

## What Lessons Can Be Learned from Recent Financial Crises? The Argentine Experience

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*Pedro Pou*

Unfortunately, Argentina has an abundant history of financial crises. The only advantage I can see from this painful experience is that it means that occasionally I get invitations to extremely interesting events such as this one, and I must congratulate the organizers for putting together such an excellent program in such a beautiful place.

I will just mention three episodes of Argentina's recent financial experience and try to draw from them the main lessons as I see them: (1) the banking crisis of 1982, (2) the hyperinflationary experience of 1989-90, and (3) the banking crisis of 1995.

These three crises are so different, that understanding them should aid in our understanding of financial crises in general.

The 1980-82 crisis might be referred to as a crisis of "generalized moral hazard" and was similar to the 1989 crisis in that they were both clearly crises of solvency. However, the main difference was that while the 1980-82 crisis was due to the insolvency of the private sector, the 1989 crisis was due to government insolvency. Finally, the 1995, or "tequila" crisis, was a totally different kind of crisis, since it was a crisis of liquidity not of solvency.

### **The 1980-82 banking crisis: generalized moral hazard**

It has been suggested by many that the crisis of 1982 was provoked

in large part due to inconsistent macroeconomic policies applied in the period before the crisis and, in particular, to inconsistent fiscal and exchange rate policies.<sup>1</sup>

However, although the macroeconomic policy stance was certainly a contributory factor, Fernández (1983) has argued forcefully that the problems were amplified by the inherent instability of the financial system. In particular, the combination of full unlimited deposit insurance, free interest rates, free entry into the financial system, and weak supervision created an environment of compounded moral hazard. Each private player in the financial system (be it depositor, banker, or borrower) had excellent reasons to expect that their individual losses would end up being taken over by the state and they all played their parts accordingly; perhaps not surprisingly, their expectations were fulfilled.

The contention is that the regulatory regime, by promoting the wrong incentives for banks, amplified the losses in the banking system. The fiscal consequences of the subsequent bailout led to enormous problems for many years thereafter.

### **1989: A solvency crisis in a very peculiar market for domestic public debt**

Indeed, it has been argued that the second crisis I want to mention, namely the hyperinflationary periods of 1989-90, had their cause in the persistent fiscal and quasi-fiscal problems in Argentina during the 1980s, which in part can be traced back to the impact of the 1982 banking crisis.<sup>2</sup>

The debt crisis implied that the only source of deficit financing was internal and deficits became increasingly funded through the banking system. Indeed during the late 1980s, the Argentine banking system became a peculiar form of short-term domestic public debt instrument. Banks borrowed money typically through seven-day certificates of deposit in domestic currency and then loaned it on, voluntarily or not, to the public sector. The fiscal deficit, which was on the order of 5 percent of GDP in 1987 and 1988, was mostly financed in this way through the banking system with investors

asking for ever-increasing nominal interest rates to compensate for the ever-increasing inflation rates and devaluation risks.

The inflation rate was then whatever rate was necessary to give the government the seigniorage income necessary to balance the fiscal and quasi-fiscal accounts. However, as inflation rose and the monetary base declined, then the inflation rate necessary to balance the fiscal accounts rose further, eventually spiraling out of control.

Increased dollarization tended to aggravate the problem. Although the demand for some “monetary aggregate” may have been stable, the demand for domestic money was totally contingent on the expectations of government solvency as this determined inflation.

Moreover, as the fiscal accounts worsened, so too did the value of government bonds. And as the banking sector had at that time increasingly switched its assets into government paper, then its assets shrank in value.<sup>3</sup>

A serious problem then arose when the solvency of the government and/or banking system<sup>4</sup> was put in doubt, and this led to a run on government assets, rather than against the private sector. There is then a parallel here with the problems in Mexico in 1994—a buildup of mostly short-term government/central bank debt, as in Mexico, causing a problem in the banking sector.

The result was that Argentina essentially lost its financial system with M3/GDP falling to just 5 percent and with a serious problem in the banking sector. The recovery plan put in place in 1989 included the so-called Bonex Plan which froze bank deposits and substituted them with 10-year government bonds, which traded at well below their PAR values.

This plan had both extreme costs and extreme benefits. The extreme benefit was that this was really the beginning of the end of inflationary financing in Argentina and made the recovery plan sustainable. The extreme cost was the reputation effect which we have been trying to reverse ever since that date.

Summarizing, the banking crises of 1982 and 1989 were the results of inconsistent macroeconomic policies, together with inherent financial sector instability caused by the combination of an extended safety net for all players in the financial sector and a loose regulatory and supervisory framework.

This past experience is very important indeed to understand the current macroeconomic policy stance in Argentina. In a sense the hyperinflations made the highly orthodox reform program encapsulated in the Convertibility Plan possible.<sup>5</sup>

The deep reform process which commenced in 1989 included fiscal reform, current and capital account convertibility, lowering of trade barriers, deregulation, privatization, and the subsequent development of the “currency board.” This plan conquered inflation and provided the necessary framework for economic growth.

An important point is that the application of such rigid rules improved the quality of the macroeconomic policy framework. In particular, the currency board has focused the need for sound fiscal management and has also affected the political process by making the debate on economic management much more focused. (Politicians must decide early on if they are in favor of convertibility or not with the latter stance essentially spelling political suicide; this is very clear in the recent attitude of opposition parties, which recently formed an alliance that supports convertibility.)

### **1995: A liquidity crisis in a globalized economy**

In contrast to the 1982 or 1989 crises, the 1995 financial crisis was an example of a pure “liquidity shock” within a consistent macroeconomic framework, a crisis that may be better described by Calvo’s model<sup>6</sup> of financial vulnerability than Krugman’s model of fiscal imbalances.

As I am sure you are all aware, this crisis was sparked by the decision to devalue the Mexican peso. If someone had told me in advance that Mexico was about to devalue, it is not clear what actions one would have taken. Argentina had no significant trade with Mexico

and the policy mix was really quite different.

However, Argentina suffered a massive liquidity shock, losing almost \$8 billion or 18 percent of bank deposits and over \$4 billion or almost 30 percent of international reserves in less than four months. Why? My own view is that this was a clear case of a shift in an expectational equilibrium causing investors (both foreign and Argentine), who predicted that Argentina would also devalue, to run.

It may well be the case that Argentina was more vulnerable (or was perceived to be more vulnerable) to this attack due to several internal factors, as for example, (1) there was no International Monetary Fund (IMF) program in place; (2) there had been some deterioration of the fiscal figures; (3) there was a growing current account deficit—but much smaller than that of Mexico; (4) there had been a rapid growth in credit; and (5) there was increasing political uncertainty, given the presidential election in May 1995.

However, there was no change in the fundamentals between December 19 and December 21, and I would maintain that there was never really a fundamental problem. This is obviously borne out by the rapid recovery of both the financial sector and the banking sector under the same policy regime.

It was then a type of international “contagion” effect which caused agents to shift from one expectational equilibrium, where they were happy to maintain their investments in Argentina, to another where, given that all other investors were expected to run, it was rational for each investor individually to run also.<sup>7</sup> I will come back to the issue of contagion below.

In fact, I would argue that the Argentine banking system survived this massive 18 percent deposit decline<sup>8</sup> extremely well indeed with very few banks closed, very few depositors actually losing money, and a very rapid recovery after the May presidential election. Why did Argentina survive so well?

First, it was a liquidity shock not a solvency problem. The under-

lying macroeconomic policies were consistent and the banking system was essentially sound.

Second, although credit growth was rapid beforehand, investment in strong prudential regulations and supervision between 1992 and 1994 paid off, and the banking sector was essentially sound.

Third, capital requirements and the liquidity policy (through the reserve requirement system matched entirely by international reserves) were both very important indeed.

Fourth, the lack of a full safety net and the resolve not to rescue insolvent banks created excellent incentives for banks to behave responsibly, unlike 1982. Moral hazard problems were not so important and were restricted to very few relatively small institutions.

### **Lessons from the 1995 episode**

#### *Macroeconomic consistency and a sound banking system*

The two general and obvious policy lessons that stand out from the experience of the 1982 and 1989 crises are then the fundamental importance of (1) a consistent macroeconomic policy stance and (2) a sound banking system supported by strong, prudential regulation and banking supervision.

#### *Financial vulnerability: public debt and liquidity management*

The 1995 crisis provides different lessons however. In particular, it highlights the problems faced by emerging economies that do not have permanent access to the international capital market.

It is clear that governments which do not always have access to external finance face some type of additional constraint in acting as a lender to their banking systems. In effect, in problem periods, they must rely on internationally generated sources of funding, but in turn, these tend to dry up precisely when they are needed. Inflation financing then ends up as the only way to balance the fiscal accounts.

Of course, this is a vicious circle, and explosive inflationary episodes and their consequent effect on the performance of the economy will, in turn, affect subsequent creditworthiness.

In contrast, countries that are not constrained in terms of external finance have additional degrees of freedom to act as lenders of last resort to their banking systems, and it is extremely unlikely that they will ever have to resort to the extremes of inflationary financing witnessed, for example, in Latin America.

These arguments have deep consequences for policies both with regard to liquidity management in the banking sector and also for the management of public debt as stressed in recent papers by Guidotti (1996) and Calvo (1996).

*Public debt management.* In terms of public debt management, there is a tradeoff between the cost of servicing that debt and the maturity structure of the debt, as longer maturities tend to carry higher risk premia. However, if governments are not assured of continued market access to rollover debt, then governments should take into account the costs of raising additional funds internally when market access is denied. Given that the costs of raising internal finance in a period when external financing is denied are likely to be very high, the implication is that governments with potential access problems should attempt to obtain a debt structure with longer rather than shorter maturities.<sup>9</sup>

*Liquidity of the financial system.* There are also strong implications with respect to the liquidity policy for the banking sector in a country where the government has potential access problems to international credit.

In the case of a government with no access problems, it is clear that the government, if required, may bridge the maturity gap, which is inevitably present in the banking system. However, if the government has access problems, then it is likely that just when such lender-of-last-resort assistance is required by the banking system, then the government will be denied access.

Again, this reality shifts the tradeoff in the banking sector toward the maintenance of a significant amount of liquid assets in banks' portfolios. I should stress that this implies that banks need assets that are liquid even if there is a domestic crisis; in other words, it really means liquid foreign assets. In contrast, such a policy may be of no importance whatsoever for a typical G-10 country where there are no problems of access to international credit.

The implication is that any government that attempts to maintain a price stability or exchange rate target of any kind, but might think itself vulnerable to market access problems, should consider liquidity policy for the banking sector as a major part of its prudential regulations.

I would hazard a further comment here, namely, that this topic has not been given sufficient weight in international discussions with respect to prudential regulatory guidelines. It may be possible that greater emphasis could be placed on liquidity regulations as a central issue in the Core Principles developed recently by the Basle Committee, especially for countries that have limited or variable access to international capital markets.

### **International contagion effects**

I would like now to return to the question of international contagion effects and the implication this has for policies with respect to an international lender of last resort. However, to set the scene, I think it is worthwhile reviewing the question of lenders of last resort in a domestic context. In particular, I want to

- present the arguments that are usually used to sustain the notion that some kind of safety net should exist in the domestic financial system;
- analyze whether those arguments hold with respect to some international lender of last resort of the financial systems of individual countries;
- discuss the different alternative approaches to lenders of last



- resort (constructive ambiguity vs. rules of eligibility); and
- present the example of the private international lender of last resort that Argentina has arranged, and discuss the pros and cons of this arrangement.

*Lender of last resort in a domestic market*

There is a reasonable consensus among policymakers in both industrialized and emerging markets that some kind of automatic safety net is needed to assure financial system stability. Here we refer to some type of automatic liquidity support to an institution that faces a liquidity problem.

The main arguments in favor of this view, apart from arguments related to pure depositor protection, stem from the perceived inherent instability in banking due to (1) asymmetric information problems provoking contagion and/or (2) the possibility of bank runs due to banks' liquidity mismatches.

The possibility of bank runs is treated in the classic paper of Diamond and Dybvig (1983). Here the authors show that rational depositors may run a perfectly good bank simply because they believe that other depositors are running. This idea has been extended in various directions; for example, Chari and Jagannathan (1988) show that if depositors receive some bad news about the bank in question, then this might result in a shift in the equilibrium from one where investors are happy maintaining their bank deposits to one where all run from the bank.

Turning to the case of asymmetric information, it is a widely held view that small depositors have imperfect information on the state of a bank's balance sheet and that this might provoke some type of contagion effect in the banking system. In other words, if one bank is seen to be in difficulties then depositors might run a second perfectly good bank as, due to the information problem, good banks in the financial system cannot distinguish themselves from bad ones. This view of contagion is logically distinct from the case of a pure liquidity

run. See Jacklin and Bhattacharya (1988) for a theoretical analysis.

The empirical evidence on these phenomena is actually somewhat limited and, in what exists, there are mixed results. Gorton (1988) attributes the main banking panics in the United States between 1865 and 1914 to macroeconomic variables while Calomiris and Mason (1994) find little evidence of contagion in Chicago during the Great Depression, whereas Saunders and Wilson (1993) do find evidence of contagion in the same period for the United States as a whole.

On Argentina, a recent paper produced in the research department of the central bank (D'Amato, Grubisic, and Powell, 1997) attempts to delineate macroeconomic factors from bank fundamentals from contagion effects using a panel technique to explain the fall in deposits in the Argentine banking system during the "tequila" period. The findings, using an innovative test for contagion, are that all three effects were present.

The role of automatic deposit insurance may be thought of in two distinct ways: (1) to lower the probability of these types of pure liquidity runs and (2) to reduce the probability of contagion. If depositors know that at least some portion of their deposits is guaranteed, then they will be less inclined to run a bank if the reason for running is simply because they think that others may run. Diamond and Dybvig (1992) argue very strongly in favor of deposit insurance schemes following this line of reasoning.

In the presence of contagion effects, deposit insurance or more general lender-of-last-resort assistance can also be helpful. In particular, it may help to prevent depositors in other banks running as a result of a perceived problem in another bank. If depositors in other banks know that those other banks will automatically receive liquidity support, or that their deposits are at least partially guaranteed, then there will be less reason to run.

Our view, and I think a view commonly held, is that the optimal solution for deposit insurance and automatic lender-of-last-resort support is an interior one; that is, it would be suboptimal to have

absolutely no up-front, automatic insurance, but that it would also not be appropriate to have full automatic insurance. Rather, the optimum is somewhere in between.

Naturally, central banks are also very concerned about the moral hazard problems that such insurance creates. The usual justification for strict prudential regulations and strong supervision in countries with substantial safety nets for their banking systems is then to reduce the risk exposures of banks, effectively tying their hands, and hence reducing the moral hazard problem.

*The need for an international lender of last resort*

Now let me turn to this debate in an international context. Recently there has been considerable interest in applying some of the same theories related to domestic banking sectors to the international context. For example, recent studies on bond prices and on country funds establish that there was a significant contagion effect stemming from the Mexican devaluation.<sup>10</sup> Theoretically, a Diamond and Dybvig (1983) type of liquidity run might also affect a country as well as a single bank. See, for example, Obstfeld (1986) for a model of a rational, self-fulfilling balance of payments crisis and Detragiache (1996) for a self-fulfilling rational expectations model of a liquidity crisis in government bond markets. Moreover, it seems reasonable to suggest that if a Diamond and Dybvig (1983) type run is possible in a single bank, then it must also be possible in a banking system (the aggregation of single banks) unless some form of external financing is always guaranteed.

These arguments have implications for appropriate policy responses. Indeed, this question has become a matter of considerable policy concern after the Mexican crisis, examples of which are the summit meeting of the G-7 in Halifax in 1995, the establishment of a working group under the chairmanship of Jean-Jacques Rey by the G-10, and the discussion at the interim committee meetings of the IMF in October 1995 and April 1996.

Indeed, we suggest that as the same types of problems are evident in the international arena as in the domestic banking industry, there

is a *prima facie* case for some type of international lender of last resort. However, this in itself is not a sufficient justification for a particular policy response. It is important to consider not only the desirability of any particular policy action that might be taken but also the side effects of any intervention, which in some cases might result in costs which might outweigh the benefits. Hence, let us now consider what type of lender of last resort might be desirable.

*What kind of lender of last resort?*

There are many different dimensions of the policy of a lender of last resort that are important. Here we consider just three and our aim is not to state definitive conclusions but simply to raise what we consider to be important issues. The three dimensions that we consider are (1) who should it assist in the affected country? (2) should it have explicit rules or not? and (3) should it mainly assist the affected country or other countries?

*Who should it assist in the affected country?* Here we have in mind two possibilities. First of all, the facility could assist the government or second, it could assist the central bank or even the financial sector directly. Remember that we are thinking explicitly here of the international institution acting as a lender of last resort to the financial sector. The major difference between the normal type of government assistance and the assistance that we have in mind here is the difference between a stock and a flow problem. Normally, governments face a flow problem in that current revenues may not match current commitments. If governments face a stock problem, then the solution must be a change in fiscal policy such that the present value of tax revenues must at least equal the present value of all future commitments. However, here we are not thinking of the usual type of government or even balance-of-payments support but specifically lender-of-last-resort assistance to the banking sector. This is a quite different proposition and resembles more a stock than a flow issue or in other words, a reassignment of the stock of capital. This implies several characteristics about the type of support generally required. First, the amounts required therefore may be substantially larger than those required in the typical government flow

problem and second, the timing may need to be much faster than the typical assistance package. However, third, it might be possible to make the facility conditional on, say, a “reasonable macroeconomic stance.” I will come back to this point below.

*Should the lender of last resort have explicit rules or not?* This is a very old debate in the domestic lender-of-last-resort debate going back to Bagehot’s (1873) criticism of the Bank of England’s discretionary policies. In general, it is probably fair to say that academics tend to prefer fixed rules while policymakers tend to prefer what has now become known as “constructive ambiguity.” The normal defense for constructive ambiguity is that this might aid in controlling moral hazard problems.<sup>11</sup> However, the downside is that if private agents are not sure that the central bank will aid a bank with a liquidity problem, then the benefits of a lender-of-last-resort policy are also reduced. This was partly Bagehot’s argument that explicit rules are superior. What does seem clear is that if the problem of explicit rules is one of moral hazard, then the more ways that can be found of tying the hands of the recipient, then the less problematic explicit rule-based assistance becomes.

These arguments appear to be highly relevant for the debate related to an international lender of last resort. On the one hand, discretion might control certain moral hazard problems but on the other, explicit rules would have the benefit that all would know when, under what conditions, and how much assistance would be available to a particular country. The latter would be particularly important for international investors and hence might then serve to stop a contagion problem emerging. Furthermore, explicit rules have the advantage that they are more difficult to change for reasons of simple political expediency rather than for good economic reasons.

*Should the lender of last resort act mainly in the directly affected financial system, or should it rather work to prevent contagion to other financial systems?* There seems to me to be a conceptual difference in aiding a country affected by a liquidity problem versus standing by other countries that might for some reason be affected. In the first case, an international lender of last resort may still be

justified in the argument that countries or financial systems, just like a single bank, might be affected by a pure run along the lines of Diamond and Dybvig (1983). However, in this case there may be concern that the reason for the run was not pure liquidity and that there was actually something problematic that was going on or that the market felt might happen in the future. One might anticipate, therefore, that the moral hazard problem may be present.

However, there does seem to be a much stronger case for an international lender of last resort assisting countries that might suffer from the contagion problem. The case is stronger because there must be, by definition, a lower probability that there is any kind of fundamental problem in the “innocent” country affected by the contagion and hence the moral hazard problem must be reduced. It must also then follow that there is a stronger argument in favor of a lender of last resort with explicit rules in the case of the “innocent” country.

In this respect, my view follows very much that of a central bank assisting a domestic banking system: the bank that is having “fundamental” problems should go through the process of developing a program of adjustment that will assure the lender of last resort that the fundamental will be back in place. However, the remaining banks that may be affected by the shock wave produced by the first bank should have liquidity assistance available easily through the rediscount window, so as to avoid the crisis from ever happening. This conventional action by a central bank may be extended in the international area.

Let’s make this more specific. Suppose that due to macroeconomic misalignments, country A develops a currency and/or banking run, and that systemic crisis in country A is expected to have some impact on countries B, C, and D. Country A should get assistance only after a program has been negotiated and it is clear that its fundamentals are back in order. However, provided that the other countries have a program in place and that their fundamentals are sound (both in terms of their macroeconomic policy and the soundness of their financial system), then the IMF should stand ready to provide liquidity to these countries. This liquidity may not be used, since it

may be enough deterrent for the run (banking or currency) to ever happen.

*An example*

I now want to review the case of Argentina as an example. I will cite two examples, one from Argentina's recent past and the other a hypothetical possibility for Argentina's future.

*An example from the past.* The example from the past is best understood in the form of a question: Could the 1995 crisis have been avoided if some kind of international lender of last resort had been in place? Or to state the question in a different way, if international investors had had the assurance that the Argentine financial system had all the liquidity it needed to withstand the run experienced in the first months of 1995, would that then have stopped the run from happening? If so, it might then be argued that Argentina would have avoided the "tequila" shock altogether and the subsequent impact on its economy, saving a loss of GDP on the order of 5 percent.<sup>12</sup>

*An example for the future.* The example for the future can also be understood as a question: Suppose the currency problems of Southeast Asia are transferred to Latin America and in particular to Brazil, could any contagion from Brazil to Argentina be avoided if some kind of international lender of last resort is in place? Naturally, I am not in any way suggesting that this will happen nor indeed that there is any reason to suppose that Brazil should be susceptible to such a contagion. Indeed, that is the point about contagion; it happens without any reason. However, I am struck by the number of times that an international banker or mutual fund manager has sat in my office in Argentina and asked me what would happen in Argentina if there were a problem in Brazil.

I always repeat to them, first my confidence that nothing is going to happen in Brazil and second, our estimation of the real effects on Argentina of, say, a hypothetical Brazilian devaluation. Here our estimates are at most 1 percent to 2 percent of GDP, which given that

the economy is currently growing at 7.5 percent or more this year, is obviously significant but not disastrous. However, given that all international financiers ask me the same question when they are in my office, I am sure that if there were an event in Brazil then there would be a capital outflow from Argentina. Some type of automatic assistance from an international institution would have an important effect on the magnitude of any contagion problem that would affect Argentina by assuring investors that there was sufficient liquidity available.

Moreover, Argentina, I think, is an interesting case to consider as in some ways we have explicitly tried to tie our hands, which I would argue reduces considerably the moral hazard problem associated with any scheme of automatic support. The implementation of the currency board implies that the monetary authority is denied many tricks that we found in the past to default on our commitments. It is clear that the private market has recognized this. Thirteen international banks have given us a contingent repo facility of very significant size (10 percent of the deposit base) at reasonable cost which is totally automatic. In other words, we can call these funds at any time at our option by pledging as collateral Argentine public bonds.

Even though we believe that this facility could reduce significantly the impact of a liquidity crisis, and could even prevent it from happening, it is not the best kind of liquidity assistance. In particular the facility requires a significant haircut of government bonds, a complex margining system and also, given that the option is with the central bank, we have a credit risk with respect to these private institutions—that they may not perform on the contract when asked. Hence, although the private market has accepted the challenge and provided us with automatic lender-of-last-resort assistance, there may still be an important role for the official sector, which could provide a much more efficient liquidity instrument—namely, a plain standby line of credit.

#### *Institutions, regulation, and supervision*

I have been very careful to repeat the phrase international institu-



tion without mentioning any names to date; however, there are obviously many important institutional considerations that lie behind the proposal here of the establishment of some type of international lender of last resort.

Viewing the existing institutions, it seems reasonably clear that the IMF is probably the institution best suited to establishing such a facility if it were deemed necessary. Indeed, some might argue that the IMF is already a lender of last resort and has acted in that role in many cases including Mexico in 1994-95 and Thailand in 1997. Some kind of implicit lender-of-last-resort policy therefore already exists, or is developing with respect to these events. It might be argued that the IMF already has an automatic window of support through the regular standby facility. However, let us not forget that currently the articles of the IMF refer only to current account support and not capital account support, and I would argue that, although countries typically have access to a standby facility which might be considered appropriate to counteract a current account shortfall (which is a flow concept), in general, standby facilities are nowhere near sufficient to counteract a capital account problem caused by reassessment of international capital (which is really a stock issue).

To some extent this problem has been recognized and as a result of the 1995 Halifax summit, three practical measures have resulted: (1) the IMF has established an emergency financing mechanism to speed the commitment of funds to countries facing a crisis; (2) the G-10 has reached an agreement with other countries to double the newly named New Arrangements to Borrow; and (3) a new data dissemination policy has been established by the IMF.<sup>13</sup> These efforts are to be applauded and I support each of them very strongly, but my question is, are they enough?

I would also refer to the aim of the Fund to add capital account support to its Articles of Agreement. It is not at all obvious to me that if the IMF executive is successful in obtaining the agreement of its shareholders on this point, whether, even with these new initiatives, the IMF would have the capabilities to give capital account support to a country of a reasonable size given my point that this is really a

stock problem of a reassignment of capital, which could be several billions of dollars very easily. Again, I leave this on the table as a point of discussion, rather than offering any particular solution.

However, I would also like to make the obvious point that if the IMF does accept a more active role in capital account matters and in preventing contagion effects, then it may need to assume the other functions typical of a lender of last resort to financial systems in order to contain the moral hazard problem, that is, regulation and supervision of those financial systems that want to participate in an *ex ante* arrangement.

One might try to push this further and think about different types of facilities that the IMF might offer depending on characteristics of countries. Here the date dissemination service set up by the IMF suggests a model whereby countries may self-select into different groups. However, I have in mind here groups depending on indicators principally of countries' banking systems such as the level of capital, liquidity, and nonperforming loans. Financial systems might even be awarded a type of CAMEL rating, just as we central bankers assign such ratings to banks. Although, this raises the interesting question of what is M—maybe the management of the central bank—which means that I am suggesting that the IMF appraise the performance of central bankers! Naturally, this all implies that the IMF would have to have a much more enhanced role in terms of supervision of financial systems in its member countries. The idea would be then that countries that were seen to comply with a set of pre-established criteria would gain access to some type of automatic lender-of-last-resort assistance in particular to guard against the types of contagion effects that we have seen operating in the world and that we fear might operate in the future.

Again, let me stress that I simply want to raise these ideas for discussion. Indeed, I think that although perhaps we are close to understanding what the problem is in theory, we are less clear about the architecture of the solution. I leave these ideas, therefore, as a set of open questions on the table for your comments.

### **The endogeneity of price flexibility**

Finally, I want to draw out one more lesson from the Argentine experience. There is a theory in economics that making policy decisions in the “good” times does not reveal too much information about policy preferences (as these decisions are relatively easy to make), whereas making “tough” decisions in the “bad” times is really when reputations get made and hence, when policies truly become credible in the eyes of the public.

I think that our experience in “tequila” confirms that there is some truth to this view. In particular, suppose that Argentina had devalued. My sense is that Argentina would have suffered tremendously—and in particular, would have suffered a much worse recession and much slower recovery than the actual one. Why? Because all the reputational capital would have been lost instantaneously and for many years, savings would have fled abroad, and investment would have shrunk. In contrast, maintaining the currency board and the parity with the dollar has increased our reputational capital enormously and has certainly relinquished any doubt whatsoever concerning the credibility of the currency board regime.<sup>14</sup>

I firmly believe that those who criticized the currency board system as being inflexible and impeding a recovery did not take into consideration the degree of flexibility that has developed under convertibility. Indeed, we have been conducting some very interesting research on the flexibility of the Argentine economy and in particular on the extent of negative price flexibility, and we have found some quite startling results. In particular, prices have become more and more flexible downward in Argentina as the currency board’s credibility has risen. But this is absolutely as one would expect. If such a regime is only partially credible, then companies and individuals may not adjust prices, thinking that a devaluation will be coming along soon. However, in contrast, in a perfectly credible regime agents will have no incentive to delay price changes. So, as the currency board gained more and more credibility, prices have become more and more flexible and furthermore, price changes have become more informative as they reflect real changes and not some monetary disturbance.<sup>15</sup>

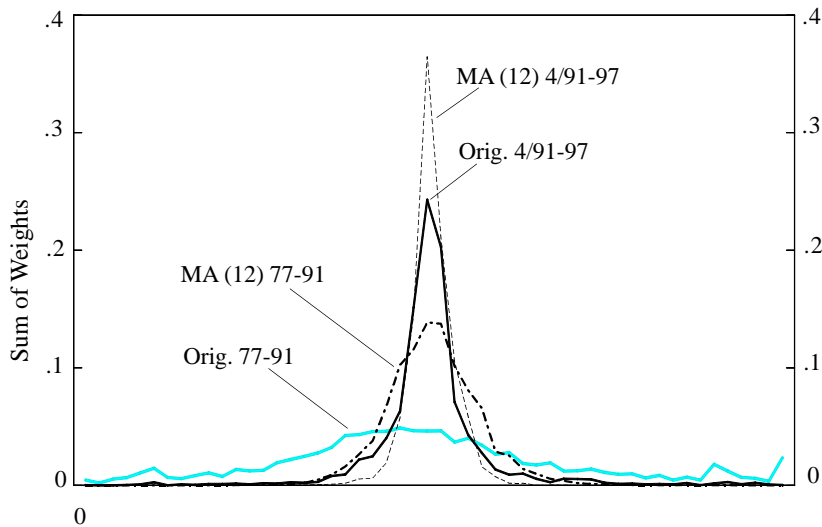
Therefore, I would maintain that it is precisely because Argentina did not devalue and did not abandon the currency board that the financial system recovered so quickly, that the economy returned to growth so fast, and that we can now look forward to many years of sustainable growth based on a consistent macroeconomic framework and a more flexible rather than less flexible economy.

### **Final comments**

Finally, I would summarize the main lessons from these periods as follows:

- Both consistent macroeconomic policies and strong prudential regulations for the financial system are important instruments in preventing the development of banking crises;
- As capital flows to developing economies increase, these impose greater risk on emerging countries as interest rate changes in industrialized countries may reverse such flows rapidly;
- For countries with variable access to capital markets it is important to design a liquidity policy for the financial system that takes into consideration the possibility of a severe constraint in the lender-of-last-resort facility of the central bank;
- It is equally important to monitor the maturity structure of the public debt, and countries should be willing to pay higher interest rates to obtain a more even distribution of maturities;
- It may help if the international financial institutions define an ex ante role in preventing the contagion effects of financial crisis;
- A change in monetary regime (like convertibility in Argentina) could have a significant impact on the quality of macroeconomics policy, and on the price flexibility of the economy.

**Chart 1**  
**Distribution of Relative Price Variation**

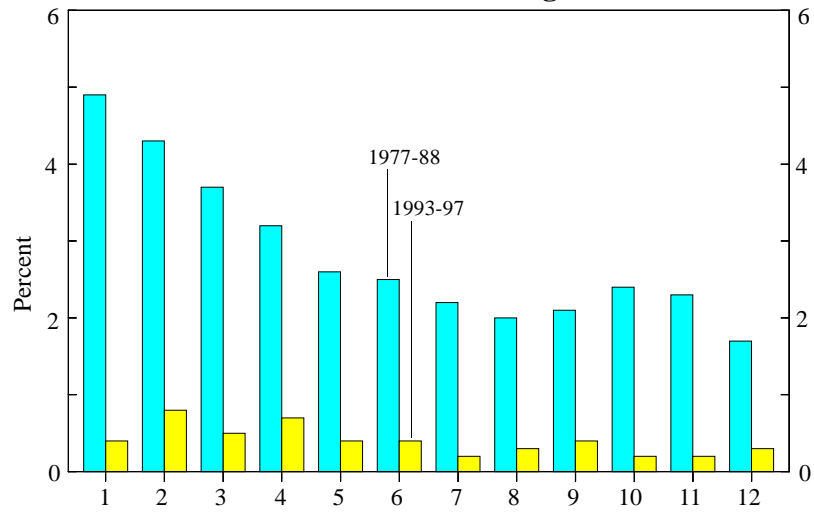


## Appendix

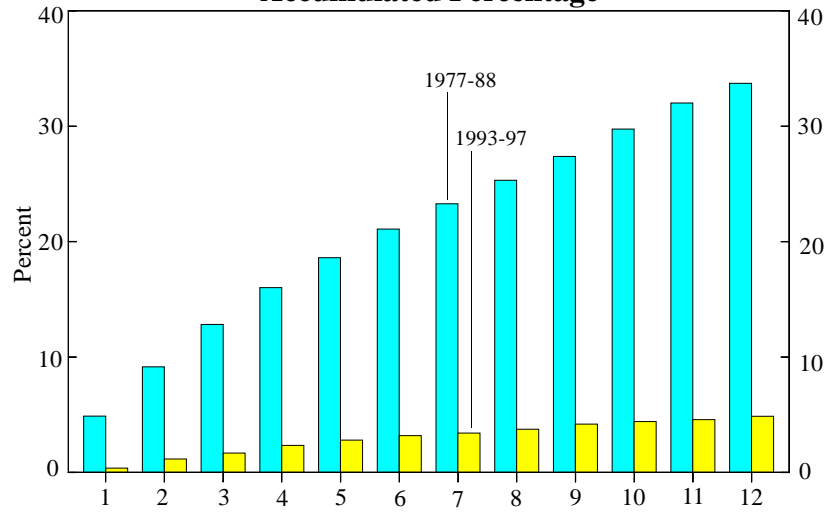
### Summary of Evidence on Price Flexibility in Argentina

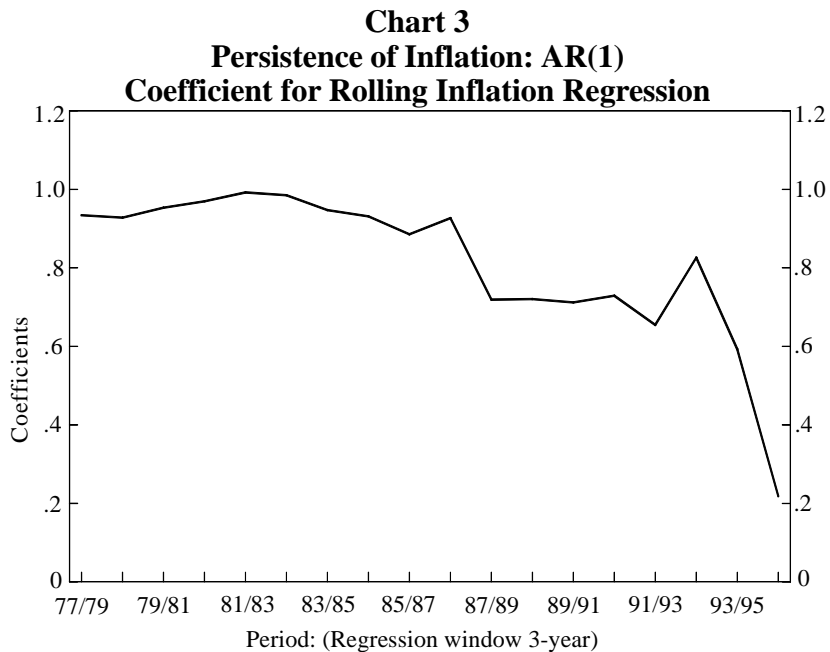
Chart 1 shows the distributions of the variation of changes in relative prices (price of individual price series minus the general inflation rate) and distributions calculated on the basis 12-month moving average for: (1) the period of high inflation, 1977 to March 1991, which had an annual average inflation rate of 300 percent, and (2) the period of low inflation, April 1991 to 1997, which had an annual average inflation rate of 8 percent. The distributions calculated using a 12-month moving average have lower variances and our interpretation is that the moving average takes out the “noise.” However, the effect of using a moving average is greater for the first period than for the second. The variance of the distribution falls from 6.6 in 1977-91 to 1.7 in 1991-97, about four times the value, while in the second period, this statistic falls from 2.4 to 0.8, three times the value. We interpret this result as indicating that the higher the inflation rate, the higher the noise in relative prices.

**Chart 2**  
**Compensation of Relative Price**  
**Variation Percentage**



**Index of Relative Price Inversion**  
**Accumulated Percentage**





As a measure of the “noise” that high inflation causes, we calculated the percentage of relative price falls which are inverted in a period of twelve months at most. We considered that the change in a price is inverted when it reverts to between +/- 5 percent of the starting inflation rate. Chart 2 shows that there is more price-inversion in the period of high inflation than in the low inflation period. The accumulated 12-month percentage of price inversion accounts to 34 percent for 1977-88, while only 5 percent for 1993-97. These figures verify the results mentioned above.

In Chart 3, we plotted the coefficients obtained in an AR(1) rolling regression of the inflation rate considering a three-year moving window. We can see that during the high inflation period (1977-91) this coefficient was almost 1, showing that the inflation of period  $t$  was almost completely transferred to period  $t+1$ . Also, we can observe how drastically this coefficient falls in the convertibility period (1991-97), showing that now the previous inflation rate has very low effects on the present rate.

## Endnotes

<sup>1</sup>On the 1982 crisis, see Baliño (1991) and the references therein. The main features appear to fit the seminal model of exchange rate crises as proposed by Krugman (1979).

<sup>2</sup>This discussion follows the arguments of Almansí, A., and Rodríguez, C. (1989), in Avila, J., Almansí, A., and Rodríguez, C. (1997). Also see Kiguel, M., and Liviátán, N. (1995); Rodríguez, C., chapter 3 in Easterly, W., Rodríguez, C., and Schmidt-Hebbel, K. (1994); and Machinea, J.L. (1994).

<sup>3</sup>In 1989, more than 80 percent of the assets of the commercial banks were placed in liabilities of the central bank (Rodríguez, C. in Easterly, Rodríguez, Schmidt-Hebbel, 1994). One interesting comment by Rodríguez is that “This way of managing liabilities generated a situation in which the central bank, instead of being the ‘lender of last resort’ became the ‘borrower of first resort’.”

<sup>4</sup>Given that the asset side of the balance sheet of the financial system as a whole was composed mainly of government paper and the liability side of short-term certificates of deposit, doubts about the solvency of the government and of the financial system were synonymous.

<sup>5</sup>During the Symposium, there appeared to be substantial support for flexible exchange rates much beyond that which economic theory and/or particular historical circumstances would support. Also, this general support appeared to be at odds with the current ideas in Europe to establish a single currency among members of the European Union. Furthermore, there was little discussion regarding the differences between a fixed but adjustable peg and a currency board or single currency arrangement. In general, it is difficult to discuss exchange rate policy in the abstract, without taking into consideration specific country conditions, since (1) there are different degrees of openness, trade diversification, integration to the world capital market, and so forth, and (2) macroeconomic policy is not totally exogenous and can respond to the monetary regime that an economy chooses. As Hicks (1967) stated: “Monetary theory is less abstract than most economic theory; it cannot avoid a relation to reality, which other economic theory is sometimes missing. It belongs to monetary history in a way that economy theory does not always belong to economic history.”

<sup>6</sup>See Calvo, G. (1996). The standard model for analyzing a currency crisis is that of Krugman (1979). This model assumes a level of government deficit inconsistent with the exchange rate policy, and establishes the time path of international reserves, real monetary balances, and devaluation. The driving force in this model is disequilibrium in flows. The alternative hypothesis is that presented by Calvo (1996) who argues that the vulnerability of a country’s financial position stems from the mismatch between the overall volume of short-term liabilities and international reserves. Government liabilities here include, not only the short-term debt of the government, but also “some relevant” monetary aggregate, since it is assumed that—whatever is said *ex ante*—the government will intervene, defending the stability of the financial system. When holders of government debt come to believe that other holders may want to get rid of their position—whatever the reason—they will try to run, first by not renewing the short-term government debt coming due and/or by running against the deposits in the financial system.

<sup>7</sup>See Obstfeld (1986) for such an idea applied at the country level and Detragiache (1996) for a model of rational liquidity crises in the sovereign debt market.

<sup>8</sup>In the Great Depression in the United States, there was a larger fall in deposits but over a



much longer time period. Between August 1931 and January 1932, deposits fell by roughly 15 percent; the period that resembles more the Argentine experience of 1995 is the panic of January-March 1933, when the deposits losses amounted to 8 percent, this being the more similar period in intensity. In no period during the Great Depression did deposits fall by 18 percent in just four months (Friedman and Schwartz, 1963).

<sup>9</sup>This is even more critical in a situation in which private capital flows have risen substantially to developing countries. Calvo (1996) has argued that asset demands become more elastic the more diversified are fund managers' portfolios, and hence for large diversified funds, a small change in expected returns can radically shift the optimal portfolio causing large inflows of capital in some countries and outflows in others. As the share of portfolio investment in developing countries rises then, *ceteris paribus*, we are likely to see greater rather than less volatility in capital flows.

<sup>10</sup>See Calvo and Reinhart (1995), Frankel and Schumckler (1996), and Valdes (1996).

<sup>11</sup>See Powell (1997) for a formalization of this idea where "constructive ambiguity" is considered as a mixed strategy in a game theoretic model of incomplete information. Powell (1997) shows that under some circumstances the mixed strategy equilibrium is preferable for the central bank over an alternative pure strategy equilibrium.

<sup>12</sup>It is true that (a) it takes two to tango, (b) that Argentina had no standby arrangement with the IMF in place in 1995 and (c) that the IMF provided rapid assistance after a standby arrangement was negotiated. Therefore, this section should not be interpreted as a criticism of IMF policy during the "tequila" crisis, but as an effort to understand how things could have been different had an explicit lender-of-last-resort facility existed.

<sup>13</sup>We follow Eichengreen, B., and Portes, R. (1997) in this discussion.

<sup>14</sup>Barro, R.J. (1996) makes this point very clear: "The advantage of a fixed exchange rate is that it provides external discipline in a way that is closely monitored by financial markets. This discipline is more important—and success of a domestically oriented monetary policy is less probable—the worse the country's history with respect to delivering price stability and honoring financial obligations." And he adds, "Speculative reaction to the Mexican financial crisis led to a sharp decline of over \$4 billion in Argentina's reserves from December 1994 to May 1995 and, in accordance with currency board rules, to a fall by one-quarter in the monetary base. This willingness to endure a severe monetary contraction underscored the government's commitment to the value of its currency. The monetary contraction was not reversed until April, in response to growing confidence that the government was serious about maintaining the value of the peso (a view that was reinforced by loan commitments from international organizations and private banks). Ironically, the key element behind this confidence may be Argentina's history of high and volatile inflation. In this environment, any devaluation would immediately reduce the government's credibility to zero, and the general awareness of this fact makes it rational to believe that the government will stick to its promises."

<sup>15</sup>Three further comments are worth making here. First, there was some discussion in the conference on "exit rules" from currency boards. Following on from footnote 5, a discussion of "exit rules" is only relevant if the benefits of exchange rate flexibility exceed the costs. In Argentina currently, the costs of flexibility most certainly exceed the benefits and as this is likely to be the case for many, many years, "exit rule" discussions do not appear very relevant. Second, the costs of flexibility are endogenous to the inflationary history of a country. For example, a prerequisite for an active monetary policy, to take advantage of any flexibility, is a stable demand

for money function and this takes many, many years to develop for a country coming out of a hyperinflationary experience. Third, the main arguments for allowing exchange rate flexibility and monetary activism are related to assumptions regarding price stickiness and/or money illusion. In the case of Argentina, it is very difficult to find any degree of money illusion (although there is the possibility that over a long period of time with stability, money illusion might re-emerge) and with respect to price flexibility, we have shown that it is endogenous to the monetary regime, and that a fixed exchange rate regime generates the price flexibility that is needed to accommodate changes in relative prices.

## References

- Avila, Jorge, Aquiles A. Almansi, and Carlos A. Rodríguez. "Convertibilidad. Fundamentación y Funcionamiento," CEMA, 1997.
- Bagehot, W. London: Lombard Street, Kegan, Paul & Co., 1873.
- Baliño, Tomás J.T. "The Argentine Banking Crisis of 1980," in Tomás J.T. Baliño and V. Sundarajan, eds., *Banking Crises: Cases and Issues*. Washington: International Monetary Fund, 1991.
- Barro, R.J. *Getting it Right: Markets and Choices in a Free Society*. Cambridge and London: MIT Press, 1996.
- Calomiris, C., and J. Mason. "Contagion and Bank Failures During the Great Depression: The June 1932 Chicago Banking Panic," NBER Working Paper 4934 (November 1994).
- Calvo, Guillermo. "Varieties of Capital-Market Crises." University of Maryland, (May 1996).
- Calvo, Sara, and Carmen R. Reinhart. "Capital Flows to Latin America: Is There Evidence of Contagion Effects?" (April 1995) mimeo.
- Chari, V.V., and Ravi Jagannathan. "Banking Panics, Information, and Rational Expectations Equilibrium," *Journal of Finance*, 43(3) (July 1988), pp. 749-61.
- Dabos, M. "Crisis Bancaria y Medición de Riesgo de Default: Métodos y el caso de los Bancos Cooperativos en Argentina," 1995, mimeo.
- D'Amato, Laura, Elena Grubisic, and Andrew Powell. "Contagion, Banks Fundamentals or Macroeconomic Shock? An Empirical Analysis of the Argentina 1995 Banking Problems," Banco Central de la República Argentina Working Paper, No 2 (July 1997), mimeo.
- Detragiache, Enrica. "Rational Liquidity Crises in the Sovereign Debt Market: In Search of a Theory," IMF Staff Papers, vol 43. No. 3 (September 1996), pp. 545-70.
- Diamond, Douglas W., and Philip H. Dybvig. "Bank Runs, Deposit Insurance, and Liquidity," *Journal of Political Economy*, 91(3) (June 1983), pp. 401-19.
- Easterly, W., Carlos A. Rodríguez, and Klaus Schmidt-Hebbel. *Public Sector Deficits and Macroeconomic Performance*. Oxford University Press, 1994.
- Eichengreen, Barry, and Richard Portes. "Managing Financial Crises in Emerging Markets," in this volume.
- Fernández, Roque B. "La Crisis Financiera Argentina: 1980-1982," *Desarrollo Económico*, vol. 23, no. 29 (April-June 1983).
- Friedman, Milton, and Anna Schwartz. *A Monetary History of the United States, 1870-1960*. Princeton: Princeton University Press, 1963.
- Goldstein, Morris, and Philip Turner. "Banking Crises in Emerging Economies: Origins and Policy Options," BIS Economic Papers, no. 46 (October 1996).
- Gorton, Gary. "Banking Panics and Business Cycles," *Oxford Economic Papers*, N. S., 40(4) (December 1988), pp. 751-81.

- Guidotti, Pablo. "Debt, Monetary, and Banking Policy in Emerging Markets: Reflections from the 'Tequila' Effect," BCRA (July 1996), mimeo.
- Hicks, J.R. "Monetary Theory and History—An Attempt at Perspective," in *Critical Essays in Monetary Theory*. Oxford: Clarendon Press, 1967.
- Jacklin and S. Bhattacharya. "Distinguishing Panics and Information-based Bank Runs: Welfare and Policy Implications," *Journal of Political Economy* vol. 96, 1988, pp. 568-92.
- Kiguel, Miguel A., and Nissan Liviatán. "Stopping Three Big Inflation: Argentina, Brazil, and Peru," in Rudiger Dornbusch and Sebastian Edwards, eds., *Reform, Recovery, and Growth: Latin America and the Middle East*. Chicago: The University of Chicago Press, 1995.
- Krugman, Paul. "A Model of Balance-of-Payments Crises," *Journal of Money, Credit, and Banking*, vol. 11 (August 1979), pp. 311-25.
- Machinea, José Luis. "Política monetaria y bancaria en alta inflación," *Valores en la Sociedad Industrial*, (September 1994).
- Obstfeld, Maurice. "Rational and Self-Fulfilling Balance-of-Payments Crises," *American Economic Review* 76 (March 1986), pp. 72-81.
- Powell, Andrew. "On Central Banks and Their Lender of Last Resort Function: 'Constructive Ambiguity' and 'Cheap Talk,'" Banco Central de la República Argentina (June 1996), mimeo.
- Rojas-Suárez, Liliana, and Steven Weisbrod. "Financial Fragilities in Latin America: The 1980s and 1990s," IMF Occasional Paper no. 132 (October 1995).
- Saunders, Anthony, and Berry Wilson. "Contagious Bank Runs: Evidence from the 1929-1933 Period," New York University Salomon Brothers Working Paper: S-93-16 (March 1993).
- Schmukler, S. L., and J.A. Frankel. "Crisis, Contagion, and Country Funds." University of California at Berkeley: Department of Economics (February 1996).
- Schumacher, Liliana. "Bubble or Depositors Discipline? A Study of the Argentine Banking Panic," (July 1996), mimeo.
- Valdés, R. "Emerging Markets Contagion: Evidence and Theory," 1996, mimeo.