

Valuation in emerging markets

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Procedures for estimating a company's future cash flows discounted at a rate that reflects risk are the same everywhere. But in emerging markets, the risks are much greater.

As the economies of the world globalize and capital becomes more mobile, valuation is gaining importance in emerging markets—for privatization, joint ventures, mergers and acquisitions, restructuring, and just for the basic task of running businesses to create value. Yet valuation is much more difficult in these environments because buyers and sellers face greater risks and obstacles than they do in developed markets.

In recent years, nowhere have those risks and obstacles been more serious than in the emerging markets of East Asia. The Asian financial crisis, which began in August 1997, weakened a mass of companies and banks and led to a surge in M&A activity, giving valuation practitioners a good chance to test their skills. In Indonesia, Malaysia, the Philippines, South Korea, and Thailand—the hardest-hit Asian economies—cross-border majority-owned M&A reached an annual average value of \$12 billion in both 1998 and 1999, compared with \$1 billion annually from 1994 to 1996.¹

¹*Asian Development Outlook 2000*, Asian Development Bank and Oxford University Press, p. 32.

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Mimi James is an alumnus of McKinsey's New York office, where **Tim Koller** is a principal. Copyright © 2000 McKinsey & Company. All rights reserved. This article is adapted from Tom Copeland, Tim Koller, and Jack Murrin, *Valuation: Measuring and Managing the Value of Companies*, third edition, New York: John Wiley & Sons, 2000, available at www.wileyvaluation.com.

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Yet little agreement has emerged among academics, investment bankers, and industry practitioners about how to conduct valuations in emerging markets. Methods not only vary but also often involve making arbitrary adjustments based on gut feel and limited empirical evidence. Our preferred approach is to use discounted cash flows (DCFs) together with probability-weighted scenarios that model the risks a business faces.²

The basics of estimating a DCF value—that is, the future cash flows of a company discounted at a rate that reflects potential risk—are the same

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everyplace. We will therefore focus on how to incorporate into a valuation the extra level of risk that characterizes many emerging markets. Those risks may include high levels of inflation, macroeconomic volatility, capital controls, political

changes, war or civil unrest, regulatory change, poorly defined or enforced contract and investor rights, lax accounting controls, and corruption.

Different assessments of these risks can lead to very different valuations, as one recent case in Asia demonstrates. During negotiations between a South Korean consumer goods company and a European counterpart, it became clear that the parties had arrived at very different valuations of the South Korean concern, largely because of different views about the impact of future changes in tax law and the deregulation of the industry.

Macroeconomic volatility is another minefield in Asia, where the financial collapse and subsequent recession generated a mountain of nonperforming bank loans. One company bidding for two Thai banks nationalized by the government during the financial crisis discovered that each had nonperforming loans of at least 60 percent of the value of its loan portfolio. Assessing the extent to which these loans might be recovered was crucial to the valuation of the banks and to the eventual structure of the deal.

Indeed, expertise in the valuation of nonperforming loans has become an essential element of Asian banking M&A. But even the best analysis and modeling can't anticipate all possible risks, especially political ones. In Malaysia, for example, several financial institutions were negotiating an alliance. Typically, an assessment of nonperforming loans would have been

²The use of probability-weighted scenarios constitutes an acknowledgment that forecasts of financial performance are at best educated guesses and that the forecaster can do no more than narrow the range of likely future performance levels. Developing scenarios involves creating a comprehensive set of assumptions about how the future may evolve and how it is likely to affect an industry's profitability and financial performance. Each scenario then receives a weight reflecting the likelihood that it will actually occur. Managers base these estimates on both knowledge and instinct.

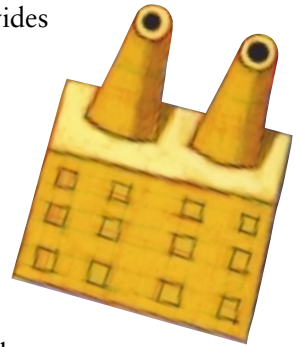
central to the valuation of the bank in this deal, but soon after they had been assessed (in September 1998), Malaysia's government unexpectedly imposed capital controls. The move raised questions about the accuracy of the bank's valuation, and the analysis had to be redone with the new environment taken into account.

A simple risk premium isn't enough

In valuations based on discounted cash flows, two options are available for incorporating the additional risks of emerging markets. Those risks can be included either in the assessment of the actual cash flow (the numerator in a DCF calculation) or in an extra risk premium added to the discount rate (the denominator)—the rate used to calculate the present value of future cash flows. We believe that accounting for these risks in the cash flows through probability-weighted scenarios provides both a more solid analytical foundation and a more robust understanding of how value might (or might not) be created. Three practical arguments support our point of view.

First, investors can diversify most of the risks peculiar to emerging markets, such as expropriation, devaluation, and war—though not entirely, as the recent East Asian economic crisis demonstrated. Since finance theory is clear that the cost of capital—the discount rate—should reflect only nondiversifiable risk, diversifiable risk is better handled in the cash flows.³ Nonetheless, a recent survey showed that managers generally adjust for these risks by adding a risk premium to the discount rate.⁴ Unfortunately, this approach may result in a misleading valuation.

Second, many risks in a country are idiosyncratic: they don't apply equally to all industries or even to all companies within an industry. The common approach to building additional risk into the discount rate involves adding to it a country risk premium equal to the difference between the interest rate on a local bond denominated in US dollars and a US government bond of similar maturity. But this method clearly doesn't take into account the different risks that different industries face; banks, for example, are more likely than retailers to be nationalized. And some companies (raw materials exporters) may benefit from a devaluation, while others (raw materials



³Diversifiable risks are those that could potentially be eliminated by diversification because they are peculiar to a company. Nondiversifiable risks can't be avoided, because they are derived from broader economic trends. Many practitioners use the capital asset-pricing model (CAPM), developed in the mid-1960s by John Lintner, William Sharpe, and Jack Treynor, to determine the cost of capital. In CAPM, only nondiversifiable risks are relevant. Diversifiable risks would not affect the expected rate of return.

⁴Tom Keck, Eric Levengood, and Al Longfield, "Using discounted cash flow analysis in an international setting: a survey of issues in modeling the cost of capital," *Journal of Applied Corporate Finance*, Volume 11, Number 3, fall 1998.

importers) will be hurt by it. Applying the same extra-risk premium to all companies in a nation would overstate the risk for some and understate it for others.

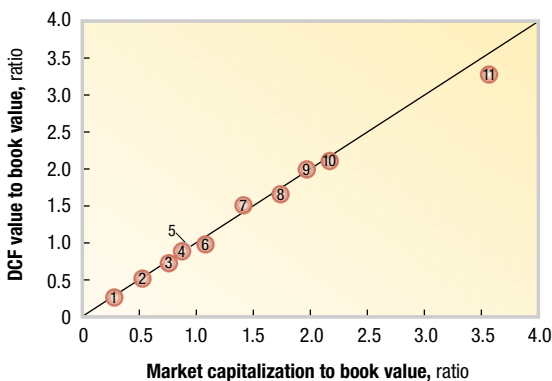
Third, using the credit risk of a country as a proxy for the risk faced by corporations overlooks the fact that equity investments in a company can often be less risky than investments in government bonds. The bonds of YPF, an Argentine oil company, for example, carry lower yields than Argentine government debt. As this case shows, a company's financial rating can be higher than that of a government.

In principle, equity markets might be expected to factor in a sizable country risk measure when automatically valuing companies in emerging markets. But equity markets don't really do so—at least not consistently. To demonstrate this, we valued a small sample of Brazilian companies by predicted cash flows, using published investment-banking reports that had at least three years of forecasts and had been written within one month of the date of our market valuation (April 10, 1999). For the years after the explicit forecast in the reports, we assumed that the same performance ratios would drive cash flows and used a perpetuity formula (operating profit divided by the cost of capital) to estimate continuing value after year 10.

We discounted these cash flows conventionally by using an industry-specific global cost of capital—adjusted for capital structure—that included an inflation differential for Brazil versus the United States but no country risk premium. It turned out that the valuations derived from this simple DCF were extremely close to the market values (Exhibit 1). Although not definitive proof that no country risk premium is factored into the stock market

EXHIBIT 1

Risky business: Equity markets appear to ignore the risk premium in Brazil



Companies examined

1. Centrais Elétricas Brasileiras (Eletrobrás)
2. Companhia Siderúrgica Nacional (CSN)
3. Votorantim Celulose e Papel (VCP)
4. Companhia Vale do Rio Doce (CVRD)
5. Banco do Brasil
6. Petroleo Brasileiro (Petrobras)
7. Banco Bradesco
8. Aracruz Celulose
9. Banco Itaú
10. Companhia Brasileira de Distribuicao Grupo Pão de Açúcar (CBD)
11. Companhia Cervejaria Brahma¹

¹Merged with Companhia Antarctica Paulista in July 1999 to form AmBev.

valuations of companies in emerging markets, this finding clearly suggests that market prices for equities don't take account of the commonly expected country risk premium. If these premiums were included in the cost of capital, the valuations would be 50 to 90 percent lower than the market values.

Incorporating risks in cash flows

Overall, our approach to valuation helps managers achieve a much better understanding of explicit risks and their effect on cash flows than does the simple country-risk-premium method.

Most attempts to build emerging-market risk into the discount rate lack analysis, so managers receive little insight into the way specific risks affect a company's value; those managers know only that a country risk premium has been added to the discount rate. By contrast, analyzing specific risks and their impact on value permits managers to make better plans to mitigate them. If regional-infrastructure and energy-supply risks were a major concern, for example, a manufacturer might decide to build several smaller plants rather than a single large one, even though that course might cost more initially.

Analyzing **specific risks** and their impact on value helps managers make better plans to mitigate them

To incorporate risks into cash flows properly, start by using macroeconomic factors to construct scenarios, because such factors affect the performance of industries and companies in emerging markets. Then align specific scenarios for companies and industries with those macroeconomic scenarios. The difference here between emerging and developed markets is one of degree: in developed markets, macroeconomic performance will be less variable. Since values in emerging markets are often more volatile, we recommend developing several scenarios.

The major macroeconomic variables that have to be forecast are inflation rates, growth in the gross domestic product, foreign-exchange rates, and, often, interest rates. These items must be linked in a way that reflects economic realities. GDP growth and inflation, for instance, are important drivers of foreign-exchange rates. When constructing a high-inflation scenario, be sure that foreign-exchange rates reflect inflation in the long run, because of purchasing-power parity.⁵ Next, determine how changes

⁵The theory of purchasing-power parity states that exchange rates should adjust over time so that the prices of goods in any two countries are roughly equal. A Big Mac at McDonald's, for instance, should cost roughly the same amount in both. In reality, purchasing-power parity holds true over long periods of time, but exchange rates can deviate from it by up to 20 or 30 percent for five to ten years.

in macroeconomic variables drive each component of the cash flow. Cash flow items likely to be affected are revenue, expenses, working capital, capital spending, and debt instruments. These should then be linked in the model to the macroeconomic variables so that when the macroeconomic scenario changes, cash flow items adjust automatically.

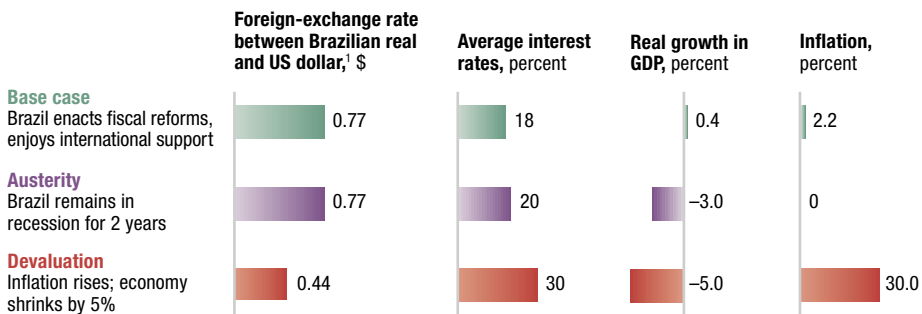
After this link has been made, think about industry scenarios. Although they are constructed in similar ways in emerging and developed markets alike, industries in the former may be more driven by government action and intervention and are more likely to depend on foreign markets for either revenue or inputs. (A plastics manufacturer that must import petrochemicals, for example, depends on the state of global oil and petrochemicals markets even if all of its products are sold locally.) When constructing the model, make sure that the industry scenarios take the macroeconomic environment into consideration.

We used this approach in a 1998 outside-in valuation of Pão de Açúcar, a Brazilian retail-grocery chain. The forecasts were developed with the help of three macroeconomic scenarios published by an investment bank, Merrill Lynch (Exhibit 2). Our first scenario, or base case, assumed that Brazil

EXHIBIT 2

Three scenarios for Pão de Açúcar

Macroeconomic assumptions, 1999



Pão de Açúcar's assumptions, 1999



¹As of December 1999.

Source: Merrill Lynch; McKinsey analysis

would enact fiscal reforms and enjoy continued international support and that the country's economy could therefore recover fairly quickly from the shock waves of the Asian economic crisis. Revenue and margins were quite robust in this scenario. The second scenario assumed that Brazil's economy would remain in recession for two years, with high interest rates and low GDP growth and inflation. The third scenario assumed a dramatic devaluation—which is what actually happened. In this third scenario, inflation would rise to 30 percent and the economy would shrink by 5 percent.

These three macroeconomic scenarios were then incorporated into the company's cash flows and discounted at an industry-specific cost of capital. The cost of capital also had to be adjusted for Pão de Açúcar's capital structure and for the difference between the Brazilian and US inflation rates. Next, each outcome was weighted

for probability. Exhibit 3 shows the results of the three scenarios and the probability-weighted values. The base case received a probability of between 33 percent and 50 percent; the others were assigned lower probabilities based on our internal assessments. The DCF value range—a large one because of the uncertainties of the times—was about –23 percent to +35 percent of the base case.

The resulting value was \$1.026 billion to \$1.094 billion, which was within 10 percent of the company's market value at the time. If we employ the alternative valuation method, using base-case cash flows but adjusting for additional risk by adding Brazil's country risk premium to the discount rate, we find a value of \$221 million—far below the market value.⁶


Using probability-weighted scenarios brings us much closer to market values and, we believe, to a more accurate view of a company's true value. Moreover, these scenarios don't just confirm the market's valuation of companies; by pinpointing specific risks, they also help managers make the right decisions for those companies. 

EXHIBIT 3

Probability-weighted scenarios approximate market value

	Discounted-cash-flow value, \$ million	×	Probability, percent	=	Probability-weighted value, \$ million
Base case	1,340		33–50		446–670
Austerity	766		30–33		229–255
Devaluation	973		20–33		195–324
			Range of probability-weighted values		\$1.026 billion–\$1.094 billion
			Pão de Açúcar's market value as of September 1998		\$0.995 billion

⁶The country risk premium typically used at the time of the valuation (September 1998) was about 8 percent.