

International Lender of Last Resort: A concept in search of a meaning

(DRAFT)

Michele Fratianni* and John Pattison** (May 28, 2001)

Abstract

Bagehot's rules for the lender of last resort (LOLR) were designed for a solvent bank that suffered from a mismatch in the maturity structure of assets and liabilities. These rules are more difficult to apply in the open and integrated economies of today. There is no obvious international counterpart to the domestic provider of LOLR. On the one hand, the IMF acts as a de-facto international LOLR; on the other hand, the IMF as well as the BIS act as crisis managers. In light of this evolution, the recommendation of the Meltzer Commission to charge the IMF as an international LOLR (I-LOLR) to countries that meet specific standards is an improvement over the current practice of conditionality lending. But neither pre-commitment nor conditionality alone is sufficient. Banking standards and adherence to the BIS core principles of banking supervision are essential minimum steps in domestic financial management, albeit often missing in emerging market countries. These standards should be required, together with basic accounting principles and insolvency law, as conditions for any repeated international financial facilities to a country. Currently, the IMF is the crisis manager, assessor of standards, the I-LOLR, and the post-lending credit monitor. This commingling of responsibilities in one institution is not desirable and is bound to lead to conflicts of interest. The IMF should not set international standards, monitor these same standards, and enforce them in lending decisions, especially if the latter remain politically determined.

Keywords: Banking risk, contagion, lender of last resort, liquidity, standards

JEL Classification: F33, F34, G18

*W. George Pinnell Professor of Business Economics and Public Policy, Indiana University, Graduate School of Business, Bloomington, Indiana 47405 (USA). Tel 812-855-9219, Fax 812-855-3354, Email fratiann@indiana.edu.

**Senior Vice-President, Canadian Imperial Bank of Commerce, Commerce Court West, 199 Bay St., Toronto, Ontario, M5L 1A2 (Canada). Tel 416-980-5306, Fax 416-368-9826, Email John.Pattison@cibc.com.

We thank Charles Goodhart and Allan Meltzer for comments and suggestions.

I. INTRODUCTION

The concept of lender of last resort in domestic banking (D-LOLR) has a long history and is rooted in the classic works by Walter Bagehot (1873) and Henry Thornton (1802). Typically, the D-LOLR provider is a monetary authority that can either create monetary base or has access to it. D-LOLR activity should be distinguished from a “crisis manager” (Goodhart 1999; Capie and Wood 1999). For example, the Federal Reserve Bank of New York was a crisis manager in the case of Long Term Capital Management, but not a D-LOLR provider; private lenders came to the rescue of this hedge fund. There are many other examples.

The focus of this article is on two separate, but related, international financial activities: emergency official lending and international financial crisis management, both of which aim at restoring foreign-currency liquidity in a country under stress. We shall call the first international lending of last resort (I-LOLR). Some authors, using the analogy of D-LOLR, claim that I-LOLR services can only be provided by an institution that can create monetary base at the world level. Since no international organization has such powers, it follows that there is no I-LOLR (Capie 1998; Capie and Wood 1999). Goodhart (1999), on the other hand, believes that the lending of last resort function is strictly connected to the ability to sustain financial losses. In this sense, the International Monetary Fund (IMF) is less restricted than national central banks in the provision of LOLR. The IMF has a larger capital than any individual national central bank and its credits enjoy senior ranking. Historically, the IMF has sustained few losses on its loans. The IMF, however, faces a critical weakness as a provider of I-LOLR: it has no world government to stand behind it. National central banks, on the other hand, have national governments that make good on their commitments. While governments have already committed to a regime of burden sharing by advancing funds to the IMF (and other multilateral lending institutions), there is no immediate prospect for an open-ended pre-commitment.¹ Similar considerations hold for the European Monetary Union (EMU) where the centralization of monetary control in the hands of the European Central Bank contrasts with the decentralization of fiscal authorities.

Pessimistic assessments on I-LOLR have been voiced by Eichengreen (1999) and Rogoff (1999), among others. Yet, substantive amounts of official emergency lending occur. According to Fischer (1999) the IMF has already evolved into an I-LOLR provider, at least since the 1995 Mexican rescue. This role has been further enhanced by the introduction of Contingent Credit Lines, which can be activated by borrowers under specific circumstances. Reflecting on these trends, the Meltzer Commission (2000) recommended a much slimmer IMF that would concentrate primarily on liquidity crises in emerging market economies. This reformulated institution would provide funds, with some exceptions, only to solvent governments that meet specific qualifications or standards.

While the bulk of the attention has been directed at the role of lending of last resort to governments, international financial markets and institutions also require such services. Who is to provide LOLR services to a foreign subsidiary of bank or to a foreign branch of a bank? Who is to monitor the international interbank market and be accountable for its performance? The state of the art in this area is marred by institutional ambiguities and uncertainty.

As is true for the domestic case, I-LOLR should be distinguished from crisis management. For example, in 1998, the Bank for International Settlements (BIS) coordinated a large facility for the Banco Central do Brasil, backstopped or guaranteed by 19 central banks with a parallel facility by the Bank of Japan. The actual lending was done by central banks with the BIS acting as a crisis manager. Crisis management has the advantage of activating a large pool of

¹ Not only burden sharing is limited, but actual disbursement of funds requires formal approval by member governments.

funds through the participation of D-LOLR providers; its disadvantage lies in the coordination costs.

The paper is organized as follows. Section II reviews the practice of domestic lending of last resort. Section III evaluates the role of a putative I-LOLR agency in a world where financial crises are sparked, not only by inadequate levels of foreign reserves, but also by a foreign debt highly skewed towards short-term maturities and by currency mismatches. Section IV considers the institutional aspects of an I-LOLR agency. In particular, we ask the question whether it is better to transform the IMF into an I-LOLR agency, along the suggestions of the Meltzer Commission, than assign to this institution the role of international crisis manager. Section V shifts the focus of I-LOLR services from governments to international financial institutions. Section VI draws conclusions.

II. LENDER OF LAST RESORT IN A DOMESTIC SETTING

By virtue of its management of the monetary base, a central bank can alter at will the quantity of liquidity in the market. The central bank can also affect the composition of liquidity by lending to a specific institution and offsetting this transaction with a sale of securities in the open market. There is some debate whether the lending of last resort (LOLR) applies to injections of liquidity to the market or to compensated liquidity injections to specific institutions (see King and Goodfriend (1988), Capie (1998), Capie and Wood (1999), Jeanne and Wyplosz (2000) and Goodhart (1999)).

In his classic work, Bagehot (1873) recommended that to stem a liquidity crisis a central bank must lend freely, at a penalty rate and against good collateral. The two requirements work in tandem. The penalty rate was to provide a deterrent for solvent institutions to borrow from the central bank's discount window. Good collateral was to provide both some evidence of solvency, as well as to limit capital losses borne by central banks, which at the time were privately owned. But in today's money market --at least in many of the industrial countries--, liquidity needs are met by the interbank market where banks lend and borrow without collateral. This market tends to be "cheaper" than borrowing at the discount window of the central bank. Thus, the critical question for LOLR provision is whether interbank markets are prone to failures. Two possible reasons of failure are identified in the literature, imperfect information and coordination failures. Under asymmetric information, an individual lender in the interbank market is unable to distinguish illiquid from insolvent borrowers. Another reason for failure occurs if an individual lender in uncertain markets is not sure it can be a borrower in the future; hence, the lender withdraws from placing funds in the market.

What is the evidence on LOLR? Goodhart and Schoenmaker (1993, Table 3) find that out of a sample of 74 failing banks, 23 did not need external funding, 9 were rescued by other banks, 22 by the deposit insurance fund, 18 by government and 2 only by central banks. Goodhart (1999) interprets the results as follows:

"Unless such problems involve only a small potentiality for loss, so that the CB can handle it on its own books, such systemic problems will nowadays require joint management and resolution by the supervisory body, the CB and the government."

In essence, big financial crises require big pockets, and only government has those.

Bagehot emphasized that the central banks should commit to abundant lending at penalty rates. Yet, the practice points exactly to the opposite. Today's central banks are reluctant to pre-commit to open-ended LOLR and when they actually intervene many of them do not charge a penalty rate. Central banks prefer to rely on what Giannini (1999, pp. 14-15) calls constructive ambiguity, a mixture of non-penalty rates and conditionality imposed on the borrowing

institutions. Central bankers believe they can control moral hazard more effectively through constructive ambiguity than through Bagehot's rules.

Further evidence on interbank markets comes from Furfine (2000) who shows that the U.S. federal funds market was able to handle the flight to liquidity and quality following the 1998 Russian debt default and the Long Term Capital Management bailout. Upper and Worms (2001), using a matrix of bilateral interbank data for Germany, show that contagion can only occur if the loss rate on interbank loans exceeds 40 percent. However these results do not shed light on the *international* interbank market in particular.

In sum, governments more than central banks come to the rescue of financial institutions. When central banks provide LOLR services, they prefer constructive ambiguity to Bagehot's rules of free lending and penalty rates. The interbank market, at least the US federal funds market, appears to be resilient in times of liquidity stress.

III. INTERNATIONAL FINANCIAL CRISES

An international financial crisis occurs when one or more countries are running out of foreign-currency liquid assets, and are increasingly unable to participate in international financial transactions. Internationally, liquid assets consist of short-term assets denominated in non-domestic currencies that are traded in international markets without impediments or controls, such as government and corporate securities, foreign-currency deposits, access to international credit² as well as the credit standing to implement interest rate hedges to convert the currency of borrowings. International financial crises encompass both currency and banking crises. Kaufman (1999, pp. 13-14) provides a useful typology of the underlying causes of financial crises. These can be sparked by:

- low liquidity, that is a low ratio of international reserves to foreign-currency liabilities;
- skewed term structure of its foreign debt, that is a high ratio of short-term foreign-currency liabilities to total foreign-currency liabilities; or
- currency mismatch, that is an excess of foreign-currency liabilities over foreign-currency assets.³

The early literature on international financial crises concentrated almost exclusively on currency crises driven by domestic macroeconomic policies that were incompatible with the fixed exchange rate regime.⁴ The events surrounding the exit of the British pound and the Italian lira from the European Monetary System in 1992 shifted the focus to self-fulfilling speculation to explain the timing of currency crises. Poor fundamentals were still responsible in determining what candidates were prone to speculative attack. The Mexican crisis of 1994 and the Asian crisis of 1997 raised a new concern, namely the link between financial fragility and currency crisis. In commenting on the Asian crisis the IMF notes (1999):

² The latter occurs through various sources, such as the Stand-By Arrangements, Extended Fund Facilities, and Supplemental Reserve Facilities of the International Monetary Fund (IMF), *ad hoc* lending coordinated by the Bank for International Settlements, special facilities from central banks and export credit agencies, inter-bank lending and "paid-for" lines of credit by private commercial banks.

³ There is some evidence that countries under international stress face rising ratios of foreign-currency liabilities to foreign-currency assets and short-term foreign liabilities to total foreign liabilities (Kaufman, Tables 5 and 6; Jeanne and Wyplosz 2000, Figure 1). But there is also evidence of countries that, despite high and rising ratios, escape international financial crises.

⁴ See Jeanne (2000) for a survey of the literature on currency crises.

“Conventional fiscal imbalances were relatively small, and only in Thailand were significant real exchange rate misalignments evident...the crisis in Indonesia, Korea, and Thailand, all three shared weaknesses in financial systems, stemming from weak regulation and supervision and (to varying degrees) a history of heavy governmental involvement in credit allocation, including through government guarantees; these were reflected in the misallocation of credit and inflated asset prices” (p. 33).

and

“the crisis facing the IMF in Indonesia, Korea, and Thailand was quite different from most instances in which IMF provides financial support. The crisis originated mainly in deep-seated vulnerabilities in the financial and non-bank corporate sectors” (p. 36).

Russia, on the other hand, was more complex and reflected exuberant assessments of emerging financial markets, declining oil and commodity prices and a reduced incentive to solve domestic structural problems.⁵ In that case the IMF (p. 39) launched “an anticrisis program, which attempted to lengthen the maturity structure of government debt and intensify structural reform.” Financing was made available under several programs. None of these appeared to be classic liquidity emergencies.

In what follows we divide the discussion between “traditional liquidity” crises and crises stemming from either the country’s debt structure or currency mismatches.

Liquidity crises

It is useful to distinguish between two types of liquidity crises. Type 1 illiquidity stems from gridlocks in the infrastructure of the payment, clearing and settlement mechanisms that, in turn, reduce liquidity in international and systemically important domestic financial markets. Type 1 illiquidity leads to the failure of solvent institutions by their inability to settle or hedge legitimate transactions. Type 2 illiquidity relates to that of individual countries, which manifests itself in inadequate levels of foreign reserves.

The size of foreign reserves depends on the country’s exchange rate policy. A flexible exchange rate regime requires no or minimal amount of foreign reserves; a fixed exchange rate regime requires a significant stock of foreign reserves. If the fixed rate is not in line with “fundamentals,” the stock of foreign reserves must be larger to account for swings in capital flows. If the fixed rate is totally disanchored from fundamentals, speculative attacks may force the central bank to lose all or most of its foreign reserves and ultimately abandon the peg. Under these circumstances, there would be no point for that country to obtain additional liquidity for it would lose it in maintaining an unsustainable peg. In the Russian case, the IMF acknowledged that “The IMF has established that, after receiving Fund financing, the Central Bank of Russia used an approximately equivalent amount in exchange market intervention to support the rouble”(Dawson, 2001, p. 12). This is the main message of the literature on currency crises, both of the first and second vintage. In the first-vintage models the stress was on poor fundamentals and their incompatibility with the fixed exchange rate regime. In the second-vintage models the stress was on self-fulfilling speculation, but poor fundamentals determined which currencies were candidates for a speculative attack.

Type 2 liquidity crises are analogous to bank panics in D-LOLR. In addition to the impact on national governments, there is the potential for contagion. The IMF (1999, p. 40) recognized Brazil as an “official” victim of contagion: “Brazil was hit hard by contagion from the Russian crisis in August 1998 when international investors again reassessed the risk of their exposure to emerging markets”. The IMF and other lending institutions acted as I-LOLR with respect to Brazil: more on this below.

⁵ To Charles Goodhart Russia was too nuclear to fail.

Type 1 liquidity crises have received less attention than Type 2 liquidity crises.⁶ The currency crisis literature --both of the first and second generation—has focused almost exclusively on Type 2 illiquidity. And so has the IMF as the principal sovereign lender.

Type 1 and Type 2 illiquidity interact in the world of global banking. International financial institutions lend and take funds on a daily basis in large volumes in multiple currencies. This is the same as the process whereby hundreds of major banks, securities dealers and to a lesser extent insurance companies adjust their cash and maturity positions in their domestic money markets in their local currency. As a result, Type 2 illiquidity in a specific country is likely to have international ramifications through its impact on domestic and international markets, clearing and settlement systems (i.e., Type 1 illiquidity).

At the end of 1998 the IMF did recognize liquidity risk, but the attention remained more on international asset market and trading activity than on financial fragility:

“There are likewise significant gaps in the modelling of the nexus of market, credit and liquidity risks, gaps that came into sharp focus during the Asian crises and in the aftermath of the Russian devaluation and moratorium...in the recent turbulence, market risk itself gave rise to credit and liquidity risk” IMF (1998, p. 142).

In the next two sub-sections we analyze two models of financial fragility and their implications for I-LOLR provision.

Debt structure, Moral Hazard and the International Financial Architecture

Government debt and official lending give rise to potential moral hazard on the part of three entities: borrowers, private sector lenders and official financial agencies such as the IMF and World Bank. In the case of Type 2 I-LOLR, the existence of moral hazard is the consequence of at least three special factors. The first is the availability of sovereign immunity for the borrowing country and its political subdivisions, agencies and instrumentalities. Without this immunity sovereign lending would be equivalent to large corporate credit, which is managed by: strict credit granting criteria, conditions precedent prior to advancing the funds, choice of law, dispute resolution fora, loan covenants, insolvency and default provisions, market clearing interest rates and other factors. Such provisions, however, are not applicable in the same way to borrowers who can avail themselves of protection from creditors in law through sovereign immunity.

The second factor is that official lending is not carried out by “arms-length” lenders. Sovereign loans are granted by international financial institutions (IFIs) and by central banks, on the basis of political as well as financial determinants. In a domestic setting, bank regulators and supervisors are alert to the risks of non-arm-length lending to related and affiliated parties and provide regulations around the associated risks.

The third factor is that IFIs and their member states have strong preferences against default. In a world of financial liberalization with many lenders and borrowers, defaults are legally complicated and may take many years to resolve. Hence, many of the policy initiatives aim at eliminating the consequences of default with the result of creating greater moral hazard.

Attempts to reduce moral hazard focus on altering the behavior of borrowers by pre-qualification requirements and post lending conditionality as well as by pricing. The behavior of private sector creditors is subject to other initiatives related to moral hazard such as “bail-ins” and sharing clauses on bond issues. Some policy initiatives, such as lending into arrears by IFIs, are designed in part to remove some of the consequences of what would be an event of default

⁶ The BIS (2000) is now spearheading work in this direction and has recognized that “the Asian crisis in 1997, and especially the turbulence in mature markets in autumn 1998, represented a watershed in market liquidity conditions in several segments of global markets” (p. 39).

combined with cross-default clauses in private loan agreements. But in doing, so these remove more of the discipline from decisions by borrowers.

The result is a complex web of incentives and disincentives with unintended consequences for moral hazard behavior. Thus, it is not surprising that debtor-creditor relationships are at the heart of many aspects of the international financial architecture in a world of current and capital account liberalization. Policy recommendations attempt to address these issues singly rather than comprehensively. There is an incentive to encourage sovereign borrowers' moral hazard, where the threat of default is weak. On the other hand, IFIs themselves do not fear their own default, since they have a guarantee from their members. The result is that pressure is being exerted by borrowers and the international political community to avoid the complications of default; pressure by lenders on their governments to provide additional official lending and bail-outs; and, mission creep by IFIs. Without an expanded *ad hoc* mandate, the roles of some IFIs would have diminished markedly with the move to floating exchange rates. Moral hazard by lenders exists and is important. However, lenders do lose as they did with Russia or with some private sector borrowing losses in Asian countries.

In an attempt to come to grips with these matters, the Meltzer Commission (2000) recommends that the IMF function as an international lender of last resort. In the Commission's view, IMF lending would be short term, at penalty rates, and conditional on ex-ante standards of financial soundness, "except in unusual circumstances, where the crisis poses a threat to the global economy..." (p. 8). The pre-conditions would be monitored by the IMF after the loan proceeds were advanced. The use of financial standards as a pre-condition for access to the I-LOLR provision is argued in a paper by Fratianni and Pattison (2000), prepared for the Meltzer Commission. Kumar, Masson and Miller (2000) are critical of the Meltzer proposal because of the effect of pre-qualification in excluding countries from IMF assistance. These authors suggest that the implementation of the Meltzer proposals would not satisfy the incentive and moral hazard issues, and "from the perspective of the Report, it appears that LOLR must either stand aside and leave the emerging country to its fate, or it must stand ready to give unconditional support if the crisis poses a systemic threat" (p. 12). A related issue is whether countries can credibly pre-commit to policies because of political processes and time inconsistency of governments in general.

We consider in some detail the criticism of Kumar et al. and reproduce (with some simplifications) the heart of their model from which criticisms stem. The authors focus on the role of short-term foreign debt within the context of a creditor-borrower model. The model's assumptions are as follows:

1. Foreign debt is incurred before the sovereign borrower chooses effort;
2. Effort is defined in terms of the borrowing government undertaking an adjustment policy, e.g., a fiscal contraction;
3. There are two states of nature after effort is chosen: a good state, in which the loan is fully repaid and the borrower gains a leftover, and a bad state, in which a partial default on the loan occurs;
4. Foreign debt can either be short or long. Through short-term debt the creditor can exert leverage on the borrower and instigate adjustment effort, that is the implementation of a policy that would restore good fundamentals;
5. Creditor can withdraw the loan after state is revealed but before payoffs occur. Early loan liquidation creates a loss, to the debtor and to the creditor. The debtor loses the liquidity value of the loan and is exposed to a higher risk of a liquidity crisis; the creditor bears a liquidation cost;
6. Notation: D = total foreign debt, which is exogenous, S = short-term foreign debt which is determined by borrower, G = payoff to debtor in the good state, with $G > D$, B = payoff to debtor in the bad state, with $B < D$, and a = effort made by borrower.

Given these assumptions, the model can be described as follows. First, borrower's effort enhances the occurrence of a good state of nature:

$$(1) \quad P = d + ba, \quad \text{where } b \text{ and } d \text{ are positive parameters .}$$

Without effort, the good state occurs with probability d ; with effort $P > d$. For countries that adhere to financial standards and, thus pre-qualify for I-LOLR, effort is partly observed. The debtor's payoff in the good state is $(G - D)$. However, one cannot rule out that creditors may panic in good states and withdraw short-term lending. Let the probability of these panics be denoted by p and the per-unit liquidity value of short-term debt by ℓ . The debtor's payoff in the good state is $(G - D - p\ell S)$. In the bad state, the debtor loses the liquidity value of the short-term debt, S . The debtor's expected payoff clearly depends on whether it undertakes a policy adjustment. With adjustment effort the payoff is:

$$(2) \quad E_B = (d + ba)(G - D - p\ell S) - (1 - d - ba) \ell S - a,$$

and without adjustment

$$(3) \quad E_{B,a=0} = (d)(G - D - p\ell S) - (1 - d) \ell S.$$

Effort is forthcoming if (2) exceeds (3) or

$$(4) \quad G - D + S\ell(1 - p) \geq 1/b.$$

Creditors' panics have a lower probability of occurrence for countries that adopt international financial standards (pre-qualifiers) than for countries that do not (non-qualifiers). Consequently, $(1-p)$ is larger for pre-qualifiers than for non-qualifiers and condition (4) is more likely to hold for the former than the latter. Non-qualifiers pose a larger risk of moral hazard, which is the main reason why they are denied automatic access to the I-IOLR.

Quite naturally, lenders prefer to lend to countries that undertake policy adjustment over those that do not. Lenders also bear a cost in liquidating a loan early; this cost is denoted by $\ell'S$. The expected lender's payoff, when the borrower undertakes policy adjustment, is

$$(5) \quad E_L = (d + ba)(D - p\ell'S) + (1 - d - ba)(B - \ell'S),$$

and without policy adjustment

$$(6) \quad E_{L,a=0} = (d)(D - p\ell'S) + (1 - d)(B - \ell'S).$$

Given that $D > B$ and $p \leq 1$, (5) is always larger than (6). Also, given that p is smaller for qualifiers than non-qualifiers, lenders feel more "secure" with the former than with the latter.

Kumar et al. (p. 12) criticize the I-LOLR pre-qualification to:

"...either stand aside and leave the emerging [non-qualifier] country to its fate, or it must stand ready to give unconditional support if the crisis poses a systemic threat. This is unsatisfactory."

Pre-qualification, according to the authors, does not have a mechanism to rein in moral hazard and propose, instead, a mechanism based on effort monitoring, as implied by IMF conditionality lending. More specifically, they envision a carrot-and-a-stick approach. A country that was

caught in a liquidity crisis, despite having implemented an adjustment policy, would qualify for the carrot in the form of a bail-in. A country caught in a liquidity crisis in the absence of an adjustment policy would qualify for conditionality lending. The debtor's expected payoff, with policy effort, would be:

$$(7) \quad E'_B = (d + ba)(G - D - p\ell S) + (1 - d - ba)B' - a,$$

and without policy effort

$$(8) \quad E'_{B,a=0} = (d)(G - D - p\ell S) - C.$$

The symbol B' denotes the value of the bail-in and C the cost to the borrower of conditionality lending. Also, note that the borrowing country bears C when it fails to undertake effort and not as a result of a bad state of nature.

Policy adjustment is undertaken if:

$$(9) \quad ba(G - D - p\ell S) + (1 - d - ba) B' \geq a + C.$$

Should $(G - D - p\ell S)$ be very close to zero, the value of the carrot or bail-in has to be sufficiently large to justify undertaking the policy effort and the conditionality cost.

From the above discussion it is difficult to conclude, as Kumar et al. do, that ex-post conditionality lending is superior to ex-ante I-LOLR pre-qualification. The weakness of the pre-qualification proposal is that the I-LOLR agency may either lend too much or too little to the non-qualifiers, instigating either moral hazard or welfare losses. The weakness of conditionality lending is that the IMF may be too generous with the carrot to justify the conditions of its subsequent lending. Furthermore, effort is much more difficult to monitor than states of nature. Creative accounting can frustrate the most pugnacious auditors. Changes to local bank lending practices, cronyism on the part of the government and bank regulation may not be transparent to outside observers. Effort monitoring, in particular, can be distorted by political motivation. How can an IMF delegation deny the benefit of the doubt to the President of Russia who proclaims that best efforts are being made to put in place an adjustment program? Finally, if effort is only observable through its impact on macroeconomic variables, how long will the conditionality agency wait before it concludes that no effort has been exerted.

IMF conditionality lending has been attacked from opposite sides of the political spectrum. Critics from the left blame the IMF for prescribing a harsh medicine that falls disproportionately on the poor; for them C is excessively high. Critics from the right blame the IMF for lending too much and at subsidy terms; for them C is negative. The middle ground believes that borrowing countries are quite willing to undertake the IMF conditions: those conditions are the result of a negotiation between the borrower and the IMF and are believed to be in the self-interest of the borrower; for them C is very close to zero. The size of the C is quite critical for the carrot-and-stick approach. From the viewpoint of the first group of IMF critics, the size of the carrot should be very high to justify IMF conditionality. For the second group of critics, not only the size of the bail-in should not exist but the terms of the loan should be made tougher. For the last group, C is close to zero and consequently the value of the bail-in should be small as well.

While conditionality remains the main staple of IMF lending, one cannot ignore that the Fund is now pushing for the Contingent Credit Lines Facility, which provides virtually unconditional credit to those countries (in difficulty) that have qualified for the program. Boughton, in his history of Fund (2001, Ch. 15, pp. 47-8), recounts that the Fund staff made similar proposals in 1980s but were put aside by the then Managing Director de Larosière. Are CCL not a form of I-LOLR with substantial moral hazard imbedded in it?

The above framework illustrates some of the contrasts between pre-commitment and conditionality. One objection, noted earlier, raised against pre-commitment is that governments cannot, with credibility, commit to policies because they cannot bind the hands of future governments. On the other hand, conditionality, if fully embraced by the borrowing country, implies a lowering of the conditionality cost, C . In fact, many countries may want the discipline of an IMF program for domestic political reasons. Another factor is that a desirable IMF loan might be perceived by the marketplace as signalling anticipated financial problems with potentially self-fulfilling results.

A private sector lender does not restrict itself either to conditions set before the loan is granted or covenants to be monitored after the loan has been granted. Both figure in well structured loans. The challenge for the IFI is to create and implement a process that embodies desirable credit practices in the context of borrowers who have a low propensity to obey ordinary commercial law and whose lenders are in a conflict of interest. It could well be argued that in these two circumstances, it is all the more important to establish risk-oriented credit standards, that these same countries would require of their commercial banks but not their IFIs.

Currency mismatches

Domestically, a liquidity crisis is linked to a mismatch in the maturity structure of assets and liabilities of the financial system. This includes temporary shortages of assets of particular maturity required to settle transactions, to hedge transactions, to realize a predictable cash value, and, in some countries, the requirement for banks to provide a reserve of liquid government securities. The operational decision underlying D-LOLR requires the ability to discriminate between illiquidity and insolvency. Jeanne and Wyplosz (2000) claim that Bagehot rules on LOLR “provide incomplete guidance as to the optimal lending-in-last-resort policies in the modern international financial environment” (p. 3). The reason for this conclusion stems from currency mismatches in banks’ balance sheets. Notwithstanding that there are sometimes regulations to the contrary, banks in currency-crisis countries often have an excess of foreign-currency liabilities (FL) over foreign-currency assets (FA) matched by an excess of domestic assets (DA) over domestic liabilities (DL). An international financial crisis forces banks to exchange domestic assets for foreign assets to cover the currency mismatch. It is this transformation that makes Bagehot rules potentially inoperative. Let us see why.

Jeanne and Wyplosz’s central point can be best appreciated by considering two semi-reduced forms of their model. The first equation refers to the valuation of banks’ domestic assets. Simplify by setting $FA = DL = 0$ and hence reduce the currency mismatch to the initial equality between foreign-currency liabilities and domestic assets. Domestic assets are illiquid in the sense that they mature next period and foreign liabilities are liquid in the sense that they mature this period. A banking system is in a state of international illiquidity if the value of domestic assets do not cover the value of foreign-currency liabilities. The price of domestic assets depends negatively on the domestic interest rate, i , and the exchange rate, S , defined as domestic currency units per unit of foreign currency:

$$(10) \quad P^*(i, S)DA \quad P^*_1 < 0, P^*_2 < 0,$$

where P^* is the valuation function of domestic assets. The traditional liquidity mismatch in banking between assets and liabilities justifies the negative relationship between P^* and i . The negative relationship between P^* and S emerges because domestic assets must be sold for foreign currency to pay for banks’ foreign-currency liabilities. A higher S , or equivalently a depreciation of the domestic currency, forces banks to use more domestic assets to repay a given amount of foreign-currency liabilities.

The second semi-reduced form equation of the Jeanne-Wyplosz model relates to the demand for domestic bonds denominated in foreign currency:

$$(11) \quad B = S(i - i^* - E s_2 + s) / a \sigma^2(s_2),$$

where B = domestic bonds, i^* = foreign interest rate, s = log of the current spot exchange rate, s_2 = log of the second-period exchange rate, E = the mathematical expectation, a = parameter of investors' relative risk aversion, and $\sigma^2(s_2)$ = variance of s_2 . Equation (11) states that the country in question benefits from net capital flows if $i > i^* + E s_2 - s$. An increase in the domestic interest rate raises the demand for B . A depreciation of the domestic currency raises B through two separate channels: first through an accounting effect and then by lowering $i^* + E s_2 - s$. The second channel depends on the very restricted assumption that a higher s does not also influence $E s_2$.

Equations (10)-(11) give the full flavor of the dilemma facing domestic authorities. Higher domestic interest rates and a spot depreciation of the domestic currency enhance capital inflows but, at the same time, cause a deterioration in the balance sheet of the banking system. With a decline in the foreign-currency value of domestic assets, banks run the risk of not being able to meet their foreign-currency liabilities and, hence, precipitate a financial crisis. A banking crisis occurs when domestic assets are insufficient to repay foreign-currency liabilities.⁷ The model—like others of this type—has several equilibria, some involving a banking crisis and others not. A good equilibrium, that is one where banks do not collapse, occurs if $P^*(.)DA > FL$ and foreign reserves are positive at the end of the period. The I-LOLR provider can avoid the occurrence of the bank run equilibrium by lending foreign reserves. But how much is needed to avoid the bad equilibrium? The answer depends critically on the degree of risk aversion. As the latter diminishes, the size of the loan increases. The international agency's loans end up financing the activity of the speculators who take long positions in the foreign currency. Under risk neutrality, this "revolving door" outcome is exacerbated, with the I-LOLR needing infinite resources.

The Jeanne-Wyplosz model underscores two main points. First, the solvency of the banks is tightly connected with monetary policy. Solvent banks can become insolvent when the domestic currency depreciates. Second, there are circumstances under which the putative I-LOLR agency may be called to put up a large amount of resources, beyond the reach of existing institutions. However, the model's implications can be looked from an altogether different perspective; namely, what standards would a country have to follow to qualify for I-LOLR services. This is the perspective of the Meltzer Commission. In terms of the currency mismatch problem this is a difficult standard to define. The obvious requirement that a country has to adhere to balance-sheet hedging, or $FL = FA$ is overly simplified in a world of many assets, liabilities and hedging techniques. Moreover such a rule would neglect stock-flow issues for example, the uses that borrowed funds are put, such as the impact on capital in generating export earnings. If complete hedging turns out to be inappropriate as a policy tool or too costly to enforce, an alternative --mentioned by the authors-- would be to insure foreign-currency deposits with the provision that the loans of the I-LOLR would be used "for the exclusive purpose of operating this insurance."(p.17).

IV. THE INTERNATIONAL CONTEXT OF LENDING OF LAST RESORT TO GOVERNMENTS: BEYOND PRE-COMMITMENT AND CONDITIONALITY

⁷ The cost of banking crises is very high: the median value of 19 banking crises in the 1980s was 10 per cent of the GDP of the recipient countries, ranging from the minimum value of 1.5 per cent for the Philippines and the maximum value of 55 per cent for Argentina; the median value of 11 banking crises in the 1990s was 7.5 per cent of GDP, ranging from the minimum value of 1.4 per cent for Estonia and the maximum value of 13.5 per cent for Mexico (Jeanne and Zettelmeyer, Table 1).

There is no international organization comparable to a D-LOLR provider. Fischer (1999) has argued that the IMF is in fact an I-LOLR agency, albeit limited. The Meltzer Commission (2000) would like to transform this *de facto* role into a *de jure* one and constrain at the same time the institution to lend primarily to countries that pre-qualify in terms of adhering to specific financial standards. We have seen that Kumar et al. (2000) have criticized the Meltzer Commission's proposal on the ground that it would not satisfy the incentive and moral hazard issues. We have argued that, even within the confines of these authors' model, pre-qualification is not a fundamental flaw of lending of last resort, especially when the alternative is ex-post conditionality lending. We explore in more detail why pre-qualification may actually improve the provision of I-LOLR services. However neither alternative has optimal properties and both face operational difficulties.

Our assessment is that IFIs must use all of the tools at their disposal, particularly because of sovereign immunity and conflict of interest issues. Pre-commitment is similar to conditions precedent in a private loan, while conditionality is similar to loan covenants. Both, and more including monitoring, are needed. The IMF lends to governments on lower credit standards and without adjusting interest rates for credit risk, in distinction to the Bagehot rules.⁸ The IMF lends where the private sector would not. The practice in private lending is to effect a credit analysis first on the borrower, then on the industry of the borrower and finally assess the country repayment risk to which an international loan is subject. The character of the borrower, his or her honesty and previous credit history are taken into consideration. A loan would then be contemplated in terms of the capital structure of the borrower, liquid assets, alternative sources of repayment, how the use of the funds could be restricted to protect the lender. In furtherance of this latter aim, covenants and restrictions such as prohibitions on paying dividends while the loan was in default could be implemented. It is clear that IFIs do not concern themselves with such credit criteria, both because they do not fear failure as they are guaranteed, and because they have preference in repayment by borrowers.

Documentation would require a legal jurisdiction, usually England or New York State, where confidence is high that the courts would enforce the property rights of the lender. The documentation would contain a default clause specifying events that would permit the lender to cease additional loan disbursements or to demand immediate repayment. These events allow time for the re-negotiation or resolution of the loan in addition to providing a signal of loan repayment difficulties. If the sovereign borrower can explain why the event occurred and the lender, after consideration, finds that the event does not imperil the repayment of the loan, the default can be waived. For official international loans, many of these market related criteria are inoperative. As Meltzer notes (1999, p. 35) "Russia does not have the rule of law, private property, a solvent banking system, transparent accounting, or most other requirements for a functioning market system."⁹ In sum, private banks do not make loans when the customer is obviously badly managed, but IFIs do.

International lending agencies, in particular the IMF, do not follow private-sector practices. IMF lending, unlike private lending, is subsidized. The difference between the

⁸ Jeanne and Zettelmeyer (1999) quantify the direct IMF subsidy by the difference between the SDR interest rate (which is a weighted average of the yields on 3-month T bills of the five participating currencies) and the "rate of charge" on IMF loans. This differential is fairly small; however, it ignores the default risk. Furthermore, IMF loans have gotten bigger in the 1990s and the risk of default has risen as well. The IMF subsidy would be an upper limit of 1 per cent of the borrowers' GDP. It should be recalled that IMF debt is senior, and defaults have been miniscule.

⁹ Similar considerations hold for the Asian currency crisis of 1997. On this point, Bisignano (1999, p. 1) notes: "because of the deficiencies of corporate governance, transparency and less than adequate attention to supervisory oversight, the financial crisis of East Asia is to a degree a case of self-inflicted wounds."

opportunity cost of lending and the explicit interest rate charged by the IMF, in equilibrium, is equal to the implied cost of the constraints on domestic policies imposed by the IMF on the borrowing country. There would be no IMF lending if the implied cost of the constraints on domestic policies were “excessive.” Borrowing countries have a choice; when they accept IMF lending with conditionality and then complain about the constraints they behave contradictorily. The essential policy points with international lending of last resort are the lack of credit analysis and alternative incentive and disincentive effects of pre-qualification versus conditionality.

As noted above, a lender has to consider the possibility of default when structuring a loan. Defaults are complex events because of the large numbers of lenders to a country, because of cross-default clauses—whereby the default of one loan causes a default on others, and so forth. Lenders are going to be in different positions depending upon how they lent, that is by way of syndicated loan, by way of international bond issue, or other types of loan facilities. Buchheit (1998, p. 17) comments that:

“A central premise of the 1980s-style debt rescheduling technique was the need to achieve ‘equal treatment of creditors’ – a goal that required, in practice, prolonged negotiations with the sovereign debtors followed by many months of cajoling or bludgeoning virtually every last creditor to accept the resulting financial package.”

Buchheit contrasts this with what he calls the public sector bailout technique as practiced in Mexico in 1995 and in several Asian countries. Multilateral and other funds were provided to reassure investors and encourage private sector lenders to resume lending, therefore avoiding any default, and subsequent claims on safety nets.

The solution to international loans under risk of default is to arrange a legal mechanism so that contractual provisions can speed the resolution of these difficulties. The legal and financial position of a country is in limbo while debt renegotiations take place with hundreds of creditors. Furthermore, small investors and creditors cannot afford to commence litigation against sovereign borrowers. Large lenders, such as banks, will not litigate in most cases, as they want an orderly work out that will allow for future business. As Buchheit puts it (p. 19), “When the sting of possible litigation is removed will issuers become more relaxed about defaulting?” Is I-LOLR used as a substitute for loan rescheduling? Is I-LOLR used improperly? Why does official international lending occur despite repeated evidence of the mismanagement of the borrowing economy? How many times does a country need to tap IMF funds before it is considered lending of first resort rather than lending of last resort? The answer to these questions suggest that both politics and legal issues have encouraged official lending as an alternative to long-term loan workouts, fostering moral hazard behavior on the part of governments.¹⁰ Meltzer (1999), Calomiris and Meltzer (1999) and the Meltzer Commission (2000) have brought the issue of moral hazard to the front stage. Since 1985 the IMF has lent and organized rescue packages to Mexico, Thailand, Indonesia, Korea, Russia, Brazil, Turkey, and Argentina. Adam Lerrick (Wall Street Journal, February 23, 2001), an international investment banker, comments as follows on the December, 2000 loan to Argentina:

“There is a real debate as to whether Argentina is experiencing illiquidity, which is the province of the IMF, or insolvency, which is clearly beyond its mandate...The IMF maintains that a write-down of Argentina’s debt is not required. But that’s because it knows that a heavy subsidy on new loans from official lenders—which are 7%-10% below true market rates—will provide \$1.5-\$2.0 billion in each year.”

¹⁰ For some commentators, moral hazard is as much an issue with lenders as with borrowers. It would be difficult to explain the IMF loans to Russia and Turkey without considering the political motivation of the U.S. government.

It is on the basis of these considerations that the Meltzer Commission opted for pre-qualification instead of conditionality lending. Our recommendation is to go further and require both plus additional requirements.

I-LOLR agency vs. crisis manager

Two fundamental weaknesses prevent the IMF from becoming a true I-LOLR agency. The first is that it can neither create monetary base in any of the key currencies of the world nor can it use Special Drawing Rights, the institution's "own currency", to buy and sell national currencies (Capie 1998; Capie and Wood 1999). The second is that there is no deep pocket backing the liabilities of the IMF (Goodhart 1999). Nor does the existing incentive structure favor the transformation of the IMF into an I-LOLR provider. Governments often use tax revenues to rescue failing banks and must account for their actions at election times. Transfers of tax revenues, actual or expected, to a foreign government or financial institution, when carried out in a transparent manner, are more politically costly than transfers to a domestic institution. Consequently, governments have low incentives to rescue overtly foreign governments or financial institutions. If they feel they must intervene to prevent domestic spillovers, they assist those institutions over which they exert primary regulatory and supervisory responsibilities (von Hagen and Fratianni 1998, p. 165; Herring and Litan 1995, p. 102). In this manner, governments can better justify the transfer of tax revenues. In sum, the logic of national monetary sovereignty and national tax revenues works against any prospective transformation of the IMF into a true I-LOLR provider. On the other hand, the IMF is a hidden method for governments to lend outside of national budgetary accountabilities.

Much more plausible from a policy perspective is for the IMF, in conjunction with the BIS, to play the role of international crisis manager that coordinates D-LOLR providers. An early account of crisis manager is described by Capie and Wood (1999, pp. 214-5):

"The UK's 1890 Baring crisis is an excellent example of the Bank of England acting in that role... There was a fear that if Barings failed, there would be such a run on London that Britain might be forced off the gold standard or, at the least, have to suspend it... A hurried inspection of Barings suggested that the situation could be saved, but that £10m was needed to finance current and imminent obligations. A consortium was organized, initially with £17m of capital. By November 15, the news had leaked, and there was some switching of bills of exchange into cash. But there was no major panic and no run on London or on sterling. The impact on financial markets was small. Barings was liquidated, and refloated as a limited company with additional capital and new (but still family) management."

A recent example of international crisis management can be gleaned from the following description of the 1998 financial assistance package to Brazil (IMF 1998, p. 113):¹¹

¹¹ This particular credit is of interest not only in demonstrating the types of inter-locking credit arrangements, but also the economic context in which it arose. The IMF points out that, after getting inflation down from 2700 percent to under 3 percent, the fiscal stance was loosened and the public sector borrowing requirement grew. The IMF pointed out (p. 114) that the public sector borrowing requirement grew because of "an excessively generous pension system, inflexibility of civil service employment rules, the lack of a hard budget constraint on subnational governments, and a distorted system of indirect taxation". All of this had been known, but Brazil was a long term client of the IMF.

In the same report the IMF went on to note that the Brazilian deficits made the country vulnerable to changes in investor sentiment and the resultant capital outflows. The crisis in Russia as well as the Asian crisis led to such portfolio shifts. The Brazilian government tightened fiscal policy and raised interest rates by 20 percent. Monetary policy continued to support a crawling peg declining at seven and one half percent annually against the dollar. Overnight interest rates went to 40 percent. This restrictive policy did not stop capital outflows. As a result Brazil sought international lending support. But there was

“The terms of a \$41 billion IMF-led financial assistance package for Brazil, in support of the program of adjustment and structural reform described below, were released on November 13, 1998. Of the total amount, \$18.1 billion... would be provided by the IMF in terms of a three-year Stand-By Arrangement, about \$4 billion each from the World Bank and the Inter-American Development Bank, and \$14.5 billion from 20 governments channeled through, or provided in collaboration with, the Bank for International Settlements (BIS). The U.S. government is the largest bilateral contributor, with a credit line of \$5 billion. There is no explicit contribution from the private sector, since the Brazilian authorities believed it would be most effective to seek the voluntary participation of international banks in a rollover of credit lines once the financial package had been arranged. Initial contacts by the authorities with private banks suggest that banks will hold open their trade and interbank credit lines. The bilateral financing is not guaranteed by any collateral – something that distinguishes the package from one arranged for Mexico in 1995, where U.S. repayment was guaranteed by oil revenues.”

Another example was the \$40 billion package organized by the IMF for Argentina in January of 2001. Half of the sum was provided by private-sector lenders.

Elsewhere, we have argued that the BIS has a comparative advantage as an international crisis manager (Fратиanni and Pattison 2000). The BIS has a long experience in dealing with central banks and in coordinating their financial activities. During the Bretton Woods regime the BIS routinely arranged and coordinated multi-party swap agreements. Today, the BIS holds some of the central banks' reserve assets, including gold and currencies, and invests them in international bank deposits, treasury bills and other securities. It also acts as an agent for some international loan issues and a collateral trustee for some international bond issues. The BIS also coordinates international loans to national central banks. Finally and most importantly, the BIS is much more agile and less political than the IMF.

It falls on the crisis manager to coordinate the international loan facility. The job description of a crisis manager would include due diligence, choice of applicable law, setting an interest rate to clear the market on a risk-adjusted basis, as well as acting as agent for the group of lending institutions coordinating the credit conditions of the loan, loan covenants, collateral where applicable, and monitoring. As an agent, the crisis manager would determine appropriate covenants to secure the assets, monitor conditions applying to the loan, such as any collateral, and assess the actions of the borrower to ensure agreement and compliance with loan covenants. As an interest-rate setter, the crisis manager would ask the five most important D-LOLR providers in the world-- the Federal Reserve System, the European Central Bank,¹² the Bank of Japan, the Bank of England, and the Swiss National Bank-- whether they would be willing to satisfy the loan request at, say, LIBOR (London Interbank Offered Rate) plus 2 percentage points. If that request were not fully met at that rate, the penalty rate would then move up, say, to LIBOR plus 3, and so on. While collateral is used infrequently, there are examples of it: for example, in the U.S. loan to Mexico in 1995, Mexico pledged a guarantee based upon oil revenues. With this method lending governments could determine the cost of the subsidies that they are providing.

The penalty, or risk-adjusted market rate is in contrast with the practice of D-LOLR reviewed above. The reason is that constructive ambiguity in an international setting is not as likely to work. In a domestic setting the regulator/central bank can monitor and enforce conditions attached to the LOLR; in an international setting it cannot. Thus, moral hazard must

no discussion in the IMF document as to the impact of the increase in domestic interest rates to 40 percent on the liquidity, solvency and the functioning of the domestic financial system.

¹² More precisely it is the European System of Central Banks, rather than the European Central Bank, that would be asked to provide ILOR. The Maastricht Treaty does not authorize the European Central Bank to act as a lender of last resort.

be curbed to some extent through the interest rate rather than through conditionality after the loan is already granted. To ensure that the loan would not be mispriced, the crisis managers and the D-LOLR providers would invite private commercial banks to bid on part of the liquidity loan. To signal that the liquidity loan is not mispriced and yet allow a rapid response, the private quota could be set quite low, say at 5 to 10 per cent of the total loan.

Under our plan, the D-LOLR providers would not have to take a formal vote to extend a liquidity loan. They would vote with their loans. An unfilled request would signify either significant concern with repayment, the mispricing of the loan or insufficient guarantees, loan covenants, collateral or a combination of reasons inhibiting lenders. An unfilled private quota would signify the presence of a subsidy in the loan. The participation of private lenders makes the proposal market friendly. Naturally, it would not find favor with sovereign borrowers who are used to subsidy rates and political influence to achieve the financing they desire. Many sovereign borrowers have been long-term borrowers from international financial institutions while at the same time enjoying access to international financial markets on market terms.

It has been argued that there is credit rationing such that private banks would not be willing to charge the required market clearing interest rate for the credit quality involved. Our counter argument is that this is why we have limited the amount required to five percent. It is anticipated that there will be enough institutions willing to invest a small part of their assets in a portfolio of higher yielding, higher risk loans. There is ample evidence of this in bank acquisitions of high yield loans and bonds, mezzanine and bridge financings as well as some banks which take much larger credit risk on small business portfolios at much higher yields.

V. LENDING OF LAST RESORT TO FINANCIAL INSTITUTIONS

While the bulk of the attention on international lending of last resort is focused on lending to governments, one cannot ignore the important role of I-LOLR for domestic and international financial institutions. For example, domestic institutions may be faced with various kinds of liquidity crises created by stabilization programs. This assumes more importance in the context of the Meltzer Commission recommendation that (p. 7) “eligible member countries must permit, in a phased manner over a period of years, freedom of entry and operation for foreign financial institutions”.

For example, under what circumstances can a German bank in the United States be served by the Federal Reserve discount window, or a French bank by the Bank of England? This issue is also relevant in the European Monetary Union where the rules of access to LOLR facilities remain murky (Goodhart 2000). In a global financial system, especially under the conditions set by the Meltzer Commission, is there adequate recourse to a lender of last resort? While there is concern with the transmission of systemic risk between financial institutions, there is no international agreement on the required framework of policies and programs. If anything, the position seems to be that banks and financial markets pose less of a concern than governments.

Ambiguities and uncertainty are pervasive in this area. Here are some instances. One uncertainty is between foreign bank entities and domestic banks in emerging markets; presumably, the former are subject to safety nets in their home countries. Another is between foreign bank subsidiaries and foreign bank branches. Presumably, the subsidiaries are subject to safety nets in their host countries, but also have safety nets in their home countries. For branches it would depend upon local banking law in the host state. Another issue deals with Type I I-LOLR provision; how would such loans be made? On which securities, home or host country? What central bank or bank supervisor would monitor and be accountable for performance?¹³ A

¹³ Some of these issues appear in policy issues of the G-10 countries and of the European Monetary Union; see Borio (2000), Chaplin et al. (2000), and Decker (2000).

fourth uncertainty relates to the international interbank market, where the adjustment for short term liquidity and maturity imbalances occur. In the latter case, for example, a bank mismatched in the 9-month period might sell 6 and 12-month deposits and buy 9-month deposits. The risk is that both liquidity and maturity mismatching for solvent institutions might require monetary policy intervention in the event of dislocations in some part of the yield curve, especially in the face of a financial crisis. Bisignano (1999, p. 39) notes that:

“The international interbank market might be thought of as having a ‘precarious credit equilibrium,’ where at some point lenders may feel they hold potentially legally unenforceable claims, mistrust the quality of public information on the borrower and question the credibility of any government guarantees”.

Should market volatility rise, a perfectly hedged position, say in foreign exchange options or government bonds, might require greater margin cover for the hedge, necessitating greater short term international borrowing and liquidity funds. In sum, some of the I-LOLR services are just as likely to occur in international financial markets as they are in the loans to sovereign countries. Yet, the I-LOLR debate accords too little of a role to Type 1 issues and financial institutions generally.

VI. CONCLUSIONS

Bagehot’s rules were designed for a solvent bank that suffered from a mismatch in the maturity structure of assets and liabilities. These rules are more difficult to apply in the open and integrated economies of today. Solvency, when applied to an entire banking system, cannot be taken as independent of monetary and exchange rate policy. Hence, the distinction between illiquidity and solvency loses significance. Furthermore, the extension of LOLR services to the international economy runs against one of the following two limitations: the inability of any international organization to create monetary base at the world level or the inability of national governments to credibly pre-commit a specified amount of resources to sustain the activity of the I-LOLR agency.

There is no obvious international counterpart to the domestic provider of LOLR. Yet, the system has evolved. On the one hand, the IMF acts as a de-facto I-LOLR; on the other hand, the IMF as well as the BIS act as crisis managers. In light of this evolution the recommendation of the Meltzer Commission to charge the IMF as an I-LOLR to countries that meet specific standards is a sensible one. The weakness of pre-qualification is that the I-LOLR agency may either lend too much to the qualifiers or too little to the non-qualifiers, instigating either moral hazard or welfare losses. The alternative of letting the IMF continue its practice of ex-post conditionality lending runs the risk that this agency may be too generous with the carrot to justify the conditions attached to its lending. Furthermore, effort is much more difficult to monitor than states of nature.

Liquidity is not well understood as an economic, policy or analytical issue in the international financial architecture. There is a compelling need to separate LOLR into 2 categories, at a minimum: sovereigns and financial markets and institutions. The UK House of Commons (1983) reported that debt crises may create a need for lender-of-last-resort facilities to banks. Domestic “liquidity” crises could be caused by IMF recommendations and restrictive monetary policy in order to protect a prevailing exchange rate. Yet the IMF writing on liquidity has generally been not on domestic liquidity, but rather on the impact on international markets, which presumably are in a better position to evaluate these market risks. We are particularly concerned that IMF policy recommendations may *create* precisely the domestic banking or financial crises with which classic D-LOLR was designed to deal. Furthermore, Type 1 I-LOLR crises need to be imbedded in the international financial architecture, rather than being dealt with on an *ad hoc* basis.

There is a need for greater rigor in official international lending. Official loans are made with much less diligence and care than private-sector loans, notwithstanding the higher risk of sovereign debtors as well as a result of not being arms'-length commercial loans. International agencies may well be lenders of last resort in a credit sense as they lend on conditions markedly inferior to those of private lenders, to some extent because they do not fear their own insolvency as a result of government guarantees. These conditions distort incentives and create dependency. We recommend greater separation of functions, as regulators counsel for commercial financial institutions. The objective should be to separate the prudent management of official sovereign loans from the decision to make them. The BIS could play a larger role in this segregation of duties. We also recommend that there be a mandatory minimum private sector lending component of at least five percent to ensure that pricing, loan covenants and similar credit standards are set in a responsible manner. This would ensure the prudent management of these loans, and would allow for accountability in the event of default.

Banking standards and adherence to the BIS core principles of banking supervision are essential minimum steps in domestic financial management, but they are often missing in emerging market countries. These standards should be required, together with basic accounting principles and equitable insolvency law, as conditions for any *repeated* international financial facilities to a country. As Bisignano notes (1999, p. 36), "Many of the banking crises of recent vintage have had as a contributing factor the absence of sound corporate governance of enterprises and intermediaries, whose components include rigorous accounting, auditing and disclosure requirements and efficient prudential regulations and supervision". These standards are not complete. There is a need for greater attention to liquidity for the reasons discussed. There is currently no substantive international guidance on liquidity as there is for capital requirements.

Currently the IMF is the assessor of standards, economic adviser, crisis manager, coordinator, lender and subsequent monitor of these loans for what I-LOLR occurs. This commingling of responsibilities in one single institution is not desirable and is bound to lead to conflicts of interest. The IMF should not set international standards, monitor these same standards, and enforce them in lending decisions, especially if the latter remain politically determined. It is for this reason that we prefer the BIS, as distinct from the Basel Committee on Banking Supervision which meets at the BIS, to be a crisis manager.

References

- Bank for International Settlements (BIS) (2000) "Market liquidity and stress: selected issues and policy implications." *BIS Quarterly Review*, November.
- Bagehot, Walter (1873) *Lombard Street: A Description of the Money Market*. London: The Paternoster Library.
- Bisignano, Joseph (1999) "Precarious Credit Equilibria: Reflections on the Asian Financial Crisis." BIS Working Papers, No. 64, March.
- Borio, Claudio (2000) "Market Liquidity and Stress: Selected Issues and Policy Implications," *BIS Quarterly Review*, November.
- Boughton, James (2001) *Silent Revolution: the International Monetary Fund 1979-1989*. Washington, D.C.: International Monetary Fund.
- Buchheit, Lee C. (1998) "Changing bond documentation: the sharing clause." *International Financial Law Review*, July.
- Calomiris, Charles W. and Allan H. Meltzer (1999) "Fixing the IMF," *The National Interest* 56, Summer.
- Capie, Forrest M. (1999) "Can There Be an International Lender-of-Last-Resort?," *International Finance*. Volume 1, 2: pp. 311-325.
- Capie, Forrest M. and Geoffrey E. Wood (1999) "The IMF as an international lender of last resort", *The Journal of International Banking Regulation*. Volume 1, Number 3, September.
- Chaplin, Graeme et al. (2000) "Banking System Liquidity: Developments and Issues," *Financial Stability Review*, December.
- Cruickshank, Don (2000) *Competition in UK Banking*. London: HMSO.
- Decker, Paul (2000) "The Changing Character of Liquidity and Liquidity Risk Management: A Regulator's Perspective." Federal Reserve Bank of Chicago, April.
- Dawson, Thomas C. (2001) "Russian central bank met IMF's goals." Letter to the editor, *Financial Times*, 29 March: 12.
- Eichengreen, Barry (1999) *Towards a New International Financial Architecture: A Practical Post-Asia Agenda*. Washington, D.C.: Institute for International Economics.
- Fischer, Stanley (1999) "On the Need for an International Lender of Last Resort." Paper presented at the joint luncheon of the American Economic Association and the American Finance Association, New York, January 3.
- Fратиани, Michele and John Pattison (2000) "An Assessment of The Bank for International Settlements." International Financial Institution Advisory Commission [Meltzer Commission]. Washington, D.C.

- Furfine, Craig H. (2000) "Empirical Evidence on the Need for a Lender of Last Resort." BIS Working Papers, April 10.
- Giannini, Curzio (1999) "'Enemy of None but a Common Friend of All'? An International Perspective on the Lender-of-Last-Resort Function." *Essays in International Finance* n. 214. Princeton, N.J.: Princeton University Press.
- Goodfriend, Marvin and Robert G. King (1988) "Financial Deregulation, Monetary Policy, and Central Banking," *Federal Reserve Bank of Richmond Economic Review* May/June: 3-22.
- Goodhart, Charles, A. E. (1984) *Monetary Theory and Practice*. London: Macmillan.
- Goodhart, Charles, A. E. (1999) "Myths about the Lender of Last Resort," Henry Thornton Lecture. City University Business School, November 17.
- Goodhart, Charles, A. E., Editor (2000) *Which Lender of Last Resort for Europe*. London: Central Banking Publications Limited.
- Goodhart, Charles and Dirk Schoenmaker (1993) "Institutional Separation Between Supervisory and Monetary Agencies," in Franco Bruni (ed), *Prudential Regulation, Supervision and Monetary Policy*. *Giornale Degli Economisti e Annali di Economia* 60, Milan: Bocconi University, 353-440.
- Herring, Richard J., and Robert E. Litan (1995) *Financial Regulation in the Global Economy*. Washington DC: Brookings Institution.
- House of Commons (1983) *International Monetary Arrangements: International Lending by Banks*. Volume 1, Report, Treasury and Civil Service Committee, London: HMSO.
- Institute of International Finance (1998) "IMF-Supported Adjustment Programs in the East Asian Financial Crisis". IIF Research Papers, No. 98-1, May.
- Institute of International Finance (1999) *Report of the Working Group on Financial Crises in Emerging Markets*. Washington.
- International Monetary Fund (1998) *World Economic Outlook and International Capital Markets*. Washington, December (internet version of document)
- International Monetary Fund (1999) *Annual Report*. Washington.
- Jeanne, Olivier (2000) *Currency Crises: A Perspective on Recent Theoretical Developments*. Special Papers in International Economics N. 20, March. International Finance Section. Princeton, N.J.: Princeton University.
- Jeanne, Olivier and Charles Wyplosz (2000) "The International Lender of Last Resort: How Large is Large Enough?" mimeo.
- Jeanne, Olivier and Jeromin Zettelmeyer (2000) "International Bailouts, Domestic Supervision and Moral Hazard". mimeo.

- Kamin, Steven B., and Karsten von Kleist, (1999) "The Evolution and Determinants of Emerging Market Credit Spreads in the 1990s". BIS Working Papers, No. 68, May.
- Kaufman, George G. (1999) "Banking and Currency Crises and Systemic Risk: A Taxonomy and Review," paper presented at the conference on Regulation and Stability in the Banking Sector. November 3-5. Amsterdam: De Nederlandse Bank.
- Kumar, M. S., Paul Masson, and Marcus Miller (2000) "Global Financial Crises: Institutions and Incentives." May 5, mimeo.
- Lerrick, Adam (2001) "When Is a Haircut Not a Haircut? When the IMF Is the Barber," *Wall Street Journal*, February 23, p. A15.
- Meltzer, Allan H. (1999) "What's Wrong With the IMF? What Would Be Better?" In William C. Hunter, George G. Kaufman, and Thomas H. Krueger (eds.), *The Asian Financial Crisis: Origins, Implications, and Solutions*. Norwell, Mass.: Kluwer Academic Publishers.
- Meltzer, Allan H. (Chairman) (2000) *Report of the International Financial Institutions Advisory Commission*. Washington: United States Congress.
- Rogoff, Kenneth (1999) "International Institutions for Reducing Global Financial Instability," *Journal of Economic Perspectives* 13: 21-42.
- Thornton, Henry (1802) *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*. London: Hatchard.
- Upper, Christian and Andreas Worms (2001) "Estimating Bilateral Exposures in the German Interbank Market: Is there a Danger of Contagion?" Paper presented at the Conference Bank Structure and Competition, Federal Reserve Bank of Chicago: May.
- von Hagen, Jürgen and Michele Fratianni (1998) "Banking Regulation with Variable Geometry," In Barry Eichengreen and Jeffrey Frieden (eds.), *Forging an Integrated Europe*. Ann Arbor: University of Michigan Press.
- Wallich, Henry (1977) "Central Banks as Regulators and Lenders of Last Resort in an International Context: A View from the United States", in *Key Issues in International Banking*. Boston: Federal Reserve Bank of Boston.