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Two Hundred Years of Contagion

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Over the past two hundred years -- some would argue even longer -- financial events, such as the devaluation of a currency or an announcement of default, have been capable of triggering an *immediate* adverse chain reaction among countries within a region and in some cases across regions.¹ The impact of these shocks on the countries unfortunate enough to be affected usually included sharp declines in equity prices, a spike in the cost of borrowing in international capital markets, and a significant drop in the availability of capital. In more extreme cases, countries have lost access to cross-border capital flows. Significant declines in output have been the norm in these episodes. Yet, it is remarkable that on other occasions similar events have failed to trigger any international reaction, at least on impact. In some instances, financial markets appear to be quite willing to shrug off an event that will obviously have strong trade and real sector repercussions on the crisis country's neighbors.

Among recent experiences, the devaluation of the Thai baht on July 2, 1997 and the Russian default on August 18, 1998 fall squarely into the first category, as both announcements had a resounding impact on international capital markets and were associated with a collapse in capital flows to emerging markets. In the case of Thailand, the turbulence was largely confined to Asia, but the repercussions of the Russian default went well beyond the transition economies and hit Brazil, Hong Kong and Mexico particularly hard. In a historical context, the bursting of the capital flow "bubbles" in 1826 and 1873 -- though undoubtedly related to financial crises in the "core" countries -- was clearly accelerated by default announcements in the "periphery" (Latin America). In fact, the 1826 episode -- the first Latin American debt crisis -- came barely a year after

the end of the independence struggles and foreshadowed two hundred years of crises to come.²

At the other end of the spectrum, recent similar events with limited *immediate* consequences include Brazil's devaluation of the real on January 13, 1999 and eventual floatation on February 1. The only discernible international consequence of this event was an increase in volatility in some of the larger Latin American equity markets that lasted a few days. In effect, as Kaminsky and Reinhart (2002) observe, the Brazilian equity market staged a rally that week, with equity prices rising about 52 percent. The Argentine default and abandonment of the Convertibility Plan in December 2001-January 2002 and Turkey's devaluation of the lira on February 22, 2001 are two additional examples of instances where international capital markets were unmoved by events.³ Given that both Turkey and Argentina are relatively large emerging markets, these episodes could also have turned out to be – at least potentially -- as highly “contagious” as the Thai and Russian crises.

Before further discussion, however, a note on terminology is in order. Since the term “contagion” has been used liberally and taken on multiple meanings, it is useful to clarify how it will be used in this paper at an early stage. In what follows, we refer to contagion as an episode in which there are significant *immediate* effects in a number of countries following an event -- that is, when the consequences are *fast and furious* and evolve over a matter of hours and days. This “fast and furious” reaction is in contrast to cases in which the initial international reaction to the news is muted. The latter cases, however, do not preclude the emergence of gradual and protracted effects that may cumulatively have major economic consequences. We refer to these gradual “death by a thousand

cuts” cases as *spillovers*. Common external shocks, such as changes in international interest rates or oil prices, are also not included in our working definition of contagion or spillover.

On the basis of our reading of the empirical evidence and the literature, we offer the following observations regarding some key elements that distinguish the *fast and furious* contagion episodes from their quieter counterparts.

First, fast and furious contagion cases usually followed on the heels of a surge in capital inflows and, more often than not, the initial shock or announcement pricked the capital flow bubble, at least temporarily. The capacity for a swift and drastic reversal of capital flows—the so-called *sudden stop* problem—is significant in these episodes (see Calvo and Reinhart, 2000). After all, when contracts have short maturities (as has been the case in these contagion episodes), banks and bond holders can refuse to rollover their debts in short order. Investors and financial institutions are exposed to the crisis country and often highly leveraged. In contrast, financial crises that have not set off major international dominos have usually unfolded against low volumes of international capital flows. While domestic capital flight is always a possibility, the scope for a sudden retrenchment in foreign lending is limited. Given lower levels of exposure, investors and institutions in the financial sector have a much lower need to adjust their portfolios when the shock occurs.

Second, all the announcements that set off chain reactions have come by *surprise*. By contrast, when similar announcements of devaluation and default elicited little or no immediate international reaction, the outcome tends to have been anticipated by financial

markets. The distinction between anticipated and unanticipated events is critical, as forewarning allows investors to adjust their portfolios in anticipation of the event.

Third, as to propagation mechanisms, in all cases where there were significant immediate international repercussions, a leveraged common creditor was involved—be it commercial banks, hedge funds, mutual funds, or bondholders.⁴ Indeed, in most of the cases of fast and furious contagion, the scope for effects through a trade channel was limited and, in some cases, non-existent.⁵ This does not imply, however, that trade linkages are not capable of producing gradual, but nonetheless significant, cumulative deleterious effects. For instance, the collapse in world trade following the 1873 international financial crisis had significant negative repercussions on the periphery's ability to continue servicing an already large external debt. In the same vein, there can be little doubt that the floatation and sharp depreciation of the Brazilian real in early 1999 exacerbated the economic downturn that Argentina and Uruguay were experiencing at that time.

On the incidence of contagion

Apart from the anecdotal evidence from the various contagion episodes, the bulk of the empirical literature on contagion has primarily tried to establish whether contagion is systematically discernible in the data, be it manifested as the excess comovement of asset returns or as an increased probability of a domestic crisis when there is a crisis somewhere else.⁶ The more general results from this literature may be summarized as follows.

Most studies find evidence of excess comovement in a variety of asset returns, whether sovereign debt or equity. There is less consensus on whether this comovement

increases during a crisis. Forbes and Rigobon (2002) have suggested that, when properly estimated, correlation coefficients across multi-country returns are not significantly higher during crisis periods. Applying a different approach, Baig and Goldfajn (1998) and Kaminsky and Schmukler (1998) find evidence that news elsewhere have effects on asset prices, even after controlling for domestic fundamentals. The evidence in these studies reveals nontrivial asymmetries between good and bad news. In a historical context, Bordo and Murshid (2000) and Neal and Weidenmier (2002) provide mixed evidence regarding the existence of contagion, arguing that common shocks and the normal adjustment process under the gold standard may be enough to explain the observed turmoil in post-1880 crises.

Calvo and Reinhart (1996) present evidence of “large neighbor” effects in capital flows to Latin America, with smaller countries being systematically influenced by capital account developments in their large neighbors. Eichengreen, Rose, and Wyplosz (1996) and Kaminsky and Reinhart (2000) show that the probability of a domestic crisis increases when there is a crisis elsewhere. These, and other papers (i.e. Glick and Rose, 1999), suggest that contagion tends to be regional. In sum, by and large, most of the results in this literature support the anecdotal evidence and suggest that contagion is, one way or another, systematically present in the data.

Crises with and without Major International Repercussions

This section reviews eight episodes of fast and furious contagion spanning nearly two hundred years. We compare these to five episodes of “the-dog-did-not-bark” variety, where similar announcements produced limited consequences across national borders.

Fast and furious contagion and adverse global shocks

Six of these episodes are generally accepted in the literature and the financial press as cases of contagion of the fast and furious variety. Among the historical episodes, we include the first Latin American debt crisis -- which began with Peru's default in April 1826 -- and the international financial crisis of 1873.⁷ Among episodes of recent vintage, we review the European Exchange Rate Mechanism crisis of 1992-93, the Mexican peso crisis that began in December 1994, the Asian crisis of 1997, and the Russian default in August 1998.

Two additional episodes of far-reaching financial turmoil -- both ending in a string of defaults in Latin America and elsewhere -- are included. These are the worldwide financial crisis of 1929-1933 and the Latin American debt crisis of the early 1980s. It is debatable whether the full explanation for the international synchronicity of crises in these episodes lies in extreme and adverse common shocks (in the form of abnormally high and rising real interest rates, collapsing commodity prices, and, in the 1930s, a worldwide depression) or whether the bad shock was accompanied by contagion. It can be said, however, that in both cases some of the same propagating mechanisms present in the other episodes were also at work. In the 1929-1933 crisis, sharp selling in the UK and US stock markets in 1929 led to panic selling across Europe (see Morsy, 2002) and, later on, defaults in some small Latin American countries in early 1931 resulted in a sharp drop in debt prices of other highly indebted countries in the periphery. In the case of the early 1980s, US banks played a similar role in propagating crises in Latin America as the Japanese banks did in Asia fifteen years later.

Tables 1 and 2 present some summary background material for each of these episodes, including information on the existence and nature of common external shocks,

the suspected main mechanism for propagation and contagion, and the countries that were most affected.

Contagion that never happened

Historically, there are far more crises without significant international consequences than crises that have given rise to fast and furious contagion. Many of these crises have little or no international consequences and, perhaps, this should not come as a surprise. When, as far as international capital markets are concerned, countries are in a state of autarky (either voluntarily or otherwise), there is little reason to expect that a domestic crisis—no matter how deep—will have immediate repercussions in world capital markets. The countries may be large (China or India) or comparatively small (Bolivia and Guinea-Bissau). The cases of “contagion that never happened” that we focus on are not the ones where the rationale for lack of contagion is that obvious. Specifically, we focus on five cases where the countries in question were not entirely shut out of capital markets and, indeed, figured as some of the largest players among emerging markets. The historical cases include the well-documented Argentina-Baring crisis of 1890, the crisis of 1907, which erupted in the United States (still part of the periphery at the time), and three recent episodes of devaluation and default in large emerging markets: Brazil in February 1999; Turkey in February 2001 and Argentina in December 2001-January 2002. Table 3 provides a similar summary of the episodes as that shown in Tables 1 and 2 for the fast and furious cases.

The role of the capital flow cycle

We noted earlier that the fast and furious contagion episodes are typically preceded by a large surge in capital flows which, more often than not, comes to an abrupt

halt in the wake of a crisis. This rising financial exposure to emerging markets is not present to nearly the same extent in the crises without major external consequences. The latter crises seem to occur when capital markets have already dried up.

In the historical episodes, this pattern is very evident in the string of defaults during 1926-28 in Latin America, which came on the heels of the first wave of massive capital flows from Britain into Latin America during 1822-1825. These capital flows included not only official borrowing by the newly-independent governments for fiscal and nation-building purposes, but also substantial equity capital to finance prospective silver and gold mines. A second wave of capital flows from Britain came along during the 1850s and 1860s – partly related to the financing of railroads – and preceded the crisis of 1873 (Figure 1). The 1929-1933 crisis was preceded by yet another wave of capital flows into emerging markets, which coincided with the shift of the financial epicenter of the world from London to New York. Among Latin American countries, the borrowing binge during 1925-1928 was explained in large part by “development” loans, as governments saw an opportunity to carry out new public works and urban modernization projects with “cheap” money from New York (Marichal, 1989). Capital flows peaked in 1828, the year before the US stock market crash ushered a string of financial and currency crises around the world and eventually an international debt crisis (Figure 1).

Among the recent episodes, beginning with the events leading up to the debt crisis of the 1980s, the capital flow cycle has also played a key role in determining whether the effects of a crisis have significant international ramifications or not.

In the late 1970s, soaring commodity prices, low and sometimes negative real interest rates, and weak loan demand in the United States made it very attractive for US

banks to lend to Latin America and other emerging markets—and lend they did. Capital flows, by way of bank lending, surged during this period (see Figure 1). Yet, as far as the prospects of repayment of these loans, by the early 1980s the situation had changed significantly for the worse. US interest rates had risen markedly in nominal and real terms and, since most of the loans made had either short maturities or variable interest rates, the effects were passed on to the borrower relatively quickly. Commodity prices had fallen by almost 30 percent between 1980 and 1982 and many governments in Latin America were engaged in a spending spree that would seal their fate and render them incapable of repaying their debts. Prior to Mexico's default in August of 1982, one after one these countries experienced currency crises, banking crises, or both. When Mexico ultimately defaulted, the highly exposed and leveraged banks retrenched from emerging markets in general and Latin America in particular. During the decade that followed there were numerous crises in Latin America, including some of the worst peacetime hyperinflations. Yet, these crises had minimal international repercussions, as most of the region was shut out of international capital markets. The drought in capital flows lasted until 1990.

Figure 2 shows net private capital flows for the contagion episodes of the 1990s. Figure 2 shares with Figure 1 the common pattern of a run-up in borrowing followed by a crash at the time of the initial shock and little or no borrowing thereafter. Net private capital flows in the run-up to the ERM crisis in Europe had risen markedly and peaked in 1992 before coming to a sudden stop. In the case of Mexico, as the crisis loomed close in 1994, capital flows were close to their 1992 peak after surging considerably, since as late as 1989 Mexico had overwhelmingly recorded net outflows. The rise in capital flows to

Indonesia, Korea, Malaysia, the Philippines and Thailand (shown in Figure 2) was no less dramatic—especially after 1995, when Japanese and European bank lending to emerging Asia escalates.

The bottom right panel of Figure 2 shows the evolution of capital flows to all emerging markets and the progression of crises (contagious and otherwise). The halcyon days of capital flows to emerging markets took place during the first half of the 1990s, notwithstanding the Mexican crisis and its effects on Argentina. The eve of the Asian crisis (1996) marks the peak of the cycle, and Asia delivers the first blow from which there is no recovery. It is the second emerging market crisis (after Mexico) that is associated with contagion. The marked decline in capital flows in 1997 only underscores this point. The Russian crisis of August 1998 delivers the second blow from which emerging market flows never fully recover in the 1990s. As shown in the right bottom panel of Figure 2, this crisis is associated with the second major leg of the decline in private capital flows to emerging markets.

Capital flows on the eve of the next three crises (the Brazilian and Turkish devaluations in January 1999 and February 2001, respectively, and the Argentine default at the end of 2001) evolved during the downturn of the cycle and at levels of net flows that were barely above the levels of the 1980s drought. The World Economic Outlook estimates shown for 2002 and 2003 in Figure 2 may, in the end, overstate the actual outcome of capital flows to emerging markets in those years. Indeed, because total net flows include foreign direct investment (FDI), which held up better than portfolio bond and equity flows, Figure 2 somewhat understates the extent of the sudden stop problem

that emerging markets faced in the post Russian (1998) crisis period. The capital flow “bubble” had already been pricked.

Surprise crises and anticipated catastrophes

The second point emphasized above is that fast and furious crises have a high degree of surprise associated with them while their quieter counterparts are more broadly anticipated. This distinction appears to be critical when “potentially affected countries” have a common lender. If the common lender is surprised by the shock in the initial crises country, there is no time ahead of the impending crisis to rebalance portfolios and scale back from the affected country. On the other hand, if the crisis is anticipated investors have time to limit the damage by scaling back exposure or hedging their positions to the extent that they are capable.

Sovereign credit ratings on the eve of crises

Evidence that quieter episodes were more anticipated than the fast and furious cases is presented in Table 4. As shown in Table 4, Standard and Poor’s credit ratings had remained unchanged during the twelve months prior to of the Mexican and Thai currency crises. In the case of Russia, there is actually an upgrade as late as June 1998, when the broader definition that includes the Credit Watch (CW) status is used. Two downgrades eventually take place prior to the crises on August 13, 1998 and again on the 17th, the day before the default. By contrast, Argentina has a string of downgrades as it marches toward default, with the first one taking place in October 2000, over a year before the eventual default. Likewise, Brazil and Turkey suffer downgrades well before the eventual currency crisis.

Pre- and post-crisis sovereign bond spreads

Figures 3 through 5 plot spreads for major emerging countries for almost two hundred years. Figure 3 shows the behavior of spreads for the three historical episodes of 1826, 1873, and 1929.⁸ Figures 4 and 5 show plots of the domestic-international interest rate differential for the Emerging Market Bond Index (EMBI) and the EMBI+. As argued below, the overall message is that the fast and furious episodes are accompanied by sharp spikes in yield differentials – reflecting the unanticipated nature of the news -- whereas other episodes have tended to be anticipated by financial markets.

Figure 3 (top panel) -- which shows spreads for Argentina, Brazil, Chile, Gran Colombia, Mexico, and Peru -- illustrates the, by and large, unexpected nature of the 1826 crisis. Spreads are comfortably below 500 basis points before the December 1825 financial crisis in London and Peru's default in April 1826. Even Brazil, which not only did not default but was the only country in a position to negotiate several new loans during this period, saw its spread rise sharply as the crisis broke out. The middle panel of Figure 3 shows spreads for Argentina, Egypt, Peru, Russia, and Turkey during the 1870s. In interpreting this plot, we should keep in mind that the international debt crisis *per se* (as opposed to the more general financial crisis that erupted in 1873 in Germany and Austria) reached its climax only in 1876 with the defaults of Peru, Turkey, and Egypt. In fact, right until then, investors in London had been worried mostly about small Latin American nations (Honduras, Santo Domingo, Costa Rica, and Paraguay, all of whom defaulted in 1873-1874) rather than large borrowers such as Peru, Turkey, and Egypt. It is only in August 1875 – when an important bank with close ties to the government in Peru goes bankrupt -- that London financiers begin to worry about big lenders and

spreads begin to rise sharply and suddenly. Finally, the bottom panel in Figure 3 shows spreads for Argentina, Brazil, Chile, and Uruguay during the period surrounding the crisis of 1929-1933. Again – as in the 1873 crisis – it should be noted that the debt crisis erupts only in early 1931 (with Bolivia defaulting in January 1931). At that point, there is a sharp spike in spreads.⁹

The data presented in Figures 4 and 5 illustrates the fact that markets foreshadowed turbulence in the cases of Argentina (2001), Brazil (1999), and Turkey (2000). Two features of the top panel of Figure 3, which shows the weekly spread for Argentina, are worth noting. First, consistent with the evolution of the sovereign credit ratings, the cost of borrowing begins to rise steadily and markedly about a year or so before the default on December 23, 2001. Second, and less noticeable given the scale, there is a marked spike *following* the peso December 1994 crisis, when spreads reached nearly 2,000 basis points. These two points can also be made about the middle panel, which shows Brazilian spreads. There is a run-up in spreads well before Brazil floats the real on February 1, 1999 and a roughly comparable increase *after* the Mexican devaluation. What this chart also reveals is that Brazil—more so than Argentina—was quickly and markedly affected by the Russian crisis. The contrast with the evolution of Mexico's spread in the pre-crisis period is striking. As shown in the bottom panel of Figure 3, spreads are stable at around 500 basis points in the months prior to the crisis. Like Brazil and Hong Kong (not shown), Mexico is one of the countries hardest hit by the Russian crisis in August 1998 and spreads rise to their highest levels since 1995.

Russian spreads, illustrated in the top panel of Figure 5, also show remarkable stability until a couple of weeks prior to the announcement and default. In the case of

Russia, the devaluation of the ruble appears to have been widely expected by the markets (as evident on the spreads on ruble-denominated debt), it was the default that apparently took markets by surprise. Interest rate spreads for Turkey, which like most emerging markets was affected by the Russian crisis, reveal (as do the cases of Argentina and Brazil) a steady rise in spreads throughout most of the second half of 2000.

It is also evident from Figures 4 and 5 that the emerging markets spreads shown here either are unmoved by the “anticipated events” or actually decline in some cases. For instance, following the Argentine default, spreads for Brazil, Mexico, and Turkey actually decline, while there is no discernible impact on the Thai and Russian spreads. A similar pattern prevails following Turkey’s and Brazil’s currency crashes.

Channels of Propagation

Trade and finance links and other explanations

To explain why crises tend to be bunched, some recent models have revived Nurkse’s story of competitive devaluations, which emphasized trade, be it bilateral or through a third party.¹⁰ A devaluation in a given country makes it costly (in terms of a loss of competitiveness and output) for other countries to maintain their parity. In this setting, a devaluation in a second country is a policy decision whose effect on output is expected to be salutary. Hence, an empirical implication of this type of model is that we should observe a high volume of trade among the “synchronized” devaluers. As a story of “voluntary” contagion, of course, this explanation does not square with the fact that central banks often go to great lengths to avoid a devaluation in the first place, typically by engaging in an active interest rate defense of the peg (Lahiri and Végh (2003)).

Another family of models has de-emphasized the role of trade in goods and services and stressed the role of trade in financial assets, particularly in the presence of information asymmetries. Calvo and Mendoza (1998) present a model where the fixed costs of gathering and processing country-specific information give rise to herding behavior, even when investors are rational. Kodres and Pritsker (1998) also present a model with rational agents and information asymmetries. However, they stress the role played by investors who engage in cross-market hedging of macroeconomic risks. In either case, these models suggest that the channels of transmission arise from the global diversification of financial portfolios. As such, they have the empirical implication that countries with more internationally-traded financial assets and more liquid markets should be more vulnerable to contagion. Small, highly illiquid markets are likely to be under-represented in international portfolios to begin with and, as such, shielded from this type of contagion.

Calvo (1998), who also focuses on links via the financial sector, has stressed the role of liquidity. A leveraged investor facing margin calls needs to sell (to an uninformed counterpart) his or her asset holdings. Because of the information asymmetries, a “lemons problem” arises and the asset can only be sold at a firesale price. A variant of this story can be told about an open-end fund portfolio manager who needs to raise liquidity in anticipation of future redemptions. In either case, the strategy will be not to sell the asset whose price has already collapsed but other assets in the portfolio. In doing so, however, other asset prices fall and the original disturbance spreads across markets.

One potential channel of transmission that has been stressed by Kaminsky and Reinhart (2000) is the role of common lenders, in particular commercial banks. U.S.

banks had an extensive exposure to Latin America in the early 1980s, much in the way that Japanese banks did during the Asian crisis of 1997. The behavior of foreign banks can both exacerbate the original crisis, by calling loans and drying up credit lines, but can also propagate crises by calling loans elsewhere. The need to rebalance the overall risk of the bank's asset portfolio and to recapitalize following the initial losses can lead to a marked reversal in commercial bank credit across markets where the bank has exposure.

The so-called "wake up call hypothesis" suggests that once investors "wake up" to the weaknesses that were revealed in the crisis country they will proceed to avoid and move out of countries that share some characteristics with the crisis country.¹¹ So, for instance, if the original crisis country had a large current account deficit and a relatively "rigid" exchange rate, then other countries showing similar features will be vulnerable to similar pressures.

Finally, one could point to irrational behavior on the part of investors who follow fashions and fads, disregard fundamentals, and form their expectations by extrapolation. It is no doubt possible (if not appealing) that such "irrational exuberance," to quote Chairman Greenspan, influence the behavior of capital flows and financial markets and exacerbate the booms as well as the busts.

Table 5 summarizes our take on the importance of the various propagating mechanisms discussed above in our sample of contagion episodes.

Evidence from the empirical literature on the linkages

Relatively few studies have gone beyond establishing that there is contagion or spillovers and attempted to assess the underlying causes. Perhaps because trade in goods and services has a longer history in the post World War II period than trade in financial

assets, or because of far better data availability, trade links have received the most attention in the literature on contagion. Eichengreen, Rose, and Wyplosz (1996) find evidence that trade links help explain the pattern of contagion in 20 industrial countries; Glick and Rose (1999), who examine this issue for a much broader sample of countries, come to the same conclusion. Because trade tends to be more intra- than inter-regional in nature, Glick and Rose (1999) conclude that this helps explain why contagion tends to be regional rather than global.

However, these results are by no means unanimous. In a horse race that compares countries clustered along the lines of trade links versus common bank creditors, Kaminsky and Reinhart (2000) conclude that the latter better explains the observed pattern of contagion. Mody and Taylor (2002), who seek to explain the comovement in an exchange market pressures index by bilateral and third-party trade and other factors also cast doubt on the importance of trade linkages in explaining the propagation of shocks.

Table 6 shows bilateral trade patterns among the crisis and contagion countries for the year before the crisis. Specifically, it presents the share of total exports in the affected countries that is accounted for by the original crisis country. Hence, on the eve of the Tequila crisis only 1.7 percent of Argentina's total exports went to Mexico. Similarly, Brazil which suffered acute pressures with spreads doubling (Figure 3) and equity prices falling by more than twenty percent in the weeks following the Russian default, barely trades with Russia, as only 0.2 percent of its exports are destined for Russian markets.

These relatively trivial bilateral trade links among the crisis and affected countries in episodes of fast and furious contagion are in sharp contrast to the strong trade links with the crisis country that characterize some of the cases where there was little contagion. About 30 percent of Argentina's exports are destined for Brazil, yet in the week following the devaluation, the Argentine equity market increases by twelve percent. Similarly, at nearly 13 percent, the share of Uruguay's exports that are destined for the Argentine market is well above the shares shown in Table 6 for countries that experienced fast and furious contagion in one episode or another. Yet, it is noteworthy that the main reason why developments in Argentina ultimately had significant adverse consequences on Uruguay had, once again, less to do with trade and more to do with the idiosyncratic tight financial linkages between the two countries. In particular, Uruguayan banks have for many years been host to Argentinean depositors, who thought their deposits safer when these were denominated in US dollars and kept across the Río de la Plata. As the crisis deepened in Argentina, many of the deposits that fled from the Argentine banks found their way to Uruguay. When the Argentine authorities declared a freeze on bank deposits in December 2001, Argentine firms and households began to draw down the deposits they kept at Uruguayan banks. The withdrawals escalated and became a run on deposits amid fears that the Uruguayan central bank would run out of international reserves.

While the preceding discussion has focused exclusively on bilateral trade, like Glick and Rose (1999), Kaminsky and Reinhart (2000) also study "looser" trade linkages, which involve competition in a common third market. For the countries in Asia and Latin America, a common third party(ies) was identified. The United States figures

prominently in trade with Latin America (not unlike the patterns in bank lending) and Japan figures prominently in Asian trade. However, all five countries hit by the crisis in Asia during 1997 also export extensively to Hong Kong and Singapore. While sharing a third party is a necessary condition for the competitive devaluation story, it is clearly *not a sufficient one*. If a country that exports wool to the United States devalues, it is not obvious why this would have any detrimental effect on a country that exports semiconductors to the United States. Clearly, the composition of trade will play a key role in determining whether the third party trade links carry any weight.

As illustrated in Table 5, the case for explaining who is hit by contagion through bilateral trade links is far from compelling. However, Kaminsky and Reinhart (2000) show that the case of third-party trade links is somewhat more plausible for some of the Asian countries. Thailand exports many of the same goods to the same third parties as Malaysia, and to a lesser extent Korea. This, of course, still leaves Indonesia and the Philippines largely unexplained. Third party trade also does not appear to account for the Tequila effects on Argentina and Brazil, whose export structures have little in common with Mexican exports, let alone looking for any similarities among the exports of Russia, Hong Kong, and Brazil.

Other studies have instead emphasized the important role of common creditors and financial linkages. The “type” of the common creditor may change but the story remains consistent. Frankel and Schmukler (1998) and Kaminsky, Lyons, and Schmukler (2000) show evidence to support the idea that U.S.-based mutual funds have played an important role in spreading shocks throughout Latin America by selling assets from one country when prices fall in another – with the Tequila crisis being a prime example.

Caramazza, Ricci, and Salgado (1999), Kaminsky and Reinhart (2000), and Van Rijckeghem and Weder (2000) focus on the role played by commercial banks in spreading shocks and inducing a sudden stop in capital flows in the form of bank lending. Mody and Taylor (2002) link contagion to developments in the US high yield or “junk” bond market. The common thread in these papers is that, without the financial sector linkages, contagion of the fast and furious variety would be unlikely.

Concluding reflections

It is difficult to draw any grandiose lessons from reviewing some of the contagion episodes that *happened* as well as those that *could have happened*. To the extent that a country is integrated with world capital markets, it is potentially vulnerable to fast and furious contagion, irrespective of how open or closed the economy is to trade in goods and services. The crisis in the European Monetary System in 1992-93 showed that emerging markets do not have a monopoly on vulnerability to contagion, although they certainly tend to be more crisis prone. The prospect of financial autarky as a way of avoiding fast and furious contagion is not particularly attractive as a long run solution. In fact, it may not even be feasible in the case of countries that have already liberalized the financial sector and the capital account. Past experience has shown that capital flight has been an endemic problem for countries that have tried to turn the clock back and re-introduce tight capital account and financial restrictions.

To date, what has distinguished the contagion episodes that *happened* from those that *could have happened* has had little to do with more “judicious” and “discriminating” investors—nor with any improvements in the state of the international financial

architecture. If investors behaved in a more discriminating manner in the cases where contagion could have happened but did not, it is because (i) those crises tended to unfold in slow motion and were thus widely anticipated and (ii) the capital flow bubble had been pricked at an earlier stage, when those same investors were still exuberant.

When looking back into history, one is struck by an overwhelming sense of “*déjà vu*”, lending credence once more to the old French saying “*plus ça change, plus c’est la même chose*” (the more things change, the more they remain the same). The actors’ names may change (and sometimes not even that!), but the play being acted on the world stage has essentially not changed in two hundred years. It certainly seems a mystery why cycles of major boom and busts recur over and over again, in spite of the seemingly major costs associated with crises. In our mind, understanding this phenomenon appears to be one of the major research challenges to come out of this bird-eye overview of two hundred years of crises and contagion.

In the meantime – and given that there is, in our view, little hope that during the good times future generations of investors will remember that the four most expensive words in history are *this time it’s different* -- perhaps the hope is that policymakers in countries that are integrated with world capital markets remember that many a surge in capital inflows has ended in a *sudden stop*—whether owing to home-grown problems or contagion from abroad. As a consequence, prudent policymaking would *at a minimum* ensure that policies are not procyclical and that the government does not overspend and overborrow when international capital markets are all too willing to lend.¹² Ideally, bonanzas should be the time to pay down public debts, rather than adding to them. In this context, fiscal reforms aimed at designing institutional mechanisms that would

discourage such procyclical behavior (particularly on the part of “provinces” or other autonomous entities) appear as an essential ingredient in preventing future crises from building up.

Discouraging the private sector from borrowing abroad during boom periods may be more problematic and opens up the issue of controls or restrictions on capital inflows. While there may be cases in which such restrictions may be desirable -- especially when debt contracts have short maturities and are denominated in a foreign currency (as has been the case in the modern contagion episodes) – such countercyclical policies are politically difficult to implement and may have many undesirable side-effects. More fundamentally, their effectiveness is rather unclear (see De Gregorio, Edwards, and Valdes (2000)), though they may help in tilting the composition of capital flows toward longer maturities. In any event, it is hard to disagree with the notion that capital controls can hardly be the solution in the medium and long run and that only prudent public policies and institutional mechanisms that give public and private agents the right incentives will hopefully some day provide a more stable financial environment for emerging countries to operate in.

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Table1. Financial Crises with Major Immediate International Repercussions:
1800-1930's

Origin of the shock: country and date	Nature of common external shock (if any)	Contagion mechanisms	Countries affected
Peru defaults, April 1826	Major commercial and financial crises in London during 1825-26, which spread to continental Europe. Trade and capital flows with Latin America plummet.	Upon Peru's default, London bond holders immediately become concerned about other Latin American countries' ability to service their debts; bond prices collapse.	Chile and Gran Colombia (which comprised today's Colombia, Ecuador, and Venezuela) default later in the year. By 1828, all of Latin America, with the exception of Brazil, had defaulted.
German and Austrian stock markets collapse, May 1873	French war indemnity paid to Prussia in 1871 leads to speculation in Germany and Austria. As far as the periphery is concerned, the world recession (1873-1879) results in a dramatic fall in trade and capital flows originating in the core.	Capital flows to the U.S. fall in the wake of German crisis (Kindleberger 2000). Ensuing world recession (1873-1879) leads to debt servicing problems in the periphery through reduced exports and tax revenues. Initial defaults in small Central American nations in January 1873 leads to a fall in bond prices.	Crisis spreads quickly to Italy, Holland, and Belgium, leaps the Atlantic in September and crosses back again to involve England, France, and Russia (Kindleberger, 2000). By 1876, the Ottoman Empire, Egypt, Greece, and 8 Latin American countries had defaulted.
Wall Street crashes on October 24, 1929	Between 1925 and 1932 commodity prices fall by about 63 percent. Capital flows originating in the US fall sharply as the stock market takes off in March 1928. Owing to deflation, US ex-post short-term real interest rates rise to about 11 percent in 1932. World output collapses between 1929 and 1933.	Wall Street crash leads to widespread selling in stock markets across Europe. Initial defaults in Latin America in 1931 cause a steep drop in debt markets prices of other countries in the periphery.	Stock market/banking crises in most European countries. In the periphery, currency crises in various countries (Australia, Argentina, Brazil, Uruguay) in 1929, followed by defaults in Bolivia, Brazil, Chile, Dominican Republic, Ecuador, and Peru in 1931. By 1933, most Latin American nations (with the notable exception of Argentina) and many central European nations (Austria, Bulgaria, Germany, Greece, Hungary, Romania, and Yugoslavia) were in default.

Table2. Financial Crises with Major Immediate International Repercussions:
1980-2000

Origin of the shock: country and date	Nature of common external shock, if any	Contagion mechanisms	Countries affected
Mexico defaults on external bank debt, August 1982	Between 1980 and 1985, commodity prices fell by about 31 percent. US short term interest rates rise to about 7 percent, the highest levels since the depression.	U.S. banks, heavily exposed to Mexico, retrenched from emerging markets	With the exception of Chile, Colombia and Costa Rica all countries in Latin America defaulted.
On September 8, 1992 the Finnish markka is floated and the ERM crisis unfolds	High interest rates in Germany. The rejection by Danish voters of the Maastricht treaty.	Hedge funds.	All the countries in the European Monetary System except Germany.
Mexico, devaluation of the peso, December 21, 1994	Federal Reserve begins to raise interest rates in January 1994.	Mutual funds sell off other Latin American countries, notably, Argentina and Brazil. Massive bank runs and capital flight in Argentina.	Argentina suffered the most, losing almost 20 percent of its deposits in early 1995. Brazil was next, with losses in other countries in the region limited to declines in equity prices.
Thailand, devaluation of the baht, July 2 1997	The yen depreciated by about 51 % against the US dollar during April 1995 and April 1997. Given the Asian currencies link to the US dollar, this translated into a significant appreciation for their currencies as well.	Japanese banks, exposed to Thailand, retrenched from emerging Asia. As Korea is affected, European banks also withdraw.	Indonesia, Korea, Malaysia, and the Philippines were hit hardest. Financial markets in Singapore and Hong Kong also experienced some turbulence.
Russia defaults on domestic bond debt, August 18, 1998	LTCM is revealed to be bankrupt.	Margin calls and leveraged hedge funds fueled the sell off in other emerging and high yield markets. It is difficult to distinguish contagion from Russia and fear of other LTCM.	Apart from several of the former Soviet republics, Hong Kong, Brazil, and Mexico were hit hardest. But most emerging and developed markets were affected.

Table 3. Financial Crises without Major Immediate International Repercussions

Origin of the shock: country and date	Background on the run-up to the shock	Spillover mechanisms	Countries affected
Argentina, 1890.	Argentina stops dividend payments in April 1890, leading to a domestic bank run. The House of Baring, a major lender to Argentina, declares itself insolvent in November 1890.	Strong economic links between Britain and Argentina through trade and financial integration.	Crisis mostly confined to Argentina and Uruguay (which defaulted in 1891).
United States, 1907.	Bank of England had begun tightening monetary policy in 1906, which reversed the gold flow into the U.S. Stock market crashes in early 1907 and by October there is a widespread run on commercial banks.	Paris and London stop lending to Italy and other countries in the periphery.	Mostly Germany, France, and Italy.
Brazil. January 13, 1999	The real is devalued. The crawling peg exchange rate policy that was adopted in mid-1994 to stabilize inflation is abandoned and the real is floated on February 1.	There is an increase in volatility in some of larger equity markets and Argentina spreads widened. Equity markets in Argentina and Chile rallied. These effects lasted only a few days.	Significant and protracted effect on Argentina, as Brazil is Argentina's largest trading partner.
Turkey, February 22, 2001	Devaluation and floatation of the lira. Facing substantial external financing needs, in late November 2000, rumors of the withdrawal of external credit lines to Turkish banks triggered a foreign exchange outflows and overnight rates soared to close to 2,000 percent.		There has been some conjecture that the Turkish crisis may have exacerbated the withdrawal of investors from Argentina but given the weakness in Argentina's fundamentals at the time, it is difficult to suggest developments owed to contagion.
Argentina, December 23, 2001	Following several waves of capital flight, on December 1 st capital controls are introduced. The president announces intentions to default on the 23 rd .	Bank deposits fall by about one third in Uruguay, as Argentines withdraw deposits from Uruguayan banks. Significant effects on economic (trade and tourism) activity in Uruguay.	Uruguay and, to a lesser extent, Brazil

Table 4. Expected and Unexpected Crises:
Standard and Poor's Sovereign Credit Ratings Before and After Crises

Country	Crisis Date	Change in rating including credit watch (CW) 12 months prior to the crisis/ Date	Change in rating after the crisis/ Date	Change in credit rating of foreign currency debt
Fast and Furious Contagion Episodes				
Mexico	December 21, 1994	None	Downgrade/ December 23, 1994	BB+/Stable to BB+/CW-Negative
Thailand	July 2, 1997	None	Downgrade/ August 1, 1997	A/Stable to A/CW-Negative
Russia	August 18, 1998	1. Upgrade/ June 9, 1998 2. Downgrades/ August 13 and 17	Downgrade/ September 16, 1998	CCC/Negative to CCC-/Negative
Crises with Limited External Consequences				
Brazil	February 1, 1999	1. Downgrade/ September 10, 1998 2. Downgrade/ January 14, 1998	No immediate change	
Turkey	February 22, 2001	1. Upgrade/ April 25, 2000 2. Downgrade/ December 5, 2000 3. Downgrade/ February 21, 2001	Downgrade/ February 23, 2001	B+/CW-Negative to B/CW-Negative
Argentina	December 23, 2001	1. Downgrade/ October 31, 2000 2. Downgrade/ November 14, 2000 3. Downgrade/ March 19 and 26, 2001 4. Downgrade/ June 6, 2001 5. Downgrade/ July 12, 2001		

Source: Standard and Poor's, *Sovereign Rating History Since 1975*.

Table 5. Propagation Mechanisms in Episodes of Contagion

Episode	Trade (see also Table 6)	Common characteristic across affected countries	Common creditor
Peru, April 1826	No evidence that trade links among affected countries played any significant role.	Rapidly rising foreign currency borrowing to finance independence wars and nation building.	London bond holders.
German and Austrian stock markets collapse, May 1873	No evidence that trade links within the periphery played any significant role. Trade did play an important role in spreading the crisis from core to periphery.	Heavy and rapid increases in external borrowing during 1850s and 1860s, partly to finance railroad construction. Primary commodity producers.	London bond holders
Wall Street crashes on October 24, 1929	No evidence that trade links within the periphery played any significant role. Trade did play an important role in spreading the crisis from core to periphery.	Heavy borrowing from New York to finance development projects. Primary commodity producers.	New York investment banks
Mexico, August 1982	As the entire region was affected, trade links are significant, even though there are low levels of bilateral trade among some of the affected countries.	Large fiscal deficits, weak banking sectors, dependence on commodity prices and heavy external borrowing.	U.S. commercial banks.
Finland, September 8, 1992--ERM crisis	While bilateral exports to Finland from the affected countries are small, as shown in Table 6, there are substantial trade links among all the affected countries.	Large capital inflows, common exchange rate policy as part of the EMS.	Hedge funds.
Mexico, December 21, 1994	No significant trade links. Bilateral trade: with Argentina and Brazil was minimal. Little scope for third party trade story. Mexico's exports to the United States were very different from Argentine and Brazilian exports.	Exchange rate based inflation stabilization plans. Significant real appreciation of the exchange rate and concerns about overvaluation. Large capital inflows in the runup to the crisis.	Primarily US bondholders, including mutual funds.
Thailand, July 2 1997	Bilateral trade with other affected countries was very limited. Malaysia exported similar products to some of the same third markets.	Heavily managed exchange rates and large increase in the stock of short-term foreign currency debt.	European and Japanese commercial banks lending to Thailand, Korea, Indonesia, and Malaysia. Mutual Funds sell off Hong Kong and Singapore.
Russia/LTCM, August 18, 1998	Virtually no trade with the most affected countries—either bilateral or third part..	The most liquid emerging markets, Brazil, Hong Kong and Mexico were most affected. These three countries accounted for the largest shares of mutual fund holdings.	Mutual funds and hedge Funds

Table 6. Bilateral Trade between the Affected Countries and the Crisis Country

Most affected countries	Affected countries' exports to crisis country (as a percent of total exports)
Fast and Furious Episodes	
Exchange Rate Mechanism Crisis: Finland September 8, 1992	
Belgium-Luxembourg	0.5
Denmark	2.1
France	0.3
Ireland	0.5
Italy	0.4
Norway	
Portugal	1.2
Spain	5.6
Sweden	
United Kingdom	0.9
Tequila Crisis: Mexico, December 21, 1994	
Argentina	1.7
Brazil	2.4
Asian Crisis: Thailand, July 2, 1997	
Indonesia	
Korea	1.7
Malaysia	3.6
Philippines	3.4
Russian Crisis: August 18, 1998	
Brazil	0.2
Hong Kong	1.3
Mexico	0.0
Cases without Immediate International Consequences	
Brazil Devalues and Floats: February 1, 1999	
Argentina	30.1
Argentina Defaults: December 23, 2001	
Uruguay	12.7

Source: International Monetary Fund, *Direction of Trade Statistics*, various years.

¹ For instance, Neal and Weidenmeir (2002) also discuss the “contagion” dimension of the Tulip Mania of the 1630s and the Mississippi and South Sea Bubbles of 1719-20. See also Kindleberger (2000).

² See Dawson (1990) and Marichal (1989).

³ Under the Convertibility Plan, Argentina had maintained a currency board arrangement in place since April 1991

⁴ Frankel and Schmukler (1998), Kaminsky and Reinhart (2000) and Van Rijckeghem and Weder (2000) have emphasized the important role of common creditors and financial linkages.

⁵ Papers that have stressed the role of trade linkages include Eichengreen and Rose (1998) and Glick and Rose (1999).

⁶ The term “excess” refers to comovement that cannot be explained away by fundamentals.

⁷ See Bordo and Eichengreen (1999), Bordo and Murshid (2000), Kindleberger (2000), and Neal and Weidenmier (2002) for detailed accounts of historical episodes of financial crises.

⁸ For the 1826 episode, spreads are computed relative to France’s 5 percent bonds. These data were graciously provided to us by Larry Neal and originate in James Wetenhall’s semi-weekly *Course of the Exchange*. For the other two episodes, spreads are computed relative to UK government bonds and the data source is Global Financial Database.

⁹ Spread data (not shown) for some major emerging countries during the 1907 crisis reveals little or no impact.

¹⁰ See Gerlach and Smetts (1996).

¹¹ Morris Golstein (1998) coined the term.

¹² As documented in Talvi and Végh (2000), fiscal policy in emerging markets tends to be markedly procyclical with countries engaging in expansionary fiscal policy in good times and contractionary fiscal policy in bad times.