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Research Summaries

Emerging Equity Markets and Market Integration

Geert Bekaert*

Overview

In the early 1990s, developing countries shrugged off a decade lost in the costly complications of the Debt Crisis and regained access to foreign capital. Not only did capital flows to emerging markets increase dramatically, but their composition changed substantially as well. Portfolio flows (fixed income and equity) and foreign direct investment replaced commercial bank debt as the dominant sources of foreign capital. This could not have happened without these countries embarking on a financial liberalization process, relaxing restrictions on foreign ownership, and taking other measures to develop their capital markets, often in tandem with macroeconomic and trade reforms.¹ New capital markets emerged as a result, and the consequences were dramatic. For example, in 1985 Mexico's equity market capitalization was 0.71 percent of GDP and only accessible by foreigners through the Mexico Fund trading on the New York Stock Exchange. In 1995 this figure rose to 20.53 percent of GDP, and U.S. investors were holding about 19 percent of the market.

From the perspective of investors in newly available developed markets, what are the diversification benefits of investing? And from the perspective of the developing coun-

tries themselves, what are the effects of increased foreign capital on domestic financial markets and ultimately on economic growth?

Market integration is central to both questions. In finance, markets are said to be integrated when assets of identical risk command the same expected return. In theory, liberalization should bring about integration with the global capital market, and its effects on equity markets are then clear. Foreign investors will bid up the prices of local stocks with diversification potential while inefficient sectors will be shunned by all investors. Overall, the cost of equity capital should go down, which in turn may increase investment and ultimately increase economic welfare.²

Foreign investment can also have adverse effects, as the recent crises in Mexico and Southeast Asia have illustrated. For example, foreign capital flows may complicate monetary policy, drive up real exchange rates, and increase the volatility of local equity markets. Moreover, in diversifying their portfolios toward emerging markets, rational investors should consider that the integration process may lower expected returns and increase correlations between emerging market and world market returns. To the extent that the benefits of diversification are severely reduced by the liberalization process, there may be less of an increase in the original equity price. Ultimately, all of these questions require empirical answers, which my research has attempted to provide.

Diversification

Although emerging market equity returns are highly volatile, they are

only slightly correlated with equity returns in the developed world, making it possible to construct low-risk portfolios. Early studies show very significant diversification benefits for emerging market investments, even billing them as a "free lunch." However, these studies used market indexes compiled by the International Finance Corporation (IFC) that generally ignore the high transaction costs, low liquidity, and investment constraints associated with emerging market investments.

Michael S. Urias and I³ measure the diversification benefits from emerging equity markets using data on closed-end funds, open-end funds, and American Depositary Receipts (ADRs). Unlike the IFC indexes, these assets are easily accessible to retail investors, and investment costs are comparable to investment costs for U.S.-traded stocks. The distinguishing feature of closed-end funds is that fund share prices generally deviate from their portfolio value (known as "net asset value"); they may trade at a premium when the assets are invested in closed or restricted markets, or at a discount when the foreign market has unusual political risk. Historically, they have been an important means of access to restricted markets, while open-end funds and ADRs were relatively unimportant before 1993.

We generally find that investors give up a substantial part of the diversification benefits by holding closed-end funds instead of the underlying portfolios; they do so to the point that the benefits from investing in U.S.-traded closed-end funds are not statistically significant relative to an internationally diversified portfolio benchmark. Open-end

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funds, on the other hand, track the underlying IFC indexes much better than the other investment vehicles and prove to be the best diversification instrument in our sample.

By removing price segmentation, liberalizations may increase correlations and hence reduce diversification benefits. Using a model in which conditional correlations depend on world volatility and variables tracking the degree of integration, Campbell R. Harvey and I find that, for some countries—for example, Thailand—correlations increase markedly around the time of liberalization.⁴ The average response of these conditional correlations to liberalizations in 17 emerging markets is a small but statistically significant increase of 0.08 at most.

Integration

MEASURING MARKET INTEGRATION

The degree of market integration is notoriously difficult to measure. For example, investment restrictions may not be binding, or there may be indirect ways to access local equity markets (for example, through country funds or ADRs). Also, there are many kinds of investment barriers, and the liberalization process is typically a complex and gradual one. In an exploratory paper⁵ I distinguish between three different kinds of barriers. The first are legal barriers arising from the different legal status of foreign and domestic investors—for example, foreign ownership restrictions and taxes on foreign investment. The second are indirect barriers arising from differences in available information, accounting standards, and investor protection. The third are barriers arising from emerging-market specific risks (EMSRs) that discourage foreign investment and lead to de facto segmentation. EMSRs include liquidity risk, political risk, economic policy risk, and perhaps currency risk. Some

might argue that these risks are in fact diversifiable and not priced. However, World Bank surveys of institutional investors in developed markets found that liquidity problems were seen as major impediments to investing in emerging markets. In recent work, however, Claude B. Erb, Harvey, Tadas E. Viskanta, and I found political risk to be priced in emerging markets.⁶

When I measure the three types of broadly defined investment barriers for 19 emerging markets, I find that some direct barriers to investment are not significantly related to a return-based quantitative measure of market integration. However, indirect barriers, such as poor credit ratings and the lack of a high-quality regulatory and accounting framework, are strongly related cross-sectionally with the integration measure. These results reveal the danger in measuring market integration purely by investigating the market's regulatory framework.

My work proposes three potential solutions to this problem.⁷ First, Harvey and I measure the degree of integration directly from equity return data using a parameterized model of integration versus segmentation (a regime-switching model).⁸ The model yields a time-varying measure of the extent of integration between 0 and 1. In many countries, with Thailand as a stark example, variation in the integration measure coincides with capital market reforms. In contrast to general perceptions at the time of this article, our results suggest that some countries became less integrated over time.

In other work with Harvey, I use bilateral capital flow data to construct measures of U.S. holdings of the emerging market as a percentage of market capitalization.⁹ We then determine the time at which capital flows experienced a structural break as a proxy for when foreign investors may have become marginal investors in

these markets. Although this measure avoids having to specify an asset pricing model and avoids noisy return data, the capital flow data that we use are notoriously low quality, and the United States is the only country for which we have detailed data on bilateral monthly flows with emerging markets.

Finally, Robin L. Lumsdaine, Harvey, and I exploit the idea that market integration is an all-encompassing event that should change the return-generating process, and with it the stochastic process governing other economic variables. We use a novel methodology to both detect breaks and “date” them, looking at a wide set of financial and economic variables.¹⁰ Our break dates are mostly within two years of one of four alternative measures of a liberalization event: a major regulatory reform liberalizing foreign equity investments; the announcement of the first ADR issue; the first country fund launching; and a large increase in capital flows.

EFFECTS OF MARKET INTEGRATION

In a recent paper, Harvey and I measure how liberalization has affected the equity return-generating process in 20 emerging markets,¹¹ focusing primarily on the cost of equity capital. Given the complexity of the liberalization process, we define capital market liberalizations using the four alternative measures discussed previously. To measure the cost of capital, we use dividend yields. The integration process should lead to a positive return-to-integration ratio (as foreign investors bid up local prices) but to lower post-liberalization returns. Given high return volatility and considerable uncertainty in timing the liberalization, average returns cannot be used to measure changes in the cost of capital. Dividend yields capture the permanent price effects of a change in the cost of capital better than noisy returns do.

With a surprising robustness across specifications, we find that dividend yields decline after liberalizations, but that the effect is always less than 1 percent on average. The results are somewhat stronger when we use the break dates discussed earlier. Peter B. Henry finds similar results using a different methodology and a slightly different sample of countries.¹²

Harvey, Lumsdaine, and I¹³ investigate the joint dynamics of returns and net U.S. equity flows that accompany liberalizations. We find that net capital flows to emerging markets increase rapidly after liberalization as investors rebalance their portfolios, but that they then fall back, as we would expect. Even after liberalization, unexpected shocks to flows increase returns contemporaneously, but the effect is partially permanent, suggesting that additional flows reduce the cost of capital.

DEVELOPMENT AND FOREIGN CAPITAL

Most of my research has tried to draw inferences with a somewhat reluctant dataset. Emerging market returns are highly non-normal and highly volatile, and the samples are short.¹⁴ Moreover, a dominating characteristic of the data is a potentially gradual, structural break. Although it is generally difficult to make inferences in such a setting, a few robust findings emerge: the liberalization process has led to a very small increase in correlations with the world market and a small decrease in dividend yields. This decrease could represent a decrease in the cost of capital or an improvement in growth opportunities; Harvey and I attribute some of the decrease to improved growth opportunities. Despite the rather small change, the effect on economic welfare may be substantial if it leads to increased productive investment.¹⁵ Harvey and I find that the aggregate investment-to-GDP ratio increases significantly after liberalizations (by about 70 basis points).

Using a very different methodology, Henry also reports that financial and economic liberalization increases aggregate investment.¹⁶

With a number of recent crises in emerging markets, the role of foreign capital in developing countries is under intense scrutiny. Malaysia already has re-imposed capital controls. Thus it is remarkable that I have so far failed to find negative effects of foreign investment on emerging markets. For example, although policymakers often complain about foreigners inducing excess volatility in local markets, my empirical tests with Harvey never reveal a robust increase in volatility after liberalization. In other work, we cannot confirm the often-heard argument that foreign capital consistently drives up real exchange rates.¹⁷

Despite the very real problems in the financial and corporate sectors of the crisis countries in Southeast Asia, the current literature on the effects of capital flows on emerging markets reveals little reason for rich developed countries to discontinue their financing of developing countries' development. After all, one potential reason for the disappointingly small effect of the cost of capital that Harvey and I find may be a combination of "segmentation risk"—foreign investors anticipating future policy reversals toward foreign investment restrictions—and home bias. "Home bias" refers to the fact that investors across the world have fairly small proportions of their assets allocated to foreign markets, and the proportion allocated to emerging markets is minuscule. I cannot help but wonder whether a world blessed with a vast pool of private, internationally active, speculative capital would have faced the kind of liquidity crises we have seen in recent years, and in their wake the many proposals to limit capital flows that have been made.

¹ See G. Bekaert and C. R. Harvey, "Capital Flows and the Behavior of Emerging Market Equity Returns," forthcoming in *Capital Flows and the Emerging Economies: Theory, Evidence, and Controversies*, S. Edwards, ed. Chicago: University of Chicago Press, for detailed timelines on important structural changes in emerging countries.

² See G. Bekaert and C. R. Harvey, "Foreign Speculators and Emerging Equity Markets," forthcoming in *Journal of Finance*, and R. M. Stulz, "International Portfolio Flows and Security Markets," in *International Capital Flows*, M. S. Feldstein, ed. Chicago: University of Chicago Press, 1999, for a more elaborate account.

³ G. Bekaert and M. S. Urias, "Diversification, Integration, and Emerging Market Closed-End Funds," *Journal of Finance*, 51, No. 3 (July 1996), pp. 835–69, and "Is There a Free Lunch in Emerging Market Equities?" *Journal of Portfolio Management*, 25 (Spring 1999), pp. 83–95.

⁴ See G. Bekaert and C. R. Harvey, "Emerging Equity Market Volatility," *Journal of Financial Economics*, 43 (1997), pp. 29–78.

⁵ G. Bekaert, "Market Integration and Investment Barriers in Emerging Equity Markets," *World Bank Economic Review*, 9 (1995), pp. 75–107.

⁶ G. Bekaert, C. B. Erb, C. R. Harvey, and T. E. Viskanta, "What Matters for Emerging Equity Market Investments," *Emerging Markets Quarterly*, 1 (1997), pp. 17–46.

⁷ See C. R. Harvey, "The Future of Investment in Emerging Markets," NBER Reporter, Summer 1998, for a more detailed summary of this work.

⁸ G. Bekaert and C. R. Harvey, "Time-Varying World Integration," *Journal of Finance*, 50 (1995), pp. 403–44.

⁹ Bekaert and Harvey, "Capital Flows and the Behavior of Emerging Market Equity Returns."

¹⁰ G. Bekaert, C. R. Harvey, and R. L. Lumsdaine, "Dating the Integration of World Capital Markets," NBER Working Paper No. 6724, September 1998.

¹¹ Bekaert and Harvey, "Foreign Speculators and Emerging Equity Markets."

¹² P. B. Henry, "Stock Market Liberalization, Economic Reform, and Emerging Market Equity Prices," *Journal of Finance*, forthcoming.

¹³ G. Bekaert, C. R. Harvey, and R. L. Lumsdaine, "The Dynamics of Emerging Market Equity Flows," NBER Working Paper No. 7219, July 1999.

¹⁴ See G. Bekaert, C. B. Erb, C. R. Harvey, and T. E. Viskanta, "Distributional Characteristics of Emerging Market Returns and Asset Allocation," *Journal of Portfolio Management*, 24 (1998), pp. 102–16, for a description of these properties.

¹⁵ For a literature survey on the ways in

which efficient financial intermediation in general and financial market integration in particular has affected economic growth, see G. Bekaert and C. R. Harvey, "Capital Markets: An Engine for Economic Growth," *The Brown Journal of World Affairs*, 5, no. 1 (Winter–Spring 1998), pp. 33–53.

¹⁶ P. B. Henry, "Do Stock Market Liberalizations Cause Investment Booms?" *Journal of Financial Economics*, forthcoming.

¹⁷ Bekaert and Harvey, "Capital Flows and the Behavior of Emerging Market Equity Returns."

Forecasting and Empirical Methods in Finance and Macroeconomics

Francis X. Diebold*

All economic agents forecast all the time, and forecasting figures especially prominently in financial and macroeconomic contexts. Central to finance, for example, is the idea of expected present value of earnings flows, and central to macroeconomics is the idea of expectations and their effects on investment and consumption decisions. Moreover, predictive ideas in finance and macroeconomics are very much intertwined. For example, modern asset pricing models attribute excess returns and return predictability in part to macroeconomic factors such as recession risk.

In finance recently, there has been extensive inquiry into issues such as long-horizon mean reversion in asset returns, persistence in mutual fund performance, volatility and correlation forecasting with applications to financial risk management, and selection biases attributable to survival or

data snooping.¹ In macroeconomics, we have seen the development and application of new coincident and leading indicators and tracking portfolios, diffusion indexes, regime-switching models (with potentially time-varying transition probabilities), and new breeds of macroeconomic models that demand new tools for estimation and forecasting.

The development and assessment of econometric methods for use in empirical finance and macroeconomics, with special emphasis on problems of prediction, is very important. That is the subject of my own research program, as well as of an NBER working group that Kenneth D. West and I lead.² Here I describe some aspects of that research, ranging from general issues of forecast construction and evaluation to specific topics such as financial asset return volatility and business cycles.

Forecast Construction and Evaluation in Finance and Macroeconomics

Motivated by advances in finance and macroeconomics, recent research has produced new forecasting methods and refined existing ones.³ For example, prediction problems involving asymmetric loss functions arise routinely in many fields, includ-

ing finance, as when nonlinear tax schedules have different effects on speculative profits and losses.⁴ In recent work, I have developed methods for optimal prediction under general loss structures, characterized the optimal predictor, provided workable methods for computing it, and established tight links to new work on volatility forecastability, which I discuss later.⁵

In related work motivated by financial considerations, such as "convergence trades," and macroeconomic considerations, such as long-run stability of the "great ratios," Peter F. Christoffersen and I have considered the forecasting of co-integrated variables. We show that at long horizons nothing is lost by ignoring co-integration when forecasts are evaluated using standard multivariate forecast accuracy measures.⁶ Ultimately, our results suggest not that co-integration is unimportant but that standard forecast accuracy measures are deficient because they fail to value the maintenance of co-integrating relationships among variables. We suggest alternative measures that explicitly do this.

Forecast accuracy is obviously important because forecasts are used to guide decisions. Accuracy is also important to those who produce forecasts, because reputations and fortunes rise and fall with their accu-

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