

Predicting and Preventing Financial Crises: Where Do We Stand? What Have We Learned?¹

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1. Introduction

Relative to crisis prevention, crisis management receives disproportionate amounts of attention. Comparing the number of the LexusNexus hits on the combination of International Monetary Fund and Argentina with references to the Financial Stability Forum or to Financial Section Assessment Program (FSAP) of the IMF and World Bank suffices to establish the fact.² But in economics as in medicine, prevention, together with early detection of developing abnormalities, is the better part of cure. Regular check-ups and the economic equivalent of blood tests can minimize the need for painful therapy down the road. And a balanced diet and healthy lifestyle can be the key to a long and prosperous life. It is important not to lose sight of these facts amidst the controversy surrounding large-scale official rescues and the IMF's proposal for a sovereign debt restructuring mechanism.

This paper is a modest attempt to redress the balance. Its two principal sections assess where we stand on crisis prediction and crisis prevention, respectively. It turns out that a number of the same analytical issues and policy problems arise in the two contexts. This is then followed

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²Between July 2001 and March 2002 inclusive, this data base contains 870 articles mentioning both the IMF and Argentina but just 52 mentioning the Financial Stability Forum and 29 mentioning the FSAP.

by a discussion of the contagion problem, which poses special difficulties for prediction and prevention. A final section concludes.

2. Crisis Prediction

Economic forecasting is like weather forecasting except that our knowledge of the underlying science is less complete. Outcomes are produced by structural relationships that interact in nonlinear and state-contingent ways. Despite the progress that has been made in both chaos theory and computing power, our ability to forecast and simulate complex nonlinear processes remains limited. Complex systems often have multiple equilibria, selection between which is sensitive to small perturbations.³ And in financial markets, unlike meteorology, there is the fact that the behavior of the components can be affected by the forecast.

It is not surprising, then, that many economists adopt the same skeptical attitude toward the prediction of crises as toward economic forecasting generally.⁴ Academic authors, while having pioneered the development of the relevant models, are generally dubious of the reliability of predictive exercises. They question the stability of reduced-form relationships. Having been taught to respect the Lucas Critique, they worry that even if investigators succeed in identifying reliable early warning indicators, markets and governments will react by attacking the currency or banking system as soon as adverse movements in those indicators begin to be detected, or else

³And there is of course a large literature on the circumstances under which multiple equilibria can arise in crisis models (see Morris and Shin 2000).

⁴The profession has been even more skeptical of exchange rate forecasting than of forecasting in general since the influential work of Meese and Rogoff (1983). Forecasting large changes in the exchange rates (i.e. currency crises) is of course essentially a special case of exchange rate forecasting.

governments will move more quickly to take corrective action that prevents those indicators from moving, either way robbing the early-warning system of its predictive power. Economists working in government, multilateral organizations, and private financial institutions, in contrast, see such forecasting as a necessary evil.⁵ Their clients want forecasts, and they have no choice but to provide them.

The first notable attempt to predict crises was Kaminsky, Lizondo and Reinhart (1998).⁶ KLR analyzed a 20 country sample over the period 1970-1995. They selected thresholds for individual macroeconomic and financial indicators that minimized the noise-to-signal ratio – that is, the ratio of months in which an indicator signaled a crisis that did not occur to months in which that indicator did not signal a crisis that in fact occurred; when that threshold was breached, a crisis was signaled. Their optimal threshold was indicator but not country specific.⁷ Kaminsky (1998) constructed a composite indicator as the signal-to-noise-ratio-weighted sum of the individual indicators and calculated how often within the sample different values of this index were followed by a crisis within 24 months.⁸

Berg and Pattillo (1999a) provided an early evaluation of how well this approach

⁵This is the same evolution that has affected macroeconomic forecasting, with academics growing more skeptical of its merits but practitioners continuing to apply the standard techniques, except that the tendency for such forecasting to fall from academic fashion has been even faster if anything in the case of crisis prediction.

⁶There were earlier attempts, of course, to analyze the empirical correlates of crises; I like to think that Eichengreen, Rose and Wyplosz (1996) was first. But we expressly resisted the temptation to use our model for predictive purposes.

⁷Thus, it was constrained to be equal across countries.

⁸The method was further elaborated by Goldstein, Kaminsky and Reinhart (2000).

predicted out of sample. They found that only eight of KLR's 15 macroeconomic and financial indicators were informative in the sense that a crisis in the next 24 months was more likely when the indicator emitted a signal than when it did not. When the weighted average of individual crises signals a crisis with at least 25 per cent probability, 41 per cent of crises are called correctly; when the cut-off probability is 50 per cent, only 9 per cent are correctly called.⁹ False alarms are 63 per cent of total alarms in the first case, 44 per cent in the second.¹⁰

While these results are better than the naive estimates obtained by always predicting "no crisis," they are not confidence inspiring. Out-of-sample forecasts for the Asian crisis are even more depressing: for the four crisis countries with the necessary data (Indonesia, Malaysia, South Korea and Thailand), the estimated probability of a crisis was above 50 per cent only four per cent of the time in the 24 months immediately preceding the event.¹¹

One can imagine various objections and qualifications to these pessimistic conclusions. It can be argued that these early exercises did not use optimal techniques. Estimated probit models using the KLR indicators, as in Berg and Pattillo (1999a), do a bit better within sample – by construction, since they minimize a transform of the residual sum of squares – but the

⁹For this analysis BP use a slightly different sample of countries (emerging markets only) and calculate thresholds using data only through 1995, so that the Asian crisis can be treated as out of sample. Obviously, the 50 per cent threshold does better at predicting tranquil periods than the 25 per cent threshold.

¹⁰Osband and van Rujckeghem (2000) attempt to finesse the problem by turning the methodology on its head, using essentially the same approach to estimate safe periods in which currency crashes are unlikely to occur. Using a sample of emerging markets in the period 1985-1998, their model emits a false signal of safety only one per cent of the time. The price, predictably, is a very high ratio of false alarms to total alarms (76 per cent).

¹¹This improves to 32 per cent of the time when the cutoff is lowered to 25 per cent. Again, this is better than a naive forecast, but it is not heartening.

improvement in their out-of-sample predictive power is negligible.

Alternatively, it can be argued that these attempts to predict crises are largely unsuccessful because they neglect important financial information, such as the level and composition of external debt, which is conveniently available only on an annual basis. Frankel and Rose (1996) estimated a probit model of currency crashes for 100 developing countries in the period 1971-92 using annual data and add a number of measures of external debt. Reestimating this model through 1996, Berg and Pattillo (1999b) show that the correlation between predicted and actual rates of currency depreciation in 1997 is only 33 per cent. If the metric for success is short-term out-of-sample forecasting power, in other words, then time aggregation may be too high a price to pay for incorporating data on external debt.

Others will argue that these models neglect important information on financial structure and institutions, for example on the extent of corporate and banking-sector financial leverage and the strength of shareholder rights. Mulder, Perrelli and Rocha (2002) provide some evidence that measures of these characteristics of national financial systems enhance the fit of the standard leading-indicator models. As yet, however, it is too early to tell whether they bear a stable relationship to crises and help to predict out of sample.

Still others will suggest that these models fail to incorporate information on the political determinants of governments' willingness and ability to counter speculative pressures. Political scientists have begun to work on these questions. Leblang (2001a,b) shows that attacks are more likely under left governments and in periods of political flux (when there is both the expectation and the realization of a significant change of government). Leblang (2001c) shows that governments are less likely to successfully defend against an attack in the period leading up to an

election. (There are also some anomalies, including that right governments are *less* likely to defend against attacks and divided governments, if anything, are *more* likely to do so.) These results are still too recent to have been incorporated into the multilaterals' leading indicator models or to have had their predictive power evaluated. Nor has the key insight from recent theoretical models of speculative attacks, that it is the *interaction* of weak governments with weak fundamentals that sets the stage for successful speculative attacks, been tested directly.

Some partisans of prediction may suspect that a model tailored to the circumstances of the 1990s would do better, but Berg and Pattillo show that the Sachs-Tornell-Velasco (1996) model of the 1994-5 Tequila crisis has no predictive power for the subsequent Asian flu.¹²

Others will argue that financial market participants have stronger incentives to develop reliable forecasting models. In fact, however, the leading private sector models are not noticeably better at out-of-sample forecasting. If anything the opposite is true.¹³

Finally, it could be that currency crises are harder to predict than banking crises. Banking crises, it might be argued, are rooted in slowly evolving fundamentals like falling economic growth and adverse external shocks that raise nonperforming loans and in episodes of credit expansion that heighten balance-sheet vulnerabilities. But the work of Hardy and Pazarbasioglu (1999) provides little support for the notion that this translates into reliable prediction. Their

¹²Tornell (1999) shows that a similar structural model fits the data for the Asian crisis, but that is not the same thing as showing that the model when fitted to data for 1995 generates useful predictions for 1997-8.

¹³See IMF (2001). Private-sector models are generally designed to predict medium-sized (i.e. five per cent) changes in exchange rates month to month, these "smaller" movements being of interest to market participants; hence, it is not surprising that they have no comparative advantage in predicting the large changes that constitute crises.

probit model picks up little more than half of cases of banking system distress within sample, and only about one-third of pre-crisis periods (the year immediately preceding an episode of banking system distress). The indicators approach actually does less well at predicting banking than currency crises (Goldstein, Kaminsky and Reinhart 2000).¹⁴

It is impossible to avoid the conclusion that the performance of leading indicator models leaves much to be desired. This pessimistic view is borne out by the most recent round of crises. To be sure, the KLR model and Berg and Pattillo's probit-based alternative (a more parsimonious respecification of KLR augmented with measures of the current account and reserve adequacy) emitted strong warning signs in the lead-up to Turkey's February 2001 crisis.¹⁵ But the KLR model failed to predict the January 2002 crisis in Argentina: IMF (2002) reports that it failed to call a crisis after August 2000, while Berg and Pattillo's respecification sounded a weak warning in the lead-up to this event but counterfactually signaled a decline in its probability in the final months of 2001.

We can understand why by considering the variables on which these models focus – real overvaluation, the current account deficit, reserve adequacy, export growth, and short-term debt relative to reserves – in the run-up to these crises and seven others that occurred in the last three years.¹⁶ Figure 1 shows the evolution of the key variables in the IMF's respecification of the

¹⁴This is even more worrisome insofar as the commonly-used banking crisis dates are themselves lagging indicators of serious banking-sector problems.

¹⁵On the IMF's probit-based reformulation of the KLR model, see also Borensztein et al. (2000).

¹⁶These are the principal crises that show up according to the KLM criterion that the weighted average of exchange rate changes and reserve changes exceeded the mean by at least three standard deviations (other than some small or low-income countries for which data are

KLR model. The percentage change in the nominal exchange rate clearly moves around the time of crises – this is logical though not inevitable given that the rate of depreciation is one of the components of the conventional crisis indicator. But what is notable is that there is little sign of accelerating depreciation in the 12 or 24 months leading up to the crisis.¹⁷ The other component of the conventional crisis indicator, the percentage change in reserves, is more informative, but not uniformly. In some cases, like Turkey, it does not fall at all; in others like South Africa, the only observable change is that reserves stop rising.

What is true of the balance of payments as a whole is true of exports in particular: their growth decelerates in the 12 months leading up to a crisis in some cases (Brazil, Chile, Colombia, Israel), but not in others (Argentina, Turkey). Given the fact that exports are not a reliable leading indicator, it is not surprising that overvaluation does little better (of the cases considered, it is evident in the period leading up to the crisis only in Venezuela). Detrending the real rate helps: there is some sign of overvaluation relative to trend in Argentina, Brazil, Turkey and perhaps Egypt, although the small size of the deviation is an indication of how sensitive such indicators are to detrending method.

M2 over reserves, the conventional “credit boom” indicator, does relatively well (except in Israel and South Africa), but its rate of growth is noisier and less informative. The current account appears to have little predictive content, since both current account deficits and crises can occur for a variety of different reasons. Short-term debt relative to reserves is more

missing). The Colombian case just misses the cutoff (it is only two standard deviations above the mean), but it is nice to have nine cases for a symmetrical diagram. Goldman Sachs and Credit Suisse First Boston publish crisis lists that overlap heavily with the cases considered here.

¹⁷This variable is not a particularly useful leading indicator, in other words.

informative but moves in the wrong direction in some cases (such as South Africa).

What should we conclude? Crisis prediction will always be imperfect for many of the same reasons that economic forecasting will always be imperfect. Crises are heterogeneous; they occur for different reasons in different settings and at different times. Parsimonious models will capture only some of the circumstances under which crises occur; they will miss some crises unless the threshold for issuing a warning is set so low as to generate a large number of false positives. And a methodology that generates a large number of false positives (“11 out of the last 7 recessions”) is not particularly useful for forecasting purposes. It is not even helpful for generating a watch list for officials, since if the threshold for emitting a warning is set at high levels, the resulting watch list will be misleadingly short, while if that threshold is set at low levels, that list will be too long for practical use.

In addition, crises are contingent. Rather than being inevitable and preordained, they generally afflict countries that have entered a danger zone where the government lacks the political and economic capacity to fend off financial pressure in the event of an intensification of the latter. If investor sentiment turns against the country, for whatever reason, the government of a country with a heavy financial burden or a weak economy may be unable to sustain the harsh policies of austerity needed to deflect mounting speculative pressures. If, on the other hand, market sentiment remains favorable, the same economic and financial fundamentals will be sustainable, and no crisis will result. This is a classic situation of multiple equilibria.¹⁸ It does not mean that crises strike randomly or that all countries are equally vulnerable. But it does

¹⁸An application of this idea that multiple equilibria arise when fundamentals enter an intermediate range where they are neither so strong as to rule out crises or so weak as to guarantee them is Eichengreen and Jeanne (2000).

suggest that deterministic models are unavoidably poor predictors of intrinsically contingent events.

3. Crisis Prevention

The official approach to crisis prevention focuses on the benefits of greater transparency on the part of borrowers, lenders and international financial institutions, so that crisis risks can be identified in advance and the markets begin to take corrective action before things get out of hand. It focuses on the importance of strengthening banks and financial markets, which have been a particular source of vulnerability in recent crisis episodes, through the adoption of internationally-recognized financial standards and more systematic reviews of banking and financial-market vulnerabilities. It focuses on the need to rationalize exchange rate arrangements, reflecting the fact that pegged exchange rates have played a role in every recent crisis.

The communique of the International Monetary and Financial Committee of the IMF following the Spring 2002 meetings of the Fund is the most up-to-date summary of the official thinking at the time of writing.¹⁹ It highlights the need for firm surveillance of country policies and argues that surveillance can be further enhanced by taking the following steps.

- Refining the assessment of potential problems of debt sustainability and private sector balance-sheet exposure.
- Better understanding how the policies of the large advanced-industrial economies affect

¹⁹I focus here on the role of multilateral surveillance because author authors (e.g. Mishkin 2001) have written extensively on country-specific crisis-prevention measures.

the rest of the world.

- More candidly assessing the merits of exchange rates and exchange rate arrangements.
- Expanding financial sector surveillance to include the offshore financial centers.
- Better coordination among the IMF, the World Bank and other institutions on issues where no one entity possesses all of the relevant expertise.
- Further integration of multilateral, regional and country surveillance.
- More systematic and extensive coverage of international capital markets.
- More attention to structural and institutional issues.

In fact, behind this seemingly uncontroversial list lie important unresolved issues for the official community's crisis-prevention efforts.

Debt Sustainability and Private Sector Exposure. The first item, refining the assessment of problems of debt sustainability and private sector balance-sheets, alludes to one of the more problematic aspects of the surveillance agenda, namely, the difficulty of measuring the off-balance sheet exposures of financial and nonfinancial firms. Enron's CEO has claimed in congressional testimony, perhaps disingenuously, that this ability eluded even that corporation's own management. Some have taken the Enron debacle as a critique of U.S. accounting practices and an argument for converging on European accounting standards. But the critique is more fundamental: no accounting standard may be capable of detecting vulnerabilities when firms can create special purpose vehicles that not even sophisticated financial analysts can see through. We have come a long way since 1997, when President Suharto reportedly called the heads of Indonesia's 24 largest companies into his office and asked each of them to write down his firm's indebtedness on a slip of paper so that he might gain a sense of the overall exposure of the

corporate sector and the country. Data on corporate debt exposures are now systematically gathered by the national authorities and regularly reported to the international financial institutions. The question is how much they are worth, and whether they will be worth even less with the spread of Enron-like financial instruments and vehicles to emerging markets.

These observations suggest three extensions of efforts in this area. Countries that permit accounting firms to also act as consultants and financial advisors should rethink these regulations. Governments should similarly rethink the elimination of restrictions on the range of activities in which financial institutions can engage (like Glass-Steagall in the United States).²⁰ Here I am swimming against the tide, but recent experience raises questions about the compatibility of, say, security underwriting and investment advising.

In addition, subordinated debt as a mechanism giving a subset of market participants high-powered incentives to invest in the capacity to monitor the financial condition of the issuing entity may have a role to play in the nonfinancial as well as the financial sector. (Indeed, another lesson of the Enron debacle is the difficulty of drawing the line between financial and nonfinancial firms.) How much can be accomplished by requiring corporations to issue subordinated debt remains to be seen; one can imagine that a firm like Enron might attempt to manipulate the price of its “sub debt,” weakening the signal to market participants and regulators. Such problems are likely to be especially pervasive in emerging markets, where markets in debt instruments are relatively shallow and illiquid, facilitating attempts to manipulate secondary-

²⁰This is something that would require international cooperation, insofar as limiting the lines of business in which financial institutions can engage would limit their ability to exploit economies of scale and scope and cause them to lose business to the foreign competitors were the latter not simultaneously subjected to similar regulatory restrictions.

market prices. But if the lesson of Enron is that neither the average investor nor the average regulator can be relied on to be able to assemble and process the relevant information, then it makes sense to move further in the direction of creating a set of stakeholders with special incentives to invest in that capacity.

The reference to debt sustainability in the first item on the IMFC's list suggests that there are unresolved issues in assessing the financial condition of countries, and not just corporations. Attempts to develop a framework for determining sustainable levels of debt have a long history.²¹ These generally make assumptions about the real interest rate and the growth rate and ask, given initial levels of debt, whether a given path of budget deficits is consistent with the debt/income ratio stabilizing at acceptable levels.²² Recent experience suggests that such models can be dangerously misleading. If debt is public, the ability of the government to mobilize taxes may be the binding constraint.²³ If the debt is foreign, then the ability of the country to earn foreign exchange may bind first. If the debt is denominated in foreign currency, then an unforeseen change in the exchange rate may make a previously sustainable debt unsustainable.

Some of these observations point to the need for more sophisticated models. Others, like the fact that changes in the exchange rate can make previously sustainable debts unsustainable and render a shock to the foreign exchange market self-fulfilling (Krugman 2001; Cespedes,

²¹See for example Cohen (1991). Actually, these calculations go back even further, at least to the literature on the sustainability of German reparations after World War I.

²²This is the logic that implicitly or explicitly underlies the Maastricht Treaty's reference value of 60 per cent for European public debts (Buiter, Corsetti and Roubini 1993).

²³Thus, one may want to consider the ratio of debt service to taxes rather than debt to GNP.

Chang and Velasco 2002), cast doubt on the premise that debt sustainability can be meaningfully assessed ex ante. The most subversive critique is probably that debt sustainability depends on political as economic factors. A given debt burden will be harder to sustain when there is less political support for the policies of austerity required for its maintenance. A given shock to the exchange rate, the growth rate or the interest rate will be more likely to move the debt into the range where it is unsustainable when political support for those policies, and the painful belt tightening they require, is less. Thus, those who attempt to forecast debt sustainability must be able to forecast political as well as economic conditions. If this is what the IMFC means when it says that the multilaterals must refine the way they analyze debt sustainability, then it does not engender much confidence that the results will be operational.

Impact of Large Country Policies. The tendency for globalization to increase the cross-country coherence of business cycle fluctuations (as noted by IMF 2002) motivates the IMFC's emphasis on large country policies.²⁴ Research has documented that OECD downswings and interest rate increases play a significant role in heightening the financial vulnerability of emerging markets (Eichengreen and Rose 2001). Unilateral trade-policy actions by the large economies are clearly not helpful for emerging markets whose financial viability and growth prospects depend on their ability to export. Here my own country has much to answer for.

There are also mysteries. Traditionally, the volume of net capital flows to emerging markets is sensitive to interest rates in the advanced industrial countries (Calvo, Leiderman and Reinhart 1992). The failure of flows to respond when U.S. interest rates were cut to low levels in

²⁴The evidence is controversial. Bergman, Bordo and Jonung (1998) argue that business cycles have grown more synchronized, while Backus and Kehoe (1992) argue the opposite. IMF (2002) comes down cautiously on the side of the first set of authors.

2000-1 thus raises questions about whether this mechanism operates as powerfully as before, or whether it is increasingly overwhelmed by other determinants of international capital flows.²⁵

Even accepting the premise, there is still the issue of what to do about it. This question echoes in the call for the large countries to take more seriously the impact of their policies on the rest of the world. It can be heard as a suggestion to revisit the international policy coordination exercises that occupied many academics and staff members of the multilaterals in the 1980s.²⁶ But the U.S. Treasury has not reacted sympathetically to IMF warnings of the size of the U.S. current account deficit and the high level of the dollar and over the impact of their elimination on other countries. History gives reasons to doubt whether the large countries are prepared to compromise their national policy objectives in order to ameliorate global strains. The lesson that emerges from discussions of and experience with policy coordination may be that the most important thing that the large economies can do to enhance financial stability in the rest of the world is to avoid actions that amplify the volatility of their own economies – the best thing they can do, in other words, is to more effectively tend their own gardens. This applies even to the least controversial application of the point, that the governments of the large countries should not succumb to protectionist pressures. They should resist in the interest of the developing countries, but first and foremost they should resist in their own interest.

Exchange Rate Regimes. The need to more candidly assess the merits of exchange rate arrangements is another one of those things that is easier to preach than to practice. The

²⁵There is also the mystery that systematic analysis has never really supported the existence of the strong linkage between the level of U.S. interest rates and emerging market spreads posited in the popular press (Eichengreen and Mody 1998).

²⁶For evidence of this tendency, see Meyer et al. (2002).

conventional wisdom is that soft pegs are fragile and that countries need to eliminate the exchange rate problem by eliminating the exchange rate or else should move to greater flexibility.²⁷ Related to this is the argument that more freely floating exchange rates encourage hedging of foreign exposures by banks and firms, which limits their susceptibility to financial distress when the currency moves.²⁸

None of this is easily reconciled with the belief in Europe, Asia, and Latin America that floating rates are problematic and that countries should continue to operate regimes of limited flexibility. Nor has anything ameliorated the dilemma for the IMF that if it labels an exchange rate regime as unsustainable it risks provoking a crisis.²⁹ This was apparent in the case of Argentina, where the Fund first refused to label the one-to-one dollar peg as unsustainable and then responded to the controversy over dollarization by observing that the choice of exchange

²⁷The notion that the peg could be hardened by moving to a currency board has been discredited by the Argentine crisis. One wonders whether the notion that countries attracted by this solution should move further in this direction, by unilaterally dollarizing or euroizing, will similarly be challenged by some future crisis.

²⁸Thus, while large changes in exchange rates can occur when currencies are floating as well as when a peg collapses, the output costs are likely to be smaller in the first case (Mishkin 2001). An influential early statement of the connection between floating rates and hedging by the private sector is Goldstein (1998). There is some evidence for it (Martinez and Werner 2001) but also some evidence against (Arteta 2002).

²⁹The Council on Foreign Relations Task Force on Strengthening the International Financial Architecture (CFR 1999) suggested that the IMF should commit not to providing emergency finance to countries with “overvalued” exchange rates except in exceptional circumstances, but this last proviso provided a pretext for exceptions. The Meltzer Commission (International Financial Institution Advisory Commission 2000) urged the Fund to more actively warn governments about the risks of pegged rates in Article IV consultations, but it did not move beyond that point.

rate regime is a national decision.³⁰

I have long been skeptical of the prospects for exporting European Monetary System-like arrangements to other parts of the world (Bayoumi and Eichengreen 1999). Contrary to the conclusions of Government of France-Government of Japan (2000), I do not believe that the preconditions for a sustainable system of collective pegs or bands are present in other regions, including Asia, where the idea is much discussed.³¹ Compared to Europe, Asia trades more with and relies more on finance from outside the region. Its economies are more heterogeneous, raising questions about the suitability of any common basket peg for the entire grouping. Its nations are more jealous of their sovereignty and less willing to engage in meaningful regional surveillance (Manzano 2001). This in turn raises questions about the willingness of strong currency countries to support their weak currency counterparts.³²

I am equally skeptical of the advisability of continuing to peg while claiming to float, which is a popular way of characterizing the de facto behavior of countries that display “fear of floating.” Avoiding an explicit commitment to a target zone may avoid giving speculators a target to aim at, to be sure, but it also fails to produce “bias in the band” – that is, it fails to deliver stabilizing speculation. To put the point another way, saying one thing while doing another is unlikely to enhance credibility.

³⁰As the country’s crisis deepened in the first half of 2002, and the choice contemplated by the domestic authorities became whether to float or to repeg (as opposed to dollarizing), the Fund did come out strongly in favor of continued floating.

³¹Unless those pegs are supported by a region-wide system of capital controls, which I do not regard as likely.

³²All this, and more, can similarly be said of Latin America (Eichengreen and Taylor 2002).

In practice, we see a growing number of countries floating more freely and anchoring their floats by inflation targeting. Brazil and Mexico are floating more freely, while in East Asia a number of the former crisis countries -- Korea, Thailand, Indonesia and the Philippines among them -- are floating more and intervening less.³³ Recent work on inflation targeting suggests that countries can begin using that framework to anchor their currencies well before inflation rates have come down to the single digits or budget deficits have been eliminated (Mishkin and Schmidt-Hebbel 2002). The volatility of a floating rate can be limited by the adoption of an inflation target even before the central bank is fully independent or the full targeting apparatus has been adopted (Goldstein 2002). The IMF has climbed onto the inflation-targeting bandwagon, by urging countries like Turkey to move in this direction. That it has identified a viable alternative is likely to strengthen its hand when it urges countries to float more freely.

Integration of Multilateral, Regional and Country Surveillance. The IMF has never been the exclusive locus of multilateral surveillance. The OECD and the BIS have long engaged in surveillance and information sharing, although the fact that only the Fund has significant amounts of money to dispense has led governments to pay special heed to its surveillance exercises. What is distinctive about the current environment is the attention also being given to regional surveillance. European countries are more concerned with the European Commission's assessments of their compliance with the Growth and Stability Pact (GSP) and with the Broad Economic Policy Guidelines that define multi-year deficit targets for EU members than they are with the IMF's Article IV reports or its comments on their policies in the *World Economic*

³³Eichengreen (2002) finds a significant rise in the standard deviation of the change in the exchange rate relative to the standard deviation of reserves in all these countries in the period since 1998.

*Outlook.*³⁴ Since 1998 the Association of Southeast Asian Nations has operated a regional surveillance process with the goal of facilitating cooperation in the formulation of monetary, fiscal and financial policies through information exchange, peer review, and recommendations for action at the regional and national levels.³⁵ That process was recently strengthened by the establishment of local surveillance units in some ASEAN countries.³⁶ Even the Mercosur countries had plans for mutual surveillance before the crisis in Argentina put paid to their ambitions.

The IMF does not participate in these regional surveillance exercises. In some cases the motivation for developing them has been precisely to free countries from the oversight of the Fund.³⁷ This is in contrast to Asia-Pacific Economic Cooperation (APEC) and the Group of

³⁴Thus, in 2001 when the Fund warned that strict application of the GSP risked accentuating the economic cycle, EU countries essentially ignored its objections.

³⁵The ASEAN Surveillance process requires members to provide the ASEAN Surveillance Coordinating Unit (SCU) based in the ASEAN Secretariat in Jakarta with the same data supplied to the IMF in conjunction with its Article IV consultations and program negotiations.

³⁶The Chiang Mai statement of finance ministers of the ASEAN+3 countries (ASEAN plus China, Japan and South Korea) announced a commitment to establish a “network of contact persons” to facilitate regional surveillance and the goal of creating a “well-coordinated economic and financial monitoring system in East Asia.” The official statement of finance ministers at the Fifth ASEAN Finance Ministers Meeting in Kuala Lumpur in April 2001 stated that discussions were underway with the +3 countries on how to enhance and extend the ASEAN Surveillance Procedure, and in Honolulu in May these countries formed a study group on “enhancing the effectiveness of our economic reviews and policy dialogues.” Henning (2001), p.16.

³⁷Thus, the Chiang Mai Initiative, which provides the impetus for the development of regional surveillance at the level of ASEAN+3, was an outgrowth Japan’s earlier proposal for an Asian monetary fund, which had itself been tabled with this motivation.

Twenty, two trans-regional groupings with which the IMF is systematically involved.³⁸ Thus, it is not clear what officials have in mind when they say that regional and multilateral surveillance should be better integrated. Presumably they do not mean that an IMF representative should be present in the European Commission when the latter determines whether an EU member state is in violation of the GSP. Nor do they mean that the Commission should mechanically accept IMF forecasts.³⁹

If Europe is any guide, then the combination of strong regional institutions with strong regional surveillance may allow regions to “graduate” from multilateral surveillance, freeing themselves from the IMF’s scrutiny. If an EU member state requires emergency assistance, this will almost surely be provided by its partners in the euro area, not by the IMF; this is all the more reason why EU members will increasingly disregard IMF surveillance.

The question is for how many other regions the same is likely to be true. My own view is that Europe is *sui generis*; its singular history has created a tolerance and, in some cases, even an appetite for political integration. This permits it to build transnational institutions like the ECB with substantial economic and monetary power. In Asia, in contrast, there is no desire for political integration and hence no willingness to construct strong institutions with the power to override national prerogatives (Katzenstein 1996). The ASEAN Surveillance Coordinating Unit

³⁸The Fund is a member of the Group of Twenty (which thus has 21 members). Along with a representative of the BIS, it attends the Manila Framework Group (a 14-country subset of APEC members -- Australia, Brunei, Canada, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand and the United States -- that convenes meetings deputy ministers of finance and deputy central bank governors) and in fact provides the technical secretariat.

³⁹Given that EU countries represented on the IMFC would presumably oppose such a step.

lacks even the limited power of the GSP to compel policy adjustments by regional partners. This means that the strong currency countries will be reluctant to provide very extensive financial assistance to their weak regional partners. The Chiang Mai Initiative allows a country to draw more than ten per cent of the swap credits provided by its regional partners only if it has negotiated an IMF program and is in compliance with the IMF's conditions. I see this agreement as reflecting not just U.S. pressure for the coordination of regional and multilateral arrangements but as the self-interested response of a group of countries not yet able to exercise firm surveillance of themselves. Once the Chiang Mai Initiative is tested, its members thus will have to figure out how to practically coordinate its surveillance and financial assistance with those of the IMF. It is Asia, then, that is likely to lead the way, through a process of trial and error, in determining how to practically coordinate regional and multilateral surveillance.

Surveillance and Regulation of Financial Markets. Reflecting its awareness of the importance of financial intelligence, the IMF has established a Capital Markets Department. It has created a Capital Markets Consultative Group (CMCG) that assembles market participants and IMF staff to discuss issues of systemic importance.⁴⁰ The Institute of International Finance proposes in addition the creation of a Private Sector Advisory Group to bring together creditors and the IMF to facilitate discussions of country-specific problems.⁴¹ How much this would add to the two-way flow of information between the markets and the IMF and whether it would have a significant stabilizing influence are unclear. The Fund can use its already existing links with

⁴⁰Specifically, principles of crisis prevention and crisis management.

⁴¹Institute of International Finance (2002). In the event of an outright default, the PSAG would give way to a country-specific creditor committee that coordinated the creditors in restructuring negotiations.

institutional investors, through the CMCG or bilaterally, to solicit their views. It can state its position on financial assistance by making public statements, issuing press releases, and attending meetings with investors convened by the economics or finance minister of the crisis country. Going a step further and establishing a Private Sector Advisory Group is not obviously desirable; doing so may only encourage the perception that the Fund is privileging some investors over others.⁴²

While the IMF certainly can work to further refine its procedures for gathering financial intelligence, the more analytically demanding task is to give better advice on the supervision and regulation of financial institutions and markets. One important question is whether to advise countries to place the supervisory function in the central bank or to outsource it to an independent supervisory agency, along the lines of British and German practice. Arguments for housing the supervisory agency in the central bank include that supervisory information is valuable for the conduct of monetary policy and that the monetary authority should act as lender of last resort in times of crisis, an activity that must be informed by facts that only a supervisory authority can possess (Goodhart and Schoenmaker 1995, Haubrich 1996). The main argument against doing so is that this creates the potential for conflict with the monetary-policy function, there being some evidence that central banks responsible for prudential supervision are more susceptible to inflationary pressures. My own view is that monetary policy is a relatively blunt instrument in many developing countries; the fine tuning facilitated by detailed information on

⁴²In addition, providing the markets with more information about the Fund's intentions in a particular case prior to the eruption of a full-fledged crisis may erode the constructive ambiguity that limits moral hazard.

what is going on in the banking system matters less than getting the basics right.⁴³ In any case, the monetary authority has a more limited ability to act as a lender of last resort in many developing countries, insofar as bank liabilities are heavily denominated in foreign currency.

These arguments suggest that the IMF should be pushing harder for the independence of supervisory agencies in the countries that need its advice the most. Historically, countries that have separated supervision from monetary policy have encouraged their banks to hold high levels of capital to compensate for any additional lags in the response of the lender of last resort. This is another obvious implication for emerging markets.

This reference to capital requirements brings us to the revised Basel Capital Accord (Basel II). To a large extent the debate over its implications for emerging markets has focused on how the new risk weighting procedures are likely to affect the cost and cyclicity of capital flows.⁴⁴ But from the point of view of crisis prevention, the revision is a mixed blessing. By keying risk weights to credit ratings it will increase the procyclicality of capital flows, thereby amplifying an already existing problem. By steepening the gradient between risk weights and ratings, on the other hand, it will encourage the markets to be more discriminating when lending to risky credits, which should be helpful from the point of view of financial stability.

Also relevant is whether Basel II will address vulnerabilities in emerging-market banking systems. Few banks in emerging markets have the expertise and in-house models needed to

⁴³Working in the other direction is the fact that in countries with underdeveloped financial systems, the central bank may have to rely on interest rate ceilings and quantitative credit limits as instruments of monetary policy, in which case effective implementation may require supervisory authority.

⁴⁴See for example Reisen (2001), Powell (2002) and Eichengreen (2002b).

adopt the internal-ratings-based approach to determining required capital that is the most dramatic innovation of Basel II.⁴⁵ They will continue to use the standardized approach, which under the revision will link risk weights to commercial ratings rather than to OECD-non OECD status.⁴⁶ Moreover, because few corporations in emerging markets are rated by commercial agencies, banks will have to continue using the Accord's simple rule of thumb for corporate lending.⁴⁷ In other words, the associated capital charges will not encourage banks to effectively discriminate among corporate credits according to risk. This is troubling insofar as continued privatization and commercialization will almost certainly continue to heighten the prevalence of corporate relative to sovereign lending in emerging markets.

Powell (2002) suggests substituting for commercial ratings information from public credit registries. Public registries operate in 40 some emerging markets; in many cases they receive reports of all bank loans extended to borrowers in the country.⁴⁸ In most cases they assign grades

⁴⁵Powell (2002) also notes that, insofar as only a few relatively sophisticated banks adopt the IRB approach, which implies an even steeper gradient between capital requirements and risk than the standardized approach, there will be an incentive for those more sophisticated banks to shed high risk credits and for less sophisticated banks to assume them, which is not obviously consistent with the quest for banking-system stability.

⁴⁶In addition to the ratings of commercial agencies, the new proposal would allow the use of export credit agency ratings. In practice, however, very few such ratings are available.

⁴⁷The risk weight for all unweighted corporate credits would be 100 per cent. Powell (2002) reports that in Argentina just 150 out of some 80,000 corporate borrowers have external ratings. In addition, there is the issue that the proposal as it current stands applies a lower capital charge to lending to corporations without ratings (100 per cent) than to those with ratings below BB- (150 per cent), which is a further disincentive for companies to seek ratings. One hopes that this anomaly is eliminated before the revision is finalized.

⁴⁸On credit registries, see Miller (2000).

to those loans that could be mapped into ratings.⁴⁹ Some readers will hesitate to assign the responsibility of determining the rating to a government-owned or operated entity that is likely to be subject to political pressure. This, however, is little different from assigning bank regulation to a government agency. It simply points up the need to give the public agency in question statutory independence and dedicated budgetary resources (which could be obtained by levying a very small charge on each loan).

The bottom line is that the effort to develop better international financial standards, of which the Basel accord for bank capital is the leading case in point, has devoted disproportionate attention to the circumstances of large banks in high-income countries. To be sure, large banks are particularly important for systemic stability. Large banks tend to be internationally active. There is some sign that the compression of spreads on bank-to-bank lending in the 1990s helped to set the stage for subsequent problems.⁵⁰ For all these reasons, the emphasis on large, internationally active banks is not without reason. But the result of all the attention paid to the risks and opportunities they pose for gauging capital adequacy is that the problems of banks in emerging markets have not received comparable attention. The Fund and Bank's Financial Sector Assessment Program addresses problems with individual banking systems on a case-by-case basis, but it is not informed by the kind of detailed international standards from which reviews of large countries in high-income countries benefit.

Institutional Reform. Finally, the IMFC urges the multilaterals to focus more on structural issues and institutional design. Financial institutions and markets should be designed

⁴⁹Using procedures on which the multilaterals could usefully advise.

⁵⁰The evidence on this is somewhat mixed. See Eichengreen and Mody (2000).

to minimize mixed motives and conflicts of interest. Fiscal institutions should be designed to minimize free riding by special interests and subnational authorities. Political institutions should be designed to facilitate quick and coherent reactions to emerging financial problems.

But the notion that the IMF and World Bank should pay more attention to structural issues is not easily reconciled with the desire to simplify and streamline their conditionality. The IMF Executive Board has agreed that structural conditions should be included in programs only when these are essential to the restoration of financial stability; this implies less emphasis on structural problems than in the past. Prescriptive advice on the design of political and economic institutions does not sit easily with the need for developing countries to display ownership of their reforms. Societies are less likely to feel invested in institutional reforms when these are forced upon them from outside. Nor is a greater emphasis on institutional design in IMF and World Bank programs and global standard-setting efforts obviously consistent with views that emphasize the value of local knowledge (Rodrik 2000, Stiglitz 2002). The imposition of institutional prescriptions from outside is not obviously consistent with experimentation, discovery and adaptation at the local level.

The multilaterals themselves are not as immune from this call for institutional reform. Most discussions of this question, which focus on the creation of the Fund's Capital Markets Department or the Bank and Fund's Financial Sector Assessment Program, do not really address the fundamental issue. Here, statements by the UK Treasury (Brown 2002) suggest what might be done. The Chancellor has suggested introducing the presumption that the conclusions of the country team should be published at the end of each IMF mission and that all surveillance reports will be published when they are presented to the IMF board. He has advocated greater

independence of the country desks that conduct Article IV surveillance from the lending activities of the IMF to ensure that surveillance is objective rigorous and consistent. Finally, he has recommended that the IMF institute regular annual reviews of the effectiveness of its surveillance and that IMF management report annually to the IMFC on the institution's performance.

The argument for greater transparency and accountability, to be achieved through institutional reforms, surely applies as powerfully to the Bretton Woods institutions as to other financial market participants. The IMF has already moved a good way down the road to greater transparency, and there is already considerable peer and market pressure for governments to authorize the publication of Article IV reports. The creation of an Independent Evaluation Office in the Fund provides a framework for the kind of annual assessments that the Chancellor has in mind.

Whether strengthening the independence of regional departments and country desks from the IMF's management and board would provide a check on political pressure to lend is another matter. In a large organization, be it Enron or the IMF, there are incentives to refrain from circulating analyses, especially in public, that conflict with management's party line, whether or not the staff member in question enjoys bureaucratic autonomy. Dissent and internal promotion are not likely to be compatible, notwithstanding any putative independence of regional departments. These kind of firewalls are not likely to be any more effective within the IMF than they are in separating the underwriting and trading departments of investment banks. In addition, such firewalls are more problematic in the case of the Fund precisely because it is not an investment bank. Mixed public messages from staff and management would be

counterproductive for an institution whose purpose is to restore market confidence. If the goal is to reduce the pressure on the IMF to lend, my own preference would be to instead concentrate on developing other, less disruptive ways of resolving crises (Eichengreen 2002b) and on enhancing the independence of the IMF executive board as a way of insulating its decision making from the short-term political agendas of its principal shareholders (De Gregorio et al. 2000).

4. Contagion

Predicting, preventing and understanding contagion is an especially trendy subfield of crisis studies. Contagious crises are hard to predict because by definition they are contingent events -- their incidence depends not just on the intrinsic susceptibility of the economy to which the crisis spreads but is contingent on the outbreak of a crisis in the originating country.

Contagion first appeared on the research community's radar screen with the emergence of the Tequila Effect and became a hot topic with the spread of the Asian flu. Concern with the phenomenon peaked in the aftermath of the Russian crisis, when some 30 per cent of the countries considered by IMF (1999a) suffered significant currency market pressures.⁵¹ While the results of conventional tests are superficially consistent with the presence of the phenomenon, such tests suffer from serious problems of observational equivalence. This is true of the approach taken in the first paper on the subject (Eichengreen, Rose and Wyplosz 1997), which asks whether the presence of a crisis in one country increases the likelihood of a crisis in a neighboring country in the same or immediately succeeding period, holding constant the

⁵¹Compared to 15-20 per cent during the Tequila and Asian episodes.

observable country-specific and global determinants of crisis risk.⁵² This study finds that a crisis anywhere in the world raises crisis risk elsewhere by eight percent, other things equal. Given the difficulty of predicting crises, however, it is hard to be too confident that such tests have succeeded in controlling for all of the relevant country-specific determinants of crises. That crises cluster is consistent with the presence of contagion, but it is also consistent with the omission of common fundamentals that heighten crisis risk in all the affected countries.

The logical response is to put more structure on the problem: to model not just contagion but also the channels through which crises spread, since an increase in volatility due to a crisis in a neighbor with which one trades, bears macroeconomic and financial similarities, or shares a common creditor is more convincing evidence of direct economic spillovers. Subsequent studies (e.g. Eichengreen and Rose 1999) thus weighted crises in neighboring countries by the intensity of trade links and the extent of macroeconomic and financial similarities.⁵³ Their finding that contagion spread more from trading partners than from countries with macroeconomic and financial similarities raised eyebrows. Since this early work focused on Europe and considered

⁵²It is equally true of studies that test for contagion by looking for increases in the cross-country correlation of asset prices in periods of turbulence (Corsetti, Pericoli and Sbracia 2002). The seminal paper taking this approach is Boyer, Gibson and Loretan (1999).

⁵³To be sure, this does not entirely eliminate the possibility that results are being driven by the omission of common fundamentals. Thus, one of the most careful recent studies (Fratzcher 2002) finds that countries that trade heavily and share common creditors are more likely to be affected by crises elsewhere in the world even after allowing for unobservable shifts in investors' beliefs (which are modeled empirically as a Markov-switching process). Still, this does not rule out the possibility that countries infected by crises in, say, their trading partners share unobserved fundamentals that are correlated with their tendency to trade with one another. This objection is less compelling than the general common-omitted-fundamentals critique insofar as the omitted fundamentals most now take a restrictive form, but the critique retains at least some force.

the 1970s and 1980s as well as the subsequent recent period, there were suspicions that the result was context specific. However, subsequent research (e.g. Glick and Rose 1999, Forbes 2001) found that the result is surprisingly robust.⁵⁴

The literature now appears to be moving in a synthetic direction, admitting a role for both trade and common-creditor channels (see e.g. Calvo 1999). Thus, Van Rijckeghem and Weder (1999) find, in a panel of 30 emerging markets, that countries that compete for funds from common bank creditors were most likely to suffer contagion in the Mexican and Russian crises. Kaminsky and Reinhart (1998) similarly find that the presence of a common creditor increased the likelihood of spillovers in the Asian crisis. Through all this, however, the trade channel remains.

What light does this research shed on why contagion from the crisis in Argentina was so mild? One explanation is that Argentina is a relatively closed economy -- the fact that it trades so little means that contagion through trade was limited. Exports to Argentina are only one per cent of GDP for Brazil and Chile, 2 per cent for Uruguay and 4 per cent for Paraguay. But it is hard to believe that this is the entire story, and in particular that it is the story of why there was so little fallout for Brazil. Trade between Argentina and Brazil flows both ways, and there is considerable evidence that the devaluation of the *real* some years earlier was a factor in

⁵⁴De Gregorio and Valdes (2001) find that there is a regional effect above and beyond the trade effect (for which they control). Whether this reflects macroeconomic and financial linkages or something else they cannot determine.

Argentina's subsequent crisis.⁵⁵

Alternatively, it could be that contagion has been limited by the adoption of more flexible exchange rates in other emerging markets, including Argentina's neighbors, Brazil and Chile. No doubt there is something to this observation, although IMF (1998) shows that crises can occur under flexible as well as fixed exchange rates and can spread even to countries whose currencies are unpegged.

Perhaps efforts to improve transparency have enabled investors to better discriminate among countries by credit worthiness. The steepening of the gradient between credit ratings and secondary-market spreads since 1998 is consistent with this view. At the same time, the fact that early studies of contagion did not suggest that volatility tended to spread as a result of superficial macroeconomic and financial similarities makes it hard to attach too much confidence to this interpretation. If future studies show that countries which have done the most to enhance transparency are least susceptible to contagious crises, it will be possible to be more confident that this is the story.⁵⁶

It could be that the decline in leverage in the international financial system since 1998 has reduced the need for institutional investors hit by crises in one country to sell other securities from the same asset class in the desperate effort to raise liquidity. There is some evidence that the use of leverage, especially among the most highly leveraged institutions, has fallen

⁵⁵It is not clear, in other words, why a channel that operated in one direction should not also operate in the other.

⁵⁶Unfortunately, the obvious indicators of transparency, like the PriceWaterhouseCoopers "Opacity Index," were developed too recently to permit much retrospective analysis.

significantly since the Russian crisis and the all but failure of Long-Term Capital Management.⁵⁷ This suggests revisiting the literature on the common creditor channel.

It is also possible that contagion from Argentina was limited by the widely anticipated nature of the country's crisis. Since institutional investors could see the crisis coming, they could provision for it and draw down their exposures. This limited the distress experienced by institutional investors -- even those like J.P. Morgan-Chase and Banco Santander with relatively large positions -- and hence the tendency to sell into a falling market in order to raise liquidity.⁵⁸ That Brazil's crisis, which was also widely anticipated, did not create significant contagion is similarly consistent with this view.⁵⁹ Now that there are enough observations to test the hypothesis -- by using reserve losses, interest premia and the like to date when expectations of a crisis first became widespread, it is worth revisiting this issue.

Doing so is important. If it turns out that contagion from Argentina was limited because the country's crisis was a member of that select subset of such problems that are widely anticipated in advance, there is little reason to be confident that contagion as a general phenomenon has diminished. If, on the other hand, contagion from Argentina was less because

⁵⁷See Eichengreen and Park (2002). The Financial Stability Forum (2002) has claimed that this decline in leverage reflects improved counterparty risk management and strengthened regulatory oversight, but whether these or changes in borrowers' own appetite for risk are the source remains to be seen.

⁵⁸In other words, this was a second factor limiting the operation of the common creditor channel. Similarly, banks in other Latin American countries had limited exposure to Argentina. The one exception is Uruguay, but the story there is unique: the freeze on bank deposits in Argentina led Argentines with deposits in Uruguay -- traditionally held for tax evasion purposes -- to draw on their balances there.

⁵⁹IMF (1999b) provides evidence consistent with this interpretation.

transparency has improved, then there is more reason for hope.

5. Conclusion

It is frequently remarked that crisis prediction is more art than science; this paper reviewed a number of reasons why this is the case. It has suggested that the point is no less true of crisis prevention. Crises have multiple causes rooted in the interaction of market fundamentals and investor psychology; it is this interaction that makes them difficult to predict and prevent. Their causes vary with time, reflecting changes in market structure but also shifts in investor sentiment.

It is still possible to identify steps to limit both the incidence and severity of crises, such as strengthening the supervision and regulation of financial institutions, rationalizing exchange rate regimes, and reforming fiscal and political institutions. But not all initiatives that might limit crises will in fact be implemented. In some cases, resistance reflects rent seeking by special interests adversely affected by regulatory changes. In others, measures to reduce crises have distributional consequences and side effects that are viewed as undesirable by the international community. For example, changes in the Basel risk weights that raise the cost of capital to and threaten to slow the growth of poor countries are at best a mixed blessing and will be embraced by their governments only with reluctance.

Most fundamentally, there is the inefficiency of so completely risk proofing the international financial system that crises never occur. Some risk taking is socially productive, and when risks are taken failures will inevitably result. In the same way that some corporations pursuing value-maximizing investment strategies will be felled by unforeseen events, even

governments following policy strategies that maximize expected social welfare will experience crises from time to time. A hermit kingdom with no contact with the outside world can have no financial crises, but this does not make isolation the optimal state of affairs.

For all these reasons, there will always be crises, despite our best efforts to predict, prevent and understand them. Perhaps then, in the end, all the attention devoted to crisis management by the official community is not really so wide of the mark.

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