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Getting Your Head Out of the Model: Due Diligence and Developing International Cost of Capital

By James T. Budyak*

Editor's note: Building on his recent presentations at the first-ever AICPA/ASA National Business Valuation Conference last November, and his more recent article, "Developing Discount Rates in Global Environment," Valuation Strategies (Jan. 2006), the author presents specific due diligence guidelines for assessing the strength and weaknesses of international capital models.

Developing discount rates in today's "global marketplace" requires more than knowing how to build an international, base-weighted average cost of capital (WACC). In some areas of the world, equity volatility can be twice that of debt; or certain countries may have low or negative correlation with other countries. Depending on the particular circumstances, the available models to estimate the cost of equity—such as the standard deviation model, International Capital Asset Pricing Model (CAPM) and "Country Spread" models—may not provide the best "standard" to go by.

Even the well-known Country Risk Rating Model (Professor Campbell Harvey, Duke University) will not apply to every situation. This article briefly points out the pros and pitfalls of each approach—and then advises analysts how the Company, Country, Currency, and Sector method (CCCS) of due diligence can help you break out of the computer/calculation models to develop "true world" cost of capital rates. This powerful combination—of appreciating each model's strengths and weaknesses and applying due diligence—can lead to breakthrough awareness, explaining why, for example, buyers use different internal rates of returns for different investments in the same country. A CCCS model can also prevent analysts from substantially over- (or under-) estimating discount rates for capital budgeting and other valuation analyses related to foreign companies.

Many models, each with plusses and minuses

In his 2001 article, "The International Cost of Capital and Risk Calculator," Professor Harvey presents the economic background for his methodology (copies available at *www.duke.edu/~charvey/research.htm*). Harvey also critiques several global risk models such as the International CAPM, the Country Spread (or Goldman Sachs) model, and the Ibbotson model. International CAPM, for instance, may dwell too heavily on correlation and understate volatility issues in explaining market returns. The Goldman model has "many problems," Harvey writes, including its application to only those countries that issue government bonds in U.S. dollars. Finally, although Ibbotson (*www.ibbotson.com*) offers several different reports for analyzing international cost of capital, applicable to a wider number of countries (and not just those issuing dollar-based bonds), certain Ibbotson-calculated factors may lack support. Applying the data blindly could lead to real problems.

In contrast, key aspects of Harvey's Country Risk Rating Model (CRRM) include:

- All cost of equity estimates are from U.S. investor perspective, reflecting actual stock market returns since 1979/1980. (For developed markets, the data come from Morgan Stanley Capital International, and for emerging markets, from the International Finance Corporation). By converting local returns into U.S. dollars, the model considers factors such as local risk and currency devaluation.
- Country credit ratings come from *Institutional Investor*, which has provided ratings since 1980 (*www.institutionalinvestor.com*). As *Institutional Investor* has expanded its coverage of countries, so has CRRM.

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- The country rating approach considers the strong correlation between existing country risk ratings and country specific yields, producing forward-looking perspectives with greater predictive capabilities.

Harvey's International Cost of Capital and Risk Calculator (ICCRC) also delivers the cost of capital across a 173 countries, based on data compiled over the last 25 years and updated annually; it produces cost of capital for average risk projects in the target countries (available in Excel format at *www.duke.edu/~charvey/applets/iccrc.html*). Notably, Ibbotson annually acquires CRRM data and packages it in its reports, helping to make this methodology one of the most powerful tools available to analysts working in the international arena.

Volatility drives higher risk while negative correlation drives lower rates

Clearly, two key statistical measures factor directly into developing foreign discount rates: correlation and volatility. Even Harvey's CRRM does not factor the correlation of any specific country with other countries or within a global portfolio, and there is as much danger in blindly applying this model as any other.

For instance, *Institutional Investor* recently rated Finland as one of the least risky countries for investment; but according to Ibbotson's International CAPM, Finland has a cost of equity in the high teens, which doesn't necessarily make sense, given that Harvey's CRRM model typically assigns emerging markets such as China, Poland, and Mexico equity risk rates in the same range (15-20%); and assigns Finland a more realistic 10-11% range.

Likewise, the International CAPM equity rate for India approximates that of the U.S. (10-11%), according to Ibbotson. But this begs a reality check, as certain companies within that country may be more affected by local factors and the volatility of emerging markets (such that the CRRM equity rate of about 20% appears more reasonable); while others that participate in more stable, "worldwide" industries may warrant a more U.S.-like equity risk rate. Modern portfolio theory tries to account for these variations by mitigating non-systematic (specific local) risks through risk diversification, and by correlating each individual country's market to that of the U.S.

The sidebar on page 8 shows the risk diversification benefit of several countries, according to a well-established source. However, international equity correlations have changed dramatically over time, creating "constantly inconstant" benefits to global investing. Investors who rely on risk diversification to protect against market or political extremes may be disappointed. Most notable for today's investor: The

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potential for international diversification is low compared to historical capital markets. (See, for example, *www.efmoody.com/investments/correlation.html*.)

Thus, any application of the "world portfolio" benchmark must be grounded in comparative risk analysis as well as common sense. The extreme volatility of an emerging market may or may not apply to a specific company within that country. CCCS method provides a due diligence framework for assessing the risks of any particular market, and reveals areas for potential risk reduction. By applying CCCS, the analyst will also be able to select the most appropriate model. In other words, you'll need to get your head out of the model to see what's really impacting the company—and to realize whether or not a selected model truly captures the applicable risk.

Company, country, currency, sector

The separate components of CCCS demonstrate whether the capital costs for a subject company in an emerging market merit all the associated risks:

1. *Company*. A business in China or Brazil may not deserve the same discount rate as other businesses in the same country, particularly if it doesn't "behave" like these other businesses—if it participates in a global industry such as oil and gas, for instance, or if its end markets are diversified, lying outside of the local economy. Also key is a review of the company's technology and products; its exports, imports, and flow of goods; and the nature of its customer relationships.

2. *Country.* To help isolate the particular risks that apply in any country, political studies are available such as those at Political Risk Services (*www.prsgroup.com*) and also *Institutional Investor*, which publishes country ratings in its March and September issues. The CIA offers free research on countries' political risks at *www.cia.gov*. As for economic risks, due diligence includes asking the subject managers about the "normal" discount rates and IRRs (internal rates of return) they've observed for similar investments in their country; and then asking acquiring companies their perception of risk, including the assumed discount rates and IRRs in the purchase price. Lastly, a look at the risks associated with end-market economies will help weight these factors.

3. *Currency*. Currency risk is typically difficult to quantify, as it exists not only at the transactional level of the subject company (sales revenue, costs of goods sold), but also at the entity level (what currency would denominate a sale of the company?). In some situations, a company may have several currencies involved in its financial structure, such that their attendant risks might offset each other.

4. *Sector*. As national borders continue to disappear (or become less vital) in the global community, capital markets will continue to integrate. In many cases, sector allocation strategies are becoming more appropriate and more valuable than country allocation strategies in determining global investments.

Due diligence may reveal that a target company is part of a global or regional sector (such as oil and gas technology). Sector-associated risks may have far greater impact on the target, and a Country Spread model may be appropriate to estimate cost of equity. At the same time, a Country Spread model derives its equity from bond yield spreads, which inherently underestimate equity risk, and may be subject to "panic" highs and "euphoric" lows that will require smoothing out. Even a fully-loaded equity risk (from Harvey's CRRM, for example) may overstate the risk and return requirement that a typical participant would expect or demand in a particular market. If the subject company is located in a country with its own public capital markets, there may be additional, more appropriate models to estimate the discount rate.

Further illustrations

Another example: Consider the Philippines, with a CRRM of about 24-25%, and a country spread rate of about 16-17%. Notably, the country spread rate for the Philippines is about halfway between the U.S. CRRM rate (10-11%) and the Philippines CRRM rate. Your CCCS due diligence may reveal that the subject business is a heavy exporter of goods with a worldwide market, providing it a natural risk hedge to offset the apparent local economic and currency risks.

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Thus, a rate that is midpoint between the CRRM of the U.S. and the Philippines may be more reasonable. (In the author's discussions with Professor Harvey, he confirmed that currency risk can be one-half of the total incremental risk differential, implying that the other half is due to other local risk issues.) As the subject business relies significantly on world exports, there's support for reducing its exposure to local political/country risks by one-half. Given these findings, the analyst might very well choose the Country Spread model, as it places the Philippines at the approximate midpoint of total country risk.

Likewise, the analyst may observe that certain emerging market countries have low or negative correlation with other countries—even if these emerging markets appear more risky based on a standard deviation model. In these cases, an International CAPM model or other world CAPM model may be worth considering, as it may incorporate low or negative correlation to offset risk on a "portfolio" basis. If an emerging market is not fully integrated with world markets, however, then standard beta may not be an appropriate measure of risk and local CAPM may apply. CCCS concepts help document the correlation and volatility factors and determine the appropriate model.

In sum, today's global economy is exciting, dangerous, and dynamic, all at the same time; it begs constant vigilance and a willingness to step outside the model. For any foreign valuation project, analysts should perform due diligence to discover what is really impacting the subject in the vital areas of company, country, currency, and sector.

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Country	Risk Diversification Benefit (basis points)
Argentina	- 52
Brazil	-256
Canada	- 44
China	- 64
France	- 52
Phillippines	-183
Poland	-114
Taiwan	- 62
U.K.	- 43
U.S.	Zero

Source: Pettit, Ferguson and Gluck, "A Method for Estimating Global Costs: The Case of Best Foods," *Journal of Applied Corporate Finance* (Fall 1999)