

# Cost of Capital in Emerging Markets

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# Outline

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Practitioners and academics have developed a range of quantitative tools aiming at calculating the cost of capital in emerging markets.

**This document summarises these approaches.**



# Cost of Capital in Emerging Markets

## Difficulties with the traditional models

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**As pointed out by Harvey (1995), the traditional CAPM is difficult to apply on emerging markets:**

- Estimated “beta” as usually low, resulting in underestimated required returns.
- Deep market inefficiencies
- Different nature of risks
- Bad statistical properties of times series
- Lack of historical data, etc.



# Cost of Capital in Emerging Markets

## Specific models

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**Practitioners and academics have therefore developed specific models:**

- Erb, Harvey & Viskanta (1995, 1996)
- Godfrey & Espinosa (1996)
- Damodaran (1998)
- Estrada (2000)

**... and TAC in 2005.**



# Cost of Capital in Emerging Markets

## The Erb, Harvey & Viskanta approach

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- They suggest an approach based on credit ratings (CR, provided by Institutional Investors in their case).
- They estimate the link between stock returns and credit ratings.

$$C_i = Rt_i = a + b \log(CR_i)$$



# Cost of Capital in Emerging Markets

## The Godfrey & Espinosa approach

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- They add to the risk free rate ( $Rf$ ) the spread between the yield between an EM and a US sovereign bond ( $Spr$ ).
- They use an “adjusted beta”, defined as 60% of the ratio of standard deviation ( $V$ ) of returns in the targeted market and the US market.

$$C_i = Rf_{us} + 0.6 \frac{V(Rt_i)}{V(Rt_{us})} (Rt_{us} - Rf_{us}) + Spr$$



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## The Damodaran approach

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- A model based on a US (or home based) estimated CAPM, adjusted by a country equity premium (CEP).
- These country risk premiums are estimated using bonds ratings and associated default spreads (or CDS spreads).
- Adjusted by a volatility factor, to reflect country equity premiums (especially for the short-term).

$$C_i = Rf_{us} + \mathit{beta}_{us}(Rt_{us} - Rf_{us}) + \frac{V(Rt_i)}{V(\mathit{Bonds}_i)} CEP$$



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## The Espinosa approach

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- He suggested in 2000 an approach based on downside risks only.
- According to the author, this method would better reflect the « partial integration » of a couple of emerging market and would be less volatile than the Godfrey & Espinosa estimates.

$$C_i = Rf_{us} + (Rt_{us} - Rf_{us}) \frac{V_{down}(Rt_i)}{V_{down}(Rt_{us})}$$





# Cost of Capital in Emerging Markets

## TAC's approach

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- A model that is based on home based estimated CAPM, adjusted by country premiums (CP).
- Country risk premiums are estimated using econometrics estimates between JP Morgan EMBI+ spreads and our ratings.
- Three premiums are added to the country risk: a political premium (CPP, a “crisis signal” premium (CSP) and a “group premium” (GP, commodity producer, past restructuring, liquid market).

$$C_i = Rf_{us} + beta_{us}(Rt_{us} - Rf_{us}) + CP + CPP + CSP + GP$$



# Cost of Capital in Emerging Markets

## Cost of capital in local currency

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- Here again, different approaches can be used, and the adjustment can be done either on cash flows or on the cost of capital measurement.
- Most practitioners use inflation differentials as a proxy of currency risk, but statistical analyses clearly shows that this approach is far from reality (absolute and relative PPA usually do not hold).
- Most of the time, forward exchange rate cannot be used here, as they are mostly reflecting short-term risks and are affected by a forward discount premium in carry trade countries.



# Cost of Capital in Emerging Markets

## Cost of capital in local currency

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- TAC has therefore created models for long-term inflation and exchange rate forecast on emerging markets, that can be used directly either for the calculation of a cost of capital in local currency, or to adjust cash flows.
- Long-term inflation forecasts are based on the so-called “New Keynesian Philips curves” introduced by Gali and Gertler (1990), and augmented by commodity prices.
- Long-term exchange rate forecasts are based on a combination of purchasing power parity estimates, Balassa-Samuelson effects and consensus estimates.

