Comments on “The international lender of last resort. How large is large enough?”, by Olivier Jeanne and Charles Wyplosz

Olivier Blanchard

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This is an extremely nice paper. It has two parts, a model of multiple equilibria based on maturity/currency mismatch, and a discussion of the role for a lender of last resort in the context of such multiple equilibria. It has two important propositions. The first about the (near) irrelevance of monetary policy in the context of banking/currency crises. The second about the need for directed intervention by the international lender of last resort. Let me discuss each one in turn.

1 The maturity/currency mismatch model

The basic model presented by Jeanne and Wyplosz (JW in what follows) is beautifully simple. It is based on two relations. The first relies on the maturity/currency mismatch of bank liabilities and assets, and implies a positive relation between expected depreciation and bank failures. The second relies on the response of policy to bank failures, and implies a positive relation between bank failures and expected depreciation. Two positive relations open the scope for multiple equilibria, including one with high expected depreciation and high bank failures. This is precisely what the model generates.

I shall focus below on the first of these two relations. But let me say a
few words about the second. JW derive it from a desire by government, in
the face of lower equilibrium output due to bank failures, to boost demand
through inflation, and, by implication, depreciation. This does the trick,
but one can think of other channels. More likely (equally likely?) is a story
in which bank failures and a sharp recession lead to a loss of fiscal control,
and the expectation of higher money growth, higher inflation and larger
depreciation.

Let me turn now to the first of the two relations, and the effects of
interest rates and the exchange rate on balance sheets.

(1) JW focus in the text on a special case, where banks have only short
term dollar liabilities and long term peso (domestic currency) assets. They
are right to do so, as the results in this case are indeed striking. But some-
thing is, I think, learned from the more general case (which they work out
in the appendix, except for the presence of long term liabilities):

Take a bank with both peso and dollar short- and long-term liabilities
($D_1, D_1^*, D_2, D_2^*$), and assets ($R_1, R_1^*, R_2, R_2^*$), so with balance sheet:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
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<tbody>
<tr>
<td>$R_1, R_2$</td>
<td>$D_1, D_2$</td>
</tr>
<tr>
<td>$R_1^<em>, R_2^</em>$</td>
<td>$D_1^<em>, D_2^</em>$</td>
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Stars denotes dollar assets or liabilities; 1 and 2 refer to the short and
the long term respectively. Let, as in the paper, $S_1$ and $S_2^*$ be the current
and the future expected exchange rate, expressed in dollars per peso. Then
the net worth of the bank in dollars is given by:

\[
NW^* = (\text{Terms in dollars}) + \frac{S_1}{1+i}(R_2 - D_2) + S_1(R_1 - D_1)
\]
The second term is the value of long-term peso assets minus liabilities, discounted at the domestic interest rate, and expressed in dollars using the current exchange rate. The third term is the value of short-term peso assets minus liabilities, again expressed in dollars using the current exchange rate. Recall the interest parity condition is given by:

$$\frac{S_1}{1 + i} = \frac{S^*_2}{1 + i^*}$$

Replacing in the previous equation implies:

$$NW^* = (\text{Terms in dollars}) + \frac{S^*_2}{1 + i^*}(R_2 - D_2) + S_1(R_1 - D_1)$$

In the model presented in the text, $R_1, D_1, D_2$ are all equal to zero. This has two implications:

- As $D_2$ is equal to zero, the second term is an increasing function of the expected exchange rate. An expected depreciation decreases the net worth of banks.

- As both $R_1$ and $D_1$ are equal to zero, the last term is equal to zero. As the second term depends neither on the current exchange rate nor on the current domestic interest rate, then, given $S^*_2$, the interest rate/exchange rate mix does not affect the net worth of banks.

This last result is perhaps the most striking result of the JW paper. This derivation makes clear however that it depends on the last term being zero, in other words, a zero short run position in net domestic assets. If the condition is not satisfied, then monetary policy can improve the net worth of banks through manipulation of the exchange rate; whether it does this through a depreciation or an appreciation depends on the sign of the net position.
What should we expect the sign of \((R_1 - D_1)\) to be in practice? The answer is far from clear. On the one hand, currency mismatch leads to a small value of \(D_1\) (peso liabilities). On the other, maturity mismatch leads to a small value of \(R_1\) (short-term peso claims).

This gives some perspective to the result emphasized by JW: It is indeed special, but there is no obvious bias relative to the general case.

There are other dimensions in which the JW model is special and could be misleading (JW are not guilty, as the model is just fine for the issues they focus on). Let me mention a few, more as potential extensions than as criticisms:

(2) The model focuses exclusively on the banks’ balance sheets. Thus, within the logic of the model, one simple way of avoiding crises is for banks to balance their dollar liabilities with dollar claims, therefore eliminating the currency mismatch from their balance sheet, and removing the possibility of multiple equilibria.

While correct in the model, this conclusion is likely to be wrong in fact: It ignores the fact that the ultimate borrowers are domestic firms, which, for the most part, get their revenues in pesos, not in dollars. Denominating bank claims in dollars just transfers the burden from banks to firms. After a depreciation, some firms may not be able to pay back their dollar liabilities, leading in turn to bank failures.

One should not conclude from this that the denomination of bank claims is irrelevant. Firms may have deeper pockets than banks after a depreciation, so that denomiating bank claims in dollars rather than pesos may actually reduce overall firms’ and banks’ failures. But the argument clearly implies that the outcome is likely to depend not only on the banks’ but also on the firms’ net worth distribution.

(3) One can actually push the logic of the argument one more step: Firms
get their revenues from producing and selling goods. Their peso revenues, and therefore their ability to repay in the future, are likely to vary with the future price level. This in turn raises the issue of whether, when we look at the effect of a decrease in $S^e_2$, we are looking at a nominal or at a real expected depreciation.

To see why this matters, suppose that banks claims on firms are stated not in pesos, but in terms of domestic goods; or equivalently that what happens to the economy depends on the consolidated net worth of banks and firms. Let $R_2$ now denote revenues in terms of domestic goods, $P^e_2$ denote the expected future price level. In this case, the present value in dollars of future claims on domestic firms is given by:

$$S_1 \frac{P^e_2 R_2}{1+i} = \frac{S^e_2 P^e_2}{1+i^*} R_2$$

where the equality follows from interest parity. Now assume that purchasing power parity holds in the long term, so the expected depreciation reflects higher inflation. In the notation of the JW model: $S^e_2 P^e_2 = \text{constant}$. This in turn implies:

$$\frac{S^e_2 P^e_2}{1+i^*} R_2 = \frac{R_2}{1+i^*}$$

The expression is independent of the future expected depreciation, again breaking the link between expected depreciation and bank failures. Put in slightly paradoxical terms: Rather than making things worse, the maturity mismatch helps here. Because the claims are long term, and because, in the long term, purchasing power parity holds, their value in dollars is independent of short term fluctuations in the exchange rate.

(4) To focus on net worth effects, JW rightly choose to ignore issues of liquidity. Implicitly, they assume that firms can either liquidate projects for the present value of the revenues, or have enough collateral that they can
find some other lender if banks call back the loans. Neither assumption is
terribly appealing, and it is interesting to think about what happens when
issues of liquidity are reintroduced in the model.

Assume that if banks call back their long term peso claims, they get less
than the present value of these claims. Assume further that the larger the
proportion of claims called back, the higher the discount. This opens the
door to two sources of multiple equilibria:

First, the multiple equilibria which are the focus of the JW paper, each
associated with a different value of $S^e_2$.

Second, for a given $S^e_2$, equilibria with and without runs on the banks.
In standard fashion, a run on banks forces them to call back loans, decreas-
ing their net worth, triggering failures, and justifying the run in the first
place. Note that the lower $S^e_2$, the lower the net worth of banks in the good
equilibrium, the more likely are multiple equilibria.

There is a potentially interesting twist here (this is speculative, but spec-
culating is the privilege of the discussant), namely the interaction between
the two sources of multiple equilibria. For example, in the high $S^e_2$ equilib-
rium, $S^e_2$ may be high enough as to rule out multiple bank run equilibria.
But in the low equilibrium, the weakened net worth position of banks may
open the scope for the second type of multiple equilibria, those based on
illiquidity.

2 Directed lending by the lender of last resort

The mismatch model allows for a precise discussion of the potential role for
a lender of last resort. And I find the point emphasized by JW, namely
that such international lending should be directed, and used to directly
alleviate the currency/maturity mismatch for banks, very convincing and
very important. Let me elaborate on two issues here.
(1) I am less worried about moral hazard problems than the authors appear to be. I believe that lending by the international lender of last resort should be to the government, not to the banks themselves. And I do not see why the international lender has to involve itself in the details of domestic bank supervision.

In another paper, Olivier Jeanne and Jeromin Zettelmeyer have shown that such loans are typically repaid, so the cost is borne within the country, not by international taxpayers. If the government is benevolent (i.e. cares primarily about domestic taxpayers), then it will indeed want to use the funds to do directed lending to banks, or to honor guarantees on dollar denominated debt. Separating potentially solvent from insolvent banks will entail the usual amount of guess work and mistakes. But it is not clear why and how international lending to the government makes this worse.

If the government is not benevolent, but is instead captured by the banks or some of the debtor firms, then it will indeed misbehave. But it will typically do so whether or not it can borrow from the international lender. It is not clear why, conditional on the government having to repay the funds lent by the international lender, access to such funds will lead to a worse outcome.

(2) I am more worried however about the generality of the directed lending result.

Consider another example of multiple equilibria, which also opens the case for a potential intervention by a lender of last resort. Forget banks. Take an EMS-type crisis, where the currency is pegged. An attack on the currency, which requires high interest rates, leads to a recession and forces a devaluation, which in turn justifies the attack. In this case, it is not clear to which institutions, if any, the funds should be directed. For the reasons given in the paper, this makes intervention by a lender of last resort much more difficult, and thus, other things equal, less appealing.
This in turn raises at least two issues. First, whether the nature of actual crises is sufficiently identifiable that, in practice, the international lender can assess whether directed lending will work—justifying intervention—or not work—in which case it may not want to lend. Second, whether the non-mismatch multiple equilibria we can think of all rely, as is the case above, on the defense of a fixed exchange rate. (All those I could think of did). If the answer is yes, then, under floating rates, the mismatch example which is the focus of the paper may be the typical case, in which case directed lending, and intervention by the international lender, can indeed be the solution.