Cost of Equity Explained: Methodologies and Best Practices

Valuation Advisory

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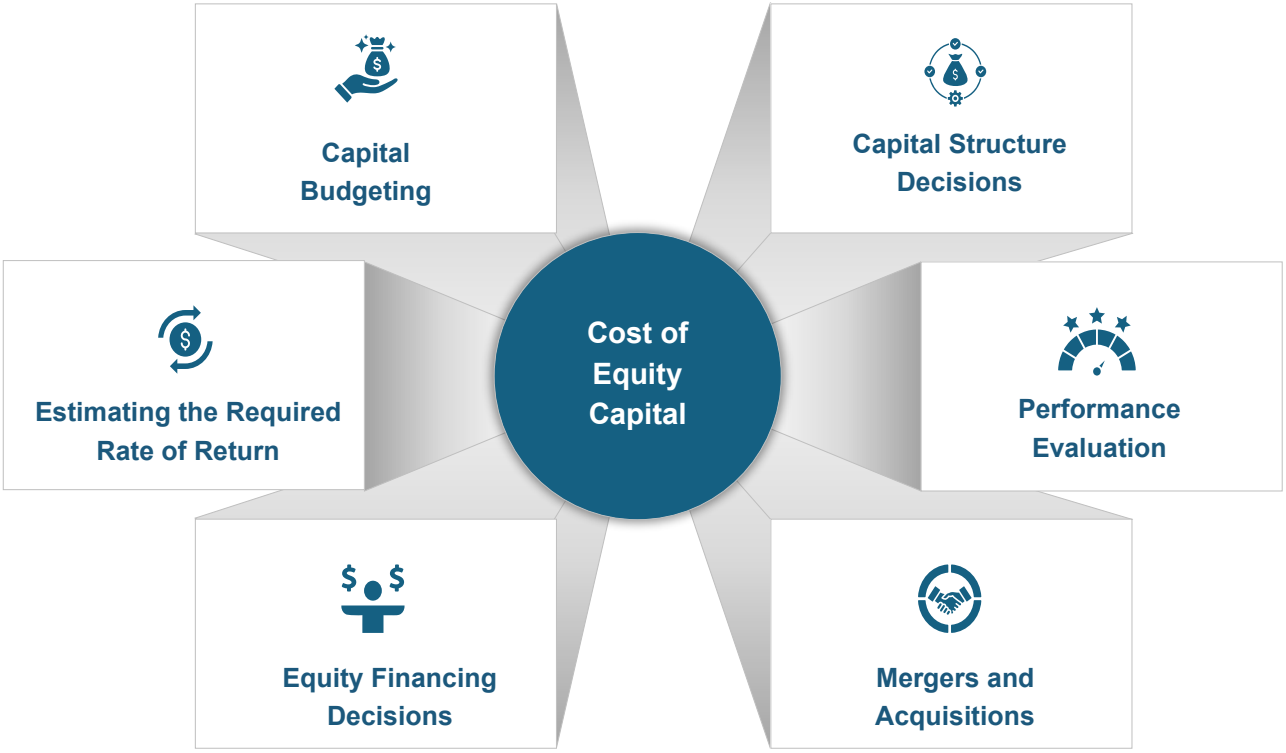
The cost of equity capital (Ke) is the expected rate of return that equity investors require to invest in a company's common stock. It represents the compensation demanded by shareholders for the perceived risk associated with the investment. Companies need to offer a rate of return that meets or exceeds this cost of equity to attract equity financing.

Estimating the cost of equity is challenging due to difficulties in obtaining accurate market data across regions and currencies, navigating economic volatility, and the subjective nature of estimating beta and growth rates. This article explores various methodologies for calculating Ke, addressing challenges with practical case studies for clarity.

The cost of equity capital has several important uses in corporate finance and financial decision-making. Here are some of the key uses:



Methods of Estimating Cost of Equity:

1. Capital Asset Pricing Model (CAPM)

The CAPM is based on the theory that the cost of equity is a function of the stock's volatility and level of risk compared to the general market. It can be used on any stock, even if the company does not pay dividends. The CAPM has emerged as the predominant approach to estimating the cost of equity due to the inherent limitations of the Dividend Capitalization Model.

Understanding the nature of the inputs, like underlying currency and country, is crucial in estimating the Cost of Equity. Some of the key inputs required to estimate an appropriate Ke are mentioned below:

- Risk-free Rate (Rf) – The rate of return expected from investing in a risk-free instrument like government bonds.
- Beta (B) – The measure of systematic risk (volatility) of the asset relative to the market.
- Equity Risk Premium (ERP) – The expected incremental rate of return from investing in the Equity Market over the risk-free rate.
- Country Risk Premium (CRP) – The risk associated with investing in the equity instruments of a company having exposure in a foreign country.
- Industry Risk Premium (IRP) – The incremental risk associated with investing in the equity instruments of a specific industry compared to the broader equity market.
- Company-Specific Risk Premium (CSRP) – The risk associated with the level of unsystematic risk related to a company.
- Country Risk Exposure (λ) – The company's exposure to the risk of a particular country based on its operations.

According to the corporate finance theory, the currency of the projections should always be consistent with that of the discount rate. In practice, this means that the inputs used to derive a discount rate (the denominator) should be in the same currency used to project cash flows (the numerator). For example, if the projections are denominated in Australian dollars, then the risk-free rate and equity risk premium inputs should also be denominated in (local) Australian dollar terms. Furthermore, it is recommended to calculate beta using the comparable companies of Australia (the local country).

2. Dividend Capitalization Model

Dividend capitalization is only applicable to companies that pay dividends. The equation is based on the theory that the dividends paid to the shareholders reflect the overall cost of attracting investors. While this approach offers a straightforward way to value companies with stable dividend policies, it is important to remember that it has limitations. The model assumes that the dividends would grow at a constant rate and does not account for the investment risk to the same extent as the Capital Asset Pricing Model (CAPM).

$Ke = (D_1 / P_0) + g$

Where,

Ke = Cost of Equity

D_1 = Expected Dividend Per Share

P_0 = Current Price Per Share

g = Long-term Growth Rate of Dividends

CAPM is the most widely used method for calculating Ke because of its simplicity, clarity, and solid theoretical foundation. It provides a straightforward formula that links the expected return of an asset to its systematic risk (beta) relative to the market, making it practical and easy to apply in various financial contexts. It also overcomes the inherent limitations of the Dividend Capitalization Model as CAPM applies to both dividend-paying and non-dividend-paying companies.

Limited availability and accessibility of the required data for various countries and currencies particularly in emerging or smaller markets makes it challenging to estimate Ke. Following are some of the models that can be used based on the availability of data:

For all the scenarios that are discussed below,

Local Country: India

Home Country: USA

Scenario	All inputs of Local Country available	Recent ERP of Local Country not readily available	Recent ERP of Local Country not readily available2	Recent ERP of Local Country not readily available3	Recent ERP and CRP of Local Country not readily available
Currency of Cashflows	IND	IND	USA	USA*	IND
Model	Single Country Version of the CAPM	Single Country Version of the CAPM + Country Risk Premium	Damodaran's Local Country Risk Exposure Model	Single Country Version of the CAPM + Country Risk Premium	Single Country Version of the CAPM + International Fisher's Effect
Formula	**Rf + (B x ERP)**	**Rf + (B x ERP) + CRP**	**Ke = Rf + (B x ERP) + λ x CRP**	**Rf + (B x ERP) + CRP**	**Rf + (B x ERP) ***
Risk Free Rate (Rf) Country	IND	IND	IND*	IND	USA
Risk Free Rate (Rf) Currency	IND	IND	USA	IND	USA
Beta (B)	IND	IND	USA	IND	USA
Equity Risk Premium (ERP)	IND	USA	USA	USA	USA
Country Risk Premium (CRP)	NA	IND	IND	IND	NA
λ	NA	NA	IND	NA	NA
Expected Inflation (Numerator)	NA	NA	NA	NA	IND
Expected Inflation (Denominator)	NA	NA	NA	NA	USA
Remarks	Appropriate for Developed Nations	Appropriate for Developing Nations	* Rf of Local Country denominated in Home Country Currency	* Convert Cashflows to Local Currency using the Foreign Exchange Forward rate curve	* Cost of Equity of Developed Country and Convert it using the Internatinal Fisher's Effect

Note: CSRP is set aside for the time being as it is subject to company-specific factors, such as corporate governance, barriers to entry, market concentration and market position, and can be consistent regardless of the model used.

Single Country Version of CAPM

$$Ke = Rf + (B \times ERP)$$

Where:

Ke = Cost of equity capital in the local country

Rf = Return on the local country's government bond denominated in the local currency

B = Beta of comparable companies in the local country

ERP = Equity Risk Premium in the local country's stock market

This model works well in developed countries as it requires all the inputs to be of the same country as that of the target company being evaluated. In the case of developing countries, these inputs are not readily available, and it becomes challenging to find good proxies for them. If the local country does not have an active market for government securities or if there are very few comparable public companies in the same market, it would be recommended to calculate the Cost of Equity using the International Fisher's equation or Damodaran's Local Country Risk Exposure Model discussed below.

In countries where ERP is not readily available, we can consider the Equity Risk Premium of the US and add a Country Risk Premium separately. The updated model in such scenarios would be as follows:

$$Ke = Rf + (B \times ERP) + CRP$$

Where:

Ke = Cost of equity capital in the local country

Rf = Return on the local country's government bond denominated in the local currency

B = Beta of comparable companies in the local country

ERP = Equity Risk Premium of the US

CRP = Country Risk Premium

Pro Tip- The ERP suggested by Damodaran considers an ERP for developed countries and adds CRP to arrive at the ERP for other countries. Damodaran publishes its CRP data bi-annually, whereas the ERP for developed nations monthly. Therefore, the ERP for developed nations considered in his calculations of ERP for other nations might be outdated. It is recommended to use the latest available ERP of developed countries and add the CRP suggested by Damodaran in the model discussed above.

For example, the latest available "Country Default Spread and Risk Premiums" data published by Damodaran is as of January 5, 2024. This data considers ERP for developed countries of 4.60%, which is the trailing 12-month ERP calculated by Damodaran as of January 1, 2024, and adds CRP to arrive at ERP of other countries. The latest available ERP for developed nations published by Damodaran is 4.50%, as of February 1, 2024.

In general, it is recommended to use the latest available trailing 12-month ERP of developed nations and add the latest available CRP to calculate the ERP of a specific country.

International Fisher Effect

An alternative to estimating the Cost of Equity of a local country denominated in the local currency is to calculate the cost of equity capital of the US in USD and convert it by applying the International Fisher Effect.

$$\text{Cost of Equity}_{\text{Local Currency}} = (1 + \text{Cost of Equity}_{\text{Home Currency}}) \times \frac{(1 + \text{Expected Inflation}_{\text{Local Currency}})}{(1 + \text{Expected Inflation}_{\text{Home Currency}})} - 1$$

Where:

Home Currency = USD (US) / EUR (Germany)

Local Currency = Currency of the country where the target company is based

Damodaran's Local Country Risk Exposure Model

What if we want to calculate the value of a company in some currency other than the local currency of the target company? For instance, if a US investor is considering investment in a Brazilian company. The investor would like to understand the returns in USD terms (home currency) whereas the company would report its financials and business plan in Brazilian reals (local currency).

There are two basic methods to address foreign currency cash flows in valuations, assuming the analysis is being conducted in nominal terms:

- Perform the valuation in the local (foreign) currency, discount the projected cash flows with a local (foreign) currency denominated discount rate (i.e., using foreign currency inputs), and convert the resulting value into the home currency (e.g., USD, EUR) at the spot exchange rate.
- Convert cash flows into the home currency using the foreign exchange forward curve (e.g., USD, EUR) and discount the projected cash flows with a home country discount rate (using home currency inputs). In this case, the forecast exchange rate already includes the risk associated with exchange rate fluctuations.

In a case where the underlying forecasts are in USD or EUR, according to the rule of consistency, the discount rate should be of the same currency. In such scenarios, we use Damodaran's Local Country Risk Exposure Model to appropriately estimate the Cost of Equity.

$$Ke = Rf + (B \times ERP) + \lambda \times CRP$$

Where,

In USD terms,

Ke = Cost of equity capital in the local country denominated in USD

Rf = Returns on US government bond denominated in USD

B = Beta of comparable companies based in the US

ERP = Equity risk premium in the US

λ = Company's exposure to the local country risk

CRP = Country Risk Premium of the target company's country

Case Studies:

The examples mentioned below include a selection of case studies, each accompanied by the corresponding model and appropriate input proxies tailored for the respective scenarios.

Case 1:

Let us consider a Saudi Arabia-based company operating in the fintech industry. The following would be the suggested sources for inputs to be considered for estimating its Cost of Equity. The forecasts are in SAR.

In this scenario, as all the inputs would be readily available in the local currency except for the ERP, it would be appropriate to use the Single Country Version of the CAPM and add a Country Risk Premium.

Ke = Rf + (B x ERP) + CRP

Where,

Rf = The recommended proxy for the risk-free rate would be the return on a long-term (10-20 years) Saudi government bond denominated in SAR. In the absence of a zero-coupon bond, it would be recommended to consider the yield of a long-term (10-20 years) mid YTM Saudi Arabian government bond denominated in SAR.

B = Beta of peer companies based in Saudi Arabia.

ERP = Latest available Equity Risk Premium of the US recommended by Damodaran / Kroll.

CRP = Country Risk Premium for Saudi Arabia recommended by Damodaran

Case 2

Let us consider a Venezuela-based company operating in the fintech industry. The following would be the suggested sources for inputs to be considered for estimating its Cost of Equity. The forecasts are in the Venezuelan bolivar fuente. There are very few comparable public companies available in the local market.

In this scenario, it would be very difficult to get an appropriate beta due to the lack of comparable companies. We can use the Single Country Version of the CAPM to estimate the cost of equity of the US in USD and convert it using the International Fisher Equation.

Ke = Rf + (B x ERP)

Fisher Equation:

$$\text{Cost of Equity}_{\text{Local Currency}} = (1 + \text{Cost of Equity}_{\text{Home Currency}}) \times \frac{(1 + \text{Expected Inflation}_{\text{Local Currency}})}{(1 + \text{Expected Inflation}_{\text{Home Currency}})} - 1$$

Where,

Rf = The recommended proxy for the risk-free rate would be the return on a long-term (10-20 years) mid zero-coupon US government bond denominated in USD. In the absence of a zero-coupon bond, it would be recommended to consider the return on a long-term (10-20 years) mid YTM US government bond.

B = Beta of peer companies based in the US. In case there are very few peers for the target company in the US, we should ideally look for peers in developed nations.

ERP = Latest available equity risk premium of the US recommended by Damodaran / Kroll.

Expected Inflation $_{\text{Home Currency}}$ = Expected inflation in the US

Expected Inflation $_{\text{Local Currency}}$ = Expected inflation in Venezuela

Case 3:

Let us consider a Pakistan-based company operating in the fintech industry. The following would be the suggested sources for inputs to be considered for estimating its Cost of Equity. The forecasts are in USD.

In this scenario, as the forecasts are in USD, it would be appropriate to estimate the cost of equity using Damodaran's Local Country Risk Exposure Model.

$Ke = Rf + (B \times ERP) + \lambda \times CRP$

Where,

Ke = Cost of Equity capital in Pakistan denominated in USD

Rf = The recommended proxy for the risk-free rate would be the return on a long-term (10-20 years) mid zero-coupon US government bond denominated in USD. In the absence of a zero-coupon bond, it would be recommended to consider the return on a long-term (10-20 years) mid YTM US government bond.

B = Beta of peer companies based in the US. In case there are very few peers for the target company in the US, we should ideally look for peers in developed nations.

ERP = Latest available Equity Risk Premium of the US recommended by Damodaran / Kroll.

λ = Company's exposure to the local country risk

CRP = Country Risk Premium for Pakistan recommended by Damodaran

Please note that estimating a company's exposure to the local country risk (λ) could require consideration of multiple factors such as revenue sources, production facilities, and risk management practices. In practice, data for production facilities and risk management would be difficult to extract for companies in developing countries. Hence, we rely on revenues to estimate the lambda (λ). However, we cannot directly use the percentage of revenues as a measure of lambda because the average lambda across stocks must be one. Therefore, we need to scale this measure by dividing it by the percentage of revenues that the average company in the market generates from the country to derive its lambda.

Lambda (λ) = % of revenues in the country for the company / % of revenues in the country for the average company

To approximate the percentage of revenues from a country for an average firm, we can use publicly available data of a country's % of GDP from exports and use it to compute the percentage of GDP domestically directed.

Conclusion:

In essence, the cost of equity capital is influenced by various determinants, including the risk-free rate of return, market risk premium, and the company's specific risk profile. A higher perceived risk associated with an investment, leads to a higher required cost of equity capital, as investors demand an elevated rate of return to compensate for the increased risk exposure. Understanding and accurately estimating the cost of equity capital is critical for making prudent financial decisions, such as evaluating the feasibility of capital investments, optimizing the capital structure, and accurately determining the intrinsic value of a company's shares. Companies that effectively navigate this process can enhance shareholder value creation and maintain a competitive advantage in the marketplace.

As best practices and data sources continue to evolve, financial professionals must remain vigilant and stay abreast of the latest developments to refine their cost of equity capital estimates continually. Doing so will enable more accurate asset pricing, efficient capital allocation, and better alignment of managerial actions with shareholder interests.

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