

# BEHIND THE Boom

The risks of emerging markets.

BY CHRISTIAN T. LUNDBLAD

From 2003 to 2006, emerging equity markets exhibited rates of appreciation not seen since the days before the East Asian and Russian crises of the late 1990s. Over these four years, emerging markets returned 33% per annum, on average, rapidly outpacing other developed markets. Some individual markets grew at phenomenal rates. The Shanghai Composite Index, for example, appreciated 130% in 2006. By comparison, the U.S. S&P 500 and the MSCI EAFE indices returned 14% and 23% per annum, respectively, over this period. Not surprisingly, emerging markets have generated considerable attention of late.

Large historical average returns are a well-documented feature of emerging market equities. However, emerging market returns are also well known for large standard deviations (see Harvey (1995)). Table 1 provides annualized average returns (in U.S. dollars) and standard deviations for a collection of emerging markets over the period 1993-2006 based on indices provided in Standard & Poor's Emerging Market Database. To the extent that volatility embodies risk, these markets are indeed quite risky, and the recent uniform appreciation is not representative of their historical experience. Tremendous swings are realized with unfortunate frequency in emerging markets, and the extreme movements in China and Thailand are

recent examples of pronounced volatility.

During periods of rapid asset appreciation, one ignores relevant long-run risks at one's own peril. So, what are the risks? Foreign investors in emerging markets certainly face significant currency risk as emerging market currencies are typically quite volatile. Also, the academic literature has identified a number of characteristics that may be associated with country-specific risk in the determination of the cost of capital across countries. For example, Erb, Harvey, and Viskanta (1996) highlight the importance of sovereign (political) risk. La Porta et al. (1998) emphasize the importance of investor protection and, more generally, the quality of institutions and the legal environment. Bhattacharya and Daouk (2002) document the effects of the enactment of insider trading laws and the first prosecution under these laws. Additionally, Hail and Leuz (2006) demonstrate that any perceived risks associated with lax accounting standards or the opacity of corporate records also affect a country's cost of capital. These are just a few examples of a rapidly growing literature on the interplay between institutional quality, finance, and economic development. Corruption, impediments to law and order, accounting opacity, poor corporate governance, sovereign credit concerns, and political risks are all examples of factors

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that investors traditionally weigh heavily. In fairness, developing countries have made significant progress, and the underlying economies in which these markets reside have perhaps never looked better. Still, these risks loom large, and should be given due consideration since emerging markets still score poorly along a number of these dimensions despite their recent progress.

Among the risks emerging market investors face, local equity market illiquidity and large transaction costs are paramount. Emerging market equities are very expensive to trade, and the markets are relatively thin. Poor liquidity was mentioned in a 1992 survey by Chuhan as one of the main reasons that prevented foreign institutional

investors from investing in emerging markets. Liquidity is notoriously difficult to measure (or even precisely define) even for developed markets, but Table 1 presents two commonly used measures of transaction costs/liquidity that are available for these markets. First, bid-ask spreads, among the most common measures of transaction costs, are very large as reported in Lesmond (2005). Bid-ask spread data are unfortunately quite limited in terms of firm coverage and across time, but the figures that we do have are indicative of the rather expensive trading environment. The average spread exceeds 4.5%, dwarfing comparable spreads observed in the U.S. This is a full sample average and spreads in emerging markets have

**SUMMARY STATISTICS (1993-2006)**

**TABLE 1**

	Annualized Average Return (U.S. \$, %)	Annualized Return Standard Deviation (U.S. \$, %)	Bid-ask Spreads (%)	Proportion of Zero Daily Returns (Equal-Weighted, %)	Proportion of Zero Daily Returns (Value-Weighted, %)
Argentina	17.41	37.73	3.17	43.9	23.7
Brazil	29.76	41.30	9.43	60.8	41.5
Chile	14.66	23.53		61.8	35.1
China	16.02	39.65	0.52	20.0	12.6
Colombia	17.42	29.80	4.52	62.4	46.5
Hungary	21.97	35.93	11.14	34.5	16.0
India	14.46	27.95	4.65	29.3	16.6
Indonesia	16.53	47.41	8.56	59.9	31.1
Israel	12.48	23.70		42.8	16.8
Malaysia	9.12	34.82	2.42	31.1	27.6
Mexico	16.01	31.23	5.27	47.2	23.0
Pakistan	16.69	37.37		57.2	25.4
Peru	22.13	26.99	4.92	63.4	53.0
Philippines	7.62	32.45	6.35	56.1	33.1
Poland	15.29	40.04	3.13	27.8	23.4
South Africa	16.69	27.32	6.11	46.3	20.1
South Korea	15.75	42.63	1.95	17.8	14.2
Taiwan	11.53	34.09	1.09	17.8	16.9
Thailand	7.42	42.88	5.14	40.4	25.5
Turkey	34.36	60.49		25.8	24.3
Venezuela	15.94	45.57	4.64	53.9	35.5
Zimbabwe	62.71	87.39		57.3	48.5

The monthly returns (U.S.\$) are from the S&P/IFC Emerging Market Database. Bid-ask spreads are taken from Lesmond (2005), and are determined using quotes derived from Bloomberg. The proportion of zero daily (local currency) returns observed over the month for each equity market uses daily returns data at the firm level, which are obtained from the Datastream research files. For each country, we observe daily returns (using closing prices) for a large collection of firms listed on a domestic exchange. For each country, we calculate the equal- and value-weighted proportion of zero daily returns across all firms for the month.

## RETURN PREDICTABILITY REGRESSIONS (1993-2006)

TABLE 2

	Estimate	Standard Error
$\delta_1$	-0.0158	0.0059
$\delta_2$	0.0557	0.0181
$\delta_3$	0.7572	0.0171
$\delta_4$	0.0027	0.0200
$Cov(\epsilon_r, \epsilon_L) / \text{Var}(\epsilon_L)$	0.0305	0.0120

This table presents panel regression estimates:

$$E_t[r_{t+1}] = \delta_{0,r} + \delta_1 * L_t + \delta_2 * r_t$$

$$\epsilon_{r,t+1} = r_{t+1} - \delta_{0,r} - \delta_1 * L_t - \delta_2 * r_t$$

$$\epsilon_{L,t+1} = L_{t+1} - \delta_{0,L} - \delta_3 * L_t - \delta_4 * r_t$$

For the predictability of each country's equity market return, we include the lagged market return, lagged local market liquidity level, as well as country fixed effects (not reported). We also present evidence on the degree of co-movement between return and liquidity shocks.  $Cov(\epsilon_r, \epsilon_L) / \text{Var}(\epsilon_L)$  is the projection of the return shock on the liquidity shock as extracted from the system above. We present panel-corrected standard errors that facilitate cross-sectional heteroskedasticity and SUR effects.

indeed fallen in more recent years. However, it is still quite common to pay well over 100 basis points for a one-way trade in many of these markets.

Second, emerging markets are thin. Following Lesmond, Ogden, and Trzcinka (1999), Lesmond (2005), and Bekaert, Harvey and Lundblad (2007), Table 2 provides the proportion of zero daily returns (ZR) observed for each equity market. For each country, we calculate the equal and capitalization-weighted proportions of zero daily returns across all firms. The proportion of days for which a firm in these markets does not trade (an observed zero return) is remarkably high. An equal (value) weighted average of the percentage of zero-return days across the entire sample of countries and time is 44% (28%), suggesting that almost half (a third) of the time the average (largest) emerging market firm does not trade over a given day. The markets in Colombia, Peru, and Zimbabwe exhibit a nearly 50% incidence of zero daily returns across their largest domestically listed firms. The smallest incidence of zero daily returns is in the markets in China, South Korea, and Taiwan. As with bid-ask spreads, the incidence of zero returns has indeed fallen somewhat in more recent years; however, the phenomenon is still quite common, particularly in contrast to a developed equity market like the NYSE, where only the smallest capitalization stocks fail to trade over a full day. Following Bekaert, Harvey, and Lundblad (2007), we employ this measure going forward in our analysis of liquidity risk as the incidence of zero returns requires only daily price data which are available over the entire data sample. Define the liquidity measure used in the remainder of the article as  $L_{i,t} = \ln(1 - ZR_{i,t})$ , with  $ZR_{i,t}$  the

value-weighted zero return measure for country  $i$  in month  $t$ . Also, define  $r_{i,t}$  the value-weighted return on country index  $i$  (measured in dollars).

### CASE STUDY: LIQUIDITY RISK

Assets with significant transaction costs trade at a discount relative to their expected cash flows. Following Amihud and Mendelson (1986), transaction costs drive a wedge between gross and net returns:  $r_{t+1}^{net} = r_{t+1}^{gross} - \text{Costs}_{t+1}$

If emerging markets are expensive, real portfolio gains will likely be significantly different from paper portfolio returns. Aside from the simple gross-to-net adjustment that arises in the presence of transaction costs, recent evidence (based primarily on U.S. data, e.g., Amihud (2002), Pastor and Stambaugh (2003); Acharya and Pedersen (2006)) points to an alternative channel that facilitates compensation for systematic liquidity risk, that is, co-movement between equity returns and liquidity:

$$E[r^{net}] = \text{Risk Free} + \beta_1 \times [\text{Market Risk Premium}] + \beta_2 \times [\text{Liquidity Risk Premium}]$$

In this type of model, co-movement between returns and liquidity, measured by  $\beta_2$ , requires additional compensation. This risk is relevant as investors might prefer to avoid assets that typically depreciate precisely when the market depth for that asset erodes. Practitioners call extreme versions of this phenomenon "liquidity black holes" (see Persaud (2003)).

If risk premia reflect compensation for expected market illiquidity and illiquidity is persistent, measures of liquidity should predict returns with a negative sign. Moreover, unexpected changes to market liquidity should be contemporaneously correlated with unexpected stock returns because a shock to liquidity raises expected liquidity, which in turn lowers expected returns, and hence raises prices. Amihud (2002) formulates these hypotheses and finds support for them in U.S. data. In this example, we estimate a simple form of the Amihud hypothesis (broadly consistent with the pricing model suggested above):

$$E_t[r_{t+1}] = \delta_{0,r} + \delta_1 * L_t + \delta_2 * r_t$$

$$\epsilon_{r,t+1} = r_{t+1} - \delta_{0,r} - \delta_1 * L_t - \delta_2 * r_t$$

$$\epsilon_{L,t+1} = L_{t+1} - \delta_{0,L} - \delta_3 * L_t - \delta_4 * r_t$$

where  $\epsilon_{r,t}$  and  $\epsilon_{L,t}$  represent the unexpected shocks to returns and liquidity. Expected returns,  $E_t[r_{t+1}]$ , are determined by the lagged liquidity level,  $L_t$ , and return,  $r_t$ . The component of the realized return that is unrelated to

the expected return is the unexpected shock,  $\epsilon_{r,t}$ . Under the Amihud hypothesis, (1)  $\delta_1$  should be negative (i.e., expected returns are lower when the market is more liquid), and (2) the contemporaneous correlation between return and liquidity shocks should be positive (i.e., capital losses are associated with a deteriorating liquidity environment, on average).<sup>1</sup>

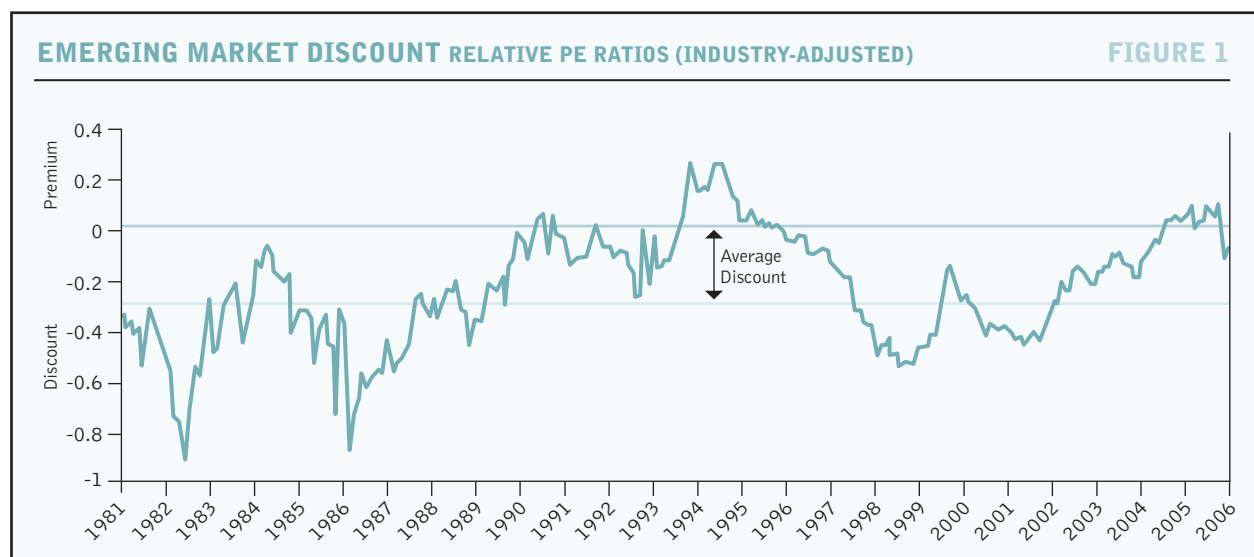
Bekaert, Harvey, and Lundblad (2007) carefully explore these effects in a more complicated econometric environment. Here, an illustrative panel regression is performed, where market returns are stacked across countries and time and projected onto the lagged local market liquidity and return, constraining the predictive coefficients,  $\delta_1$  and  $\delta_2$ , to be identical across countries. Further, country fixed effects are employed, meaning  $\delta_{0,r}$  is country-specific. Last, the standard errors for each coefficient reflect country-specific heteroskedasticity and cross-country correlation (SUR effects). These fairly standard panel estimation techniques are discussed in more detail in Bekaert, Harvey, and Lundblad (2007).

Table 2 provides estimates of these effects across a set of 22 countries, updating the data relative to Bekaert, Harvey, and Lundblad (2007) to include additional years (1993-2006) and country coverage. The estimate of  $\delta_1$  is negative and statistically significant at the 5% level, suggesting that equity market liquidity is an important predictor of local equity market returns. Economically, this estimate implies that a reduction in the incidence of zero returns from 50% to 20%, a reasonable comparison of the least and most liquid emerging markets in our sample, would be associated with a reduction in the cost of capital by about 900 basis points in annualized terms. Local market returns, on average, also display some

autocorrelation as  $\delta_2$  is positive and significant; return autocorrelation is a small, but not insignificant 0.06, on average. Liquidity itself is fairly persistent, with an average autocorrelation,  $\delta_3$ , of 0.75, but past returns do not seem to significantly predict future liquidity,  $\delta_4$ . Further, return and liquidity shocks are positively correlated, consistent with the notion that prices and liquidity move together. These two observations confirm the Amihud hypothesis for emerging markets; local market liquidity is priced. This is important as it suggests that emerging market investors need not only consider the simple gross-to-net adjustment associated with the large emerging equity market participation costs, but that co-variation between market prices and liquidity is something that may require additional risk compensation.

At a more nuanced level, Bekaert, Harvey, and Lundblad (2007) also facilitate in their estimates of the return-liquidity dynamic the significant regulatory shifts these markets have pursued to allow foreign investor access to local trading. To the extent foreign access alters the degree of segmentation/integration of these markets, the relation between local equity pricing and liquidity may also be altered. Indeed these authors find that the return-liquidity predictability and shock co-movement coefficients are reduced for equity markets that permit greater levels of foreign investor access. That is, local liquidity risks diminish somewhat when markets liberalize.

In sum, emerging equity markets are illiquid and costly, but they also display variation in the trading environment that may make investors uncomfortable. The risk that the market depth may erode precisely when an investor's asset is depreciating may require an additional premium. Despite improvements in trading costs and market depth,



emerging markets are still quite illiquid, and the variation in the depth of the trading environment is significant. For this reason alone, it is not unreasonable to expect emerging markets to be priced at a relative discount to their expected cash flows.

## EMERGING MARKET RISKS TODAY

Empirically, it is not uncommon for emerging markets to in fact be priced at a discount, where local price-earnings (PE) ratios are lower than those implied by global equity markets for comparable industries. Figure 1 presents a cross-country average of an industry-adjusted valuation discount for emerging markets from 1981 to 2006. Emerging markets are indeed priced at a discount, around 30% on average, relative to global equity markets for almost the entire period, with a few exceptions. There are instances where the average emerging market discount approaches 100%, suggesting a large valuation differential relative to global developed equity markets. Bekaert, Harvey, Lundblad, and Siegel (2007) document evidence that the emerging market discount is statistically associated with many of the risk factors mentioned above; the association between PE discounts and market illiquidity is particularly pronounced.

It is also interesting to note that the emerging market discount is essentially zero at the end of the sample, meaning that emerging markets are, on average, priced at par with their developed market counterparts on an industry-adjusted basis. The vanishing valuation differentials are directly associated with the rapid rate of appreciation observed over the past several years for these markets mentioned above. Since it is relatively uncommon to witness valuation parity across emerging markets, this observation should give investors pause about these valuations going forward. To be clear, an elevated valuation may be a rational reflection of the immensely improved economic situation across the developing world. However, given the importance of the various risks mentioned above—risks that are at least relatively muted in industrialized economies—investors' expectations about the growth opportunities available to emerging market firms must be exceptionally large to overcome any concerns about risks. In the last ten or fifteen years, developing countries have made tremendous strides in the areas of foreign investor access, corporate governance, local market liquidity and transparency, etc., but they are still quite removed from traditional equity markets and the risk of significant reversals is by no means irrelevant—

recent developments in Russia and Venezuela are dramatic examples.

The developing countries that house the world's emerging equity markets are the engines of world economic growth. These economies will comprise 40% to 50% of world economic output in decades to come. Accordingly, the neutral allocation to emerging market firms among a passive investor's total equity allocation may very well indeed be half; this reality is something with which all investors must become comfortable. However, serious risks persist, among which local market illiquidity is an important example. The debate over current valuations aside, the management of emerging market risk is and will be an important challenge for the foreseeable future. ■

## ENDNOTES

1. There is a large literature on statistical inference problems with respect to establishing return predictability, such as in Stambaugh (1999) and Hodrick (1992).

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