Volume Title: Financial Policies and the World Capital Market: The Problem of Latin American Countries

Volume Author/Editor: Pedro Aspe Armella, Rudiger Dornbusch, and Maurice Obstfeld, eds.

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-02996-4

Volume URL: http://www.nber.org/books/arme83-1

Publication Date: 1983

Chapter Title: Panel Discussion: The Capital Market under Conditions of High and Variable Inflation

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Chapter URL: http://www.nber.org/chapters/c11196

Chapter pages in book: (p. 277 - 284)

12 Panel Discussion: The Capital Market under Conditions of High and Variable Inflation

Juan Carlos de Pablo, Miguel Mancera, and Mario Henrique Simonsen

Remarks

Juan Carlos de Pablo

The following observations on the impact of inflation on the economy in general, and on the capital market in particular, evolve from the Argentine experience, an extremely interesting case on all inflation issues except one, namely, how to stop it.

1. Under high inflation (say, 8 percent per month, per week, etc.) either direct price controls evaporate or the corresponding commodity disappears. This fact does not mean that, as the rate of inflation increases, the evaporation of direct price controls becomes equivalent to the absence of controls. The reason for the difference is that, in general, the evaporation of direct price controls is far from being a resource-free activity. On the contrary, however difficult to estimate econometrically, it seems clear that the evaporation of direct price controls is an activity specially intensive in human resources, a scarce resource indeed (when managers perceive that the private rate of return of designing evasion mechanisms is the most profitable alternative they face, they do not have time for other activities, like introducing technical change, quality improvements, etc.).

In the case of capital markets under high inflation, the mentioned facts imply that the option is not between free interest rates and controlled interest rates that segment the financial market in two sections, but whether in the absence of direct controls the markets develop "efficiently" (i.e., minimizing the spread) or because of the existence of controls on interest rates, the funds are channelled through alternative and inefficient routes, since mainly because of lack of transparency the spread increases significantly.

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2. In most cases high inflation implies variable inflation. Logue and Willett (1977) popularized this view, although in my opinion for the wrong reason. The difficulty with the Logue-Willett "demonstration" of the thesis is that in the empirical analysis their proxy for variability is the standard deviation of past inflation, a well-known estimator of *absolute* variability. Question: What is relevant in the estimation of the variability of the rate of inflation, the use of indicators of absolute or of relative variability? No simple answer can be given to this question. On the one hand, it is clear that if you expected 1,000,000 percent rate of inflation, and observed inflation was "just" 999,000 percent, your absolute error is equal to one thousand percentage points, but it does not have any practical difference[1] (which means that relative indicators do matter); but on the other hand, if you expected 0.1 percent rate of inflation and the observed rate was 0.2 percent, your error was 100 percent, but also it does not have any practical difference[2] (which suggests that to a certain extent indicators of absolute error also matter). Some mixed estimator, derived from the percentual gain (or loss) of a loan made at a fixed nominal interest rate on the basis of the expected rate of inflation should be designed. My guess is that when the "correct" estimator is computed, the computation will confirm the popular view that the higher the rate of inflation the higher its variability.

3. What is the consequence of high and variable inflation on the economy, beyond the loss involved in the mentioned misallocation of human resources? High and variable inflation reduces significantly the time horizon of the economy. (In Argentina there is a joke that says, the Argentinian who knows where to spend his next weekend has already solved his long-run problems).

The reduction of the time horizon of the economy affects mainly the level and composition of investment. It is clearly impossible to increase the *volume* of output of a given investment, but under the conditions mentioned the real value of output and profits should be increased (i.e., the payoff period reduced) if the project is expected to be carried out; this means that the inflation-induced increase in uncertainty reduces ceteris paribus the level of investment.

4. Indexed and floating rate loans, bonds, and time deposits are one of the main by-products of the capital market under conditions of high and variable inflation. Under the mentioned circumstances it has proved a useful mechanism, since it combines nonprohibitive administrative costs with the need for almost instantaneous recontracting as a result of the change in economic conditions.

1. If you borrowed money at an ex ante zero real interest rate, you will end up paying a 0.1 percent real rate.

2. If you lent money at an ex ante zero interest rate, you will end up getting a 0.1 percent negative real rate.

5. For the happy few who still live in countries in which inflation is not a problem, the main lesson that emerges from these observations is very simple: DO NOT BE SOFT ON INFLATION. As an Argentinian, I know what I am talking about.

References

Logue, D. E., and T. D. Willett. 1977. A note on the relation between the rate and variability of inflation. *Economica* 43:151–158.

Remarks

Miguel Mancera

During this conference, very interesting points were made on the relationship between taxation and the financing of private business. This relationship is so important that it well deserves further comment.

Obviously, the structure of taxes heavily influences both the development of financial markets and the way in which firms fund their operations. It seems, however, that in a considerable number of countries, tax rules may hinder the financing of business, and consequently, they may also impair economic development. This is the case because such rules were designed for other countries whose economic features are quite different.

The argument can be presented by means of a very simplified model which, in essence, may be applicable to several countries.

The assumptions required for the model to hold are the following: (1) that there are close financial links between the country's economy and international financial markets; (2) that capital can move to and from these markets, whether legally or illegally; and (3) that it is practically impossible to tax or to collect tax on income obtained abroad by individuals.

Under these assumptions, it is clear that, for banking intermediation to be successful, the after-tax yield of bank deposits in the country in question must be competitive with the yield of bank deposits abroad—usually not taxed when the depositor is a foreigner. Thus, other things being equal, any tax on interest from domestic bank deposits brings about an increase in the deposit interest rate, since this is clearly the only way for the after-tax yield to continue being competitive with the rates obtained abroad. Therefore, it can be seen that, even though formally the taxpayer is the depositor, the real taxpayer is most likely the borrower. This holds true except to the extent that the fiscal burden is absorbed by

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the financial intermediary when the conditions of the supply and demand for loanable funds do not allow such intermediaries to pass on the tax burden to the borrower. Therefore, under the assumptions made, and with this possible exception, it can be asserted that tax on interest is not an income tax but a tax on the use of credit.

Some comments are also worth making on the way in which taxation may affect the stock market and equity financing.

Let us assume that the tax on corporate profits is 50 percent, that there is no dividend tax, and that the after-tax yield of debt is around 4 percent, as it might well be in a zero inflation economy. In these circumstances, for a firm to be able to raise equity capital, it would be necessary for the after-tax corporate profit to be competitive with the net yield of bank deposits, namely, 4 percent, which implies that an 8 percent before-tax corporate profit is required. In practice, this means that there would be a tax on the use of equity capital equivalent to 100 percent of the net yield for the shareholder.

The fact that, under the assumptions made, an income tax—whether on interest or on profits—becomes a tax on the use of capital may have a serious contractionist effect on investment. This contractionist effect, however, is greatly amplified by inflation, and the higher the inflation, the greater the effect.

Imagine an economy with an inflation rate of 30 percent in which the tax on interest is 15 percent, and where the after-tax yield of bank deposits is 34 percent—4 percent in real terms. In such a case, the loan rate would have to be around 40 percent to cover just the net yield of bank deposits, plus the 15 percent tax—not considering the operational cost and the profit of the financial intermediary. This implies, in turn, that the real loan rate would have to be around 10 percent to cover only the net yield and the tax of bank deposits. Whereas, without inflation, a 4 percent after-tax yield of bank deposits would require a gross interest rate of around 4.7 percent, which would be the real loan rate required to cover the net yield to the depositor, plus the tax. Thereby, as can be seen in this example, inflation implies more than doubling the real loan rate.

The situation with regard to equity, however, becomes much more difficult in inflation, under the already made assumptions that corporate tax would be 50 percent and that the net yield of bank deposits would be 34 percent. Then, profits would have to be 68 percent in nominal terms, at least, to produce a net yield of 34 percent, which would be the minimum required to raise equity capital if the after-tax interest rate corresponding to bank deposits is 34 percent.

One wonders if there might be many investment projects with a return higher than 68 percent in nominal terms, even in an economy with 30 percent inflation. If there are not many, it will become extremely difficult to finance firms with equity capital alone, so that more leverage will be

needed. This explains why the structure of balance sheets of businesses has deteriorated so much over the years. Indeed, degrees of leverage that some time ago were unacceptable to bankers, today have to be swallowed by them if firms and banks are to continue to exist. And, even worse, if the rate of return of projects is not above the high real cost of the mixture of debt and equity, investment will tend to contract.

During the first stages of inflation, corporate profits may increase tremendously, enabling firms to raise equity capital in spite of the difficulties imposed by a fiscal system like the one outlined; but high rates of profit are very difficult to maintain for the average firm over long periods of time. They decrease as inflation permeates the markets of inputs or, perhaps, because the government intervenes to control prices.

These reflections make one think that countries which are in a situation somehow resembling this simplified model would be well advised to either suppress or decrease inflation or, else, reform their tax systems. Considerable progress has been made in the latter course of action, especially in connection with depreciation rules that acknowledge revaluation of assets; but this progress—when and where achieved—has lagged tremendously behind the appearance of the problems to be solved and seldom has amounted to a complete solution. Monetary stability, however, would have avoided the distortions mentioned which have implied high social costs and delayed economic development over the years.

Remarks

Mario Henrique Simonsen

Capital market instruments and regulations have been frequently developed under the implicit assumption of long-term price stability. High and variable inflation rates, which are correlated problems of today's world, introduce two types of inefficiencies in such traditional arrangements. The first type is related to the existence of money illusion based regulations, which drag the development of capital markets whenever the inflation rate exceeds a certain limit. Inefficiencies of the second type result from the inability of the traditional capital market structure to deal with widespread price uncertainty.

Usury ceilings provide the most extreme case of money illusion in regulations and might destroy all bond markets, as occurred in Brazil in 1964. Interest rate controls produce the same type of distortions. Conventional accounting, which fails to distinguish between real and nominal profit, spreads misleading information to the markets, underrating the

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stocks of the high debt/equity ratio corporations. High inflation rates transform the capital gains tax into a sales tax. Income taxes subsidize the borrowers at the expense of the lenders. Of course, if tax rates were the same for all economic agents, the above mentioned transfer effect would be offset by an upward adjustment of nominal interest rates. Yet, a number of distortions might arise as a result of different economic agents being taxed at different rates, a natural outcome of a progressive income tax. Moreover, usury ceilings and interest rate controls might prevent the adjustment mechanism from working.

Even in the absence of money illusion in the regulations, price uncertainties challenge the efficiency of the traditional capital market instruments. Since most economic agents are risk averse the most immediate effect of price uncertainty is to destroy the market for long-term bonds with fixed nominal interest rates. Because of the exacerbated risk premium, any nominal interest rate which might attract the lender becomes too high for the borrower and vice versa. Housing industries, which are heavily dependent on long-term mortgages are the first to be hurt by the uncertainty trap.

According to economic theory, there is one single way to restore the efficiency of the competitive markets under uncertainty, namely, to make every contract contingent on the state of nature. Of course problems of moral hazard and costs of listing and checking all the possible states of nature prevent the world from behaving according to the Arrow-Debreu model of general equilibrium under uncertainty. This, incidentally, explains why price and real interest rate uncertainties, which appear in practice as an inevitable by-product of chronic inflation, always create some troubles to capital markets. Yet, if one is bound to live with inflation, indexed bonds might emerge as a good proxy to the Arrow-Debreu contingent claims. In fact, fully indexed contracts would solve the Arrow-Debreu equations with uncertainty if shocks were purely nominal. Of course, full indexation ceases to be optimal when real shocks are brought onto the stage.

To sum up, high and variable inflation rates have never been the ideal setup for the development of capital markets since they introduce price and interest rate uncertainties which cannot be properly offset by enforceable contracts. Yet, if one has to live with inflation, the foregoing analysis suggests some steps to take to minimize the market frictions. The first step is to abolish all money illusioned regulations, which may include usury ceilings and interest rate controls. The second step is to make inflationary accounting mandatory, to convey to the stock market the correct information on the economic performance of the corporations.

Regarding the market for indexed bonds, one should let it choose its own course. When shocks are basically nominal, such bonds provide the best answer to price uncertainties, especially in the long run. Therefore,

one should not hinder the development of the market for indexed bonds by artificial regulations or by inappropriate fiscal treatment. But there is no point in forcing the market, that is, making bond indexation mandatory, since they are a poor instrument when inflation rates are substantially affected by supply shocks. Regulations should favor the coexistence of both indexed and nominal bonds. Moreover, some additional flexibility would be gained if contracting parties could freely chose their preferred price indices.

A more advanced step is to index both the income tax and the capital gain tax. Income tax indexation involves much deeper changes than the simple automatic adjustment of the personal income tax brackets according to observed inflation rates. It also involves the tax distinction between nominal and real interest rates, as well as the taxation of the corporate profits on the basis of the inflationary accounting results. Of course indexation here requires a complete tax reform to avoid revenue losses. It is not a faultless step, since it eliminates the fiscal drag on inflation provided by the conventional income tax structure. Yet, one must recognize that chronic inflation sooner or later forces a trade-off between economic efficiency and price drags. Fixed exchange rates also produce a very important drag on inflation rates, but are obviously inconsistent with chronic price increases.