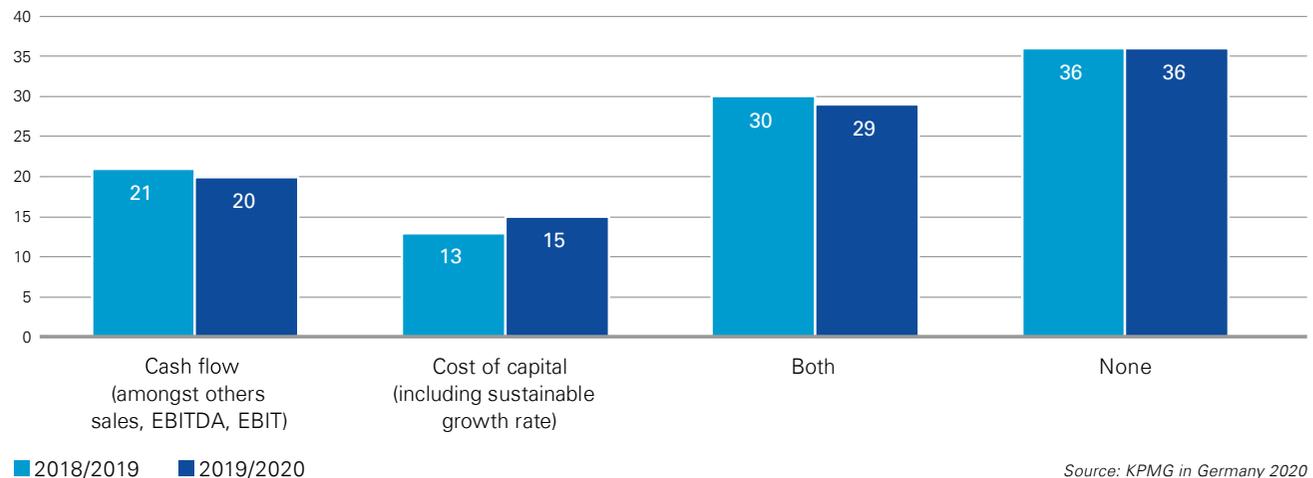
Total (in percent)



Source: KPMG in Germany 2020

07 Consideration of sensitivities

Total (in percent)

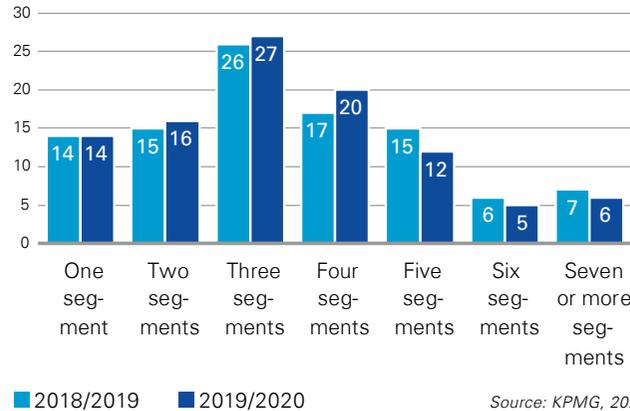


Source: KPMG in Germany 2020

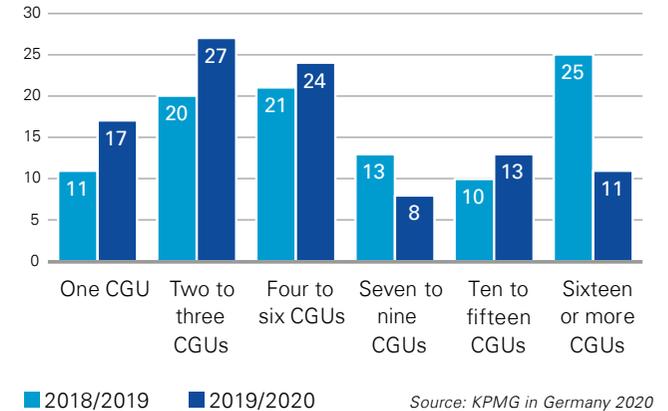
The choice of the planning period remains a matter of some incongruity. On the one hand, a longer planning horizon is characterized by growing planning uncertainty. On the other hand, a (too) short planning horizon causes financial forecasts to not properly reflect investments, product life cycles and long-term industry developments. This will result in inaccurate company valuations and may lead to misguided decision-making.

According to the regulations of the International Accounting Standard (IAS) 36.33 (b), the planning horizon of financial forecasts should not exceed a five-year period when applying the value-in-use concept. An extended planning horizon can be justified if product and investment cycles are plausible.

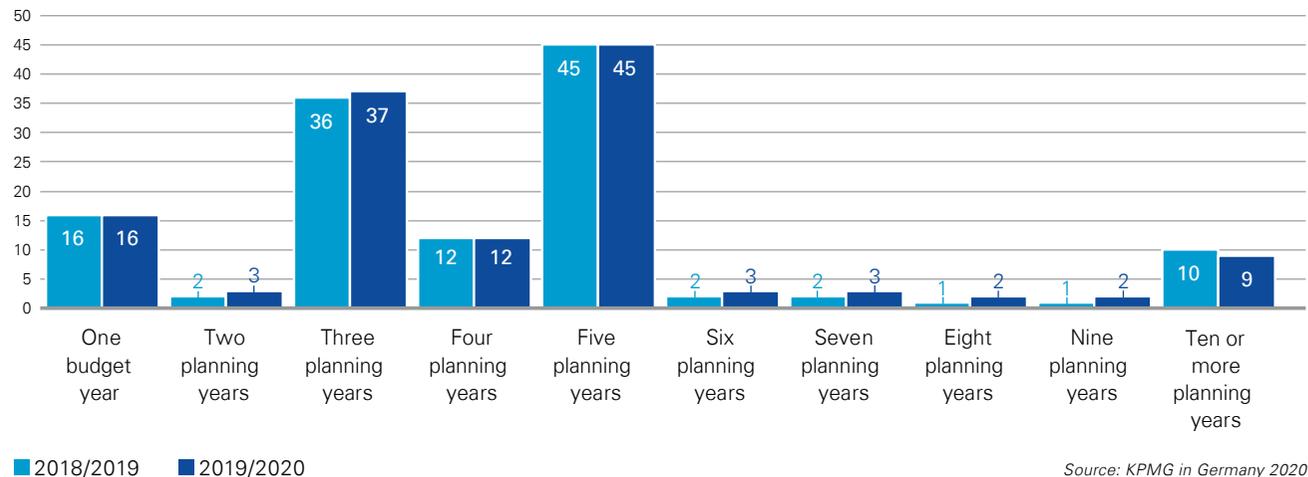
08 Number of segments Total (in percent)



09 Number of CGUs Total (in percent)



10 Planning horizon Total (in percent, multiple choices possible)



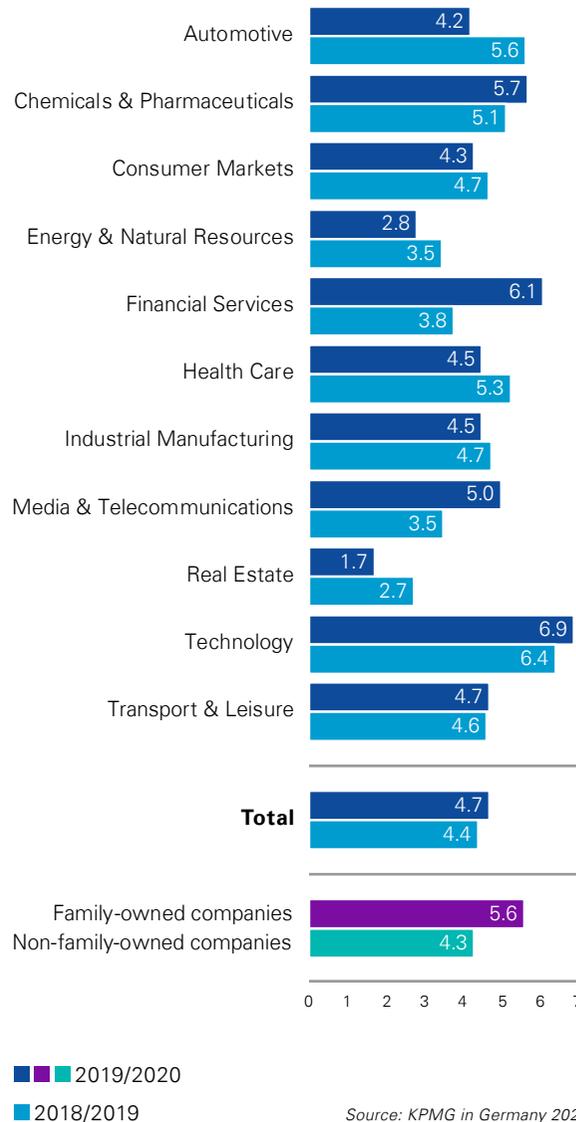
2.2 Growth Expectations

Financial forecasts are generally influenced by developments on the company level and future micro- and macroeconomic factors. While preparing financial forecasts, the expected growth of selected profit and loss items are of primary interest. This concerns the projected sales growth and attainable results (i.e. earnings before interest, taxes, amortization and depreciation (EBITDA) and earnings before interest and taxes (EBIT)).

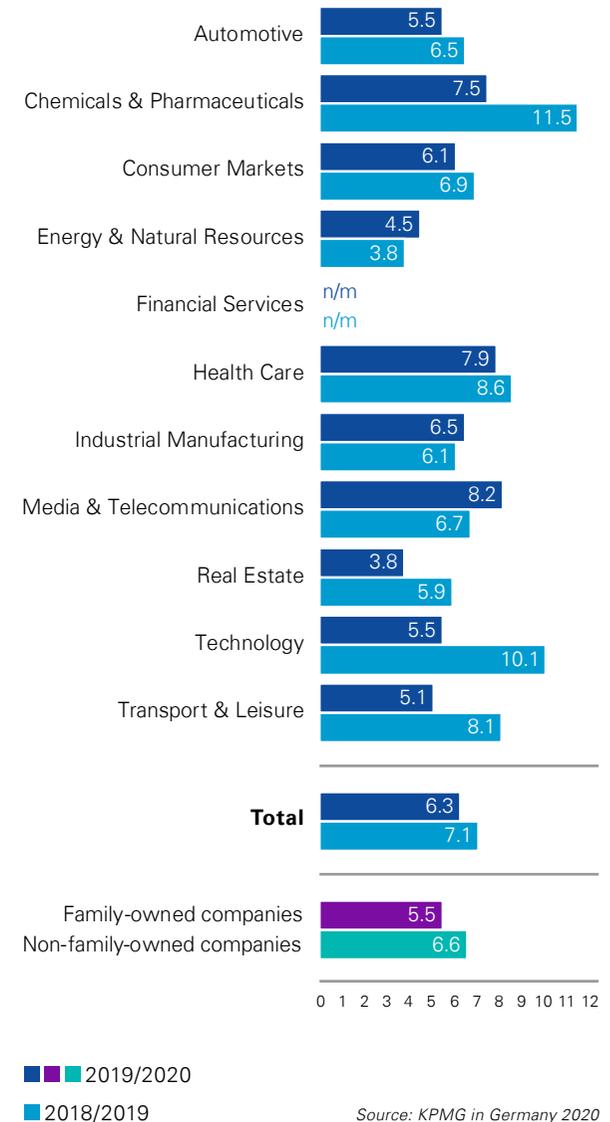
Today's growth expectations are dominated by concerns regarding the continued effects of the COVID-19 pandemic on the world economy, as well as the ongoing issue of resource scarcity and the continuous development of new technologies that reshape existing industries and create new opportunities. All these factors as well as new business models have had significant impacts and will continue to affect corporate developments in the future.

This mix of challenges and opportunities might be reflected in the widely differing changes in forecasted sales growth across industries. While the average expected revenue growth has increased by 0.3 percentage points from last year, forecasted EBIT growth has significantly declined. Due to the fact that the reporting dates of consolidated financial statements considered for the study were between 30 April 2019 and 31 March 2020, COVID-19 effects are for most of the companies not reflected within the growth expectations.

11 Forecasted sales growth by industry (in percent)



12 Forecasted growth of EBIT by industry (in percent)



The World is Changing (1/2)

Thesis 1: Economic distortion is continuing to rise in an environment of mounting geopolitical tension

The world economy has increasingly been exposed to crisis situations in recent years: the 2008 financial crisis, the European sovereign debt crisis in 2012, the COVID-19 crisis in 2020. The rapid succession of crisis-related situations is making it harder to analyse their structural causes and to gauge the effectiveness of the measures taken by governments, central banks and companies. The Covid-19 crisis follows on the heels of crises that have not been fully resolved, impacting on the world economy. Many other problems have been accumulating for years, if not decades – such as the tensions between the US and China that go beyond a mere trade war, the search for direction by economies built heavily on petroleum and diverging political trends in Europe. Rising protectionist tendencies appear to be ushering in an end to the era of globalization, not least because the distribution of the indisputable gains from globalization is not benefiting the people of all countries across the board, but rather individual countries or sections of the population. In turn, this is stoking nationalist movements around the world. The current crisis is affecting the entire world economy to an unprecedented extent, posing the greatest possible challenges to all players. It remains to be seen whether the responses and measures taken by governments, central banks, companies and consumers are apt not just to get the current crisis under control, but also to stabilise

the pre-existing trends in the distribution of wealth, rising protectionism, the carbon footprint of the generation of wealth and the growing rivalry of political systems. This is because, once again, the economic repercussions of the crisis are not affecting all people equally, but rather those sections of society that are already disadvantaged are bearing the brunt.

Thesis 2: The operations of theoretically free markets are, in reality, increasingly less free

The way in which free markets operate according to economic theory is straying ever further from real market processes. Well-established and often considerable delays of economic adjustment mechanisms lose further effectiveness in the face of dynamic change in global markets. Additionally, issues that theoretical models do not take into account in their assumptions are arising increasingly. These include global trends towards a concentration on oligopolistic or even monopolistic markets, such as internet- and technology-driven business models, and the growing political influence that governments hold over the independence of central banks, for instance in the US and Europa. For example, interest rates in Europe, and thus the price of lending money, have long been at the discretion of a single market participant, the ECB, and – to a not insignificant degree – political motivations. Albeit for different reasons, such as the forthcoming election, the US president is also being seen to influence the

nation's monetary policy. Another example is the current climate debate, coupled with the need for a more responsible approach to natural resources. At this time, it is not yet clear whether the (free) markets alone will develop sustainable solutions. On top of these examples that relate to wealth generation, there are widening income and wealth gaps all over the world. As a result, the seemingly unresolved problem of optimal wealth allocation is impacting ever more negatively on the question of optimal wealth generation. The strategies used by central banks, governments and companies, which are often based on free market models, have to be called into question regarding their effectiveness and appropriateness, and possibly overhauled as well.



The World is Changing (2/2)

Thesis 3: Sustainable, expansive monetary policy is now changing risk awareness

The ongoing and unprecedented way in which central banks are flooding markets with liquidity has now pushed the price of money, in the form of interest rates, into negative territory. Market participants have to pay interest to invest liquidity, whereas they used to be recompensed with positive interest. Risk-free investments, such as private investors used to make based on their individual risk preference, or institutional investors, such as insurance companies or pension funds, would pursue on account of regulatory requirements, thus no longer generate a positive cash flow. As a result, there is no longer any positive cash flow for consumption purposes or to serve pension obligations. Against the backdrop of the low-interest phase that has now been ongoing for years, the options for at least temporarily shifting consumption must be seen as exhausted. So as not to have to forgo consumption and to cover long-running payment obligations such as pensions, previously risk-averse investors, contrary to their original risk preference, are now forced to invest at higher risk in order to generate positive cash flows or to preserve their assets. But even the risk awareness of investors in risky classes is gradually being changed by expansive monetary policy. Investors in stocks are increasingly relying on central banks seeking to avert any downswing

at any cost. “Healthy” system corrections for markets that have been pushed to overheating in boom phases, combined with the correction for business models that cannot be sustained in the long term, are being replaced by the expectation that the markets will just keep on pumping in more – an expectation that the markets have so far kept fulfilling – even at the price of a possible increase in zombie companies (companies whose failing business model is kept going by constant liquidity injections) and mounting distortion. Although companies, those affected directly in the middle of 2020, obviously had difficulties across the board in quantifying the economic impact of the COVID-19 pandemic in mid-2020, the stock markets had already compensated for most of the losses by this time – and the central banks had largely taken over the function of the markets.

Thesis 4: Forecast measures suggest a rapid recovery of the transaction market

The current crisis was not triggered by economic causes, as was the case when the dot.com bubble burst or the financial and debt crisis occurred. Nevertheless, the crisis will cause significantly negative economic growth throughout the world in 2020, and thus a dramatic decline in gross domestic product, which simply means a lack of output. All other things being equal, the reduction of income

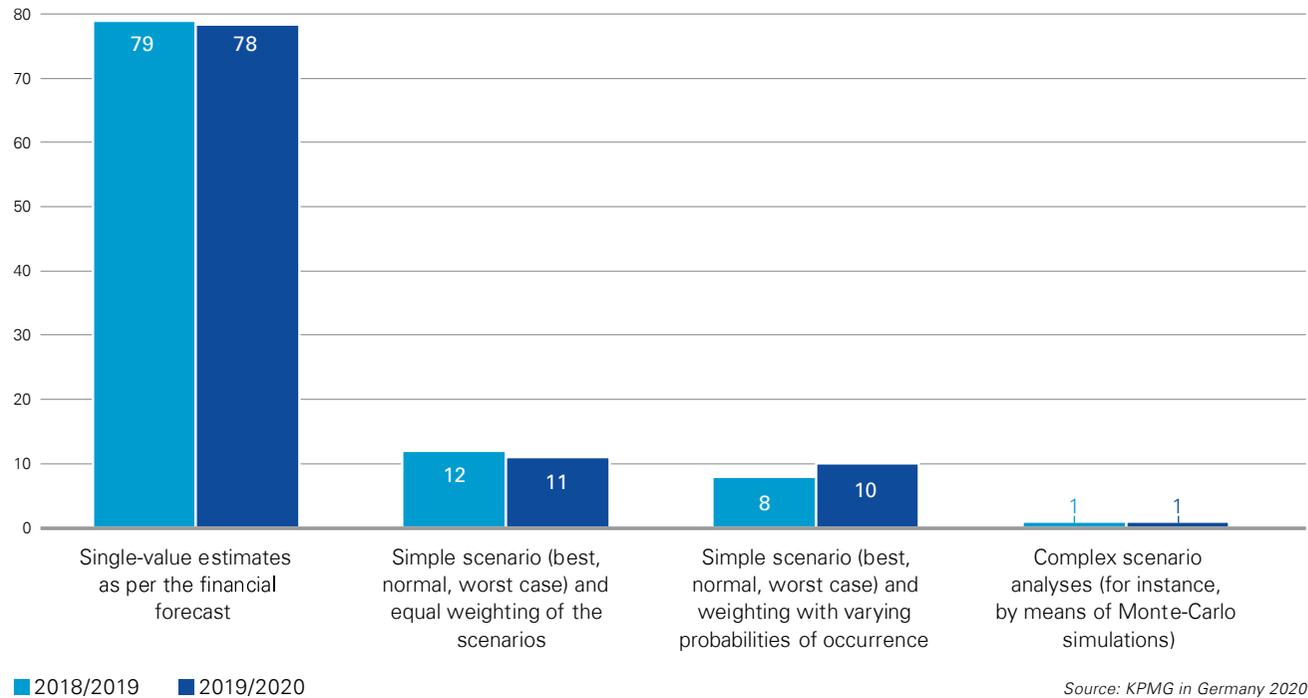
this entails and lower capital gains, if any, should be at least partially compensated by the funds provided by central banks and governments. The natural, negative impact of the crisis is therefore being pushed back to a future date – in the form of rising sovereign debt and increased future inflation projections at the expense of future generations. Overall, liquidity is still making its way unchecked into global economies that already have high levels of liquidity, in which respect the current crisis is diametrically different from the 2008 financial crisis – which also caused a significant slump on the transaction market. Against this backdrop, following a brief pause due to the crisis and the related uncertainty, the transaction market can be expected to recover promptly. At least temporarily lower, attractive prices and restructuring transactions will amplify this trend, just as will the crisis-driven accelerated transformation of disruptively at-risk business models in a number of sectors. However, uncertainty that existed before COVID-19 due to rising economic distortion, changing game rules on free markets as they redefine themselves and ultimately, at some point, the limited options left open to governments and central banks – coupled with evolving risk awareness and the inflation of asset prices sought by central banks – will lead to growing challenges in determining the value of value-adding transactions.

2.3 Determination of Expected Values

Single-valued estimations of future cash flows were a sufficient and feasible forecasting tool in the past. This was attributable to a relatively stable economy along with a long company history. Current uncertainties in the economy, in the performance and of risk drivers can only be systematically and transparently addressed by using multi-valued estimations based on scenarios and simulations. Hence, using a multi-valued approach is necessary as difficulties in predicting macroeconomic developments and digitalization affect business models.

As in the previous year, the major proportion of participating companies applied the single value estimate for determining future cash flows. This shows that alternative scenarios and thus future performance and risk changes of the prevailing business model are not adequately taken into account in the expected value's derivation.

13 Measurement of expected value Total (in percent)



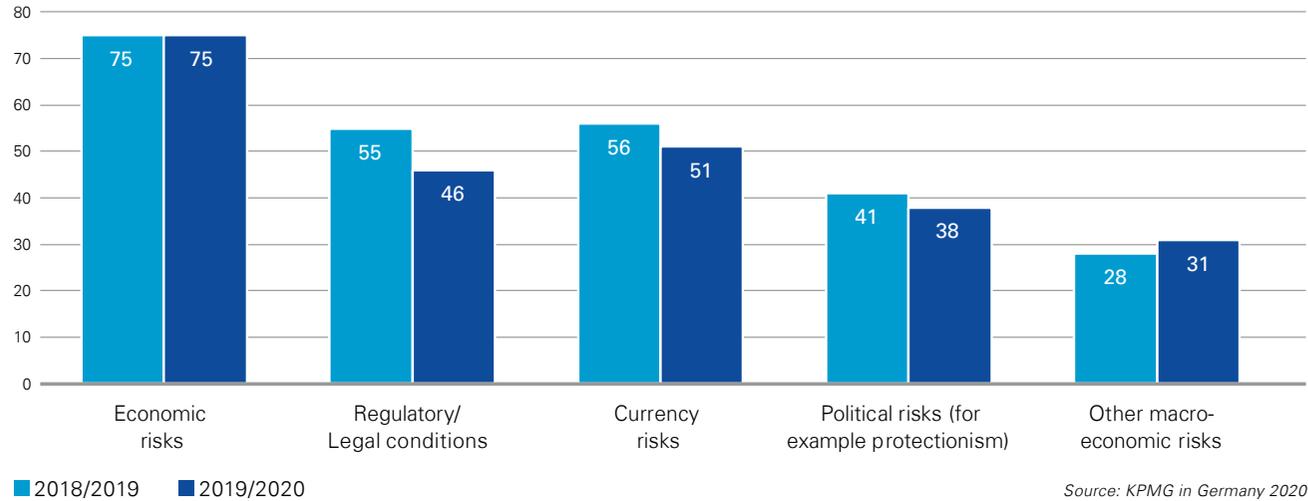
Source: KPMG in Germany 2020

2.4 Consideration of Risks

It is necessary to reflect the uncertainties of deriving future cash flows in the expected value. In order to obtain the most accurate expected value, all associated risk and opportunities of both micro- and macroeconomic factors must be taken into consideration in the financial forecast.

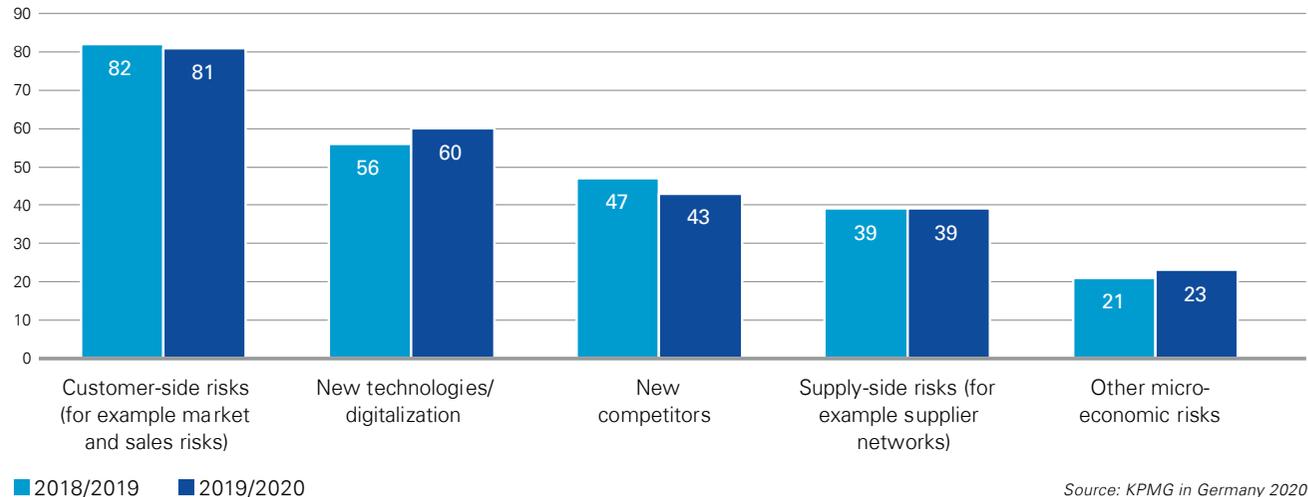
The current situation showcases the importance of considering an increased number of risks when performing financial forecasts. Concerning macroeconomic risks, especially regulatory factors and currency fluctuations have been considered less compared to the previous year, while the consideration of other risk factors slightly increased. On a microeconomic scale, firms continue to increasingly consider risks related to innovative technologies and digitalization.

14 Consideration of risks in the financial forecast – macroeconomic risks
Total (in percent, multiple choices possible)



Source: KPMG in Germany 2020

15 Consideration of risks in the financial forecast – microeconomic risks
Total (in percent, multiple choices possible)



Source: KPMG in Germany 2020

3

Determination of the Cost of Capital Parameters

3.1 WACC Overview

3.2 Risk-free Rate

3.3 Market Risk Premium

3.4 Beta Factor

3.5 Cost of Equity

3.6 Other Risk Premiums

3.7 Cost of Debt and Debt Ratio

3.8 Sustainable Growth Rate



3.1 WACC Overview

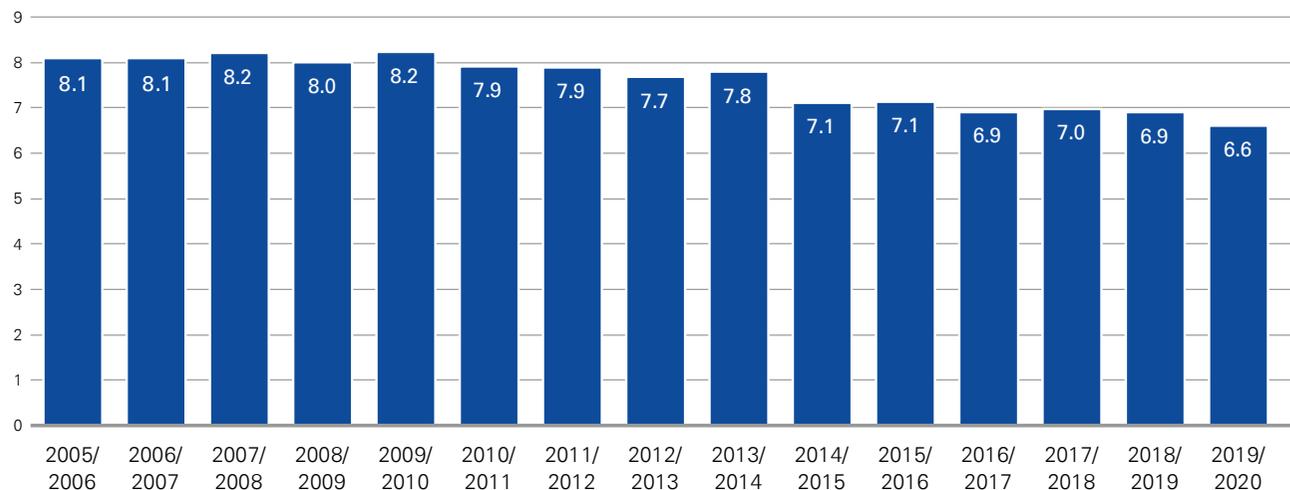
The so-called WACC approach is the most common discounted cash flow (DCF) method used in order to derive an enterprise value. In this approach, the company's future cash flows are discounted with the weighted average cost of capital (WACC). In order to obtain the WACC, cost of equity and cost of debt are weighted by the respective shares of the market value of equity and market value of debt in relation to the total entity value.

Between 2014 and 2019, the WACC remained almost constant as an average across all companies. This year, the measure has changed by more than 0.1 percentage points for the first time in six years, dropping from 6.9 to 6.6 percent.

While consistent principles should be applied in the derivation of the cost of capital and should also be applied even among different projects, nearly half of our participants do not compare the costs of capital applied in M&A transactions and investment decisions.

The decisive factor is not consistency in value of the cost of capital, but rather the structured, methodical approach to the various valuation scenarios.

16 WACC (after corporate taxes)
Total (in percent)



Source: KPMG in Germany 2020



KPMG Valuation Data Source – Relevant cost of capital parameters at a glance

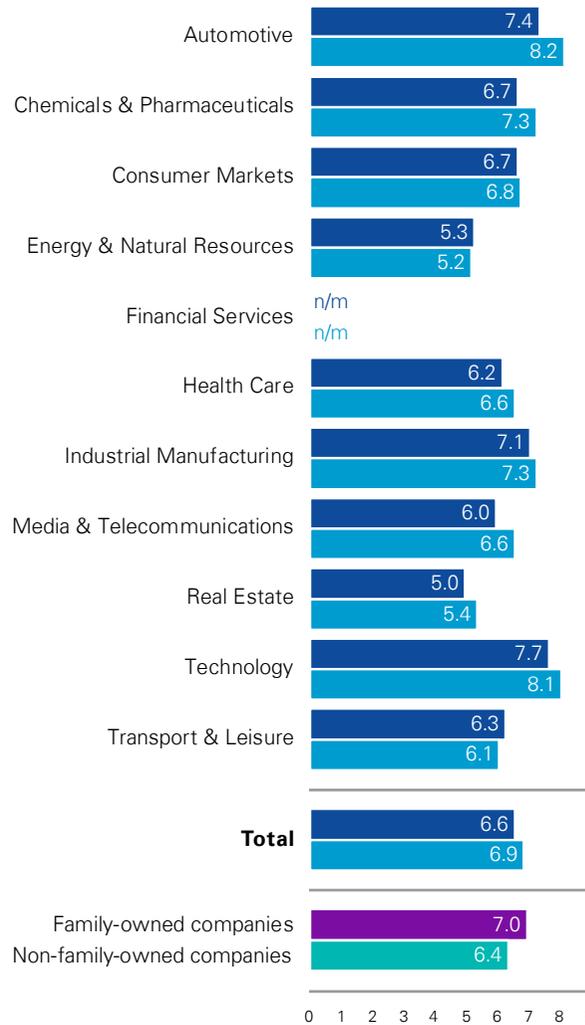
In times of uncertainty, it is more important than ever for companies to keep an eye on cost of capital parameters in order to be prepared for changing market conditions and protect themselves against losses. How can companies keep track of the most important capital market data? On a monthly basis, the KPMG Valuation Data Source collates relevant KPMG cost of capital parameters, for example the beta factor, the credit spread and inflation differential, in an interactive dashboard. It grants access to relevant and reliable cost of capital parameters for more than 150 countries and peer group specific data for over 11,000 companies anywhere and anytime. Historical cut-off dates are available from 2012 until today.

For further information see www.kpmg.de/valuation-data-source.

While last year's survey showed a relatively heterogenous development of the individual sector WACCs, this year the drop in the overall average WACC is clearly reflected by the WACC declining in almost all industries.

The highest decrease compared to the previous year was observed in the Automotive sector, followed by the Chemicals & Pharmaceutical, and Media & Telecommunication sectors.

17 WACC (after corporate taxes) by industry (in percent)



■ 2019/2020
■ 2018/2019

Source: KPMG in Germany 2020

Chemicals & Pharmaceuticals



The overall decrease of the applied WACC in the Chemicals & Pharmaceuticals is primarily due to the decline of the WACC in the Chemicals sub-sector with a decrease from 7.2 percent to 6.6 percent. The WACC of the Pharmaceuticals sub-sector, however, slightly increased from 7.1 percent to 7.3 percent.

Media & Telecommunications



Within this sector, the gap between the sub-sectors decreased even more compared to the last few years. In both sub-sectors, the WACC declined. While in the Media sub-sector the WACC declined by 0.6 percentage points (from 6.7 percent to 6.1 percent), the WACC in the Telecommunications sub-sector decreased by 0.4 percentage points (from 6.3 percent to 5.9 percent). The gap thus decreased by 0.2 percentage points.

3.2 Risk-free Rate

According to the Capital Asset Pricing Model (CAPM), the cost of equity can be divided into the risk-free rate and a premium that compensates investors for the risks associated with the investment.

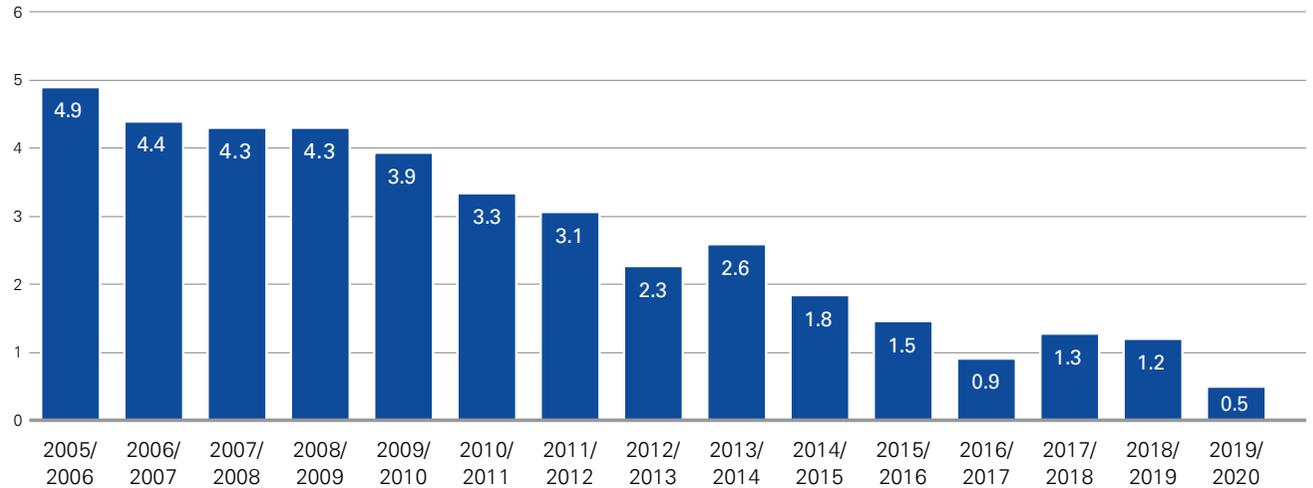
In order to ensure equivalence of maturity, the risk-free rate should be determined by taking the current term structure of interest rates of the relevant central bank into consideration.

To smooth out abnormal market fluctuations in deriving the risk-free rate, an average of the three months preceding the valuation date should be calculated. After the slightly decreased risk-free rate last year, the applied risk-free rate continued on its downward trend this year by dropping significantly to 0.5 percent.

A cross-country comparison shows a homogenous development. In Germany and Austria, the risk free rate decreased from 1.1 percent in 2018/2019 to 0.4 percent in 2019/2020. Also the risk free rate in Switzerland declined from 1.6 percent last year to 1.2 percent in this year's Cost of Capital Study.

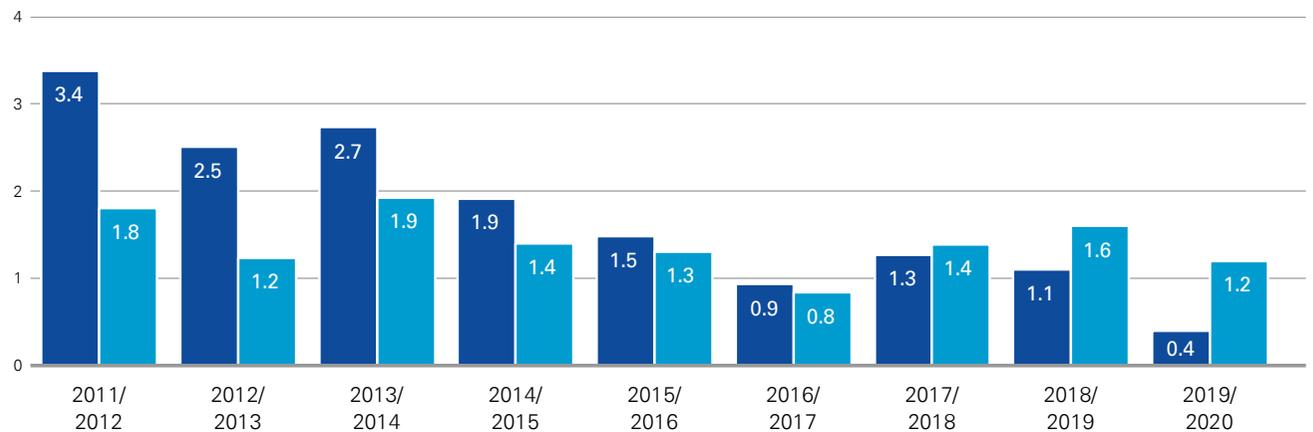
In recent months, the risk-free rate has declined further. As of August 2020, the risk-free rate decreased to 0.0 percent in the Euro zone and to -0.3 percent in Switzerland.

18 Average risk-free rate applied
Total (in percent)



Source: KPMG in Germany 2020

19 Average risk-free rate applied
Germany/Austria versus Switzerland (in percent)



■ Germany/Austria ■ Switzerland

Source: KPMG in Germany 2020

3.3 Market Risk Premium

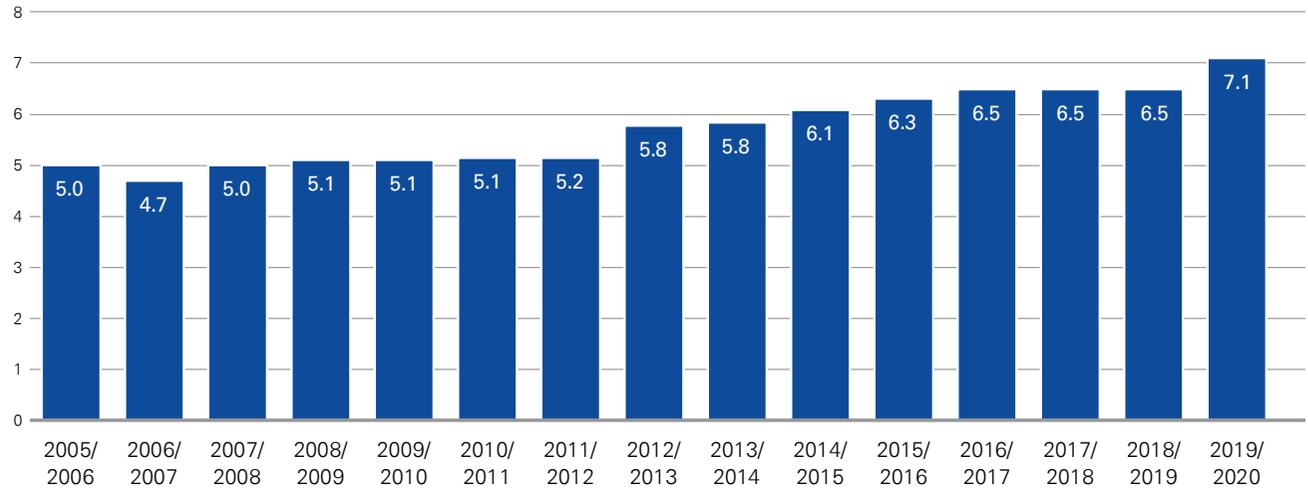
The market risk premium can not be directly observed in capital markets. The market risk premium is derived by subtracting the risk-free rate from the market return.

In October 2019, the Technical Committee for Business Valuation and Economics (FAUB, Fachausschuss für Unternehmensbewertung) of the Institute of Public Auditors in Germany (IDW, Institut der Wirtschaftsprüfer) published an adjustment of the recommended bandwidth of an appropriate market risk premium due to the current developments in the capital markets and monetary policy of the European Central Bank. Consequently, the new recommended bandwidth for the market risk premium in Germany ranges between 6.0 and 8.0 percent (previously 5.5 to 7.0 percent).

The Council of Experts for Business Administration (KFS/BW, Fachsenat für Betriebswirtschaft) of the Chamber for Tax Advisors and Auditors in Austria (KSW, Kammer der Steuerberater und Wirtschaftsprüfer) recommended a nominal market return of 7.5 to 9.0 percent at the end of 2017. Less the current risk-free rate, this results in an approximate market risk premium between 7.1 and 8.6 percent.

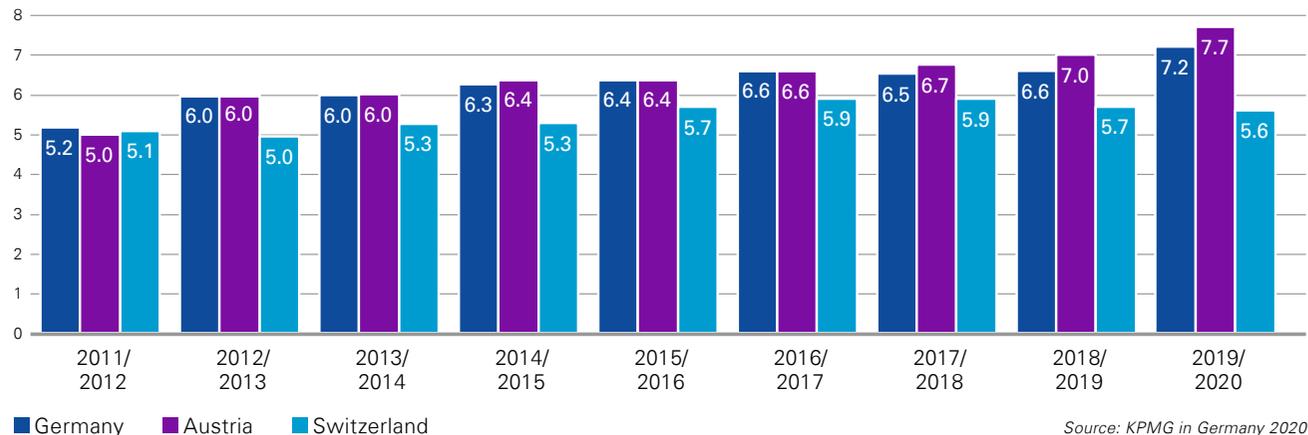
Individual analyses to determine the market risk premium should always be performed based on the aforementioned ranges recommended by the standard setters.

20 **Average market risk premium**
Total (in percent)



Source: KPMG in Germany 2020

21 **Average market risk premium**
Germany versus Austria versus Switzerland



Source: KPMG in Germany 2020

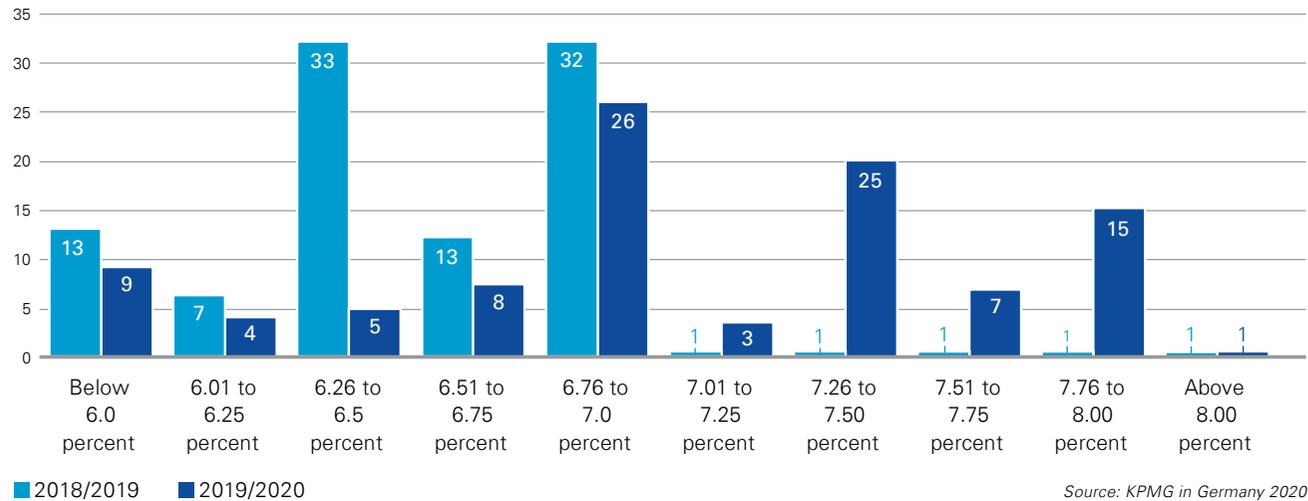
Compared to last year's study, the average market risk premium applied by participating companies from Germany increased significantly.

In the previous year, the majority of the study participants applied a market risk premium between 6.0 and 7.0 percent. In this year's study there is a clear trend towards higher categories. More than half of participants applied a market risk premium greater than 7.0 percent. This can mainly be attributed to the increased bandwidth recommended by the FAUB.

By definition, the market risk premium is an industry-independent parameter. Accordingly, the market risk premiums applied by the study participants were in a narrow range without any significant differences between specific industries.

As of August 2020, the market risk premium for German companies amounts to 7.75 percent according to KPMG analysis.

22 Distribution of the market risk premiums of German companies (in percent, multiple choices possible)



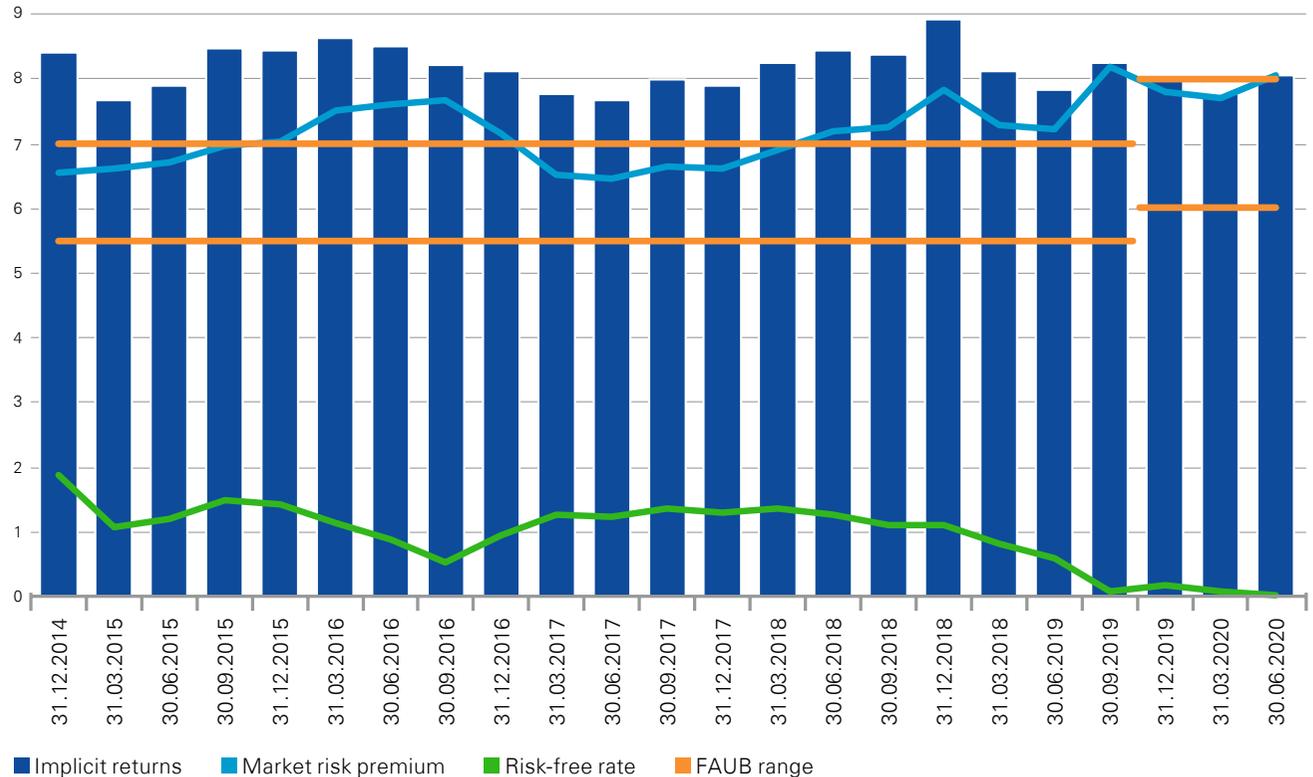
Source: KPMG in Germany 2020

Market returns and, consequently market risk premiums, are primarily based on historical return analysis. It is implicitly assumed that risk premiums remain constant over time when deducting an average risk-free rate from an average historical market return. However, if the risk premium is determined as the difference between the market return and the risk-free rate for different points in time in the past, the risk premium would fluctuate over time.

Research models that calculate implicit returns have recently gained in importance in valuation practice. In these models, current capital market information is used in order to allow for a future-oriented derivation of returns. This approach considers risk premiums that may change over time. This might reflect current circumstances of capital markets more realistically.

In the last two years, the market risk premium resulting from implicit returns in Germany, has been above the range recommended by FAUB.

23 Change in expected returns in Germany (in percent)



Source: KPMG analysis on the basis of data from S&P Capital IQ

3.4 Beta Factor

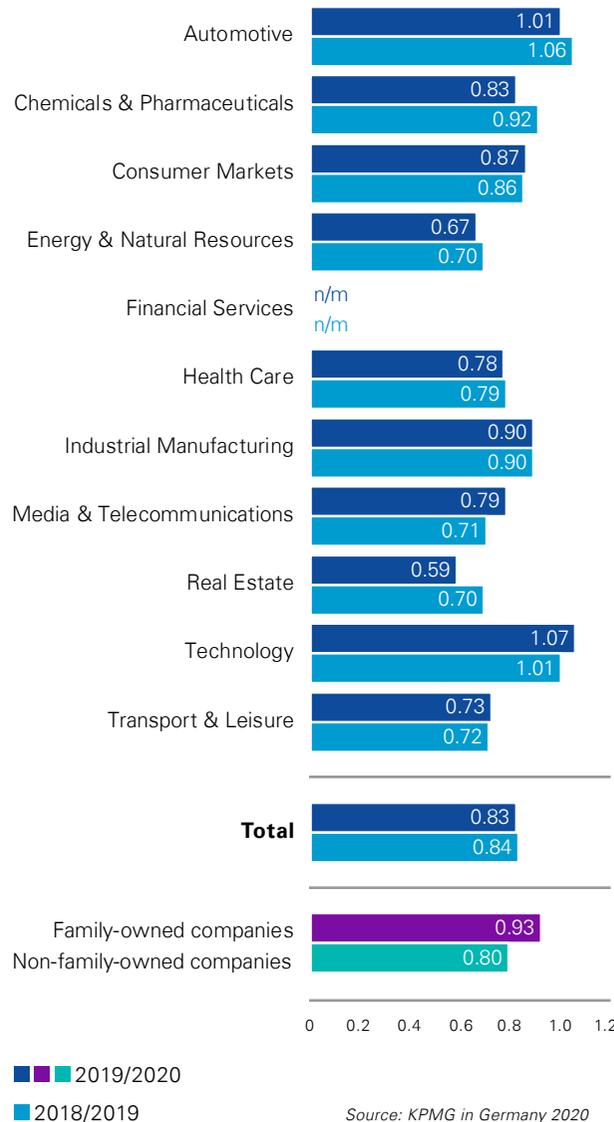
The beta factor is a quantitative measure of the company’s operational risk. In order to derive the beta factor, the volatility of the return of an individual asset is measured in comparison to the overall market return. Even though the beta factor should capture the future risk of a company in relation to the general market risk, it usually relies on historical data and serves as an estimator for future developments.

The beta factor can only be observed for stock listed companies. Therefore, the concept of a peer group is still the dominant method applied in order to derive the beta factor. There might, however, be a need for new approaches to be established as the concept of a peer group is not universally applicable for every business model.

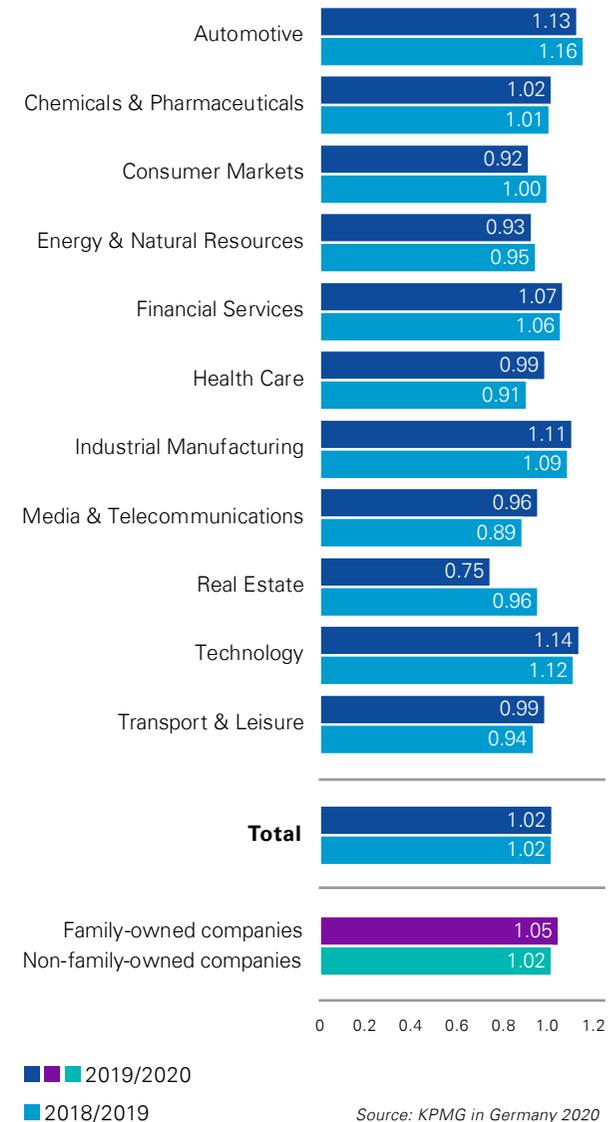
While the unlevered beta factor reflects operational risks of a company independent of its capital structure, the levered beta factor serves for the equity provider’s systematic risk considering the risk from debt in the capital structure.

While on average the unlevered beta factor did not materially change across industries, there are relatively strong changes in individual industries.

24 Average unlevered beta factors by industry



25 Average levered beta factors by industry



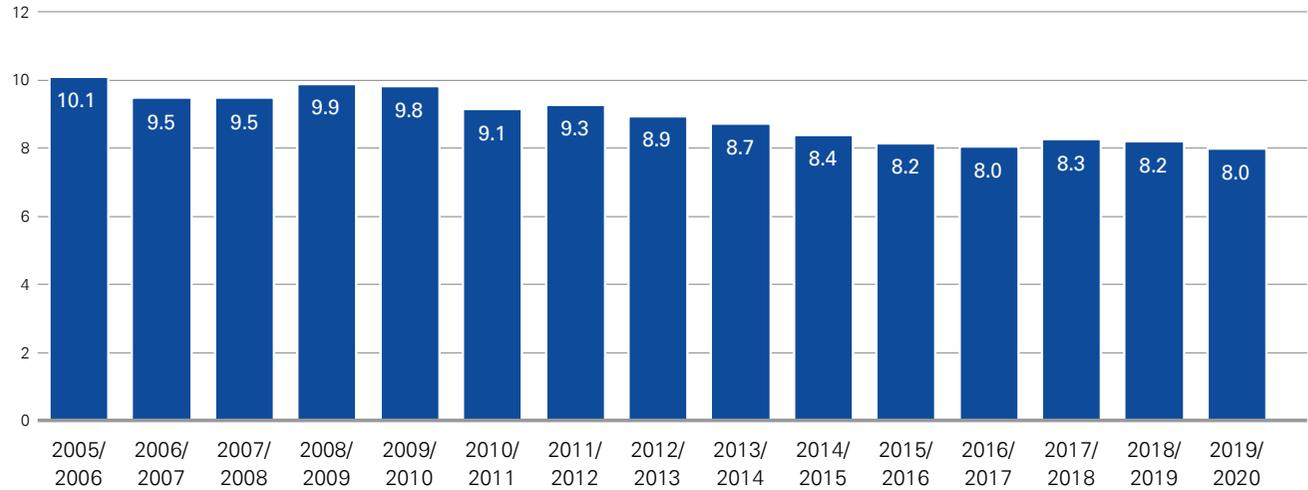
3.5 Cost of Equity

The derivation of the levered cost of equity is based on the mathematical equation outlined in the Capital Asset Pricing Model where the risk-free rate, the company's specific levered beta factor and the market risk premium are used.

Similar to the previous year, the leveraged cost of equity applied in this year's study has decreased. The decrease primarily results from the relatively large downward movement of the risk-free rate.

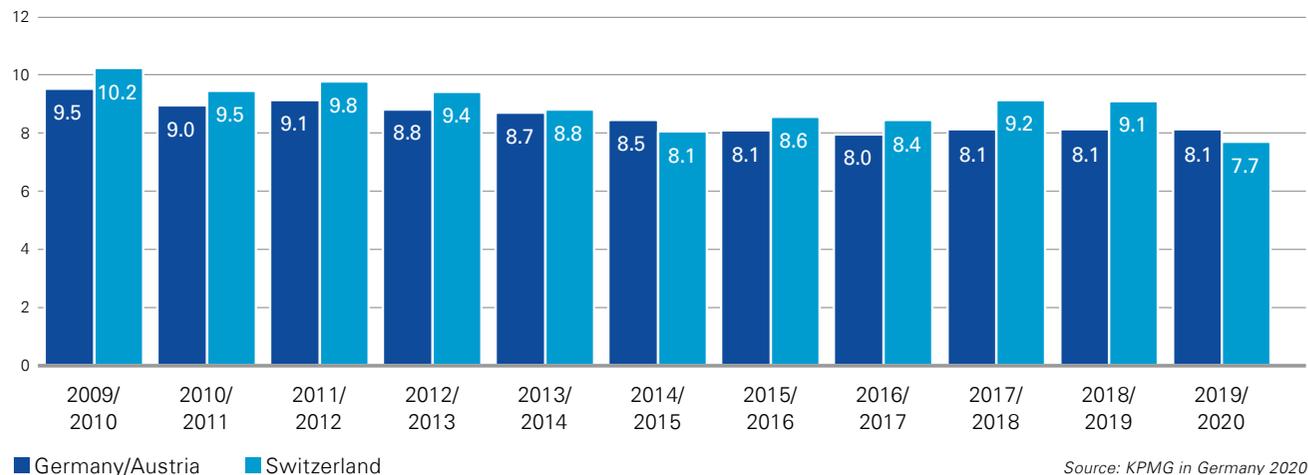
While the average leveraged cost of equity of Germany and Austria has remained constant at 8.1 percent, it has dropped for Switzerland from 9.1 to 7.7 percent. The reason for this decline is due to the fact that the decrease in the risk-free rate was not compensated by the relatively constant market risk premium.

26 Average levered cost of equity
Total (in percent)



Source: KPMG in Germany 2020

27 Average levered cost of equity
Germany/Austria versus Switzerland (in percent)



Source: KPMG in Germany 2020

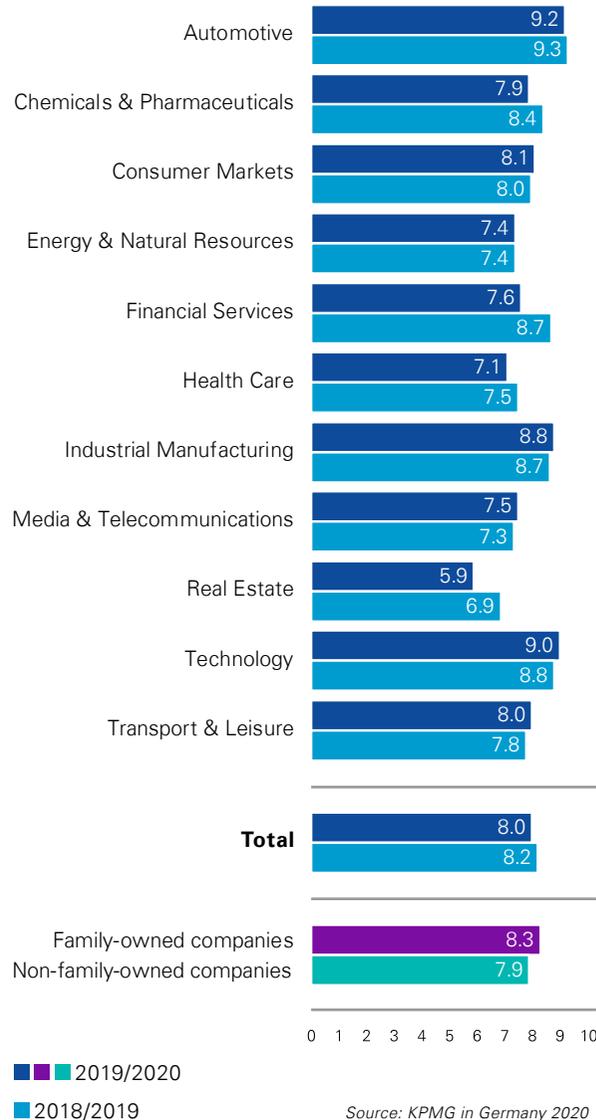
© 2020 KPMG AG Wirtschaftsprüfungsgesellschaft, a corporation under German law and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

Considering the much lower average risk-free rate, the increased market risk premium, and relatively unchanged levered beta factor, the average levered cost of equity has decreased slightly compared to previous year's level.

Within sectors, the applied levered cost of equity has remained more or less constant, with few exceptions. The largest decreases have been observed in Real Estate and Financial Services, with changes from 6.9 to 5.9 percent and 8.7 to 7.6 percent, respectively.

The cost of equity applied by the participating family-owned companies is 0.4 percentage points higher compared to the non-family owned companies.

28 Average levered cost of equity by industry (in percent)



Chemicals & Pharmaceuticals



The overall decrease of the applied cost of equity in the Chemicals & Pharmaceuticals sector to 7.9 percent is mainly attributable to the decline of the cost of equity in the Chemicals sub-sector with a change from 8.6 percent to 7.6 percent.

Financial Services



The cost of equity applied by participating companies in the Financial Service sector decreased from 8.7 percent last year to 7.6 percent in this year's study. In both sub-sectors a substantial decrease was recorded (Banking: 8.5 percent to 7.9 percent; Insurance: 7.7 percent to 6.1 percent).

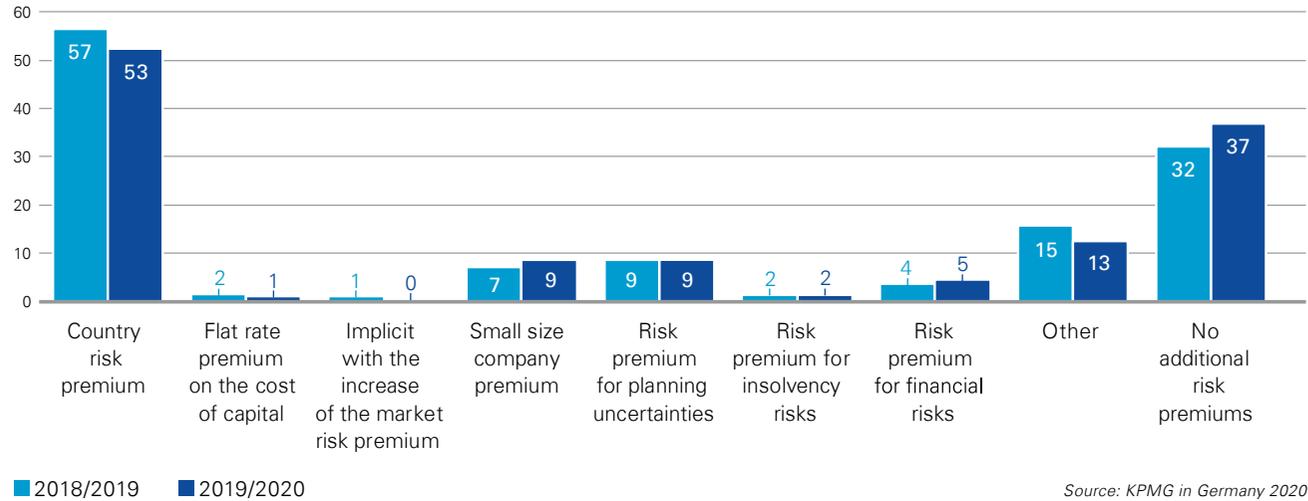
3.6 Other Risk Premiums

It is impossible to forecast future developments and specifically future cash flows precisely. It is therefore important to identify the uncertainty and associated risk of cash flows and to reflect them properly in the expected value as well as in the cost of capital.

In addition to discounts adjusting for the risk of cash flows, risk premiums as part of the cost of capital might also be taken into consideration.

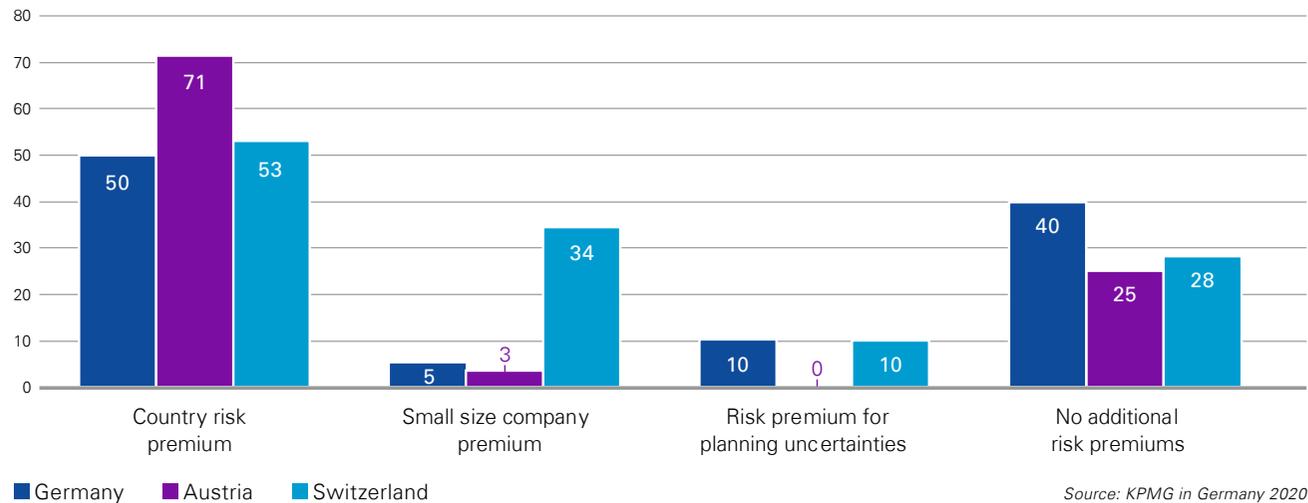
In line with the previous year's findings, the country risk premium is still the most important surcharge on the cost of capital and thus the most frequently applied other risk premium at both the overall and national level.

29 Other risk premiums 2018/2019 versus 2019/2020
Total (in percent, multiple choices possible)



Source: KPMG in Germany 2020

30 Selected other risk premiums 2019/2020
Germany versus Austria versus Switzerland (in percent, multiple choices possible)



Source: KPMG in Germany 2020

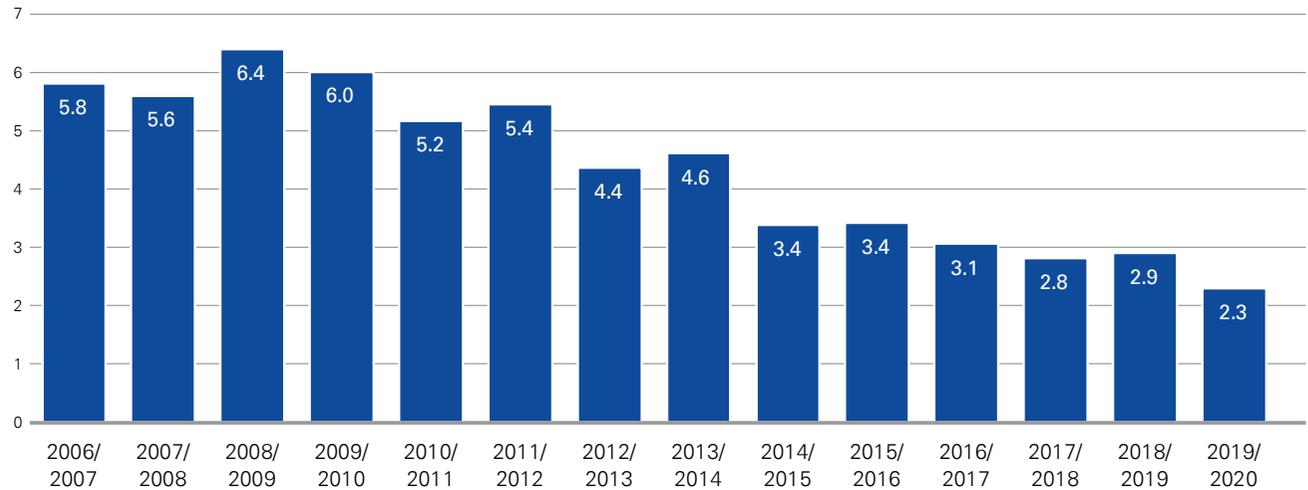
3.7 Cost of Debt and Debt Ratio

Cost of debt and debt ratio are – apart from the cost of equity – essential components of the weighted return requirements of capital providers that are outlined in the WACC.

Cost of debt is defined as the expected rate of return of an entity’s debt lender. The debt ratio is the market value of (net) debt divided by the market value of total capital (entity value).

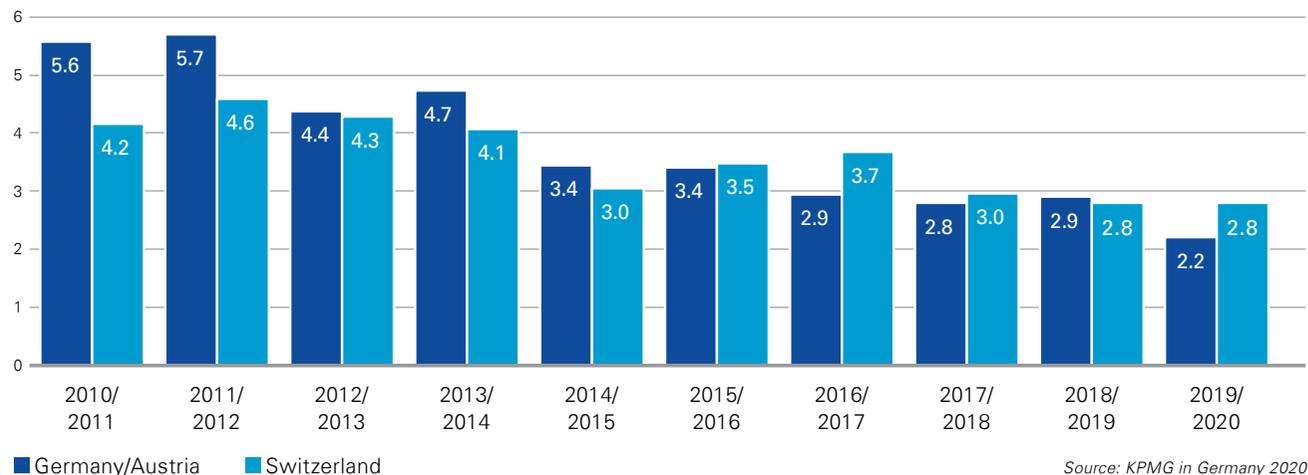
After a slight increase in the previous year, the average cost of debt applied continued on its downward trend, declining to a new historic low of 2.3 percent.

31 Average cost of debt
Total (in percent)



Source: KPMG in Germany 2020

32 Average cost of debt
Germany/Austria versus Switzerland (in percent)



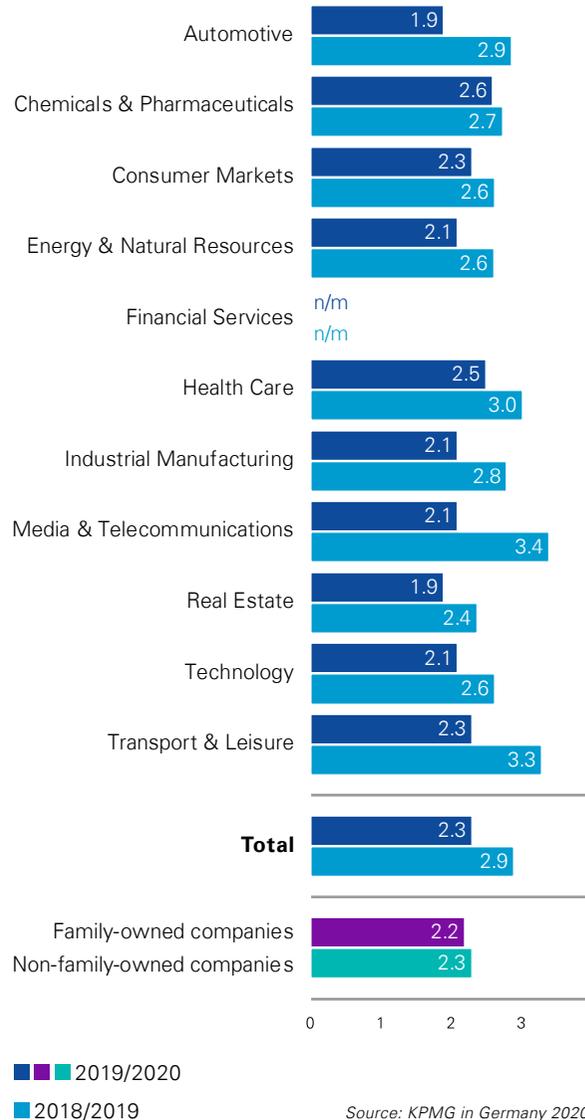
Source: KPMG in Germany 2020

© 2020 KPMG AG Wirtschaftsprüfungsgesellschaft, a corporation under German law and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

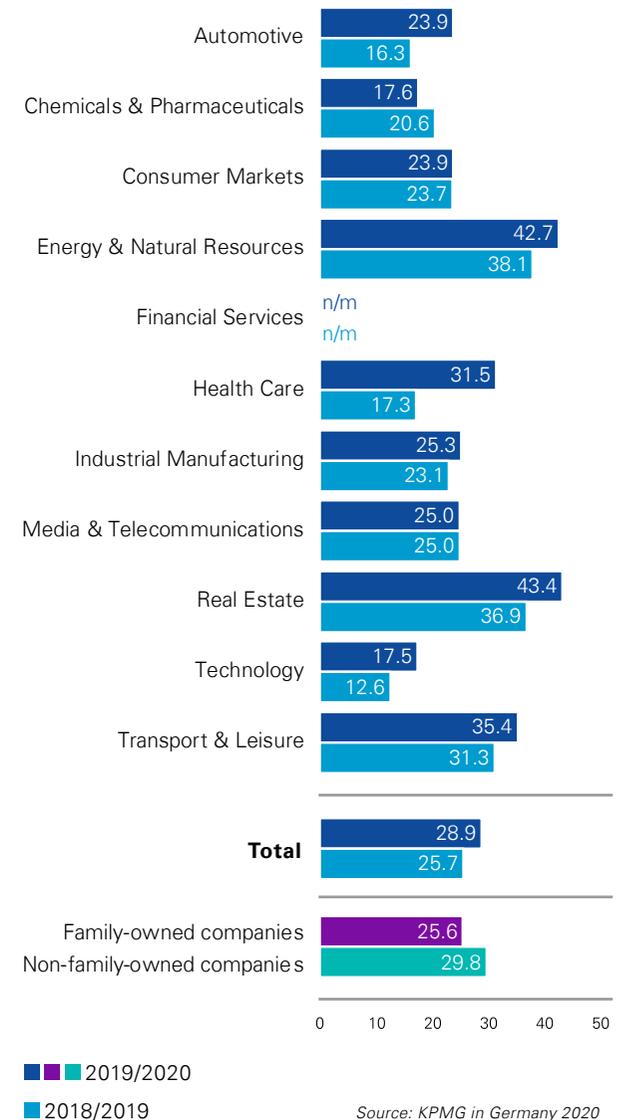
All observed industry segments reported lower cost of debt, with the largest decrease of 1.3 percentage points occurring in the Media & Telecommunication sector, after it had reported the largest increase (0.9 percentage points) in last year's study, followed by the Automotive and Transport & Leisure sector with a decrease of 1.0 percentage point, respectively.

The trend towards lower cost of debts is accompanied with higher average debt ratios across industries compared to the previous year (except for the Chemicals & Pharmaceutical sector), with the largest increase observed in the Health Care sector, increasing from 17.3 percent to 31.5 percent.

33 Average cost of debt by industry (in percent)



34 Average debt ratio by industry (in percent)



3.8 Sustainable Growth Rate

The sustainable growth rate of a company is an essential component in order to determine the terminal value. It reflects the company-specific inflationary growth in a sustainable state.

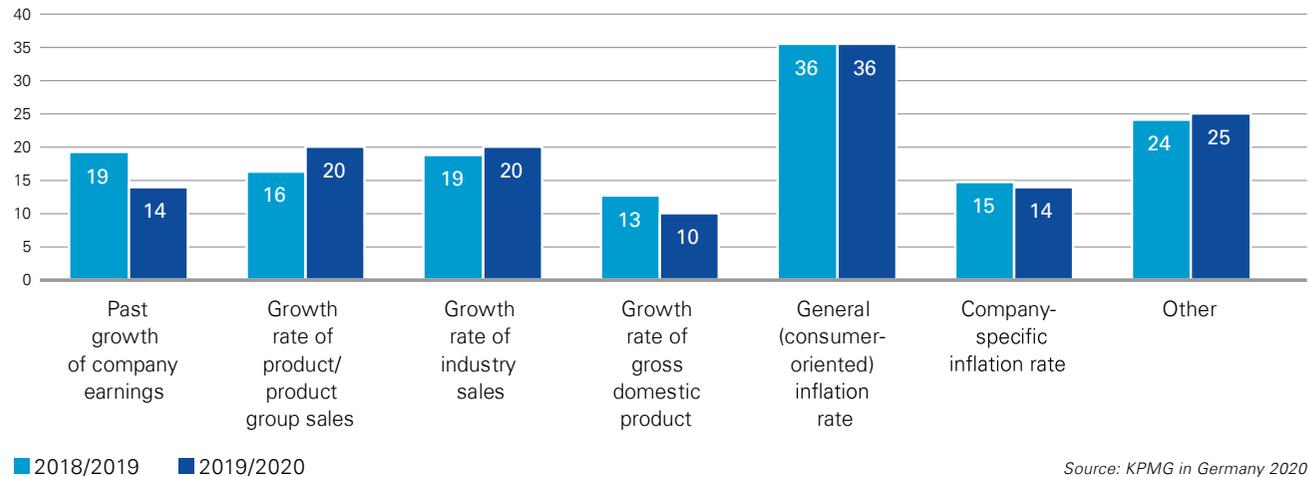
In practice, the deviation of the company's long-term growth rate is complex. It should be determined by analyzing the company's operating activities. However, the most common way among the study's participants to estimate the sustainable growth rate remains the application of a consumer-based inflation rate.

Based on the assumption of perpetuity, the terminal value is usually the primary contributing factor towards the value of an enterprise.

For the terminal value it is required that the company is in a sustainable state of equilibrium. At the end of the planning period such a state is typically not achieved. Due to its significance it is recommended to determine the sustainable year by using a scenario approach such as Monte-Carlo simulations.

35 Measurement of the sustainable growth rate

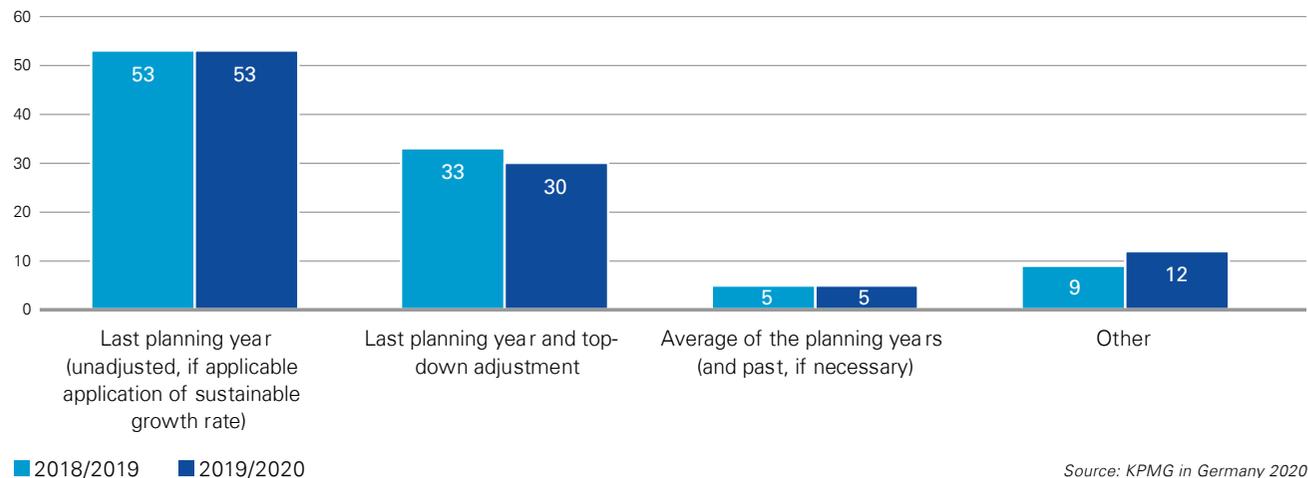
Total (in percent, multiple choices possible)



Source: KPMG in Germany 2020

36 Determination of the terminal value

Total (in percent)



Source: KPMG in Germany 2020

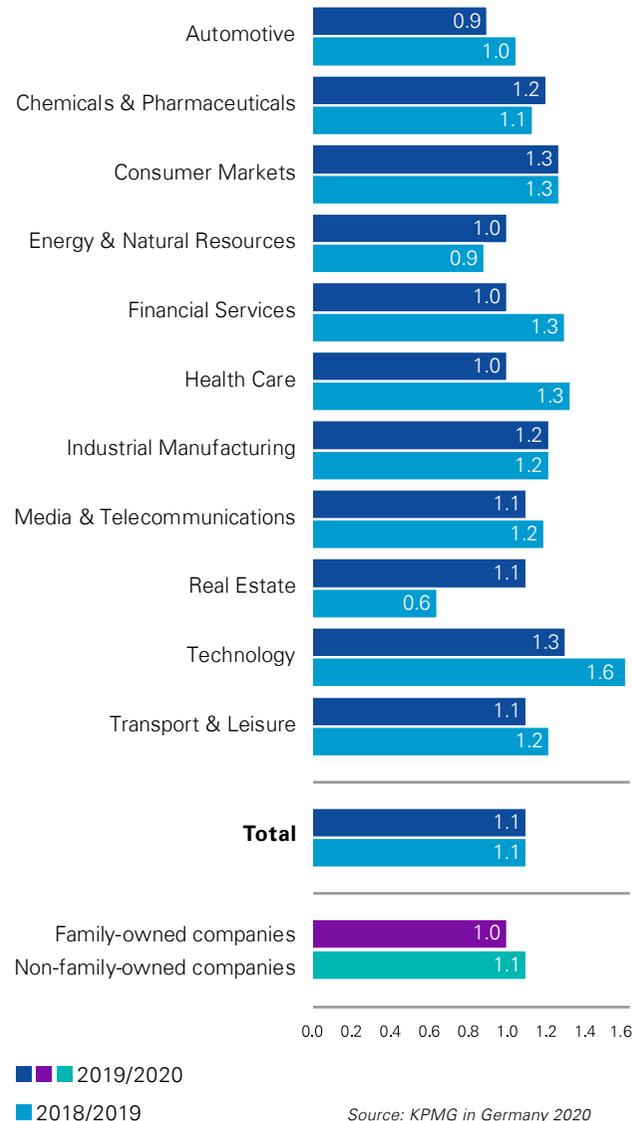
In general, the total average sustainable growth rate applied by the participants is on the same level as in the previous year at around 1.1 percent.

Nonetheless, the level of the average sustainable growth rate is converging across sectors. While it has mostly increased in sectors with a previously lower than average growth rate, the opposite is true for most sectors with a previously higher than average growth rate such as Technology, Health Care and Financial Services.

On the country level, the average sustainable growth rate decreased slightly in Germany and Switzerland by 0.1 and 0.2 percent, respectively, whereas it increased by 0.1 percent in Austria.

When interpreting the applied growth rate, it is also necessary to consider the length of the specific detailed planning horizon and the growth rate applied there.

37 Average sustainable growth rate by industry (in percent)



Consumer Markets

Although the growth rate in the sector Consumer Markets remained constant compared to last year, a diverging development can be seen in the sub-sectors. While the growth rate in the Retail sub-sector increased from 1.2 percent to 1.6 percent, it declined from 1.5 percent to 1.0 percent in the Consumer Markets sub-sector.

Financial Services

As in the last year, the sustainable growth rate differs within the Financial sector. While participating companies in the Banking sub-sector applied a growth rate of 1.1 percent, companies in the Insurance sub-sector applied a significantly lower growth rate of 0.5 percent.

4 Impairment Test

4.1 Recognition of an Impairment

4.2 Triggering Event

4.3 Plausibility



4.1 Recognition of an Impairment

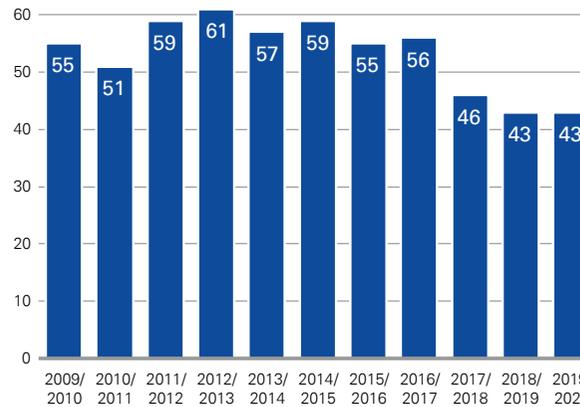
In the last four years, the number of companies that recognized an impairment of goodwill or assets has significantly decreased.

As in the previous year, most of the recognized impairments are attributable solely to asset impairments.

Only around 15 percent of the participating companies reported having an impairment on goodwill.

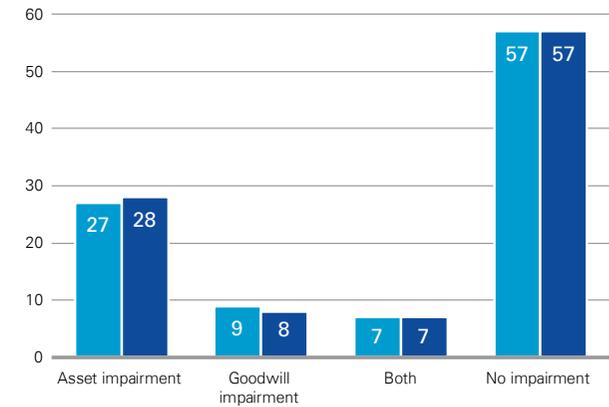
This relatively low level of write-downs, supported by the introduction of the impairment-only approach (IOA), explains to a large extent the ongoing rise of goodwill (e.g. for the CDAX).

38 Recognition of an impairment over time
Total (in percent)



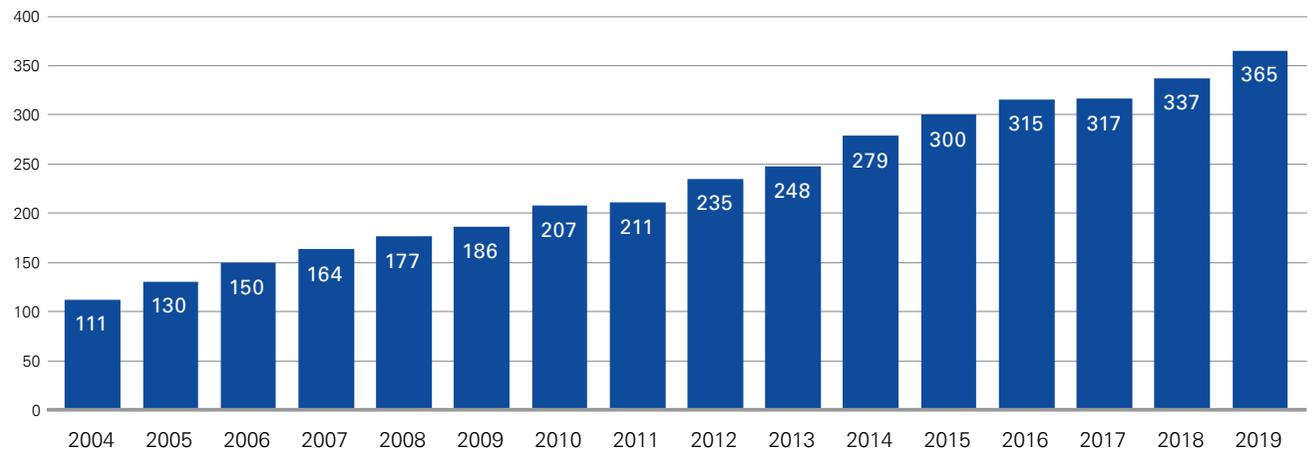
Source: KPMG in Germany 2020

39 Recognition of an impairment
Total (in percent)



Source: KPMG in Germany 2020

40 Total goodwill reported by CDAX companies
Total (in € bn)



Source: KPMG analysis on the basis of data from S&P Capital IQ

Goodwill – Steady in Turbulent Times?! (1/2)

In phases of exogenous shocks, public attention shifts to the goodwill reported in listed companies' financial statements, expecting to see these figures written down significantly. This reflex was recently observed again in connection with the COVID-19 crisis^{1,2}. Goodwill – for accounting purposes – describes a situation in which the purchase price paid for an entity exceeds not only the carrying amount of that entity's equity, but also the net assets remeasured at fair value. In fact, the goodwill reported by CDAX companies has risen steadily over the last few years.

Factors that influence it directly include the number of transactions carried out, the amount of the purchase prices paid, and the frequency and extent of write-downs recognized. In itself, each of these factors has contributed to the ongoing rise of goodwill. Given the strategic consolidation pressure in most sectors, and the emergence of new technologies and business models, companies are increasingly open to acquiring competitors or innovators and to paying high purchase prices in the hopes of realizing synergies. This development is getting an additional boost from access to cheap debt. Conversely, the introduction of the impairment-only approach (IOA), i.e. the abolition of goodwill amortization under IFRS, has resulted in write-downs on goodwill that are both only minor and relatively stable over time within a narrow range.

Indeed, the missing yearly goodwill amortization even seems to make companies more willing to pay higher purchase prices. For the higher the

purchase price and the resulting goodwill, the higher its amortization – and thus the reduction of earnings by the buyer in its financial statements – would have been. If goodwill had to be amortized, many companies would report only low profits, if any, in the first few years after the acquisition as the purchase price would offset the profits expected from the acquired company. The buyer's shareholders would only make a profit in the economic sense if the actual inflows after the acquisition were even higher than the amortizations based on the purchase price.

The current impairment concept has several severe flaws that the IASB has not yet been able to sort out. The root of the problem is that the impairment-only approach itself created a conflict of interests that cannot be unknotted. A company's management typically has no interest in goodwill impairment. On the contrary, the public would see such acquisitions as a management failure: either the purchase price paid was too high or integration efforts intended to leverage the synergies paid for have failed. Few managers would gladly welcome this discussion. The big exception, one that has been known for years, is a change in management: big bath accounting. Without "fear of loss of personal reputation", new management can attribute problems from the past to their predecessors, and in doing so even create a buffer for their own future, so that they will not be so quick to face the embarrassment of impairment for themselves. At the same time, this theoretically grants management the option of largely avoiding goodwill impairment. This

is achieved by the value in use (VIU) concept. Impairment is only possible if the higher of value in use and fair value is lower than the tested carrying amount of the cash-generating unit (CGU) to which goodwill is assigned. On the one hand, value in use is a subjective value, as is apparent from the fact that it is based on cash flows as predicted by management. On the other hand, the prediction as expressed by management planning is limited to previous investment, without taking the improvement or enhancement of the asset's performance (expansion investment) into account. The latter aspect is typically a challenge in practice, as management planning rarely makes a distinction between maintenance investment and expansion investment. On the basis of the lessons learned in practice, the IASB now even intends to overturn the ban on considering expansion investment. However, notwithstanding the simplification this would entail, it only exacerbates the underlying problem of impairment testing. If the assessment of the recoverability of goodwill paid for in the past is based on management forecasts for a CGU's cash flows on the measurement date, then not only will the acquired goodwill be confounded with internally generated goodwill (backdoor capitalization), but this effect may even be amplified further by synergies with other CGUs. As a result, future investment could be the deciding factor that makes previous investment recoverable. This problem is well known, and there has been heated debate about it within the IASB, but it still misses the point.

1 <https://www.finance-magazin.de/finanzabteilung/bilanzierung/corona-laesst-goodwill-positionen-explodieren-2061911/>

2 <https://www.goingpublic.de/going-public-und-being-public/abschreibungen-auf-goodwill/>

Goodwill – Steady in Turbulent Times?! (2/2)

If value in use – a subjective value – is the key factor in deciding whether previous investment is recoverable, then impairment will only be recognized when management no longer has any hope of recovery. Left up to management, this could be a point in time in the far distant future. At the same time, management might only hold this negative assessment for a very short time. This is presumably why we rarely see significant impairment losses, even in times of crisis: Most crises are of limited duration, and by the time they have been accepted as such and expectations crystalize (in the meantime people would prefer to “play it by ear”), there may already be the first glimmers of hope for a recovery on the horizon, which are immediately taken into account in management forecasts in order to avoid impairment.

Of course, management is not free to base its impairment testing planning on the most far-fetched hopes imaginable, as this is subject to scrutiny by auditors and regulators in particular. However, the value in use concept is not about applying the personal expectations of the auditor, the regulator or the market, but rather about acknowledging the subjective expectations that management already has. It is small comfort that management is supposed to attach greater importance to external sources when it prepares its planning. Intervention is only required, and indeed only permitted, when management bases its planning on expectations that it should never have reasonably entertained. However, proving this is a significantly greater challenge than, for example, reflecting market expectations. So it

comes as no surprise that, even during the financial and sovereign debt crisis of 2007/2008, the volume of goodwill impairment remained low, and indeed the greater part of the total is only declared in a few cases.

Given these fundamental aspects that argue against the impairment-only approach, the question arises of why the alternative – goodwill amortization – has not yet caught on. It should first be pointed out that introducing goodwill amortization would not solve all the problems talked about here, as impairment losses might still be required. However, if we look at the current level of goodwill in the CDAX of EUR 364 billion and assume a general amortization period of 10 to 15 years, that would produce an annual amortization volume of EUR 24 to EUR 36 billion, a significantly higher amount than the IOA write-downs seen to date of approximately EUR 4 to 5 billion per year, which would greatly reduce pressure on additional goodwill impairment. And the key criticism opposing an amortization concept should be revisited. It is based on the proposition that a straight-line amortization would be arbitrary, and would not reflect the actual circumstances. Goodwill would not automatically evaporate and the rate of its depletion would not be plannable ex ante.

But this actually reverses the inherent logic, because the normal scenario is that goodwill dissipates. Goodwill represents elements that cannot be recognized as an asset (such as new customer relationships, workforce) on the one hand, and expected synergies on the other.

Economically, this is based on the expectation that the buyer will generate excess returns in the future that cannot yet be explained by the intangible assets identified and recognized. However, these excess returns will dissipate on account of the competitive process.

Sooner or later, cost and revenue synergies have to be passed on to customers. Technical change and the restructuring of entire value chains mean that there is always something new to invest in, and the useful lives of previous investments will always grow shorter. So, dissipation should in fact be seen as the norm. At most, the question of how long the amortization period should be is open to discussion. Drawing the reverse conclusion that opting out of amortization would be preferable because of the unavoidable imprecision (which applies to all other assets as well) of this estimate seems at least worth debating. Many market participants consider the current approach found in the German Commercial Code of setting an individual amortization period for goodwill on the basis of objectively verifiable criteria to be reasonable. If in doubt, a shorter period should be chosen. A period of 10 years should only be chosen when a reliable estimate of useful life is not possible. How long the maximum amortization period should be is almost secondary. The amortization periods currently used for intangible assets suggests that a period of 10 to 15 years would be reasonable. For now, we can only watch with great anticipation how the IASB's current discussion of the subsequent measurement of goodwill continues to unfold.

4.2 Triggering Event

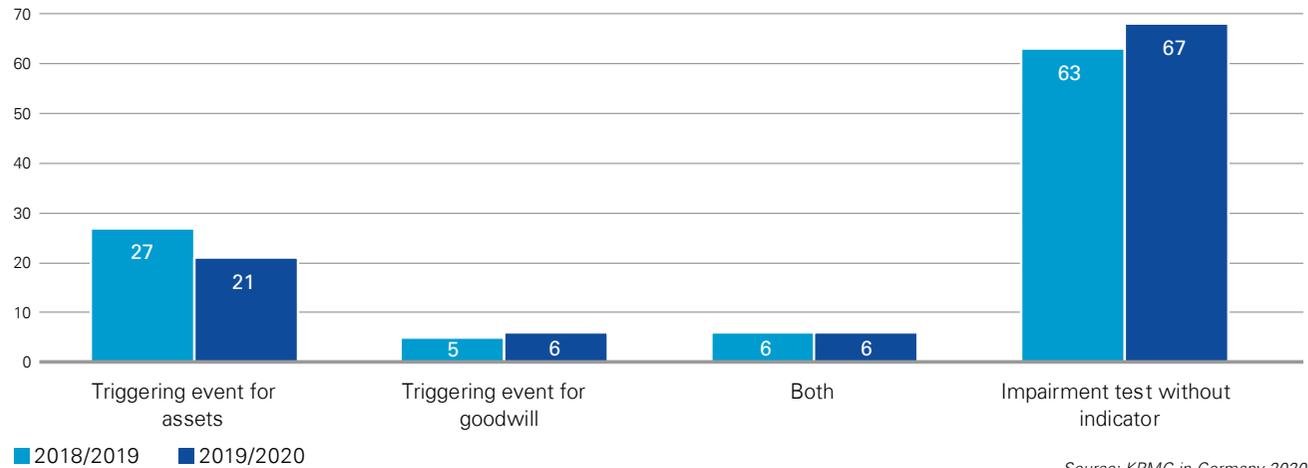
According to IFRS, for goodwill an impairment test has to be performed on a yearly basis within the scope of the annual financial statements. An extraordinary impairment test based on a so-called triggering event, i.e. an indicator of an impairment, was performed by only about a third of the participating companies.

As in previous years, the majority of causes of triggering events were poorer long-term expectations. Especially, within the industries Automotive, Industrial Manufacturing, Financial Services and Transport & Leisure poorer long-term expectations significantly increased (by round 30 percentage points) as the cause of triggering events.

Only one percent of the participants reported the cost of capital as the triggering event for an impairment.

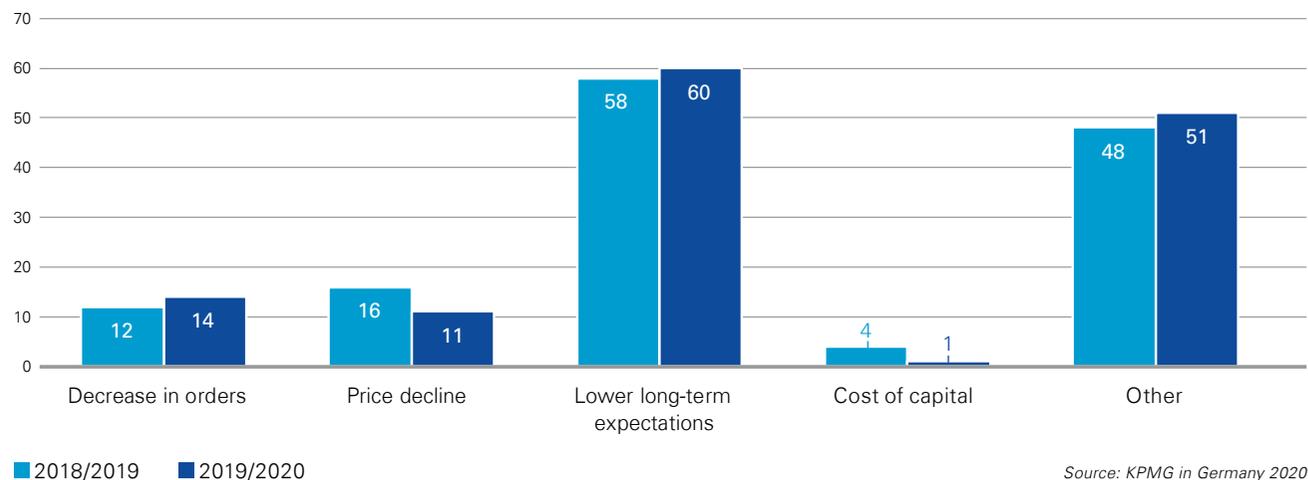
A correlation between the level of the cost of capital and the possibility of an impairment due to a triggering event cannot be derived based on the surveyed companies.

41 Triggering event Total (in percent)



Source: KPMG in Germany 2020

42 Cause of the triggering event Total (in percent, multiple choices possible)



Source: KPMG in Germany 2020

4.3 Plausibility

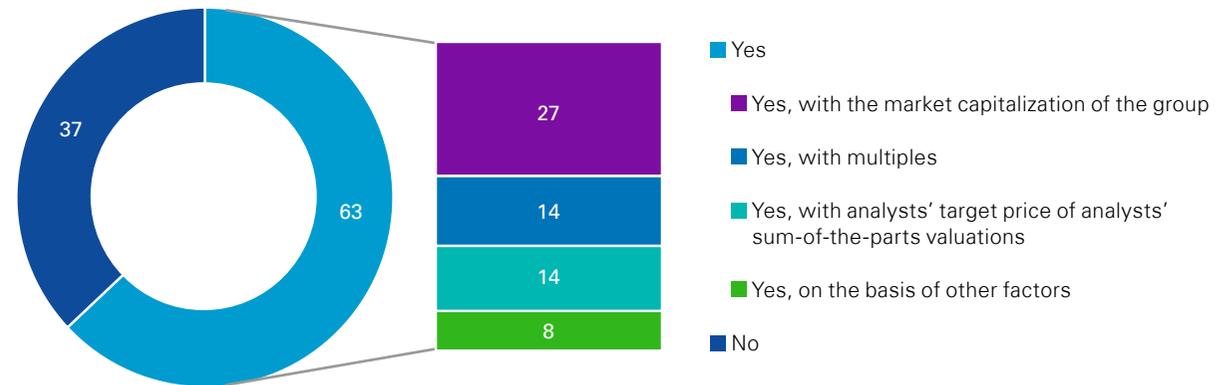
Due to the fact that the fair value less costs of disposal concept is a matter of the exit price and therefore primarily a matter of the estimate of the potential purchasers, the IFRS, especially for this concept, foresees a plausibility test of the market participants. To assure the risk equivalence of the cost of capital, we recommend also performing a comparison with the market expectations when calculating the value in use.

As market capitalization only reflects to a limited degree the control or a significant influence on the company – because of the frequently low number of shares traded – it may be recommendable within the reconciliation to consider a control premium. Furthermore, in a comparison of the values obtained according to the value in use method with the market capitalization, the valuation perspective and the information available to the capital market could play a role. Therefore, along with the market capitalization of the group, the industry and analysts' reports as well as multiples should always be used for the plausibility test.

A plausibility test of the valuation results was performed by the majority of the participating companies.

43 Plausibility of valuation results

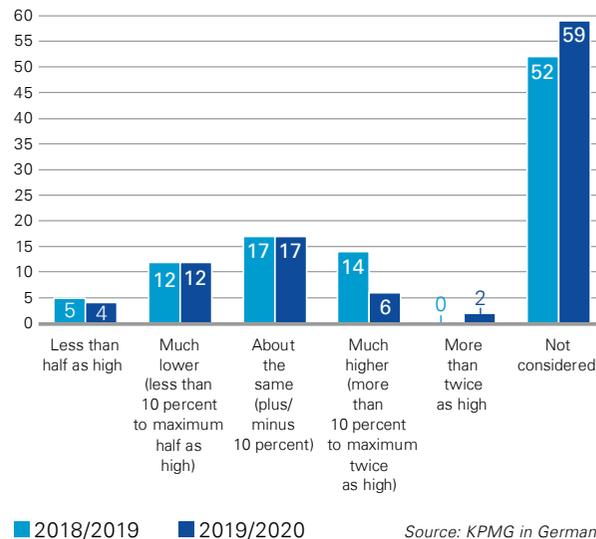
Listed companies, total (in percent, multiple choices possible)



Source: KPMG in Germany 2020

44 Comparison of market capitalization to fair value less cost of disposal

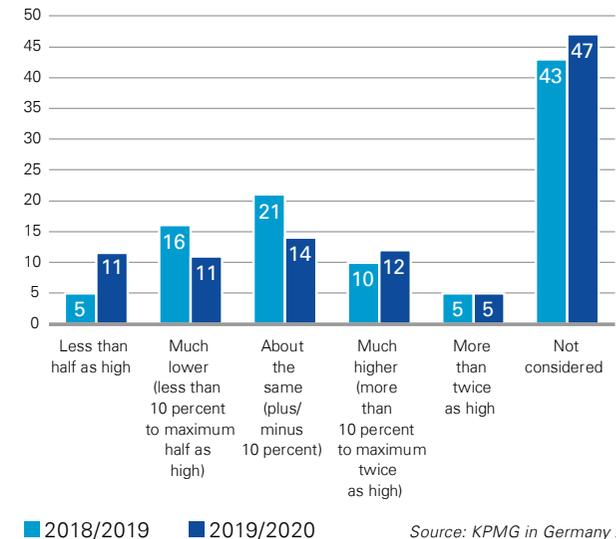
Listed companies (in percent)



Source: KPMG in Germany 2020

45 Comparison of market capitalization to value in use

Listed companies (in percent)



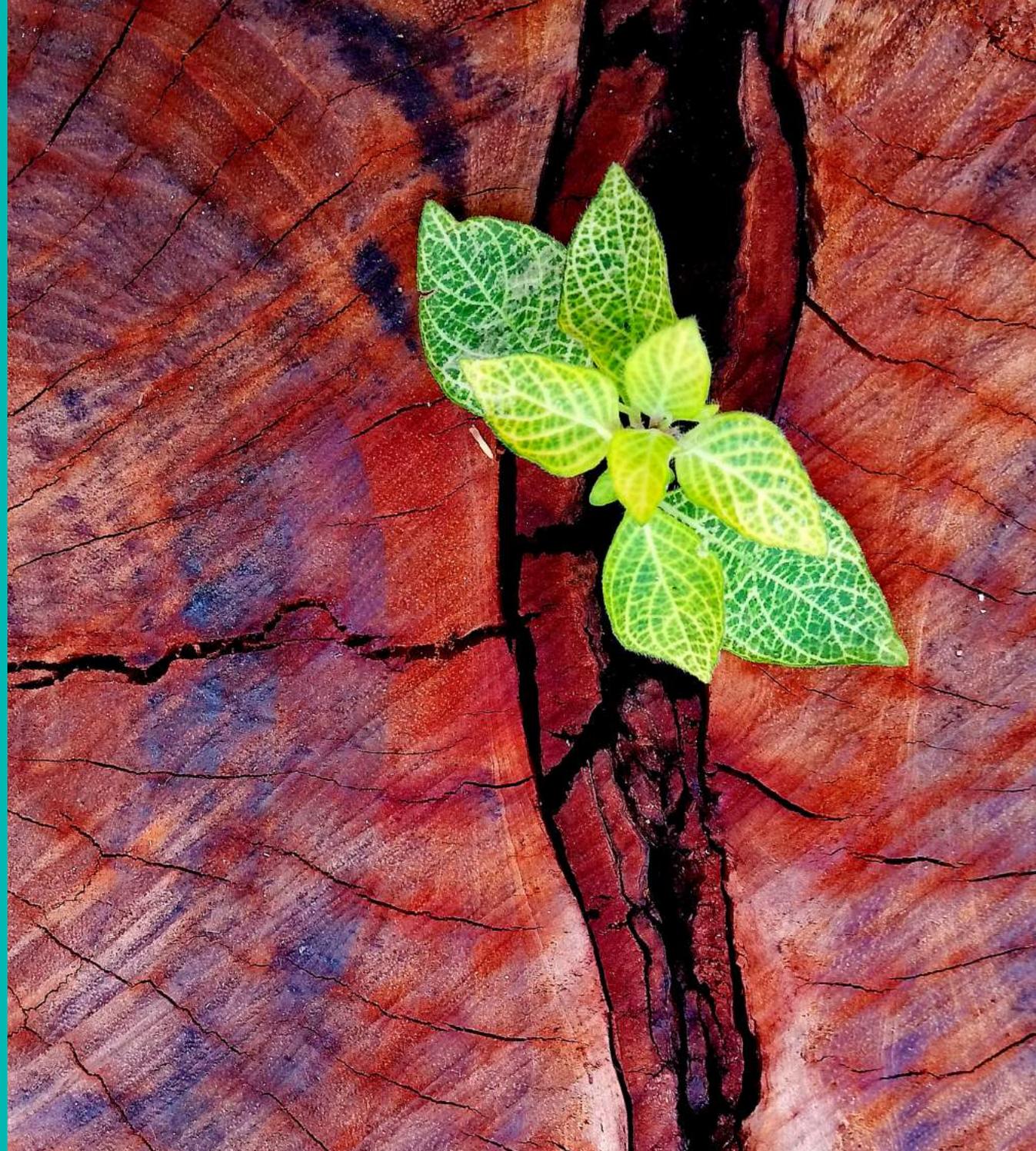
Source: KPMG in Germany 2020

5 Relevance of Value and Enhancement of Value

5.1 Criteria for Investment Decisions

5.2 Cost of Capital in Capital Market
Communication

5.3 Sustainability



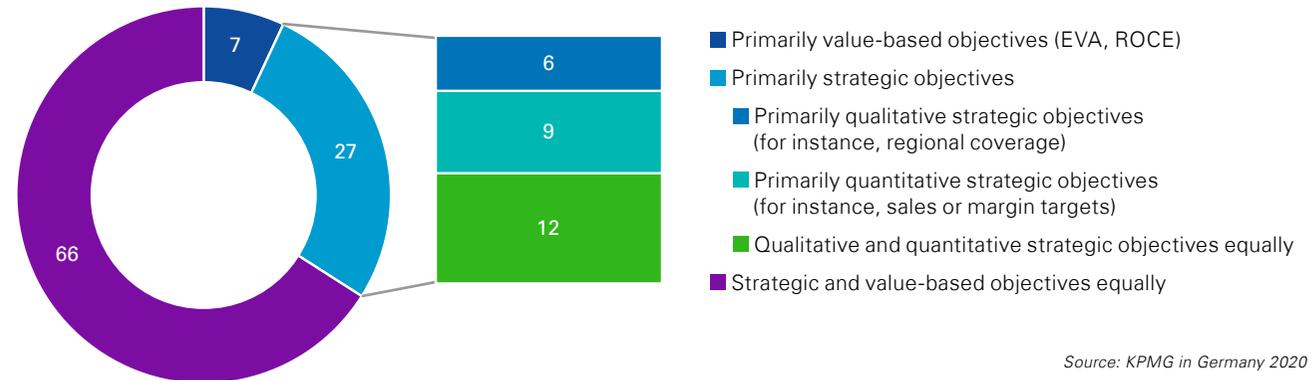
5.1 Criteria for Investment Decisions

Investment decisions have to be evaluated transparently and consistently in order to ensure optimal development of the firm's portfolio.

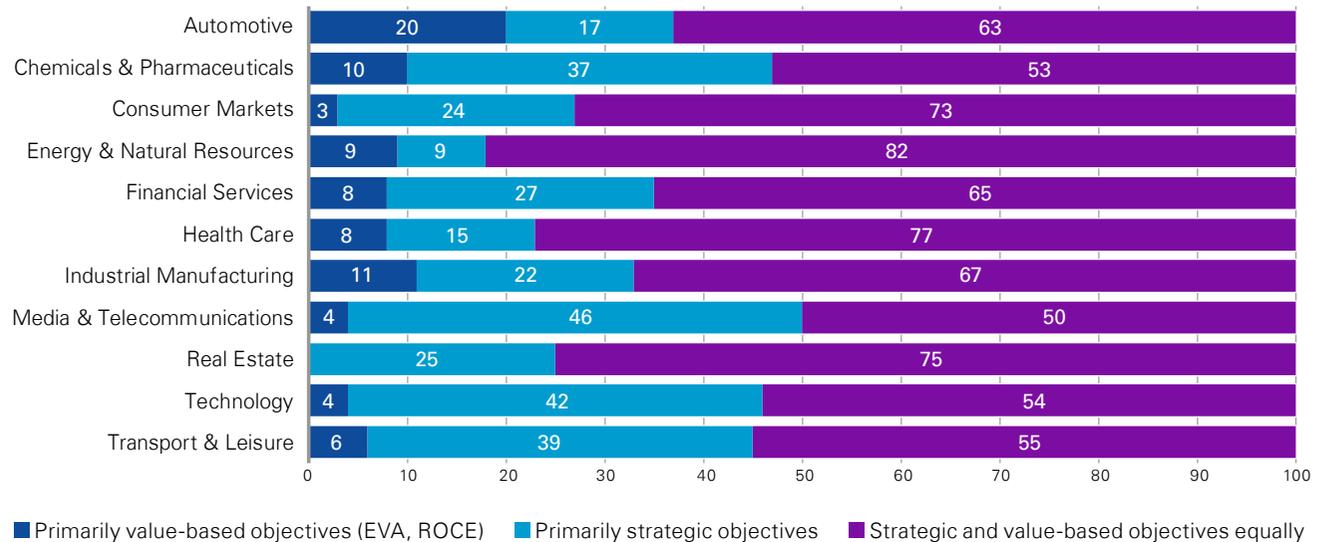
The objectives must be stipulated in the framework of investment decisions. Investment decisions are typically oriented on strategic or value-based objectives.

Investment decisions are, as a rule, long-term by nature. In times of macroeconomic uncertainties and microeconomic changes from disruptive business models, companies are constantly faced with new challenges to properly consider the valuation-relevant risks in the assessment of investment decisions. Furthermore, the continuing low interest rates, associated with favorable or readily accessible financing opportunities, may result in an underestimation of the risks that are associated with the target returns of investments and not reflect them completely in the decision-making process.

46 Criteria in investment decisions Total (in percent)



47 Criteria in investment decisions by industry (in percent)



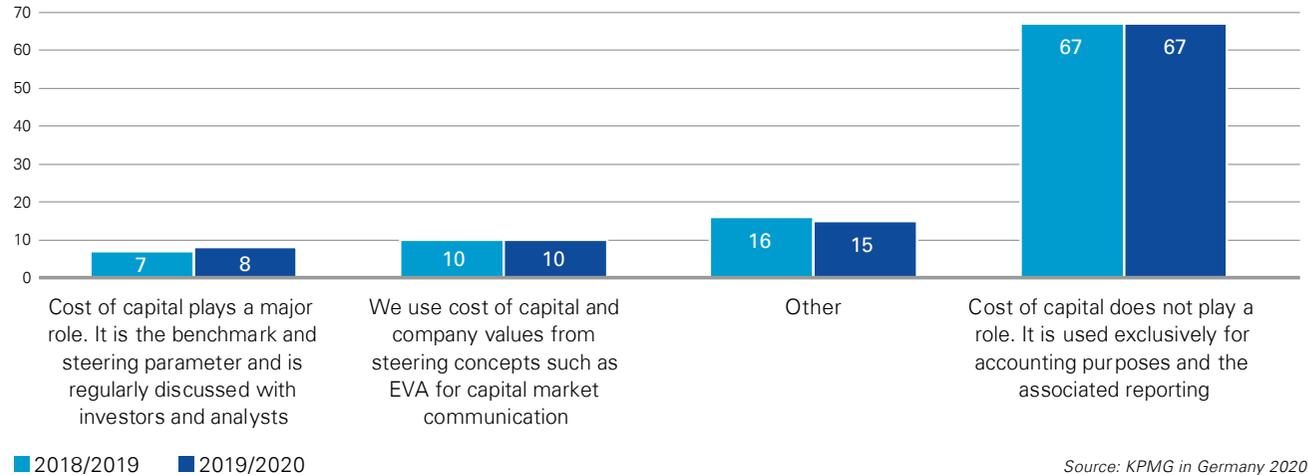
5.2 Cost of Capital in Capital Market Communication

The regulatory framework requires companies to immediately disclose non-public information that could affect stock prices. Cost of capital, however, is often disregarded in the context of capital market communication.

If a company's cost of capital is communicated transparently, it can assist shareholders in better quantifying the risk they have taken and to identify changes in the risk structure of their investment.

Overall, the indicated communication behavior to the capital market of this study's participants does not differ materially from the previous year.

48 Communication and use of the cost of capital Total (in percent)



Source: KPMG in Germany 2020

5.3 Sustainability

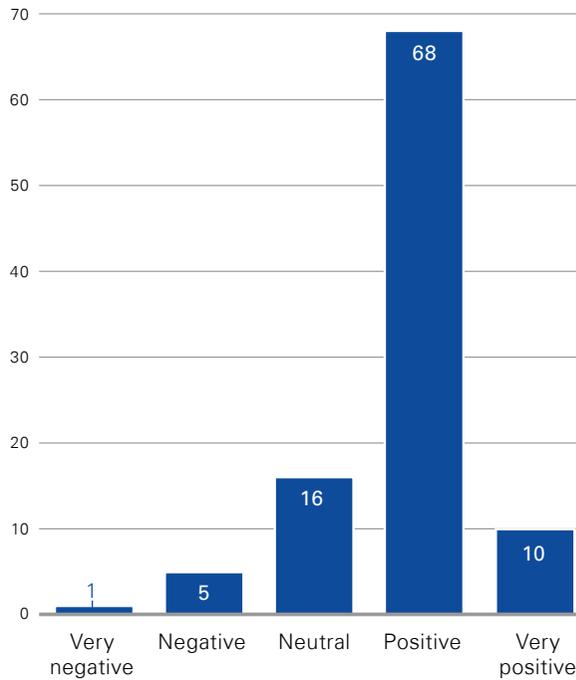
In recent years the importance of sustainability issues for companies and the reporting to shareholders therein has increased.

Sustainability has many faces that not only include ecological/environmental aspects but are further influenced by economic, social and political factors.

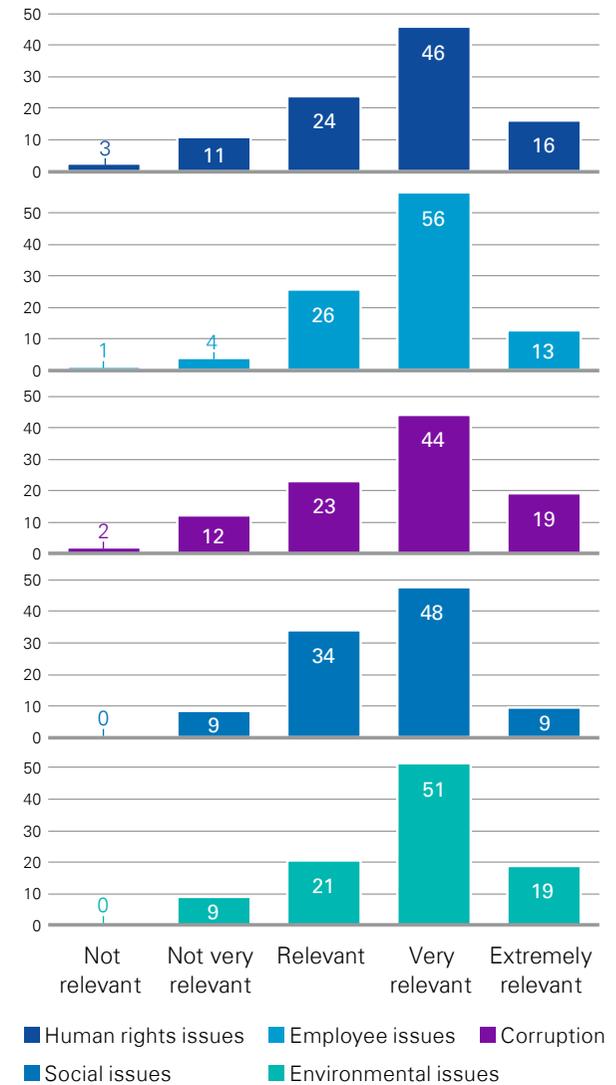
For future developments it is questionable to what extent sustainability aspects will affect margins mid- to long-term and even the viability of entire business models as a whole. Resulting adjustments and changes to be made in the medium and long-term remain unknown.

The majority of participating companies consider the impact of sustainability issues on their future business development to be positive.

49 Impact of sustainability issues on future business development
Total (in percent)



50 Relevance of sustainability issues
Total (in percent)



Source: KPMG in Germany 2020

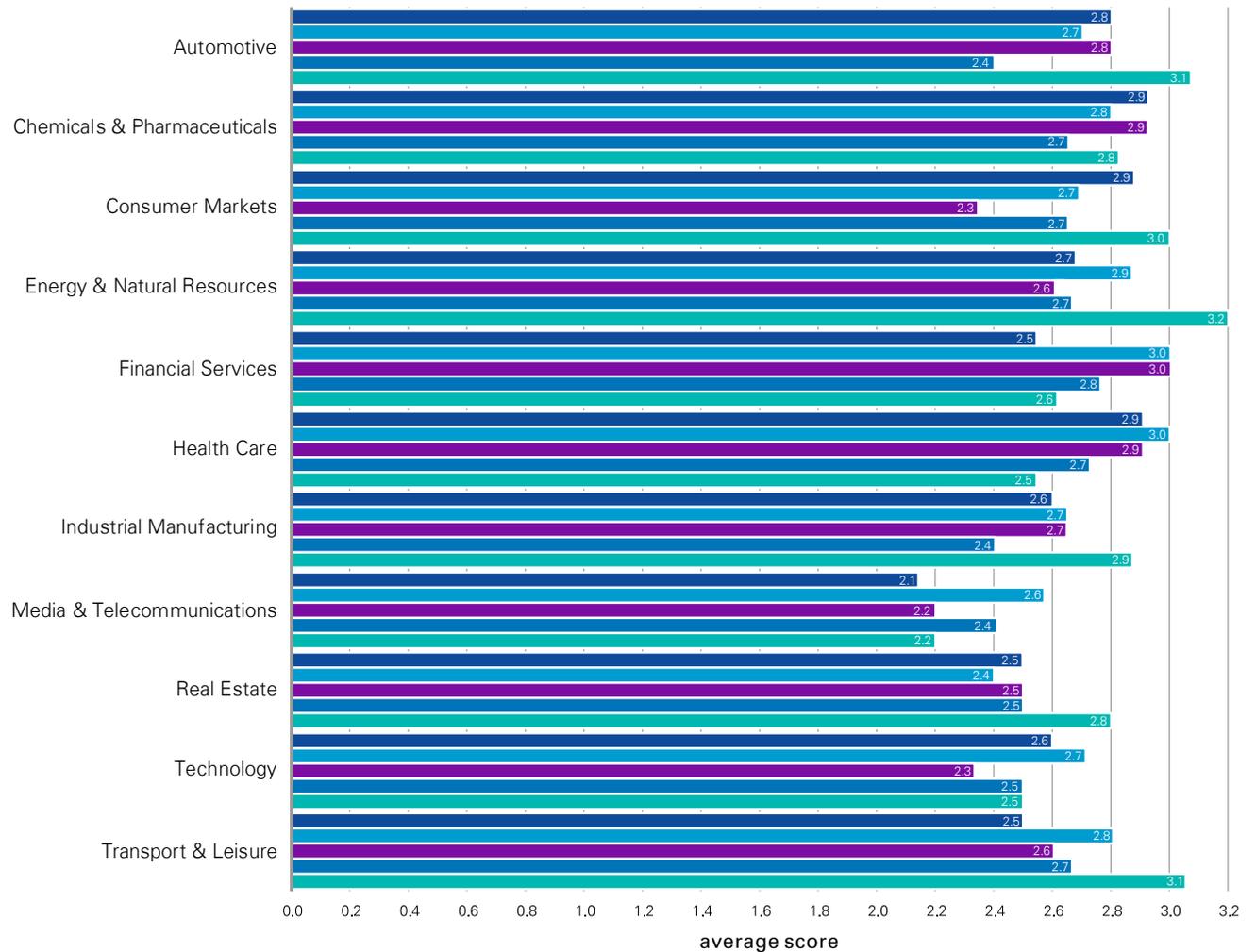
Especially, the relevance of environmental issues on future business developments is rated particularly high in several industries including the Automotive, Consumer Markets, Energy & Natural Resource, Industrial Manufacturing, Real Estate, Transport and Leisure sectors.

For the industries, where environmental topics are not the most relevant sustainability issues, employee interests are highly rated (e.g. Media & Telecommunications).

When comparing the importance of sustainability issues with the number of countries the companies are operationally active in, we could see a clear tendency that sustainability issues like combating corruption or human rights are more important for companies that are operating in more than one country.

51 Relevance of sustainability issues by industry

Total (Scoring)



■ Human rights issues ■ Employee issues ■ Corruption ■ Social issues ■ Environmental issues

Scoring model:

0 Not relevant 1 Not very relevant 2 Relevant 3 Very relevant 4 Extremely relevant

Source: KPMG in Germany 2020

Exceptional Times – New Valuation Methods? (1/2)

Market volatilities have also increased over the past few years: digitalization, disruptive new business models, trade disputes or the Covid-19 pandemic are just a few of the key words that trigger such volatilities. Our economic, political and natural environment is subject to an accelerated process of change and the associated changing uncertainties. Corporate decisions based on logical decision-making models and methods (should) must be made consistently, transparently and quickly in a dynamically changing environment. Decision models that have been established in corporate practice are typically based on valuation models. These assign a 'price tag' to each decision – a specific value assessment that allows quantifying existing courses of action and thereby giving them a specific order of preference. As with any model, decision and valuation models should on the one hand help reduce the great complexity of actual circumstances, and on the other be sufficiently accurate to be able to make decisions consistently, verifiably and within a reasonable time. Rapidly changing corporate environments raise the issue of whether new valuation methods are required in order to take the right decisions also in the future.

Need for new approaches?

The short answer to this question is: From our perspective, there is no need for new valuation methods and any decision methods based on these. The observable changes in the corporate environment do not call into question the fundamental principles of economic activity.

Furthermore, it can be assumed that from a global perspective there is no oversupply of existential goods and services that are met with a decline in demand. Therefore, resources in short supply will also have to be allocated efficiently in future in order to ensure that demand is met with optimal supply. The necessary investments will be based, as before, on the expected future returns from these as well as potential competing alternative investments.

The current challenges are not the applicable valuation methods themselves, but rather their proper application and design. Therefore, the complexity of the described changes in the corporate environment results not only in more complex expected future inflows and outflows associated with a decision due to changing uncertainties. The observable changes also make the parameters required for alternative investments – the desired expected rates of return or cost of capital – more difficult. For decision-making purposes, the cost of capital has so far been typically derived from capital market data. This is due to valuation approaches based on theoretical capital market models on the one hand, and on the other, the availability of parameters relevant for valuation – which are virtually unlimited for the global capital markets. This is compounded by the widely held belief in practice that markets are never wrong. Global uncertainties therefore equally affect expected cash flows and cost of capital and thus make it more difficult to adhere to the equivalence conditions for valuation calculations and to avoid “comparing apples and oranges”.

Cash flows

Conceptually, a highly complex corporate environment only makes the decision regarding the necessary establishment of expectations of future cash flows more difficult. However, uncertainty is not a new phenomenon when it comes to decision-making processes. Well-known scenario and simulation methods are increasingly gaining acceptance as planning techniques, which ultimately cannot guarantee the absolute amounts and timing of the future cash flows condensed into expected values. However, they create a quantifiable connection between the items to be assessed and their 'price tag' and thereby a sufficient degree of transparency and verifiability. This is because the objective at the time of making a decision, by its very nature, cannot be to transform an uncertain future event into a certain outcome, but to include all information available and relevant when making a decision properly in the decision-making process and therefore also in the valuation result.

This is associated, in our view, with a shift in the weighting of available information. While, in the past, the focus of initial assessments was often on internal corporate information because it was easily available, publicly available information will be included in the decision-making process much more strongly in future, which will become exponentially more readily available – not least driven by technology.

Exceptional Times – New Valuation Methods? (2/2)

This could even change the prioritization and direction of the decision-making process: subjective corporate assessments will no longer be reflected in market benchmarks, but a factual analysis based solely on the market in a first step will be supplemented with relevant company-specific information. Ultimately, the transformation of company-specific business models into value driver logics results in flexible planning models which – filled with increasingly available data – form the basis for simulation-based planning methods. Such a changed approach would also be consistent with regulatory requirements, for example the measurement standards of international financial reporting standards.

Cost of capital

If the cost of capital is derived based on capital market data, major volatilities in the capital markets can lead to inaccuracies. However, a distinction should be made between method- and data-driven items and it must be regularly reviewed what exactly needs to be assessed, which model is most appropriate for the purpose and whether the required parameters are available.

If deriving values relevant for making decisions is the main focus, then deriving the equivalent expected total return remains decisive for determining the cost of capital. Observable volatilities and trends for the known individual parameters risk-free interest rate, market risk premium and beta coefficient are far less relevant in this context than is commonly discussed in

valuation practice. If the expected total return is considered the correct starting point, it shows a relatively stable average trend despite the economic turmoil in recent years. The extent to which the total return is broken down into risk-free interest rate and market risk premium (as the difference between total return and risk-free interest rate) is ultimately less decisive for the amount of total return. Instead it should be taken into account in the discussion to what extent there may be indications of a trend in the future total expected rate of return. While it is more important to include macroeconomic trends in the assessment of market yield as a whole, company-specific beta coefficients are largely determined by microeconomic factors.

For a company-specific measure of risk, significant changes in beta coefficients should be caused by changes in the business model. Particularly during periods of time that are subject to major rate and yield volatilities, beta coefficients calculated on that basis should be critically reviewed, as their changes may be caused merely by temporary distortions of capital market data. Once again it should be taken into account that the expected operational risk from future cash flows is relevant for valuation purposes and that using historical beta coefficients – derived from capital market data – only provides an initial indication. Peer group-based methods should therefore be supplemented with new simulation-based approaches that determine company-specific beta coefficients directly on the basis of individual business models and expected future cash flows derived therefrom.

Expanding established decision-making and valuation approaches

Expanding value-driven decision-making and valuation approaches through simulation-based methods is gaining in significance in response to a more volatile corporate environment. These methods allow the inclusion and structuring of complex matters as well as processing of information relevant to valuation. The resulting transparency with regard to expected future cash flows and the corresponding cost of capital for equivalent risk, in addition to improved method consistency, lead to corporate decisions that are not only resilient but can also be communicated.



6 Online Industry Analyses



All industry-specific cost of capital parameters are provided in addition to the findings of the study on hand.

The data can be accessed via www.kpmg.de/cost-of-capital-study. Both the forecasting figures as well as the cost of capital parameters from this year's and previous studies are included. In the interactive online version, search criteria can be individually selected in order to retrieve industry and/or country specific information and to display developments over time.

The level of detail of industries can be increased by selecting the data of sub-sectors.

As in the previous year, we have performed separate assessments of sector/sub-sectors for which we had responses from at least five participants.

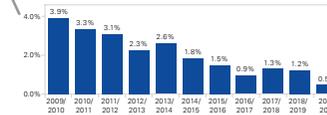
52 Instructions for KPMG Cost of Capital Study 2020 interactive

PARAMETER TOTAL shows the development of the parameter based on all participants

2

KPMG Cost of Capital Study 2020

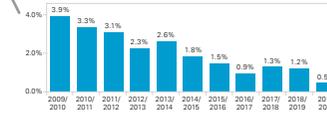
After a slight decline in the previous year, the average risk-free rate significantly declined and reached its lowest level since the study has been published.



PARAMETER FILTERED shows the development of the parameter based on the selected filter(s)

3

Individualized analysis Risk-free Rate



GENERAL INFORMATION ON FILTERS

1. Only one selection is possible per filter (country, industry, family-owned, company size)
2. Filters may be combined (e.g. Germany + automotive sector)
3. A separate evaluation only takes place, if at least 5 answers were submitted

1 ANALYZED PARAMETER specifies the parameter analyzed on this page

5 FILTER DAX-30 shows the development of the parameter exclusively on the basis of the participants in the DAX-30 index from Germany

6 FILTER FAMILY-OWNED COMPANIES shows the development of the parameter exclusively on the basis of the participants, who have classified themselves as family-owned companies or not-family-owned companies

7 FILTER BY COUNTRY shows the development of the parameter exclusively on the basis of the participants from the selected country

8 FILTER BY COMPANY SIZE shows the development of the parameter exclusively on the basis of the participants, who have been classified by sales as small (< €50 m), medium (€50 m to €1 b), medium/large (€1.1 b to €10 b) and large (> €10 b)

9 FILTER BY INDUSTRY shows the development of the parameter exclusively on the basis of the selected industry

4 NUMBER OF ANSWERS indicates the number of answers which is the basis for the calculation of the average

Year	2013	2014	2015	2016	2017	2018	2019	2020
n	112	122	175	187	161	209	166	

Source: KPMG in Germany 2020

List of Abbreviations

ATX	Austrian Traded Index	IDW	“Institut der Wirtschaftsprüfer in Deutschland e.V.”: Institute of Public Auditors in Germany, Incorporated Association
CAPM	Capital Asset Pricing Model	IFRS	International Financial Reporting Standards
CDAX	Composite German Stock Market Index, composite Index of all Stocks that are listed in the General or Prime Standard of the German Stock Exchange	IOA	Impairment-only Approach
CGU	Cash Generating Unit	KFS/BW	“Fachsenat für Betriebswirtschaft in Österreich des KSWÖ”: Council of Experts for Business Administration
DAX	Main German Stock Exchange	KSW	“Kammer der Steuerberater und Wirtschaftsprüfer in Österreich”: Chamber for Tax Advisors and Auditors in Austria
DAX-30	The 30 largest blue chips on the main German Stock Exchange	M&A	Mergers & Acquisitions
DCF	Discounted Cash Flow	MDAX	German Mid Caps Stock Index
Debt Ratio	Ratio of Market Value of (Net) Debt to Market Value of Total Capital (Entity Value)	n/m	not meaningful
EBIT	Earnings Before Interest and Taxes	P&L	Profit & Loss Statement
EBITDA	Earnings Before Interest and Taxes, Depreciation and Amortization	ROCE	Return on Capital Employed
EVA	Economic Value Added	SDAX	Small Caps, the companies following the MDAX with market capitalization and exchange turnover
FamDAX	DAXplus Family 30 Index, consists of the 30 largest and most liquid family-owned businesses in the Prime Standard of the German Stock Exchange	SMI	Swiss Market Index
FAUB	“Fachausschuss für Unternehmensbewertung und Betriebswirtschaft des IDW”: Technical Committee for Business Valuation and Economics of the IDW	S&P	Standard & Poor’s
IAS	International Accounting Standards	TecDAX	Stock Index including the Performance of the 30 largest German Companies from the Technology Sector
IASB	International Accounting Standards Board	WACC	Weighted Average Cost of Capital

Your Industry Specialists

KPMG in Germany



Automotive
Olaf Thein

Partner
Deal Advisory
Head of Valuation Germany
T +49 89 9282-1579
othein@kpmg.com



Consumer Markets
Retail
Stephan Fetsch

Partner
T +49 221 2073-5534
stephanfetsch@kpmg.com



Energy & Natural Resources
Michael Killisch

Partner
T +49 211 475-6325
mkillisch@kpmg.com



Asset Management
Private Equity
Ralf Beunker

Partner
T +49 69 9587-3733
rbeunker@kpmg.com



Building & Construction
Industrial Products
Michael Hahn

Director
T +49 711 9060-41163
michaelhahn@kpmg.com



Chemicals & Pharmaceuticals
Health Care
Christian Klingbeil

Partner
T +49 89 9282-1284
cklingbeil@kpmg.com



Automotive
Prof. Dr. Marc Castedello

Partner
T +49 89 9282-1145
mcastedello@kpmg.com



Real Estate
Tina Haller

Director
T +49 89 9282-6888
thaller@kpmg.com



Chemicals & Pharmaceuticals
Health Care
Patrick Klingshirn

Director
T +49 89 9282-4594
pklingshirn@kpmg.com



Consumer Markets
Retail
Karen Ferdinand

Partner
T +49 69 9587-6500
kferdinand@kpmg.com



Financial Services
Gudrun Hoppenburg

Director
T +49 69 9587-2640
ghoppenburg@kpmg.com



Technology, Media &
Telecommunications
Private Equity/Venture Services
Dr. Michael Kramer

Partner
T +49 89 9282-4213
michaelkramer@kpmg.com



Technology
Telecommunications
Dr. Gunner Langer
Director
T +49 69 9587-2830
glanger@kpmg.com



Consumer Markets
Telecommunications
Transport & Leisure
Stefan Schöniger
Partner
T +49 40 32015-5690
sschoeniger@kpmg.com



Public Sector
Building & Infrastructure
Transport & Leisure
Dr. Andreas Tschöpel
Partner
T +49 30 2068-1488
atschoepel@kpmg.com



Real Estate
Gunther Liermann
Partner
T +49 69 9587-4023
gliermann@kpmg.com



Industrial Manufacturing
Dr. Jakob Schröder
Partner
T +49 89 9282-1471
jakobschroeder@kpmg.com



Real Estate
Sven Weberbauer
Director
T +49 211 475-7059
sweberbauer@kpmg.com



Real Estate
Andreas Lohner
Director
T +49 89 9282-4926
alohner@kpmg.com



Financial Services
Timo Schuck
Partner
T +49 69 9587-1699
tschuck@kpmg.com



Industrial Manufacturing
Ralf Weimer
Director
T +49 89 9282-1150
rweimer@kpmg.com



Financial Services
Rudolf Maurer
Director
T +49 89 9282-1348
rudolfmaurer@kpmg.com



Media
Heike Snellen
Director
T +49 211 475-7062
hsnellen@kpmg.com



Financial Services
Frieder Zschiesche
Partner
T +49 711 9060-43797
fzschiesche@kpmg.com

KPMG in Austria



Dr. Klaus Mittermair

Partner
Head of Deal Advisory Austria
T +43 732 6938-2151
kmittermair@kpmg.at



Dr. Jens Kaden

Partner
T +43 1 31332-3612
jkaden@kpmg.at



Victor Purtscher

Partner
T +43 1 31332-3700
vpurtscher@kpmg.at

KPMG in Switzerland



Johannes Post

Partner
Deal Advisory,
Global Head of Valuation Services
T +41 58 249-3592
jpost@kpmg.com



Rolf Langenegger

Director
T +41 58 249-4271
rlangenegger@kpmg.com

Contact

KPMG AG
Wirtschaftsprüfungsgesellschaft

Overall responsibility

Stefan Schöniger

Partner

Deal Advisory, Valuation
Ludwig-Erhard-Strasse 11–17
20459 Hamburg
T +49 40 32015-5690
sschoeniger@kpmg.com

Technical coordination

Prof. Dr. Marc Castedello

Partner

Deal Advisory, Valuation
Ganghoferstrasse 29
80339 Munich
T +49 89 9282-1145
mcastedello@kpmg.com

www.kpmg.de

www.kpmg.de/socialmedia



The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2020 KPMG AG Wirtschaftsprüfungsgesellschaft, a corporation under German law and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.