NOTES ON CREDIBILITY AND ECONOMIC POLICY

by

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1. Introduction

The word "credibility" seems to spring up to the lips of policy makers with greater frequency now that several cherished simple systems (Bretton Woods, Flexible Exchange Rates, "Tablita") have run into serious implementation trouble. Sometimes one cannot even repress the suspicion that the word is no more than a stratagem to shift the blame of policy failure from those who are supposed to make policy to the innocent bystanders who are generically called "the private sector." Be it as it may, the point of the matter is that economic analysis has only recently begun to make some inroads into the credibility issue, and thus the word means different things to different people.

The present notes are intended to provide an (admittedly incomplete) overview of some of the key insights of the new economics of credibility. I think that, aside from mere rhetoric, credibility plays a crucial role for economic policy, and it is, therefore, important to make the central ideas more accessible to a wider audience. The discussion will proceed through a series of steadily more realistic scenarios, culminating with a fixed—exchange rate system subject to periodic crises. We will be concerned with both the impact and the roots of imperfect credibility.

2. A Simple Model

Consider an economy that produces two goods, X and Y, under competitive conditions. If free trade prevails, then the equilibrium can be depicted by the familiar diagram of Figure 1; the slope of the straight lines is given by the (exogenous) terms of trade, while the concave curve represents the transformation frontier. Equilibrium production is at point (vector) Q^*, and equilibrium consumption is at point (or

vector) C^* where the representative's individual indifference curve is tangent to his budget constraint (assuming away tariffs, taxes or government transfers). The vector of net trades is $(C^* - Q^*)$.

(INSERT FIGURE 1)

Figure 1 is the standard textbook vehicle to show the optimality of free trade for a country which is a price taker in international markets. Under these circumstances, a social planner trying to maximize the representative's individual welfare will choose to produce at Q^* and to allocate consumption according to C^*; this strategy attains the maximum feasible level of utility, since otherwise the consumption point would have to be located on a straight line which is further from the origin than, and parallel to, the one depicted in Figure 1; this would not be possible, because it would require producing a vector located North–East of Q^*.

Let us now consider a slight variation of the above familiar story in order to see how credibility could interfere with the optimal outcome. We will assume that production decisions have to be made *before* fiscal policy is actually implemented. This is an artificial construct which will however serve to highlight the role of credibility.

If the government announces free trade and the producers believe it, then production will occur at point Q^*. Furthermore, if the government's promise is fulfilled, consumers would be able to attain point C^*. Thus, once again, free trade would lead the economy to a Pareto optimum. But, imagine now that producers do not believe the policy announcement, thinking instead that an import tariff τ (>0)—i.e. a tariff on X— will be imposed. Since the price of X with respect to Y is

expected to be higher than under free trade, producers will choose a point like Q in Figure 1. Thus, if the government sticks to its free—trade promises and sets $\tau = 0$, consumption will occur at a point like C, which is clearly inferior to C^*. This example illustrates in the simplest possible form that *a free trade policy may not achieve its goal if it is not fully credible.*

One interesting point that emerges very clearly from the above discussion is that lack of credibility is very similar to a regular distortion (like a production tax). We know from second—best theory that it is in general optimal to counteract a distortion by another distortion. Thus, in the present example it may be optimal, for instance, to impose or announce a credible production subsidy in sector Y which compensates for the expected tariff. One problem with this kind of "solution," however, is that the counteracting measures themselves have to be credible and may affect the credibility of the tariff policy; furthermore, if the counteracting measures are credible the policy maker has still to be able to have a fairly good idea about what is that people actually expect, particularly when the credibility-induced misallocation is fought via price distortions (like subsidies), and not through quantity restrictions (like quotas)[1].

But, why would the free-trade policy not be credible ? To answer this question, let us add some more realistic color to our example. We will assume that the government can use the proceeds of the tariff to generate a public good g; however, at the time that the trade policy is announced we assume, in addition, that the marginal utility of producing g is less than its marginal cost (which includes the

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[1]Quotas are very attractive in the present context, because it would be possible to place the economy at the first best solution even when the quota affects the credibility of the free trade policy, and the policy makers do not have full information about the nature of the credibility problem.

production and consumption distortions associated with the tariff). Hence, free trade would still be the optimal policy *announcement* (but, not necessarily, as we will see, the optimal *policy*).

Imagine, for a moment, that the private sector believes the government announcement and, therefore, makes plans to produce at point Q^* (recall Fig. 1). Since, by assumption, tariffs are imposed *after* production decisions are made, the social cost of imposing a tariff after Q^* is chosen would be smaller than before (i.e. at the time the policy was announced) due to the fact that the after–production tariff generates no production distortions.

Consequently, when the policy maker evaluates his after–production policies he may come to the conclusion that it is optimal to set a positive tariff and provide a positive amount of of public good g. Notice that there is no basic "inconsistency" in the policy maker's behavior; what happens is that once the production decisions are made he actually faces a different set of constraints than before, which makes it perfectly natural to expect that his optimal policy will also be different. This is one fundamental reason for policy announcements (free trade in our example) to run into credibility problems. We call it "fundamental," because, as our example illustrates, the free–trade policy is a feasible one, it does not involve a set of targets that are mutually incompatible (see Section 4), or on any kind of "cheating" scheme on the part of the government[2].

3. Credit Markets and Durable Goods

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[2]This is an example of the type studied in the recent time–inconsistency literature. See, for instance, Kydland and Prescott(1977), Calvo(1978), Barro and Gordon(1983), Rogoff(1987).

Despite its simplicity, the previous section's example captures a central message of the credibility literature, namely, that lack of credibility may impair the beneficial effects of an otherwise desirable policy. This observation will acquire greater practical significance as we proceed our discussion in terms of more realistic scenarios.

An examination of our simple example shows that credibility will become an issue whenever the private sector has *less than full flexibility* to reverse previous decisions or plans (production plans in our previous example), while the government has *some* possibility of revising its previous decisions or announcements[3]. A natural setup for this kind of situation to arise is one involving true intertemporal decisions, i.e. one in which saving and investment decisions (not only the contemporaneous production or consumption of goods X and Y as in the previous example), take the center stage.

We will illustrate our main points by a simple example involving durable goods[4]. Let us divide time into present (period 1) and future (period 2). The authorities in period 1 announce that tariffs will be permanently lowered to zero, but the private sector expects that such a policy will be modified in the future, and a new set of positive tariffs (on good X, say) will be put in place. In order to distinguish this example from the previous one, let us assume that there is no substitution in production or in consumption (in terms of Fig. 1, this would be equivalent to assuming L—shaped indifference and transformation curves in every direction), but

[3]Notice, incidentally, that there is an important asymmetry here: credibility problems tend to arise whenever the private sector cannot revise *all* of its previous decisions, and the government is able to revise *some* of its previous announcements.

[4]Durable goods played an important role in the recent experience of Chile and Argentina. See, for example, Calvo(1986), Corbo, de Melo and Tybout(1986), and Edwards and Edwards(1987).

consumption goods can be stored at no cost (i.e. consumption goods are *perfectly durable*). Thus, the expectation of a higher tariff on X will normally lead to bigger holdings of inventories of good X. However, although this type of transaction may be profitable from the point of view of the private sector, it will not necessarily be so for the economy as a whole; for, the accumulation of inventories crowds out the holding of other types of assets with a higher social rate of return (like holdings of physical capital at home, or even of foreign interest—bearing assets). Numerical simulations reported in Calvo(1987e), for example, suggest that the social cost of this counter-productive speculation may be quite substantial when compared to the potential gains from (credible) free trade.

The above example is interesting because its strong consumption non-substitution feature makes it absolutely clear that if there are costs, these are entirely due to the misallocation of investment (not consumption) induced by the lack of credibility. Thus, the social cost of this misallocation will be a function of the structure of capital markets. For example, in a regime of perfect international mobility, the country could borrow an unlimited amount of funds for speculative inventories and, consequently, the induced distortion costs could be substantial; but, on the other hand, costs would be nil if there existed a total ban on international capital mobility. An important consequence of the latter is that *when credibility is relatively low it may be optimal to limit the access to international capital markets*[5].

The above—mentioned distortion costs could perhaps be ameliorated if lack of credibility in the free-trade policy led to a bigger accumulation of productive capital,

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[5]It should be pointed out, however, that this is less than a complete argument in favor of controls on capital mobility, because credibility itself may be a function of those controls. Also, notice that this discussion is closely related to the "quota" solution in Section 2.

and not just of durable consumption goods. However, I doubt very much that investment will be substantially stimulated by this kind of policy, because usually machines require imported raw materials or spare parts, the cost of which depends, once again, on *expected* future taxes and tariffs[6].

We have already argued that imperfect credibility may call for controls on international capital mobility. What can one say about *domestic* capital markets? There are, of course, the familiar McKinnon-type arguments in favor of liberalizing the domestic capital market (see McKinnon(1973)). When credibility is at stake, however, the outcome is much less clear, because a relatively free domestic capital market could magnify the credibility-type distortions. One would perhaps not be too concerned about the latter if a tight grip on international capital mobility could simultaneously be ensured, because under these circumstances the speed of adjustment would tend to be substantially smaller, thus giving more time to device offsetting measures in case the economy takes the wrong course; however, I doubt very much that international capital flows can be controlled when the domestic banking industry is free to offer attractive interest rates. There are, in practice, well-known "tricks" to get around those controls, like over- or under-invoicing of trade flows[7].

4. Some Roots of the Credibility Problem

Probably the best—known reason for lack of credibility is "targets

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[6]In fact, I suspect that this dependence on foreign imports (coupled with imperfect credibility) explains the relatively weak response of investment in Argentina to the Martinez de Hoz liberalization policies.

[7]I suspect, incidentally, that those illegal practices would tend to become more common, the greater is the share of foreign trade.

incompatibility," namely, a situation in which it would not be possible to fulfill certain policy targets because the realization of some would prevent the fulfillment of some of the others. A typical example of this sort obtains when, for instance, the government is committed to having a fixed exchange rate against the dollar, say, the budget deficit is fully monetized (i.e. no bonds are issued), but the deficit is so big that the resulting expansion of money supply exceeds the growth of the demand for money which would occur if the domestic and the dollar rates of inflation were equalized. If the private sector understands the nature of this situation, they will realize that the excess flow supply of money will lead to a steady loss of international reserves at the Central Bank; thus, unless a change in policy to redress the imbalance is expected, the public will not believe that the exchange rate will remain constant forever, i.e. the fixed-exchange rate policy will be rendered non-credible.

Another example of targets inconsistency occurs when policy makers attempt to put inflation under control, but the other targets leave the system without a nominal anchor. An example—which may be of some relevance for the recent experience of Mexico and Colombia—would arise if the government attempts to keep the *real* exchange rate within certain bounds by manipulating the official nominal exchange rate, while the central bank is always ready to buy foreign exchange at the official rate. Assuming, for the sake of the argument, that domestic credit is kept constant, then it is easy to see that if a certain rate of inflation satisfies the equilibrium conditions[8], so will a higher inflation rate. The resulting higher demand for nominal money will lead to a higher supply through an expansion of capital inflows and reserves at the central bank; prices and wages will rise at a higher rate,

[8]We say that a given inflation rate satisfies the equilibrium conditions if it is associated with a situation in which all markets are cleared and expectations are validated.

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and, consequently, the government will be forced to accommodate the higher inflation by devaluing at a higher rate, validating expectations. No inflation target will, therefore, be credible.

Although targets inconsistency has played a major role in countries like Argentina and Mexico and it appears to be a central problem in present-day Italy, I would like to mention another type of policy inconsistency that is much more subtle and, consequently, relatively much less well understood by the profession than straight targets inconsistency[9]. For lack of a better name, I will call it "implicit targets inconsistency," ITI, and I will illustrate the concept by two relevant examples.

The first example shows lack of credibility emerging from the existence of nominally denominated government bonds. Imagine, once again, that a fixed-exchange rate policy is followed, but contrary to the above example, the government budget would be balanced if the domestic nominal interest rate equals the dollar rate; this equality between rates would hold automatically *if the policy is fully credible* and there is no interference on international capital flows (i.e. there is perfect international capital mobility[10]). Hence, under the present circumstances, a fixed-exchange-rates regime is fully sustainable.

Prima facie, therefore, the above scenario would seem to be immune to

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[9]The above examples in this section would be hard to rationalize in terms of a welfare-maximizing government, unlike the ensuing ones where the source of the credibility problem is closely related to the maximization of social welfare. In fact, the following examples are akin to the time—inconsistency problem discussed in Section 2.

[10]The proof is by contradiction; if the domestic interest rate was higher than the international one, for example, there would be an instant inflow of capital, which would tend to push down the domestic interest rate. If, on the other hand, the inequality went the other way, a capital outflow would be generated, raising domestic interest rates.

credibility problems. However, consider now the case in which the public expect that the currency will be devalued next month, say. Obviously, then, the one-month nominal interest rate will reflect those expectations, and will tend to be higher than in the previous case (i.e. full credibility) and, hence, it would be higher than the international interest rate. When the next month arrives, and the government has to pay the interest on its debt, we have under the above assumptions that (1) the government's budget will be in the red, or (2) more real taxes will have to be levied, or (3) the currency will be devalued to lower the real value of the debt service. If the private sector is confident that the government is going to resort to (1) or (2) exclusively, then the fixed-exchange rate policy would be credible (at least for one more month), contradicting the assumption of no credibility, interest rates will be back to the international levels and the next-month budget will be balanced (confirming that it was "wise" or "rational" to believe the government announcement). Notice, however, that option (1) would normally lead to loss of reserves (for the same reasons mentioned in connection with the targets-inconsistency example), while (2) is not free from social costs (e.g. deadweight losses). Consequently, if the ex-post real service on the public debt is sufficiently high, it is conceivable that the government finds it optimal to resort to a devaluation (i.e. option (3) above). In fact, the latter scenario may be what was going on through people's minds when they figured out that a "devaluation was in the cards," and, hence, could not possibly convince themselves that the fixed-rates policy could be maintained as promised in the policy statement[11]. This is an extremely interesting example, because it shows that the expectation of a future devaluation may actually induce the government to devalue, thus undermining the credibility of the fixed-

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[11]For more formal analyses of this type of model, see Calvo(1987b,c).

exchange rate system[12].

Notice that, in a deeper sense, the above example also exhibits some kind of targets inconsistency; we showed that the fixed-rates system could break down because the government is reluctant to raise taxes beyond a certain point, or let the budget deficit grow larger than a certain amount—both of which are normally implicit, not fully articulated, policy targets (which is why we say this is a case of "implicit targets inconsistency"). I suspect that ITI may have played an important role in the demise of the Chilean fixed-rates system in 1981 (see Edwards and Edwards (1987)), the Uruguayan devaluation of 1982, the revision of the Argentinean Austral plan in 1986 (see de Pablo and Martinez(1988)), and several other recent stabilization episodes.

The second example I would like to mention could be couched in a closed-economy context. Imagine an economy in which nominal wages are set one "period" (e.g. a month) in advance, but the stock of money can be set during each period (via open-market operations and the like). Obviously, in such a world workers are going to find out soon enough that their real wage depends on monetary policy and, consequently, they will try to forecast the stock of money next period when they are in the process of setting up their next-period wages.

Consider now the case in which the government announces that the stock of money will be kept constant from here to eternity and that, assuming away growth and any trend in the demand for money, price-level stability would be ensured (on average). Once again, if the policy is credible, the government would be proven right,

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[12]The non—indexation of the public debt is central for our results; for, if the public debt was fully indexed to the price level or the exchange rate, then the nominal interest rate would rise if and *only if* there is an actual devaluation (which, if anything, would remove the incentive to devalue).

and prices will be stable. Could there still be any basis for lack of complete credibility? Quite possibly, yes. Imagine, for example, that workers did not believe in price stability and thought, instead, that prices and money supply would grow at rate $x > 0$; then, one could construct a perfectly reasonable model in which wages are also set to grow at rate x (see, e.g. Fischer(1977), Phelps and Taylor(1977)). As in the previous example, we place ourselves in the position of the next-period policy maker if wages have actually increased at the rate x; if he refuses to increase the supply of money, unemployment or excess capacity is likely to occur; thus, once again, if some "normal unemployment" is an implicit target, the policy maker may end up increasing the supply of money at rate x, validating expectations and rendering the price-stability policy less than fully credible (see, however, the next Section).

5. Credible Policies with Non—Credible Politicians

So far, the emphasis has been put on imperfect credibility. However, full credibility can sometimes be obtained by constraining the policy variables. We already encountered an instance of this sort when we discussed the first ITI example in Section 4, where we showed that credibility of the fixed-rates regime could be restored if the government indexed its debt to the price level or the exchange rate.

In this Section I would like to discuss a rather remarkable result due to Phelps(1979) in which credibility would be complete even when individuals entertain the idea that the policy announcements might be subject to future changes. Phelps showed this result for an economy very similar to the last example of Section 4; here I will prove it for the nominal-interest example of Section 4.

Let us call i_t the one—period nominal interest rate on government bonds, and

let E_t^e and E_t denote the expected and actual nominal exchange rates in period t. We will now examine the credibility of fixed exchange rates.

Assuming that individuals are risk neutral and, without loss of generality, that the equilibrium (expected) real rate of interest is zero, we have, in equilibrium, that the private sector will be indifferent between holding government bonds and holding capital if[13]

$$1 + i_t = E_{t+1}^e / E_t \tag{1}$$

We assume that the government is not fully credible, but it has succeeded in convincing people that there is a positive probability p that the fixed-exchange-rate system will be maintained *at all costs*, and that in the event that the currency is devalued, it will be done so in just the amount needed to set the ex−post interest real rate factor, i.e.

$$(1+i_t) \, E_t / E_{t+1}, \tag{2}$$

equal to the equilibrium ex−ante real interest factor (which, in turn, equals unity, given that the equilibrium expected real rate of interest was assumed to be zero). Thus, the public believes that the devaluation factor will be such that

$$E_{t+1} / E_t = 1 + i_t \tag{3}$$

with probability $(1 - p)$.

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[13]In what follows, we assume that the price level is proportional to the exchange rate.

Assuming that the private sector is fully aware of the situation, and expectations are, therefore, rational, we have

$$E^e_{t+1}/E_t = 1 \cdot p + (1+i_t)(1-p) \qquad (4)$$

In words, (4) says that the expected devaluation factor (i.e. the L.H.S. of (4)) equals the devaluation factor associated with no devaluation (= 1) times the probability of the latter (= p), plus the devaluation factor when the currency is devalued (= $1+i_t$, recall (3)) times its corresponding probability (= 1—p).

Clearly (1) and (4) imply

$$1 + i_t = p + (1+i_t)(1-p) \qquad (5)$$

Thus, if p > 0, we get

$$1 + i_t = 1 \qquad (6)$$

which, recalling (3), implies that the expected rate of devaluation is zero. In other words, *in order for a fixed-exchange regime to be completely credible, it is enough that (1) the probability of sticking to fixed rates is positive, no matter how high or how low is the ex—post real rate of interest, and (2) discretionary policy is exclusively used to ensure equality between ex—ante and ex—post real rates of interest.*

From the perspective of our discussion in this paper, the above beautiful example shows that credibility can sometimes be ensured even when policy makers or the institutional organization of society are not credible in a fundamental sense (i.e.

p < 1).

The example is particularly interesting because it does not require that people attach a relatively high probability to the maintenance of fixed rates irrespective of its costs (p, in our notation); as a matter of fact, p could be any positive number in the interval (0,1]. The result, however, does not extend to the case $p = 0$, because, by (5), equilibrium would be consistent with any value for i and, thus, by (3), it would be rational to expect any rate of devaluation—in other words, the system would exhibit a *continuum* of equilibrium solutions. The latter would be a situation where the policy makers would be completely at the mercy of expectations.

Finally, I would like to point out that condition (3) is less than totally innocent. When the service of the domestic debt constitutes a substantial proportion of the government's budget, policy makers will be tempted to devalue in order to reduce the *real* value of such a debt; since the burden of the debt would be eliminated when the real debt is zero (which could be achieved by repudiating the currency or setting an infinite rate of devaluation), the temptation to liquefy the debt could, thus, induce rates of devaluation which exceed the ones implied by (3). If such were the case, however, credibility of the fixed—rates regime would be irretrievably lost.

6. Target Zones for the Exchange Rate

The recent volatility of exchange rates that followed the breakdown of the Bretton Woods system has given new impetus to proposals of fixed- or quasi-fixed exchange rates (see, e.g., Frenkel and Goldstein(1986) and Williamson(1985)). This is a particularly appealing system for "small" countries because in this fashion they could, in principle, get the relative price stability enjoyed by one or several of the

dominant currencies, at least temporarily. The main drawback of such a system is that it may induce counter-productive speculation due to lack of credibility, or, granting the latter, due to the periodic revisions of policy that would be called for.

This section will discuss the above-mentioned system, stressing the reasons or mechanisms which may make it undesirable. The purpose is not to make a case against target zones, but instead to alert the reader about its possible drawbacks connected with the credibility issue.

For the sake of definiteness, I will focus the discussion on a system that keeps a fixed a constant exchange rate against the dollar, say, until the situation becomes "unsustainable" and there is a one-step devaluation (or revaluation) of the currency, and so on. This step-wise devaluation regime prevailed during the Bretton–Woods system, and is the one presently operating in countries who joined the E.M.S. It should be stressed, however, that in most cases step–wise devaluation is a system which is adopted more by default than by design, so devaluations are usually accompanied by credibility crises.

The case of no–devaluation–ever need not be discussed here, since it is the least interesting from a practical point of view. If the system is credible the costs would be nil; however, if credibility is a problem then the costs could be substantial depending, among other things—and as shown in our previous examples—on the degree of capital mobility.

Let us now turn to discuss instances where the currency is periodically devalued. The typical situation in this respect is one in which the authorities are not explicit about the measures that will be taken when the fixed–rates system cannot be sustained. This gives rise to the kind of speculation that we discussed in connection with credibility problems; everybody knows that the system is likely to change, but

they have to figure out in their minds how will the next crisis be resolved. In fact, the situation is even worse than in our examples because the set of possibilities is usually much larger, and there is now uncertainty as to which of the many options will be exercised by the government.

For the sake of definiteness, however, let us consider the case in which only the exchange rate is modified, and no other policy variable is subject to change. This is an interesting case which has received a great deal of attention in the literature[14]; if targets incompatibility stems from having an excessive government deficit, then there will be a steady loss of reserves before the crisis occurs; however, at the time of the crisis there will be a run against the domestic currency and, with perfect currency convertibility, the Central Bank will suffer a sudden loss of reserves; otherwise, if the Central Bank does not intervene in the foreign exchange market, the rate of consumption will increase, and purchases for inventory accumulation may exhibit a dramatic jump as the economy moves towards the balance of payments crisis.

One of the most interesting, and in fact also worrisome, aspects of the above-mentioned speculative process is that it may exhibit a strong discontinuity at the time of the crisis but, beforehand, sailing may be pretty smooth and uneventful. Remarkably, one can show that such a scenario, which may lead a casual observer to think that the public is unaware of what is going to happen, arises even when the speculators are fully conscious that the river ends in a steep waterfall. One could, in fact, construct plausible models where, except for a steady loss of reserves at the Central Bank, nothing else happens: output, real rates of interests, the real exchange rate, etc., remain the same (see e.g. Krugman(1979)). This is really very unfortunate,

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[14]See, for example, Krugman(1979), Flood and Garber(1984), Obstfeld(1984), Calvo(1987a,f).

because the policy maker may take the smooth ride as an indication that his policies enjoy a high degree of credibility and that trouble is still a long way ahead, thus lifting some of the pressure from him to put the economy on a more credible course.

In more general terms, the central lesson of the above example is that lack of credibility of a fixed-exchange-rate system may not be reflected in present economic variables in any dramatic sort of way. In fact, while the exchange rate remains fixed, the country could enjoy the benefits of low international inflation, and politicians could bask in a flash of spurious glory. Normally, however, the whole process (taking into account the post—crisis adjustment) will tend to have a negative effect on social welfare, as shown in our earlier examples.

Sometimes, however, the impending crisis may have real effects. The literature has shown this to be so when there are binding liquidity constraints or there exists imperfect currency convertibility (see e.g. Calvo(1987a,f)). When convertibility is imperfect, for example, speculators will not wait until "the last minute" in order to exchange their domestic currency into foreign currency or goods; consequently, one could construct plausible models where consumption increases during the transition to the crisis, a phenomenon that will tend to be accompanied by a rise in the real interest and foreign exchange rates (Argentina during the late 70's and early 80's exhibits this kind of behavior; see Calvo(1986)). These are, in a sense, more fortunate situations because warning signals become apparent early on. An interesting suggestion of our analysis is that imperfect currency convertibility may be desirable because of its above-mentioned signaling properties[15].

Early warning signals are specially attractive when we are dealing with

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[15]Thus, once again, we find another example where interference with capital mobility may be a desirable policy.

implicit targets incompatibility (ITI), like when the government is expected to "bail out" the banking system in case of a run against bank deposits, for example. This is a very common feature of modern economies, as testified by the recent experiences of Chile and Argentina (see Díaz-Alejandro(1985), Edwards and Edwards(1987), Fernandez(1983)), and the reaction of the Federal Reserve to the Wall Street crash of last october. Let us assume, in contrast with the previous discussion, that the government runs a balanced budget, the stock of government bonds is zero and the stock of high-powered money does not exceed the stock of international reserves at the Central Bank *times* the official (supposedly constant) exchange rate. Obviously, the government would have the resources to withstand a run against domestic currency if it is committed not to intervene in case of a financial crisis. The situation would, however, be quite different if the Central Bank (or some of its agencies) behaves as the "lender of last resort" (thus providing deposit insurance); for, except for the special case in which required reserves are 100% of deposits, deposit insurance means that the "potential stock of high-powered money" would be the actual stock *plus* insured deposits—an amount which could by far exceed the present stock of high-powered money and the available international reserves (valued at the official exchange rate). Consequently, in this situation a crisis may develop just because people think (or dream) that a crisis will occur[16].

7. Final Words

These notes were aimed at showing the importance of credibility for the

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[16]For related literature concerned with the stability of a banking system, see Diamond and Dybvig(1983).

success of economic policy. Credibility is a very volatile commodity (as exemplified by the example of Section 5) which requires the expertise of economists, other social scientists and politicians. But although simple solutions are elusive, both theory and practice send a loud signal against free—market solutions (like free capital mobility or running an unfettered banking system) when policy rules are not fully credible. Hopefully, this was clearly illustrated by our examples in which it was shown that lack of credibility (or, more generally, instability of economic policy) might call for the imposition of controls on capital markets.

It would, however, be erroneous to conclude that controls are always necessary; as a matter of fact, the logic of these notes could also be applied to conclude that building up credibility should be the first order of business for a politician, and that, consequently, governments should shy away from policies that contain explicit or implicit targets inconsistencies. If anything, I tend to believe that the central problem of policy making is the design credible systems. Controls are palliatives that may affect credibility in ways that are very hard for us to predict. But, of course, if I were in the middle of a raging storm where credibility was as precious as a sun's ray, I would probably not hesitate much in putting some brakes on the "wheels of finance."

REFERENCES

Barro, Robert J., and David B. Gordon, "A Positive Theory of Monetary Policy in a Natural—Rate Model," Journal of Political Economy, 91, 4 (August 1983): 589—610.

Calvo, Guillermo A., "On the Time Consistency of Optimal Policy in a Monetary Economy," Econometrica, 46 (November 1978): 1411—28.

——————————, "Fractured Liberalism: Argentina under Martinez de Hoz," Economic Development and Cultural Change, 34 (April 1986): 607—40.

——————————, "Balance of Payments Crises in a Cash-in-Advance Economy," Journal of Money, Credit, and Banking, 19 (February 1987 (a)): 19—32.

——————————, "Servicing the Public Debt: The Role of Expectations," manuscript, Second Version July 1987 (b).

——————————, "Controlling Inflation: The Problem of Non-Indexed Debt," manuscript October 1987 (c).

——————————, "On the Costs of Temporary Policy," Journal of Development Economics, 27 (1987 (d)):245—62

——————————, "Costly Trade Liberalizations," manuscript October 1987 (e). forthcoming in Staff Papers, International Monetary Fund (Washington).

——————————, "Anticipated Devaluations," manuscript February 1987 (f).

——————————, "Notas sobre Credibilidad y Política Económica," Revista Información Económica Española, forthcoming.

Corbo, Vittorio, Jaime de Melo, and James Tybout, "What Went Wrong with the Recent Reforms in the Southern Cone," Economic Development and Cultural Change, 34 (April 1986): 607—40.

de Pablo, Juan Carlos, and Alfonso Martinez, "Macroeconomic Policies, Crisis and Growth in the Long Run: Argentina Country Study," manuscript, March 1988.

Diamond, Douglas W. and Philip H. Dybvig, "Bank Runs, Deposit Insurance, and Liquidity," Journal of Political Economy, 91, 3 (1983).

Díaz-Alejandro, Carlos F., "Good—Bye Financial Repression, Hello Financial Crash," Journal of Development Economics, 19 (September/October 1985): 1—24.

Edwards, Sebastián, and Alejandra Cox Edwards, Monetarism and Liberalization—The Chilean Experiment. Cambridge, Mass: Ballinger Publishing Company, 1987.

Fernandez, Roque B., "La Crisis Financiera Argentina: 1980-1982," <u>Desarrollo Económico</u> (April-June 1983): 79—97.

Fischer, Stanley, "Long-Term Contracts, Rational Expectations, and the Optimal Money Supply Rule," <u>Journal of Political Economy</u>, 85 (February 1977): 191—205.

Flood, Robert P. and Peter M. Garber, "Gold Monetization and Gold Discipline," <u>Journal of Political Economy</u>, 92 (February 1984): 90—107.

Frenkel, Jacob A., and Morris Goldstein, "A Guide to Target Zones," <u>Staff Papers</u>, International Monetary Fund, (Washington), 33 (December 1986): 633—73.

Krugman, Paul R. "A Model of Balance-of-Payments Crises," <u>Journal of Money, Credit, and Banking</u>, 11 (August 1979): 311—25.

Kydland, Finn E., and Edward C. Prescott, "Rules Rather than Discretion: The Inconsistency of Optimal Plans," <u>Journal of Political Economy</u>, 85 (1977): 473—93.

McKinnon, Ronald I., <u>Money and Capital in Economic Development</u> (Washington: The Brookings Institution, 1973).

Obstfeld, Maurice, "Balance-of-Payments Crises and Devaluation," <u>Journal of Money, Credit, and Banking</u>, 16 (May 1984): 208—17.

Phelps, Edmund S., "Obstacles to Curtailing Inflation," in <u>Essays on Post-Keynesian Inflation</u>, edited by J.H. Gapinski and C.E. Rockwood; Cambridge, Mass.: Ballinger Publishing Company, 1979.

——————————, and John B. Taylor, "Stabilizing Powers of Monetary Policy under Rational Expectations," <u>Journal of Political Economy</u>, 85 (February 1977): 163—90.

Rogoff, Kenneth, "Reputation, Coordination and Monetary Policy," The Hoover Institution, Working Paper in Economics E—87—14, March 1987.

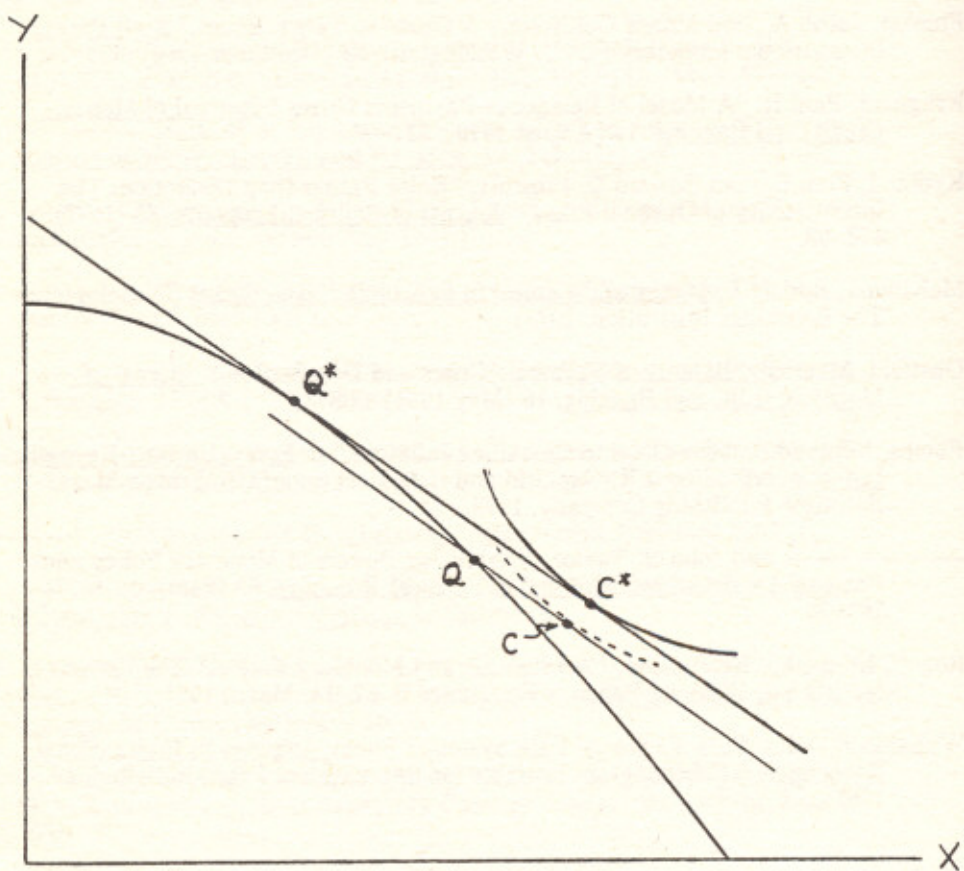Williamson, John, "The Exchange Rate System," <u>Policy Analyses in International Economics</u>: 5 (Washington: Institute for International Economics, 2nd. ed., 1985).

Figure 1. Free Trade and Credibility