**International Finance and Macroeconomics (IFM)**
***[some more recent references added with notation "+" : Mar25,. 2006]***

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While members of the Program in International Finance and Macroeconomics continue to work on many other topics as well, this article focused on the last four years will concentrate on the emerging markets theme. This research includes a major project, directed by Martin Feldstein and me, on "Financial Crises in Emerging Markets." This project in turn included eight meetings on crises in specific countries — the Mexican crisis of 1994, the East Asian crises during 1997-8, through Argentina's crash in 2001 — along with many other conferences.[1] It produced eight NBER books.[2]

## Institutions

Economists' interest in those countries that have become integrated into world financial markets over the last few decades can be seen as part of a larger increase in attention paid to developing countries in general. The field of development economics has recently been granted more of the priority and prestige that it deserves. Why some poor countries have been able to join the ranks of the rich and others have stayed behind is one of the most important questions of our time. Research on the deepest determinants of growth now emphasizes three strong influences: openness to trade; tropical geography; and, especially, the quality of a country's institutions, such as protection of property rights, efficacy of the legal system, and absence of corruption.[3] Financial market institutions, such as those charged with protection of shareholder rights, receive particular emphasis.[4] Shang-Jin Wei and his co-authors document that corruption in a country makes foreign investors skittish.[5]

Research by members of the IFM Program tends most often to deal specifically with macroeconomic questions, such as the choice of monetary and exchange rate policy, or a country's decision whether to open its financial markets to international capital flows. But Daron Acemoglu, Simon Johnson, James Robinson, and Yunyong Thaicharoen argue that macroeconomic policies in developing countries are often the manifestation of deeper institutions and interest groups.[6] For example, an IMF requirement that a country devalue in order to raise the domestic price of export commodities may be offset simply by some other policy to restore the preceding political equilibrium. Some of the more interesting findings discussed in this article concern the *interaction* of countries' institutions with these macroeconomic decisions.

## Exchange Rate Regimes

One major question addressed by IFM members is a country's choice of currency regime: a fixed exchange rate, a floating exchange rate, or a regime with an intermediate degree of flexibility (such as a target zone). The debate is an old one, but it acquired

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some new features in the late 1990s. One new development was the decision of some countries to abandon their independent currency for a device to fix its value firmly, such as a currency board or official dollarization. Sebastian Edwards and Igal Magendzo find that dollarization and currency unions have delivered lower inflation, as promised, but with higher income volatility.[7]

One of the arguments for a firm fix was that it would force domestic institutions to evolve in a favorable way, and would help prevent the chronic monetization of fiscal deficits that had undone so many previous attempts at macroeconomic stabilization.[8] Argentina's currency board, for example, appeared to work very well during most of the decade. It was believed that this "convertibility plan" had encouraged reforms that by the late 1990s had turned Argentina's banking system into one of the best among all emerging markets.[9] But when Argentina's crisis crested in 2001, neither the supposedly deep pockets of foreign parents that had been allowed local bank subsidiaries[10], nor any of the country's other innovative reforms, were able to protect its banking system. This outcome can only have had the effect of reducing the earlier enthusiasm for currency boards. [11]

+ But countries that proclaimed they were moving to a free float have generally not long stuck with that regime either. They exhibit "fear of floating," and intervene substantially to dampen fluctuations. In the context of large capital inflows to emerging markets post-2001, this has meant large increases in holdings of foreign exchange. Dani Rodrik ("The Social Cost of Foreign Exchange Reserves," NBER Working Paper No. 11952, Jan. 2006,) shows that reserves held by developing countries have now climbed to almost 30% of GDP, or 8 months of imports. Income loss due to low returns is close to 1 percent of GDP. Rodrik concedes that these high reserve holdings could be justified as insurance against financial crises, but not if the alternative is reducing short-term liabilities, achieving the same liquidity at lower cost.

Another new argument for monetary union has been the influential empirical findings of Andrew K. Rose and his co-authors that the boost to bilateral trade has been significant, and larger (as large as a threefold increase) than had been assumed previously.[12] Many others have advanced critiques of the Rose research, but the basic finding has withstood perturbations and replications remarkably well, even though the estimated magnitudes are sometimes smaller.[13] Some developing countries seeking enhanced regional integration may now try to follow Europe's lead.[14]

There are plenty of arguments in favor of floating currencies as well, and most of the victims of the last eight years of crises in emerging markets have responded by increasing exchange rate flexibility. One advantage that is beginning to receive renewed emphasis is that floaters are partially insulated against fluctuations in the world market for their exports.[15]

A relatively new realization is that attempts to categorize countries' choice of regime (into fixed, floating, and intermediate) in practice differ from the official categorization.[16] Countries that say they are floating, for example, in reality often are not.[17] Indeed, neat categorization may not be possible at all. That Argentina was in the end forced to abandon its currency board, in 2001, also dramatizes the lesson that the choice of exchange rate regime is not as permanent or deep as had previously been thought.[18] The choice of exchange rate regime is more likely endogenous with respect to institutions, rather than the other way around.[19] The "corners hypothesis" — that countries are, or should be, moving away from the intermediate regimes, in favor of

either the hard peg corner or the floating corner — became fashionable in the late 1990s; but it is now another possible casualty of the realization that no regime choice is in reality permanent, and that investors know that.[20]

If a country decides against setting a target for the exchange rate, that still leaves the question of what alternative target or targets will guide monetary policy instead, as Lars E. O. Svensson has emphasized. Setting a target for the money supply is no longer in fashion, for good reason.[21] One popular alternative is inflation targeting.[22] Another is the Taylor rule.[23] An open area for research is whether and how such rules can be adapted for the special circumstances facing emerging market countries, such as lower credibility of their monetary institutions.[24]

**Opening up Financial Markets**

Another major question that a country must decide is whether to liberalize financially. Do the advantages of open financial markets outweigh the disadvantages?[25] There are many potential gains from international trade in financial assets, analogous to the gains from international trade in goods. Peter B. Henry and Anusha Chari have shown that when countries open their stock markets, the cost of capital facing domestic firms falls (stock prices rise), with a positive effect on their investment and on economic growth.[26] Controls designed to moderate capital inflows thus may raise the cost of capital and slow growth. They may have a particular impact on small firms.[27]

Nevertheless, financial liberalization has often been implicated in the crises experienced by emerging markets over the last ten years. Certainly a country that does not borrow from abroad in the first place cannot have an international debt crisis. Perhaps, then, there is a role for capital controls. Dani Rodrik finds that Malaysia's decision to impose controls on outflows in 1998 helped it weather the Asia crisis.[28] But Johnson and Todd Mitton find that Malaysian capital controls mainly worked to provide a screen behind which politically favored firms could be supported.[29] Research more often has been sympathetic to a specific kind of capital control — Chile-style penalties on short-term capital *inflows* — under the theory that they tilt the composition in favor of more stable long-term inflows.[30] + Ranciere, Tornell and Westermann (2006) find that countries that have experienced occasional financial crises have, on average, grown faster than countries with stable financial conditions.[31]

A blanket indictment (or vindication) of international capital flows would be too simplistic. Some of the most interesting research examines the circumstances under which financial liberalization is more likely to be good (or bad) for economic performance. One claim is that financial opening lowers volatility [32] and raises growth[33] only for rich countries, and is more likely to lead to market crashes in lower-income countries.[34] A second claim is that capital account liberalization raises growth only in the absence of macroeconomic imbalances, such as overly expansionary monetary and fiscal policy.[35] A third important finding is that institutions, such as shareholder protection and accounting standards, determine whether liberalization leads to development of the financial sector,[36] and in turn to long-run growth.[37] A related finding is that corruption tilts the composition of capital inflows toward the form of banking flows (and away from foreign direct investment), and toward dollar denomination (versus denomination in domestic currency), both of which have been associated with crises.[38] The implication is

that financial liberalization can help if institutions are strong and other fundamentals are favorable, but can hurt if they are not.

All of these findings are consistent with the conventional lesson about the sequencing of reforms: that countries will do better in the development process if they postpone opening the capital account until after other institutional reforms.[39] Of course, the observable positive correlation between the opening of capital markets and growth could be attributable to reverse causation — that rich countries liberalize as a result of having developed, not because of it — but Hali Edison and her co-authors conclude from their own tests that this is not the case.[40]

**Origins of Currency Crises**

What are the sources of crises in emerging markets, and why have they so often led to sharp recessions? Levels of debt that would not necessarily seem high by the standards of rich countries get some "debt-intolerant" developing countries into repeated trouble.[41] When a poor country runs into difficulty, the international financial community demands that it cut its deficits, while rich countries tend to elicit the opposite response. What explains the key difference between global investors' treatment of developing versus developed countries?[42] The traditional explanation is macroeconomic fundamentals.[43] But this does not seem to fit for some of the recent crises, inspiring models with multiple equilibriums (a country may get shifted to a crisis equilibrium even if its leaders do not initiate unsound economic policies).[44] There are also models that feature herding[45], bubbles[46], and a particular role for mutual funds[47] and other large investors in speculative attacks.[48]

One prime culprit is the inability of developing countries to borrow internationally in terms of their own currency, termed by Barry Eichengreen and Ricardo Hausmann the problem of "original sin."[49] Firms or banks that incur liabilities in dollars or other foreign currencies while their revenues are primarily in domestic currency face the problem of currency mismatch; this in turn can lead to insolvency and contraction when the domestic currency devalues sharply.[50] These balance sheet effects are at the center of many analyses.[51]

Banks, in particular, have been implicated in most crises, usually because of the acute problem of moral hazard created by the prospect of government bailouts.[52] Foreign direct investment is a less risky source of capital inflow than loans;[53] the same is true of equity flows.[54]

IFM researchers have devoted a lot of attention to the observed correlation of financial volatility across emerging markets. Part of the correlation can be explained by common external shocks, such as variation in U.S. interest rates.[55] But some of the correlation is what is often called contagion of crises.[56] Jessica Tjornhom Donohue and Kenneth A. Froot note the high persistence of portfolio flows of institutional investors across emerging markets and individual investment funds, and decompose the source of this persistence into a cross-country, cross-fund component, which might arise from contagion, versus other components.[57] Graciela Kaminsky and Carmen M. Reinhart find that when contagion spreads across continents, it passes through major financial centers along the way.[58] Kristin Forbes finds that contagion also spreads along the lines of trade linkages.[59]

**Response to Crises**

Once a country is hit by an abrupt cut-off in foreign willingness to lend — a "sudden stop"[60] — it hardly matters what the cause was. The urgent question becomes: what is the appropriate policy response? Often the loss in foreign financing must be taken as given. Thus there must be a reduction of the same magnitude in the previous trade deficit. How can the adjustment be accomplished? Is a sharp increase in interest rates preferable to a sharp devaluation?[61] Many victims of crises in the late 1990s had to experience both. Regardless of what mix of policies has been chosen, recessions have been severe.[62] Further questions of interest include: Is the output loss smaller if the country goes to the International Monetary Fund?[63] What are the impacts of IMF and World Bank programs on income distribution?[64] What are "best practices" for domestic financial restructuring?[65]

Even though many currency crises over the last ten years have led to larger than expected output losses, one encouraging pattern has been that inflation usually has responded to devaluations much *less* than expected.[66] The traditional view had been that countries, especially small countries, experience rapid pass-through of exchange rate changes into import prices, and then to the general price level.[67] But this assumption appears to have become less valid. Ariel Burstein, Martin S. Eichenbaum, and Sergio Rebelo find that the price indexes are kept down by substitution away from imports toward cheaper local substitutes.[68] The pass-through debate recently has focused on a comparison of the alternatives of producers pricing in their own currency versus local currency, in the context of the new open economy macroeconomic models, where all decisions are based on optimizing behavior.[69] Charles Engel has questioned the validity of the assumption of producer-currency pricing, and in turn questioned the validity of the role of the exchange rate as an effective mechanism of trade balance adjustment.[70] But Maurice Obstfeld argues that even if consumers face prices that are unchanged in local currency, devaluations spur adjustment through other channels, such as firms' decisions to switch their source of imported inputs.[71]

The question of whether to adjust to a current account deficit by devaluing or by other means takes the necessity of adjustment as given, a consequence of the sudden stop in foreign financing. But what if the magnitude of the loss in foreign financing is not a given? Alternatives include default, debt-reduction, forgiveness, rescue packages by the IMF, and arm-twisting of private investors to continue their exposure (called Private Sector Involvement). In this case, policy decisions made by the U.S. government[72] and other members of the G-7[73] are central. On the one hand, the IMF moderates the severity of crises by acting as a kind of international lender of last resort, even though its resources are proportionately far smaller than the traditional domestic lender of last resort.[74] On the other hand, IMF bailouts often are criticized for making the problems worse in the long run, because of moral hazard.[75] IMF plans to institute a Sovereign Debt Restructuring Mechanism — a sort of international bankruptcy court — recently have succumbed to strong resistance.[76] Instead, some prominent emerging market countries have added "Collective Action Clauses" to their bond contracts, inspired in part by Eichengreen's arguments that this is a realistic way to accomplish private sector involvement without the worst of the moral hazard problems of IMF bailouts.[77]

Debt-reduction[78] seemed to help many developing countries put the 1980s debt crisis behind them (the Brady Plan of 1989). Can it do the same today?[79] A recurrent puzzle is why more countries don't default on their debts.[80] Rose finds that bilateral debt reschedulings lead to losses of trade along corresponding bilateral lines estimated at 8 percent a year for 15 years, from which he infers that lost trade is the motivation debtors have to avoid such defaults.[81] Michael Dooley has suggested provocatively that deep recessions, which most observers consider an undesirable effect of crises, exist for a reason: they are the system's way of assuring investors that debtors have an incentive to avoid default.[82] Despite the usual view that the global system has a long-run interest in punishing defaults, recent developments in Iraq have led Michael Kremer to propose an exception: if it can be impartially ascertained what ruler (like Saddam Hussein) constitutes an oppressive tyrant, then the international community could encourage successor regimes to default on the debt that their countries inherit; such a system would work to reduce the credit access of future tyrants.[83]

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[1] For reports on these meetings and the rest of the project, go to http://www.nber.org/crisis/.

[2] See http://www.nber.org/crisis/#books.

[3] Important examples include D. Acemoglu, S. Johnson, and J. Robinson, "The Colonial Origins of Comparative Development: An Empirical Investigation" NBER Working Paper No. 7771, June 2000; D. Rodrik, A. Subramanian, and F. Trebbi, "Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development" NBER Working Paper No. 9305, November 2002; and J. D. Sachs, "Institutions Don't Rule: Direct Effects of Geography on Per Capita Income," NBER Working Paper No. 9490, February 2003.

[4] S. Johnson, J. McMillan, and C. Woodruff, "Property Rights and Finance," NBER Working Paper No. 8852, March 2002. Examples for equity markets include R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, "What Works in Securities Markets?" NBER Working Paper No. 9882, August 2003; A.Shleifer and D. Wolfenson, "Investor Protection and Equity Markets," NBER Working Paper No. 7974, October 2000; and R. La Porta, F. Lopez-deSilanes, A. Shleifer, and R. W. Vishny, "Investor Protection: Origins, Consequences, and Reform," NBER Working Paper No. 7428, December 1999.

[5] R. G. Gelos and S. Wei, in "Transparency and International Investor Behavior," NBER Working Paper No. 9260, October 2002, find that investors respond negatively to corruption. J. Du and S. Wei, in "Does Insider Trading Raise Market Volatility?" NBER Working Paper No. 9541, March 2003, find that countries with more insider trading have more variable stock markets.

[6] D. Acemoglu, S. Johnson, J. Robinson, and Y. Thaicharoen, "Institutional Causes, Macroeconomic Symptoms: Volatility, Crises and Growth," NBER Working Paper No. 9124, August 2002; published in *Journal of Monetary Economics*, (2002).

[7] S. Edwards and I. I. Magendzo, "Strict Dollarization and Economic Performance: An Empirical Investigation," NBER Working Paper No. 9820, July 2003; and "A Currency of One's Own? An Empirical Investigation of Dollarization and Independent Currency Unions," NBER Working Paper No. 9514, February 2003.

[8] E. G. Mendoza, "Why Should Emerging Economies Give up National Currencies: A Case for 'Institutions Substitution'," NBER Working Paper No. 8950, May 2002.

[9] L. J. Alston and A. Gallo, "Evolution and Revolution in the Argentine Banking System under Convertibility: The Roles of Crises and Path Dependence," NBER Working Paper No. 8008, November 2000; and C. W. Calomiris and A. Powell, "Can Emerging Market Bank Regulators Establish Credible Discipline? The Case of Argentina, 1992-1999," NBER Working Paper No. 7715, May 2000.

[10] L. Goldberg, B. G. Dages, and D. Kinney, "Foreign and Domestic Bank Participation in Emerging Markets: Lessons from Mexico and Argentina," NBER Working Paper No. 7714, May 2000.

[11] S. Edwards, "The Great Exchange Rate Debate After Argentina," NBER Working Paper No. 9257, October 2002

[12] The already-classic paper is A. K. Rose, "One Money, One Market: Estimating the Effects of Common Currency on Trade," NBER Working Paper No. 7432, December 1999, published in *Economic Policy*, (2000). Follow-ups include R. Glick and A. K. Rose, "Does a Currency Union Affect Trade?: The Time-Series Evidence," NBER Working Paper No. 8396, July 2001; and J. A. Frankel and A. K. Rose "Estimating the Effects of Currency Unions on Trade and Output," NBER Working Paper No. 7857, August 2000, published in *Quarterly Journal of Economics*, (2002).

[13] For example, S. Tenreyro and R. J. Barro, "Economic Effects of Currency Unions," NBER Working Paper No. 9435, January 2003.

[14] Barry Eichengreen and Alan M. Taylor argue that the true lesson of EMU is that monetary unions are adopted for political reasons, not economic. See "The Monetary Consequences of a Free Trade Area of the Americas," NBER Working Paper No. 9666, May 2003.

[15] Among peggers, terms-of-trade shocks are amplified and long-run growth is reduced, as compared to flexible-rate countries, according to S. Edwards and E. L. Yeyati, "Flexible Exchange Rates as Shock Absorbers," NBER Working Paper No. 9867, July 2003.

[16] For example, C. M. Reinhart and K. S. Rogoff, "The Modern History of Exchange Rate Arrangements: A Reinterpretation," NBER Working Paper No. 8963, May 2002.

[17] G. A. Calvo and C.M. Reinhart, "Fear of Floating," NBER Working Paper No. 7993, November 2000; published in *Quarterly Journal of Economics*, (2002).

[18] I review all of these issues in "Experience of and Lessons from Exchange Rate Regimes in Emerging Economies," NBER Working Paper No. 10032, October 2003.

[19] A. Alesina and A.Wagner, "Choosing (and Reneging on) Exchange Rate Regimes," NBER Working Paper No. 9809, June 2003; and G. A. Calvo and F. S. Mishkin, "The Mirage of Exchange Rate Regimes for Emerging Market Countries," NBER Working Paper No. 9808, June 2003.

[20] For example, C. M. Reinhart and V. R. Reinhart, "Twin Fallacies about Exchange Rate Policy in Emerging Markets," NBER Working Paper No. 9670, May 2003.

[21] Andrew Atkeson and Patrick J. Kehoe argue that money targeting does not allow the public to monitor central bank behavior as well as exchange rate targeting does. See "The Advantage of Transparent Instruments of Monetary Policy," NBER Working Paper No. 8681, December 2001.

[22] For example, L. E. O. Svensson, "Monetary Policy and Real Stabilization," NBER Working Paper No. 9486, February 2003, and "Inflation Targeting: Should it be Modeled as an Instrument Rule or as a Target Rule?" NBER Working Paper No. 8925, May 2002.

[23] For example, R. Clarida, J. Gali, and M. Gertler, "Optimal Monetary Policy in Closed vs. Open Economies: An Integrated Approach," NBER Working Paper No. 8604, November 2001; and "The Empirics of Monetary Policy Rules in Open Economies," NBER Working Paper No. 8603, November 2001.

[24] The answer of David Laxton and Paolo Pesenti answer that central banks in emerging market countries (such as Czechoslovakia) need to move the interest rate more strongly in response to movements in forecasted inflation than a rich country would. See "Monetary Rules for Small, Open, Emerging Economies," NBER Working Paper No. 9568, March 2003. In A. Fraga, I. Goldfajn, and A. Minella, "Inflation Targeting in Emerging Market Economies," NBER Working Paper No. 10019, October 2003, the authors consider what emerging market central banks can do in light of lower credibility and larger external shocks than are faced by their counterparts in rich countries.

[25] B. Eichengreen and D. Leblang, "Capital Account Liberalization and Growth: Was Mr. Mahatir Right?" NBER Working Paper No. 9427, January 2003. + Frederic Mishkin, "Is Financial Globalization Beneficial?" NBER WP no. 11891, Dec. 2005. + Magud, Nicholas and Carmen Reinhart, "Capital Controls: An Evaluation," NBER WP no. 11973.

[26] A. Chari and P. B. Henry, "Capital Account Liberalization: Allocative Efficiency or Animal Spirits," NBER Working Paper No. 8908, April 2002; "Risk Sharing and Asset Prices: Evidence

from a Natural Experiment," NBER Working Paper No. 8988, June 2002; and "Capital Account Liberalization, the Cost of Capital, and Economic Growth, NBER Working Paper No. 9488, February 2003. In P. Gourinchas and O. Jeanne, "The Elusive Gains from International Financial Integration," NBER Working Paper No. 9684, May 2003, the authors estimate the gains from financial integration at about 1 percent, which they consider small.

[27] Kristin Forbes finds that Chile's famous controls on capital inflows raised the cost of capital for small firms in particular. See "One Cost of the Chilean Capital Controls: Increased Financial Constraints for Smaller Firms," NBER Working Paper No. 9777, June 2003. For Carmen Reinhart and Todd Smith, the main problem is being able to remove the controls at the right time. See "Temporary Controls on Capital Inflows," NBER Working Paper No. 8422, August 2001. On the other hand, Ross Levine and Sergio L. Schmukler, looking at 55 countries, find that when some firms are able to raise equity capital abroad, the remaining firms *lose* liquidity. See "Migration, Spillovers and Diversion: Impact of Internationalization on Stock Market Liquidity," NBER Working Paper No. 9614, April 2003.

[28] D. Rodrik and E. Kaplan, "Did the Malaysian Capital Controls Work?" NBER Working Paper No. 8142, February 2001.

[29] S. Johnson and T. Mitton, "Cronyism and Capital Controls: Evidence from Malaysia," NBER Working Paper No. 8521, October 2001.

[30] J. De Gregorio, S. Edwards, and R. G. Valdes, "Controls on Capital Inflows: Do They Work?" NBER Working Paper No. 7645, April 2000.

[31] Ranciere, Romaine, Aaron Tornell and Frank Westermann (2006), "Systemic Crises and Growth," IFM program meeting, March 2006, NBER.

[32] J. G. Biscarri, S. Edwards, and F. Perez de Gracia, "Stock Market Cycles, Liberalization, and Volatility," NBER Working Paper No. 9817, July 2003.

[33] M. Klein and G. Olivei, "Capital Account Liberalization, Financial Development, and Economic Growth," NBER Working Paper No. 7384, October 1999; and S. Edwards, "Capital Mobility and Economic Performance: Are Emerging Economies Different?" NBER Working Paper No. 8076, January 2001.

[34] P. Martin and H. Rey, "Financial Globalization and Emerging Markets: With or Without Crash?" NBER Working Paper No. 9288, October 2002.

[35] C. Arteta, B. Eichengreen, and C. Wyplosz, "When Does Capital Account Liberalization Help More than It Hurts?" NBER Working Paper No. 8414, August 2001. They reject the claim that it is the level of development that matters.

[36] M. D. Chinn and H. Ito, "Capital Account Liberalization, Institutions, and Financial Development: Cross-Country Evidence," NBER Working Paper No. 8967, May 2002.

[37] M. Klein, "Capital Account Openness and the Variety of Growth Experience," NBER Working Paper No. 9500, February 2003.

[38] S. Wei and Y. Wu, "Negative Alchemy: Corruption, Composition of Capital Flows, and Currency Crises," NBER Working Paper No. 8187, March 2001, published in *Managing Currency Crises in Emerging Markets*, S. Edwards and J. Frankel, eds., Chicago: University of Chicago Press, 2002.

[39] G. Kaminsky and S. L. Schmukler, "Short-run Pain, Long-run Gain: The Effects of Financial Liberalization," NBER Working Paper No. 9787, June 2003. Capital controls become harder to enforce if the trade account has already been liberalized. See J. Aizenman, "On the Hidden Links Between Financial and Trade Openness," NBER Working Paper No. 9906, August 2003.

[40] H. Edison, M. Klein, L. Ricci, and T. Sloek, "Capital Account Liberalization and Economic Peformance: Survey and Synthesis," NBER Working Paper No. 9100, August 2002.

[41] The phrase is from Carmen Reinhart, Kenneth Rogoff, and Miguel Savastano, in "Debt Intolerance," NBER Working Paper No. 9908, August 2003; they attribute the problem to a country's history of default and inflation.

[42] For example, Roberto Rigobon finds that Mexico's susceptibility to international contagion diminished sharply, after it was upgraded by Moody's in 2000. See "The Curse of Non-Investment Grade Countries," NBER Working Paper No. 8636, December 2001.

[43] For example, research shows that fiscal policy continues to be pro-cyclical in Latin America. See E. Talvi and C. Vegh, "Tax Base Variability and Procyclical Fiscal Policy," NBER Working Paper No. 7499, January 2000.

[44] A. Razin and E. Sadka, "A Brazilian-Type Debt Crisis: Simple Analytics," NBER Working Paper No. 9606, April 2003.

[45] V.V. Chari and P. J. Kehoe, "Financial Crises as Herds: Overturning the Critiques," NBER Working Paper No. 9658, April 2003.

[46] J. Ventura, "Bubbles and Capital Flows," NBER Working Paper No. 9304, November 2002.

[47] G. Kaminsky, R. K. Lyons, and S. L. Schmukler, "Managers, Investors, and Crises: Mutual Fund Strategies in Emerging Markets," NBER Working Paper No. 7855, August 2000.

[48] G. Corsetti, P. Pesenti, and N. Roubini, "The Role of Large Players in Currency Crises," NBER Working Paper No. 8303, May 2001; published in Edwards and Frankel, *op.cit*.

[49] B. Eichengreen and R. Hausmann, "Exchange Rates and Financial Fragility," NBER Working Paper No. 7418, November 1999.

[50] M. Schneider and A. Tornell, "Balance Sheet Effects, Bailout Guarantees, and Financial Crises," NBER Working Paper No. 8060, December 2000; and L. F. Céspedes, R. Chang, and A. Velasco, "Balance Sheets and Exchange Rate Policy," NBER Working Paper No. 7840, August 2000.

[51] The IFM program, and the entire economics profession, suffered the tremendous loss of Rudiger Dornbusch in 2002. He had given us, among much else, such concise contributions to international finance as the phrases "overshooting," "news," and "sudden stops." Rudi continued his characteristic hectic pace up until the end. One of his last articles summed up his wisdom on the balance sheet issues: "A Primer on Emerging Market Crises," NBER Working Paper No. 8326, June 2001, published in Edwards and Frankel, *op.cit.*

[52] M. Draghi, F. Giavazzi, and R. C. Merton, "Transparency, Risk Management, and International Financial Fragility," NBER Working Paper No. 9806, June 2003; R. Dekle and K. M. Kletzer, "Domestic Bank Regulation and Financial Crises: Theory and Empirical Evidence from East Asia," NBER Working Paper No. 8322, June 2001; M. D. Chinn and K. M. Kletzer "International Capital Inflows, Domestic Financial Intermediation, and Financial Crises under Imperfect Information," NBER Working Paper No. 7902, September 2000; D. Diamond and R. Rajan "Banks, Short-Term Debt, and Financial Crises: Theory, Policy Implications, and Applications," NBER Working Paper No. 7764, June 2000; C. Burnside, M. Eichenbaum, and S. Rebelo, "On the Fundamentals of Self-Fulfilling Speculative Attacks," NBER Working Paper No. 7554, February 2000; and J. Hahm and F. S. Mishkin, "Causes of the Korean Financial Crisis: Lessons for Policy," NBER Working Paper No. 7483, January 2000.

[53] R. E. Lipsey, "Foreign Direct Investors in Three Financial Crises," NBER Working Paper No. 8084, January 2001.

[54] A. Razin, E. Sadka, and C. Yuen, "Why International Equity Flows to Emerging Markets are Inefficient and Small Relative to International Debt Flows," NBER Working Paper No. 8659, December 2001.

[55] M. Uribe and V. Yue, "Country Spreads and Emerging Countries: Who Drives Whom?" NBER Working Paper No. 10018, October 2003.

[56] R. Rigobon, "Identification through Heteroskedasticity: Measuring Contagion between Argentinean and Mexican Sovereign Bonds," NBER Working Paper No. 7493, January 2000; G. L. Kaminsky and C. M. Reinhart, "Financial Markets in Times of Stress," NBER Working Paper No. 8569, October 2001; K. Bae, G. A. Karolyi, and R. M. Stulz, "A New Approach to Measuring Financial Contagion" NBER Working Paper No. 7913, September 2000; K. J. Forbes and R. Rigobon, "Contagion in Latin America: Definitions, Measurement, and Policy Implications," NBER Working Paper No. 7885, September 2000.

[57] J. T. Donohue and K. A. Froot, "The Persistence of Emerging Market Equity Flows," NBER Working Paper No. 9241, September 2002.

[58] G. L. Kaminsky and C. M. Reinhart, "The Center and the Periphery: The Globalization of Financial Turmoil," NBER Working Paper No. 9479, February 2003.

[59] K. J. Forbes, "Are Trade Linkages Important Determinants of Country Vulnerability to Crises?" NBER Working Paper No. 8194, March 2001; K. J. Forbes and M. D. Chinn, "A Decomposition of Global Linkages in Financial Markets over Time," NBER Working Paper No. 9555, March 2003.

[59] For example, G. Calvo, "Explaining Sudden Stops, Growth Collapse, and BoP Crises: The Case of Distortionary Output Taxes," NBER Working Paper No. 9864, July 2003; C. Arellano and E. M. Mendoza, "Credit Frictions and 'Sudden Stops' in Small Open Economies: An Equilibrium Business Cycle Framework for Emerging Markets Crises," NBER Working Paper No. 8880, April 2002; and E. M. Mendoza, "Credit, Prices, and Crashes: Business Cycles with a Sudden Stop," NBER Working Paper No. 8338, June 2001. + Mendoza "Lessons From the Debt-Deflation Theory of Sudden Stops," NBER WP no. 11966, Jan. 2006. + Calvo, Izquierdo and Talvi, "Poenix Miracles in Emerging Markets: Recovering without Credit from Systemic Financial Crises," NBER WP 12101, March 2006.

[61] A. Lahiri and C. Végh, "Delaying the Inevitable: Optimal Interest Rate Policy and Balance of Payments Crises," NBER Working Paper No. 7734, June 2000; L. J. Christiano, C. Gust, and J. Roldos, "Monetary Policy in a Financial Crisis," NBER Working Paper No. 9005, June 2002; R. A. Caballero and A. Krishnamurthy, "A 'Vertical' Analysis of Crises and Intervention: Fear of Floating and Ex Ante Problems," NBER Working Paper No. 8428, August 2001; A. Drazen, "Interest Rate Defense Against Speculative Attack as a Signal: A Primer," and B. Eichengreen and A. K. Rose, "Does it Pay to Defend against a Speculative Attack?" both published in *Managing Currency Crises in Emerging Markets*, J. Frankel and M. Dooley, eds., Chicago: University of Chicago Press, 2003.

[62] R. J. Barro, "Economic Growth in East Asia Before and After the Financial Crisis," NBER Working Paper No. 8330, June 2001. He estimates that the combined currency and banking crises in East Asia in 1997-8 reduced economic growth in the affected countries over a five-year period by 3 percent per year, compared to 2 percent per year for more typical crises.

[63] M. Hutchison, "A Cure Worse Than the Disease? Currency Crises and the Output Costs of IMF-Supported Stabilization Programs," NBER Working Paper No. 8305, May 2001; published in Dooley and Frankel, *op.cit*.

[64] J. Friedman and J. Levinsohn, "The Distributional Impacts of Indonesia's Financial Crisis on Household Welfare: A 'Rapid Response' Methodology," NBER Working Paper No. 8564, October 2001; and W. Easterly, "IMF and World Bank Structural Adjustment Programs and Poverty." Both papers were published in Dooley and Frankel, *op.cit*.

[65] S. Claessens, D. Klingebiel, and L. Laeven, "Financial Restructuring in Banking and Corporate Sector Crises: What Policies to Pursue?" NBER Working Paper No. 8386, July 2001; and B. M. Friedman, "Debt Restructuring ," NBER Working Paper No. 7722, May 2000.

[66] C. Burnside, M. Eichenbaum, and S. Rebelo, "Government Finance in the Wake of a Currency Crisis," NBER Working Paper No. 9786, June 2003.

[67] High pass-through especially characterizes developing countries that are (unofficially) dollarized in the sense that a high percentage of assets and liabilities are denominated in dollars. See C. M. Reinhart, K. S. Rogoff, and M. A. Savastano, "Addicted to Dollars," NBER Working Paper No. 10015, October 2003.

[68] A. Burstein, M. Eichenbaum, and S. Rebelo, "Why Are Rates of Inflation So Low after Large Devaluations?" NBER Working Paper No. 8748, January 2002.

[69] P. Bacchetta and E. van Wincoop, "A Theory of the Currency Denomination of International Trade," NBER Working Paper No. 9039, July 2002.

[70] C. Engel, "Expenditure Switching and Exchange Rate Policy," NBER Working Paper No. 9016, June 2002, and in "The Responsiveness of Consumer Prices to Exchange Rates and Implications for Exchange Rate Policy: A Survey of a Few Recent New Open Economy Models," NBER Working Paper No. 8725, January 2002. See also M. Devereux, C. Engel, and P. E. Storgaard, "Endogenous Exchange Rate Passthrough when Nominal Prices Are Set in Advance," NBER Working Paper No. 9543, March 2003.

[71] M. Obstfeld, "Exchange Rates and Adjustment," NBER Working Paper No. 9118, August 2002.

[72] J. B. DeLong and B. Eichengreen, "Between Meltdown and Moral Hazard: "The International Monetary and Financial Policies of the Clinton Administration," NBER Working Paper No. 8443, August 2001, published in J. Frankel and P. Orszag, eds., *American Economic Policy in the 1990s*, Cambridge, MA: MIT Press, 2002.

[73] J. A. Frankel and N. Roubini, "The Role of Industrial Country Policies in Emerging Market Crises," NBER Working Paper No. 8634, December 2001, published in *Economic and Financial*

*Crises in Emerging Market Economies*, M. Feldstein, ed., Chicago: University of Chicago Press, 2003.

[74] A. O. Krueger, "IMF Stabilization Programs," and M. Goldstein, "IMF Structural Adjustment Programs;" both published in Feldstein, *op.cit*.

[75] M. Dooley and S. Verma, "Rescue Packages and Output Losses Following Crises," NBER Working Paper No. 8315, June 2001, published in Dooley and Frankel, *op cit*.; and M. D. Bordo and A. J. Schwartz, "Measuring Real Economic Effects of Bailouts: Historical Perspectives on How Countries in Financial Distress Have Fared With and Without Bailouts," NBER Working Paper No. 7701, May 2000.

[76] A. Shleifer, "Will the Sovereign Debt Market Survive?" NBER Working Paper No. 9493, February 2003.

[77] The prediction of Barry Eichengreen and Ashoka Mody, that the adoption of CACs would not discourage investors in the case of more creditworthy issuers looks good, so far. See "Would Collective Action Clauses Raise Borrowing Costs?" NBER Working Paper No. 7458, January 2000. Also B. Eichengreen and C. Ruehl, "The Bail-In Problem: Systematic Goals, Ad Hoc Means," NBER Working Paper No. 7653, April 2000.

[78] P. Agenor and J. Aizenman, "Financial Sector Inefficiencies and Coordination Failures: Implications for Crisis Management," NBER Working Paper No. 7446, December 1999.

[79] P. B. Henry and S. Arslanalp, in "Debt Relief: What Do the Markets Think?" NBER Working Paper No. 9369, December 2002, conclude there is no evidence that debt forgiveness for highly indebted poor countries will work today as under the Brady Plan. See also S. Edwards, "Debt Relief and Fiscal Sustainability," NBER Working Paper No. 8939, May 2002.

[80] Whether deliberately or unavoidably — see A. Neut and A. Velasco, "Tough Policies, Incredible Policies?" NBER Working Paper No. 9932, August 2003.

[81] A. K. Rose, "One Reason Countries Pay Their Debts: Renegotiation and International Trade," NBER Working Paper No. 8853, March 2002. See also, A. K. Rose and M. Spiegel, "A Gravity Model of Sovereign Lending: Trade, Default, and Credit," NBER Working Paper No. 9285, October 2002. Perhaps this is why countries with low trade/GDP ratios like Argentina tend to get into trouble with their creditors more often than open countries. See G. Calvo, A. Izquierdo, and E. Talvi, "Sudden Stops, The Real Exchange Rate, and Fiscal Sustainability: Argentina's Lessons," NBER Working Paper No. 9828, July 2003.

[82] M. P. Dooley, "Can Output Losses Following International Financial Crises be Avoided?" NBER Working Paper No. 7531, February 2000.

[83] M. Kremer and S. Jayachandran, "Odious Debt," NBER Working Paper No. 8953, May 2002.