BANKING CRISES, CURRENCY CRISES, AND MACROECONOMIC UNCERTAINTY

The Double Drain with a Cross-Border Twist: More on the Relationship Between Banking and Currency Crises

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Southeast Asia has recently been embattled by a plague of currency and banking crises. Thailand, Indonesia, Malaysia, and the Philippines have all experienced both of these types of crises during the last year. However, the joint occurrence of these two crises is not restricted to Southeast Asia: several Latin American countries experienced both during the last two decades (Chile in 1982, Argentina in 1982 and 1995, Venezuela in 1994, and Mexico during 1994–1995 to name only a few); the same was true of Finland, Norway, and Sweden at the beginning of the 1990's; and there is a reasonable probability that by the time the century is up, the three Baltic States will have also experienced both banking and balance-of-payments problems.

Given the recent epidemic of banking and balance-of-payments crises, researchers have started considering how these two types of crises may be related. The conclusion of that research is that causation may run in either direction and that there is an important complementarity between bank solvency and currency stability.

Maurice Obstfeld (1994) argues that a weak banking sector may itself precipitate a currency crisis if rational speculators anticipate that policymakers will not choose to endure the costs of defending their currency. Andres Velasco (1987) and Guillermo Calvo (1995) also show that an internal drain (i.e., bank run) can cause an external drain (i.e., speculative attack on a currency) if the increased liquidity which results from a government bailout is inconsistent with the fixed parity. In Miller (1997) I follow this same line of reasoning and explicitly consider the policy alternatives available to a government that is confronted by bank runs in a fixed-exchange-rate regime.[1] Finally, Brenda Gonzalez-Hermosillo (1996) shows that the same direction of causation will result if the financial system is poorly developed and agents substitute foreign assets for domestic deposits.

While Graciela L. Kaminsky and Carmen M. Reinhart (1995) find empirically that bank crises have preceded many of the currency crises that have occurred over the last two decades, causation could still run in the other direction. For example, Miller (1996a) demonstrates that a speculative attack on the currency can give rise to a banking crisis if deposit money is used to speculate on the currency and banks are "loaned-up."[2] Rojas-Suarez and Weisbrod (1995) and Obstfeld (1994) also discuss how a currency crisis can create problems for a vulnerable banking sector if the government defends its currency and increases interest rates.

In the present paper I continue the study of the possible linkages between currency and banking crises. However unlike the preceding studies, the present text gives the

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[1] Liliana Rojas-Suarez and Steven R. Weisbrod (1995) also address the choice between banks and the currency.

[2] Some authors argue that such causation occurred in the United States in 1893. See Miller (1996b) for a complete discussion of the United States' currency and banking crises during that time.

"double-drain" literature a cross-border twist by providing examples of how a banking (currency) crisis in one country can give rise to a currency (banking) crisis in another country. Thus, I integrate the literature on the relationship between currency and banking crises with that of the international transmission of financial crises.

The transmission of financial crises across international borders has become increasingly relevant over the last few years. One need only consider the magnitude of the 1994 "tequila effect" (which hit as far east as Singapore!) and the number of Southeast Asian currencies that followed the Thai baht's plunge to realize that crises now spread like wildfire. Moreover, increased globalization and capital flows mean that industrial countries are no longer exempt. For example, given the heavy exposure of Japanese banks to Southeast Asia,[3] the economic turmoil in that region could further weaken Japan's already ailing banking sector.[4] Such a deterioration would likely be transmitted around the world. As Joe Peek and Eric S. Rosengren (1997) recently demonstrated, the 1989–1992 Japanese stock-market decline was transmitted to the United States via a drop in the lending activities of U.S. branches of Japanese parent banks. The recent international shock waves that followed the dive of Hong Kong's Hang Seng only lends further support to the fact that financial stability at home has never depended more on what is happening abroad.

I. From Bank Runs at Home to Currency Crises Abroad

Below, I provide two examples of this direction of causation. In the first, banks are the principal conduit of capital across international borders. In the second, banks lend to domestic agents while individual depositors and investors import and export capital. In both examples, the domestic economy is large, and the foreign one is small. Moreover, the foreign country pegs the value of its currency to the national money, and there is no deposit insurance or lender of last resort.

Example 1: Domestic banks are important extenders of credit to the foreign country.

Suppose that there are two periods, that depositors invest only in domestic banks, and that banks invest at home and abroad so that interest parity is satisfied. Moreover, in a nonpanic state of the world, utility-maximization implies that consumption is positive in each period. Thus, depositors withdraw a positive amount each period, and banks plan their investments so that expected inflows and outflows are equal.

It is assumed that, in the absence of runs, the amount of money that banks repatriate from abroad each period does not strain the foreign central bank's foreign-exchange reserves in any significant way. However, if all foreign investments are repatriated in a single period, then those reserves will be depleted, and the foreign central bank will be forced to devalue its currency.

Given the no-run equilibrium, depositors can self-generate a rational bank run simply by believing that other depositors will demand the entire value of their claims in the first period. To see this, note that banks initially make their investments so that inflows equal outflows, which are strictly positive in both periods of the no-run and thus no-devaluation state of the world. As banks will be unable to repatriate all of their foreign investments in the first period before the foreign currency is devalued, the devaluation will reduce the domestic-currency value of those investments and cause banks' assets to become worth less than their liabilities. In other words, banks will become insolvent. As banks will expect such a loss in the wake of a run, they will rush to repatriate the entire value of their foreign investments. This will materialize as a speculative attack on the foreign central bank which is staged by domestic banks. The self-generating nature of the domestic bank run and speculative attack on the foreign currency are formally illustrated in Miller (1998).

[3] The exposure is direct through cross-border lending, and indirect through loans to Japanese companies that operate in the region.

[4] U.S. exports could observe a similar decline if the capital flows that finance the part of those exports that are destined for Latin America run dry.

The above scenario highlights a potential source of further instability in Southeast Asia which stems from Japan's ailing banking system. Spectacular growth rates in Southeast Asia over the last decade led to a boom in Japanese lending to the region: more than half of the external debt of Thailand and a third of Indonesia's is owed to Japanese banks. While Japanese banks presently seem to be committed to staying in the region, further financial weakness in Japan threatens a repatriation of capital and further declines in the external values of Southeast Asia's currencies. The exact magnitude of Japanese banking difficulties that would lead to a transmission to Southeast Asia and the conditions under which such a transmission would occur certainly warrant further investigation.

Example 2: Private investors invest abroad.

When banks face a run and there is no lender of last resort, cash payments are typically suspended or restricted until the panic subsides or banks are able to get enough liquidity to pay off frightened depositors. When such restrictions occur, as was the case in the United States before the Federal Reserve System was established in 1934, currency (as well as foreign exchange) often sells at a premium to domestic deposits.[5] As a currency premium increases the expected return on domestic deposits, it encourages capital inflows. Thus, a bank run in a large country that results in a currency premium can attract so much capital from a small foreign country that the small country's foreign-exchange reserves become exhausted, and it is forced to devalue.

To see why a currency premium encourages capital imports let ρ denote the domestic currency premium. During the premium period, investors could take one dollar of domestic money, convert it into $1 + \rho$ dollars of deposits, and then withdraw this amount plus interest without penalty after the restriction is lifted. A foreigner who buys domestic bank deposits and sells them after the restriction is lifted would earn a return of $i + \rho + x$ where i is the domestic interest rate and x is the rate of depreciation of the foreign currency during the premium period. Thus, if $i + \rho + x$ is (expected to be) greater than the return on foreign deposits, then capital will flow into the domestic economy.

To get an idea of how large such capital flows can be, consider the experience of the United States in 1893. In the late fall of that year, bank runs culminated in a cash-payments restriction and currency premium. As the restriction was not expected to last for very long, it gave rise to a dramatic importation of gold even though there is evidence that agents were speculating against the dollar just before (see Miller, 1996b). Indeed, gold flows were so great at the time that during the four weeks of the premium, $40 million of gold entered the United States, which was about half of the treasury's free gold reserves. Given the magnitude of capital flows today and the extent of financial integration worldwide, the eagerness of investors to capitalize on a foreign-currency premium could easily result in a depletion of a small country's foreign-exchange reserves and a devaluation of its currency. This did not happen in 1893, however, because under the classical gold standard of the time, most countries' monetary bases were fully backed by gold. Today, however, as liabilities of consolidated banking systems are not completely backed by foreign exchange, foreign-exchange reserves can become exhausted before the demand for them is satisfied. When this occurs, a currency is devalued.

II. From Currency Crises Abroad to Banking Crises at Home

Example 3: Domestic banks lend to domestic companies that are highly exposed abroad.

Consider a country in which banks lend to domestic companies that export to a foreign country. A devaluation of the foreign currency could then significantly damage firms' abilities to repay their loans and thus harm domestic banks by reducing competitiveness. A similar sequence of events will occur if firms borrow at home but operate abroad and if the currency crisis abroad interrupts economic activity and thus the local demand for goods.

[5] Currency premia have been observed during all cash-payment restrictions that occurred in the United States before the creation of the Federal Reserve System.

The above example again brings to mind the recent devaluations of Southeast Asian currencies, as a decline in Japanese exports could further strain Japan's already weak financial sector. While only about 20 percent of Japan's exports go to Southeast Asia, about a third of all foreign direct investment in the region comes from Japan, and 70 percent of Japanese production in the region is used to meet local demand. Thus, it is easy to understand why Southeast Asia's currency crisis poses a serious threat to Japanese banks. Again, the conditions under which financial crises are transmitted across international borders must be investigated further to determine, for example, whether an IMF-type plan should be put in place in order to prevent further hemorrhages of capital from Southeast Asia from causing a full-blown banking crisis in Japan.

Example 4: Currency mismatches.

A currency crisis in a foreign country could also cause a banking crisis at home if, as is illustrated in Miller (1998), bank portfolios are "currency-mismatched" in the sense that more assets than liabilities are denominated in terms of a devaluing foreign currency. A similar outcome could result if firm revenues are pegged to the foreign currency while loans are denominated in the domestic one. In such a scenario the devaluation of the foreign currency would strain companies' abilities to repay domestic bank loans.

While American and European banks follow strict guidelines in managing their currency exposures, the same does not appear to be the case in emerging markets. The failure to comply with prudential rules regarding currency exposures makes emerging countries' banking systems vulnerable to currency fluctuations. For example, the currency mismatch of Thai banks resulted in a double drain on domestic soil last year,[6] and similar apparent imbalances in Estonia make its banking system vulnerable to movements in the deutsche mark.[7]

III. Conclusion

I have argued that, while a banking (currency) crisis may cause a currency (banking) crisis within a given country, such transmission mechanisms can also operate across international borders. I have provided a few examples of how this can be the case. Those examples indicate that, just as creditors consider the financial health of potential borrowers when deciding whether or not to lend money, borrowers should also evaluate the health of potential creditors when deciding from whom they will borrow. However, as the smooth functioning of a country's financial system depends increasingly on financial stability abroad, further research on the subject is required so that policymakers can efficiently engage in the prevention of crises and their transmission internationally.

The cross-border externalities of financial-sector weaknesses and the increasing need for financial information from abroad, suggest that supervision by an international agency such as the IMF should be considered as a tool for crisis prevention and containment (just as intraborder externalities justify supervision by a domestic government). However, while the case for an international regulator seems easy to make, the case for an international lender of last resort is less evident. While such a lender would be desirable in order to prevent the spreading of financial crises across international borders and to minimize their fallout at home, one would want to avoid the irresponsible policies that could follow expected bailouts.

[6] Thai banks took advantage of lower foreign interest rates to borrow in foreign currencies and to lend in the domestic one. As they did not cover these positions, the devaluation of the baht seriously compromised the solvency of those banks.

[7] Estonia's currency, the kroon, is pegged to the deutsche mark, while 80 percent of its banking system's loans are denominated in foreign currencies. While it is difficult to know the percentage of those loans that are in currencies other than marks, if it is a significant percentage than an appreciation of the mark will seriously compromise the solvency of that banking system. A devaluation of the kroon against the deutsche mark however, would provide a capital gain to banks.

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