Issues to Keep in Mind in Cross-border Valuation

Anant Sundaram
Associate Professor of Finance
THUNDERBIRD-AGSIM
<sundaram@thunderbird.edu>

Valuing a company across borders is similar, in principle, to valuing one at home. But there are a few additional twists to keep in mind:

1. Choice of currency;
2. Earned vs. remitted income;
3. Tax rates;
4. Cost of capital; and
5. Treatment of country risk.
(1) Choice of Currency

- You can choose either the home or the foreign currency in determining cash flows.
- But foreign currency cash flows should be discounted at the foreign currency discount rate, and the home currency cash flows at the home currency discount rate.

(1) Choice of Currency

- If a project’s value is likely to be particularly sensitive to exchange rates, it might be helpful to explicitly forecast the foreign currency cash flows and then convert them into home currency cash flows using a specific set of forecasted exchange rates.
(2) Earned versus Remitted Income

- It is preferable to use earned cash flows, whether or not those cash flows are actually remitted to the parent.
- The idea is that, the cash flow, even if retained in the subsidiary, ultimately belongs to the firm’s shareholders.

(2) Earned versus Remitted Income

- However, this assumes that the subsidiary earns a rate of return that is at least as high as its cost of capital.
- (If not, should such a subsidiary be retained in the firm?)
(3) Taxes

- Different countries have different tax rates, requirements for timing of tax payments, and tax treaties with the home country.
- Other than to make the observation that you should: (a) Spend time learning about the tax situation in the foreign country (vis-a-vis the home country), and (b) Always use the marginal tax rate applicable to the project in question, there is little to be said!

(4) The Appropriate Cost of Capital

- It may be expedient (and probably accurate) to assume that the investors are indigenous to the home country in which the parent firm is headquartered.
- This means that you can use the home-country-benchmarked cost of capital (adjusted, of course, for the risk characteristics of the project vis-a-vis the home country).
(4) The Appropriate Cost of Capital

- If you need to convert the WACC from one currency to another, use UIP.
- The cost of equity will also depend on whether equity markets are integrated or segmented.
- If markets are segmented, you should use the home country market index; if integrated, a world index (e.g., MSCI index).

- If a non-US company has an ADR trading on the NYSE or NASDAQ, it is probably reasonable to assume that price moves in the US are affecting its expected returns in a much more substantial way than its home market.
- It is probably OK to derive the US$ $r_E$, and to then calculate a home currency $r_E$ (if needed) by using UIP.
(5) Treatment of Country Risk

- It really depends on two judgments that you must make: (i) Whether or not the country risk can be considered ‘systematic’; (ii) Whether or not it is already captured in the project β. If the judgment is that country risk is unsystematic, you should ignore it.
- In general, if country risk is a serious issue, it can be reflected in the cash flows or the discount rate. This is also a judgment call.

For bonds it is necessary to add a country risk premium.

What about equity?

It gets a bit complicated, especially with respect to emerging markets....
The Case for a Country Risk Equity Premium in Emerging Markets

- EM returns during 1976-92 averaged 20% (in $ terms), about 50% higher than US, yet, their collective CAPM-β against the S&P500 was 0.5. (Harvey 1996).
- During the 1985-2000 period, the EM annual return was 16% (the US was 19%), and EM β was 0.37. (My analysis)

- For instance, during 1985-00, Latin America returned 26% annually, with a β of 0.98; Asia returned 17%, with a β of 0.08%.
- Obviously, the single-factor CAPM (measured against the S&P 500) is missing something major in explaining EM returns: returns seem much higher than would be predicted by EM β’s.
The Case for a Country Risk Equity Premium in Emerging Markets

- Regression of individual EM returns against their market betas produces $R^2$ of 1% to 2% — essentially, a ‘flat’ SML.
- But a similar regression against total risk ($\sigma$) results in significant $R^2$ of 30% - 40%, and an upward-sloping relation that looks like SML.

Cross-correlation in returns among EM’s equity markets is quite high.
- Suggests contagion of returns and risks across EMs (Such contagion also evident in peso crisis of 1994-95, and Asia crisis of 1997-98).
The Case for a Country Risk Equity Premium in Emerging Markets

- **Implication**: There are, quite possibly, factors other than a CAPM-beta at work in pricing EM returns.
- **Explanation**: There is probably an ‘emerging market risk’ factor at work. Source of this risk unclear.
- Major Wall Street firms and consulting firms derive EM discount rates as though such a country risk factor exists.

The Country Spread Model:

- Simple method. The spread between EM’s and US government bond yield in US$ is added to the riskfree rate.
- Also done with the spread between LT Eurobond yields (in same currency) of corporate issuers in similar lines of business between the EM and the US.
- Most commonly used method.
The Case for a Country Risk Equity Premium in Emerging Markets

CSFB Model:
- Complicated: Calculates the riskfree rate by stripping yield of the EM’s Brady bonds, multiplies MRP by a ratio of the coefficient of variation in returns in EM vs US market, and multiplies by some sort of an ‘adjustment’ factor.
- Makes absolutely no sense!

Damodaran Model:
- Multiplies the US MRP by an EM equity risk premium factor:
  \[ \text{EM equity premium factor} = (\text{EM Yield Spread}) \times \left( \frac{\sigma_{EM,e}}{\sigma_{EM,b}} \right) \]
  Where \( \sigma_{EM,e} \) is the volatility of the EM’s equity markets and \( \sigma_{EM,b} \) is that of the EM's bond markets.
- Weak conceptual justification.
The Case for a Country Risk Equity Premium in Emerging Markets

Harvey et. al. Model:
- Regresses realized returns of the EM against (log of) country credit risk ratings. Uses CCR’s to predict return. Produces $R^2$ of 30%+, which is pretty good. Data updated every six months.
- But the CCR’s are highly correlated (80%+) with country yield spreads (the most common method).

Bottom Line?
- Use the simple country yield spread approach:
  » Either add the spread between EM’s and US government bond yields in US$ to the riskfree rate, or
  » …add the spread between LT Eurobond yields (in same currency) of corporate issuers in similar lines of business between the EM and the US.
Summary: Cross-border Valuation

Forecast foreign currency free cash flows
[Remember to: (a) Incorporate foreign currency inflation rates; (b) Use the appropriate marginal tax rate; and (c) Include the terminal value.]

**METHOD A**
(Step 2) Determine foreign currency discount rates, using project-specific capital structure and the project-specific β;
(Step 3) Calculate the PV in the foreign currency;
(Step 4) Convert to home currency PV using the spot exchange rate.

**METHOD B**
(Step 2) Forecast exchange rates and convert FCF into home currency;
(Step 3) Determine home currency discount rates using project-specific capital structure and project specific β;
(Step 4) Calculate the PV in the home currency.