Cost of Capital - Newsletter

Issue 08 | 2019

Estimating realistic costs of capital is crucial for making investment or transaction-related decisions. The risk-free rate, risk premium derived from the market risk premium and beta factor, additional risk premiums, such as the country risk premium, as well as the terminal value growth rate are essential for determining the cost of capital. Here you will find the most recent data and information regarding the individual cost of capital parameters.

Risk-free rate

The risk-free rate refers to the yield of a risk-free alternative investment in a specific currency. Government bonds are usually used to determine this. The use of spot rates ensures the required term equivalence between cash flows and cost of capital. A unified risk-free rate aggregates the various spot rates over the term of valuation into one value on a simplified basis.

The risk-free rates represent the respective unified risk-free rates for an indefinite term as normally applied in valuations.

The following overview shows risk-free rates for other dates.

Risk-free rate	GER (EUR)	Euro-AAA (EUR)	USA (USD)	UK (GBP)
Rounded	0.20%	0.20%	2.50%	1.50%
Exact	0.21%	0.23%	2.59%	1.39%

Source: KPMG analysis

Contents

	Germany Risk free rate (EUR)		Euro-AAA rated countries Risk free rate (EUR)		USA Risk free rate (USD)		UK Risk free rate (GBP)	
	Exact	Rounded	Exact	Rounded	Exact	Rounded	Exact	Rounded
29 Feb 2016	1.265%	1,25%	1,452%	1,50%	3,053%	3,00%	2,609%	2,50%
31 Mar 2016	1.121%	1.00%	1.298%	1.25%	2.958%	3.00%	2.522%	2.50%
30 Apr 2016	1.000%	1.00%	1.138%	1.25%	2.894%	3.00%	2.468%	2.50%
31 May 2016	1.008%	1.00%	1.098%	1.00%	2.894%	3.00%	2.458%	2.50%
30 Jun 2016	0.891%	1.00%	0.947%	1.00%	2.824%	2.75%	2.355%	2.25%
31 Jul 2016	0.737%	0.70%	0.771%	0.80%	2.697%	2.75%	2.125%	2.00%
31 Aug 2016	0.567%	0.60%	0.592%	0.60%	2.569%	2.50%	1.809%	1.75%
30 Sep 2016	0.537%	0.50%	0.560%	0.60%	2.517%	2.50%	1.608%	1.50%
31 Oct 2016	0.612%	0.60%	0.632%	0.60%	2.586%	2.50%	1.622%	1.50%
30 Nov 2016	0.766%	0.80%	0.791%	0.80%	2.789%	2.75%	1.840%	1.75%
31 Dec 2016	0.951%	1.00%	0.974%	1.00%	3.056%	3.00%	2.030%	2.00%
31 Jan 2017	1.106%	1.00%	1.134%	1.25%	3.231%	3.25%	2.131%	2.25%
28 Feb 2017	1.201%	1.25%	1.228%	1.25%	3.285%	3.25%	2.120%	2.00%
31 Mar 2017	1.250%	1.25%	1.279%	1.25%	3.274%	3.25%	2.060%	2.00%
30 Apr 2017	1.226%	1.25%	1.255%	1.25%	3.258%	3.25%	1.972%	2.00%
31 May 2017	1.256%	1.25%	1.271%	1.25%	3.233%	3.25%	1.921%	2.00%
30 Jun 2017	1.239%	1.25%	1.248%	1.25%	3.120%	3.00%	1.881%	2.00%
31 Jul 2017	1.325%	1.25%	1.344%	1.25%	3.087%	3.00%	1.938%	2.00%
31 Aug 2017	1.318%	1.25%	1.340%	1.25%	3.016%	3.00%	1.937%	2.00%
30 Sep 2017	1.348%	1.25%	1.368%	1.25%	3.005%	3.00%	1.970%	2.00%
31 Oct 2017	1.327%	1.25%	1.345%	1.25%	3.001%	3.00%	1.981%	2.00%
30 Nov 2017	1.322%	1.25%	1.350%	1.25%	2.997%	3.00%	2.009%	2.00%
31 Dec 2017	1.293%	1.25%	1.324%	1.25%	2.982%	3.00%	1.995%	2.00%
31 Jan 2018	1.302%	1.25%	1.321%	1.25%	2.961%	3.00%	1.961%	2.00%
28 Feb 2018	1.347%	1.25%	1.360%	1.25%	3.049%	3.00%	1.983%	2.00%
31 Mar 2018	1.365%	1.25%	1.378%	1.50%	3.146%	3.25%	1.976%	2.00%
30 Apr 2018	1.336%	1.25%	1.354%	1.25%	3.204%	3.25%	1.984%	2.00%
31 May 2018	1.294%	1.25%	1.303%	1.25%	3.175%	3.25%	1.920%	2.00%
30 Jun 2018	1.256%	1.25%	1.265%	1.25%	3.137%	3.25%	1.907%	2.00%
31 Jul 2018	1.193%	1.25%	1.201%	1.25%	3.099%	3.00%	1.870%	1.75%
31 Aug 2018	1.126%	1.25%	1.137%	1.25%	3.071%	3.00%	1.841%	1.75%
30 Sep 2018	1.114%	1.00%	1.125%	1.00%	3.104%	3.00%	1.871%	1.75%
31 Oct 2018	1.135%	1.25%	1.147%	1.25%	3.228%	3.25%	1.953%	2.00%
30 Nov 2018	1.148%	1.25%	1.159%	1.25%	3.349%	3.25%	2.028%	2.00%
31 Dec 2018	1.091%	1.00%	1.107%	1.00%	3.348%	3.25%	2.016%	2.00%
31 Jan 2019	0.994%	1.00%	1.018%	1.00%	3.263%	3.25%	1.960%	2.00%
28 Feb 2019	0.879%	0.90%	0.907%	0.90%	3.170%	3.25%	1.872%	1.75%
31 Mar 2019	0.821%	0.80%	0.853%	0.90%	3.149%	3.25%	1.812%	1.75%
30 Apr 2019	0.765%	0.80%	0.799%	0.80%	3.124%	3.00%	1.769%	1.75%
31 May 2019	0.713%	0.70%	0.713%	0.70%	3.063%	3.00%	1.733%	1.75%
30 Jun 2019	0.600%	0.60%	0.600%	0.60%	2.944%	3.00%	1.663%	1.75%
31 Jul 2019	0.500%	0.46%	0.544%	0.50%	2.828%	2.75%	1.536%	1.50%
31 Aug 2019	0.213%	0.20%	0.229%	0.20%	2.591%	2.50%	1.388%	1.50%

Market Risk Premium

Investors are considered to be risk averse and react strongly when their expectations are not met. They demand higher returns (risk premium) as compensation for taking risks.

The risk premium is derived by applying the widely-used Capital Asset Pricing Model (CAPM). It consists of the market risk premium and the beta factor.

There are four ways to calculate the general market risk premium:

- Analysing and projecting historical capital market data
- Deriving implicit risk premiums. which are part of capital market prices
- Analysing profit development of companies (supply-side market risk premium)
- Surveying experts with regard to their expectations of the market risk premium

The methods have their own specific pros and cons, which is why in practice they are increasingly used in combination.

The German Technical Committee for Business Valuation and Economics (FAUB) of the Institute of Public Auditors in Germany ("IDW") currently recommends using a market risk premium in the range of 5.5 to 7.0 percent. Based on our own analysis, we estimate a market risk premium of currently 7.00 per cent. In accordance with the current KPMG cost of capital study, German companies were using an average of 6.5 per cent in the last year.

The following overview shows market risk premiums based on our own analyses for other dates.

	Germany Market risk premium (EUR)
30 Nov 2016	7.00%
31 Dec 2016	7.00%
31 Jan 2017	7.00%
28 Feb 2017	6.75%
31 Mar 2017	6.50%
30 Apr 2017	6.50%
31 May 2017	6.50%
30 Jun 2017	6.50%
31 Jul 2017	6.50%
31 Aug 2017	6.50%
30 Sep 2017	6.75%
31 Oct 2017	6.75%
30 Nov 2017	6.75%
31 Dec 2017	6.75%
31 Jan 2018	6.75%
28 Feb 2018	6.75%
31 Mar 2018	7.00%
30 Apr 2018	7.00%
31 May 2018	7.00%
30 Jun 2018	7.00%
31 Jul 2018	7.00%
31 Aug 2018	7.00%
30 Sep 2018	7.00%
31 Oct 2018	7.00%
30 Nov 2018	7.00%
31 Dec 2018	7.00%
31 Jan 2019	7.00%
28 Feb 2019	7.00%
31 Mar 2019	7.00%
30 Apr 2019	7.00%
31 May 2019	7.00%
30 June 2019	7.00%
31 July 2019	7.00%
31 Aug 2019	7.00%

Beta

Beta assesses a company's individual risk. It calculates the relationship between the company's return and the return of a benchmark index over a certain period of time.

Derivation of the future beta is usually based on historical capital market data, which requires adequate stability of the beta over time. For listed companies, their own beta can be applied. In other cases, you can use a group of comparable listed companies (peer group).

When deriving betas, you can apply different benchmark indices varying from national and regional all the way up to worldwide indices. The following approaches are common with regard to analysis period and return interval:

- 5-year beta with monthly returns
- 2-year beta with weekly returns
- 1-year beta with weekly or daily returns over a period of three to five years

The various approaches have different pros and cons. Hence, they are often combined during analysis.

Apart from a company's operating risk, beta also covers the financial risk that results from the company's leverage. This risk is unique and varies often over time. Disregarding the impact of debt obligations from the observed betas eliminates this effect and results in unlevered betas.

Depending on the certainty of tax shields – the tax advantages of debt financing – and the riskiness of debt, different adjustment formulas are being used. KPMG recommends applying uncertain tax shields and risky debt.

We will be happy to assist you in the determination of betas. Please do not hesitate to contact us for more information.

Country Risk Premium

There are additional country-specific risks in international projects, which can have a political, regulatory, macroeconomic, legal or fis-

cal background. Due to the growing interrelation of international capital markets, it is often hard to diversify these risks. Therefore, they should be considered explicitly in the evaluation of projects.

In the past, country risks were often of significance only for projects in emerging markets; however, due to the financial and debt crises, they have gained in importance for European and EU countries as well.

When evaluating a project, country risks are considered in the cash flow as well as in the cost of capital derivation, although differentiation needs to be made between original and derivative country risks. Original risks result from a direct relationship to public budgeting, while derivative risks affect earnings prospects and are driven by economic trends and fiscal measures.

KPMG has developed a model that determines country risks based on international capital market data. This model calculates country risk premiums for approx. 200 countries in a consistent and transparent manner, and is updated quarterly. An example is shown below.

Exemplary data from KPMG's country risk model as of 30 September 2015

Country	Country risk premium (avg. ½ year)	Country risk premium (avg. 1 year)	Country risk premium (avg. 2 years)	Inflation spread to Germany (euro)
Brazil	2.7 %	2.5 %	2.1 %	4.8 %
China	1.0 %	0.9 %	0.9 %	0.7 %
India	1.9 %	1.9 %	2.0 %	4.4 %
Russia	3.0 %	3.5 %	2.8 %	6.3 %
Hungary	1.9 %	2.0 %	2.2 %	0.9 %

Source: KPMG analysis

Please do not hesitate to contact us if are interested in other countries and periods!

Growth Rate

The terminal value growth rate plays a significant role in DCF methods – it covers the sustainable growth of cash flows.

It is important to consider the consistency of the growth rate with the cash flows used. The valuation model must correctly reflect the link between operational growth, inflation-based growth, retention and cash flows to be discounted, as different cash flows imply different growth rates.

Since operational growth cannot be sustained without the corresponding capital investment, companies regularly retain a part of their earnings to finance future investments. The appropriate growth rate depends on whether these retentions have already been excluded from the cash flow projection. If the cash flows do not consider retentions for future investments (e.g. use of free cash flows), the only remaining components to be considered in the terminal value growth rate are the remaining company-specific inflation-based growth effects.

In this context this reflects a company's ability to pass on its inflationary cost increases in combination with efficiency-improving measures to their customers. Note that general consumer-oriented inflation is not an appropriate benchmark when looking for company-specific inflationary effects.

In practice, a sustainable inflation-based terminal value growth rate of 0 to 1 per cent can be observed when considering retention-induced operational growth already in the cash flows.

Below is a schematic illustration of the preceding explanation.

Sources of growth of sustainable cash flows

Operational growth due to capacity optimisation	Operational growth due to future capacity expansions		Inflation-induced growth
Considered in detailed and extended planning phase	No deduction of financing in cash flows	Deduction of financing in cash flows (retention of profits)	Deduction of financing in cash flows (retention of profits)
Growth rate consideration?			
No	No	Yes	Yes

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