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Keynes and the role of monetary policy in a stabilization program

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1. Introduction

One of the most controversial issues related to a stabilization program based on price control policies, such as the ones recently implemented in Argentina, Brazil and Israel, is the role of the monetary policy. With the sharp reduction in inflation demand for money will be dramatically increased. Thus, in order to avoid the recessive impact associated to a rise in interest rates, the government will have to remonetize the economy. However, if the remonetization is made "too fast" the credibility in the stabilization program may be jeopardized.

The stabilization programs adopted in the three countries have revived the interest in the European hyperinflations of the 1920s. The discussion on how once and exchange rate stability were achieved in Germany, for instance, has become not only actual but also very relevant to guide policy in Argentina, Brasil and Israel. In particular, it will be of great importance to the more recent stabilization attempts to analyse how monetary policy was conducted in the 1920s.

In this essay we take the German and Austrian cases to discuss the role of monetary policy in stabilization and its importance for the success. We start by contrasting Sargent's views on the "end of four hyperinflations" with a p1an presented by Keynes in November, 1922 to stabilize the German mark.

Sargent takes the rational expectation position that inflation is directly related to the expected monetization of current and future budget deficits. Thus, in order to achieve price stability all is needed is a fully understood and believed change in monetary and fiscal policies. Moreover, as inflation is totally forward looking price stability can be obtained very fast and at very low costs in terms of unemployment. Sargent is thus able to solve the puzzle which disturbed some monetarists of previous generations, namely how it was possible to eliminate inflation without a monetary shock? What matters for price stability is not the quantity of money today but the process governing money creation? Keynes, on the other hand, emphasizes that in his opinion it would be dangerous if not impossible to stabilize without "pain". This is due to the fact that in his opinion it was imperative to pursue a restrictive monetary policy in the period immediately after the launching at the program in order to avoid a loss of credibility.

In section 2, we begin by discussing Sargent's views on the end of a hyperinflation. We compare them with previous monetarist analysis. In particular, we stress the point that the difference between both is due to the assumption on how price expectations are formed. Besides and more importantly, we argue that in Sargent's analysis, confidence in the program as a permanent change in the "fundamentals" is taken for granted. Thus, the role of uncertainty is trivialized.

In section 3, Keynes' stabilisation plan for the mark is presented. We draw attention to the fact that according to Keynes stabilization should start by the pegging of the exchange with the posterior attempt to deal with the “fundamentals”, i.e., to equilibrate the budget. As a consequence, the degree of confidence in the program could not be disregarded. Indeed, Keynes pays a great deal of attention to how it would be important for the success of the stabilization program to avoid speculation against it, allowing a “breathing space” for the program to work. According to him, the only way to do this was to pursue a very restrictive monetary policy in the period immediately after the pegging of the exchange. In this section we also point out that Dornbusch’s ideas – see Dornbusch (1985) – on how hyperinflation was put to a halt are very similar to the proposals advanced by Keynes.

In sections 4 and 5 we examine the German and Austrian stabilizations showing that the rates of interest remained at very high levels for a prolonged period of time after the achievement of exchange and price stability. Moreover, we point out that although stability was achieved suddenly there was several episodes of loss of confidence. We thus suggest that the degree of confidence in the success of a stabilization program is better represented by some sort of Bayesian updating rule than by Sargent’s description. We also argue that it is the fear of losing credibility what usually prevents the money stock from being expanded in order to keep up with the increase in the demand for real balances. Finally, section 6 offers some concluding remarks.

2. Rational Expectations and Stabilization Programs

In Cagan’s (1956) classic study of the European hyperinflations of the 1920s, prices are taken to be determined by the equilibrium condition in the money market. Specifically, Cagan assumes that money demand is given by:

$$m^d{}_t - p_t = \alpha\left(p_{t+1,t} - p_t\right) + \epsilon_t, \qquad \alpha < 1 \tag{1}$$

where $m^d{}_t$ is the log of the money demand, p_t is the 1og of the price level, $p_{t+1,t} - p_t$ is the expected inflation, α is the semi-elasticity of money demand with respect to expected inflation, and ϵ_t is a stochastic disturbance. With the money supply, exogenously determined, equilibrium in the money market will be given by:

$$m^d{}_t = m^s{}_t = m_t \tag{2}$$

$$m_t - p_t = \alpha\left(p_{t+1,t} - p_t\right) + \epsilon_t \tag{3}$$

For the unobservable expected inflation Cagan assumed the following error learning process:

$$\left(p_{t+1,t} - p_t\right) = [(1-\beta)/(1-\beta L][p_t - p_{t-1}] \tag{4}$$

where L is the lag operator, i.e. $Lx_t = x_{t-1}$. Substituting (4) into (3) we obtain the price level as a function of the current money stock and past price levels:

$$p_t = \frac{1}{1+\alpha(1-\beta)} m_t + \sum_{j=0}^{\infty} \alpha(1-\beta)\beta^j p_{t-1-j} \tag{5}$$

Under the assumption of rational expectations, the price level will be given by[2]

$$p_t = \frac{1}{1-\alpha}\left[\sum_{j=0}^{\infty}\left(\frac{\alpha}{\alpha-1}\right)^j m_{t+j,t}\right] \tag{6}$$

where $m_{t+j,t}$ is the log of expected money stock at time $t+j$, conditioned on information available at time t. In this case the price level (or the rate of inflation) is entirely determined by the expected monetization of present and future budget deficits.

The important distinction between the rational expectation solution and Cagan's solution is that in the latter the price level (or inflation) is linked to past prices, i.e., is backwards looking, while in the former the price level is totally forward looking. Having this in mind, it easy to see how adherents of the rational expectation view explain how price stability is achieved. For them what matters is not to reduce money creation in the current period but to control the degree of monetization of the budget deficits in the whole future.

Another crucial difference between both analysis is that according to Cagan (and others) inflation can only be reduced slowly[3], while according to the rational expectation view price stability can be instantaneously achieved at almost no costs in terms of output lasses, provided that the reform is widely believed.

Sargent's analysis of the end of hyperinflation in four European countries in the 1920s takes the rational expectation view to explain how price and exchange stability were achieved. He stresses the fact that stabi1ization occurred suddenly and without a monetary contraction. Indeed, in all tour countries domestic credit kept growing (although at a lower rate) after and during the stabilization. He also mentions that the costs in terms of output lasses were substantially lower than the present estimates of the "sacrifice ratio"[4] for the U.S. economy.

According to Sargent, price stability was usually achieved when "government moved to balance the budget by taking a series of deliberate, permanent actions to raise taxes and eliminate expenditures"[5]. Hence, the (credible) adoption of fiscal discipline was responsible for stabilization.

In relation to Germany, for instance, we are told by Sargent of the series of measures taken up by the government before and after the successful stabi1ization of November 1923 to balance the budget. We are also told about the creation of the Rentenbank and, most important, the imposition of a 1imit on the credit available to the government. What we are not told, however, are the potential

[2] See Sargent (1982) for a discussion on this. We note that for the price level to be finite money supply cannot grow "too fast".

[3] Cagan in his study did not in include the 1ast three months of the hyperinflation because its inclusion led to a substantial under prediction of the demand for money in that period. Cagan mentions that the possibility of a currency reform could had an explanation for the increase in the money demand in the months preceding the stabilization. Therefore, it is not exactly right to say that according to Cagan's analysis price rand exchange stability could only be achieved slowly.

[4] Sacrifice ratio is the percentage fall in output below full employment necessary to reduce inflation by a percentage point.

[5] Sargent (1982), p. 62.

reasons, at least for a person living at that time and without the benefits of already knowing the final outcome, for the stabilization to fail. For instance, we are not told that prior to May 1921 there was a law, which obviously was not obeyed, imposing a limit on the capacity of the Reichsbank to discount Treasury bills presented by the government[6]. Having this in mind who could guarantee that the new restrictions imposed by the government on himself would be followed?

Another fact often remarked contributing to the success of the stabilization was the "timely" death of the Reichsbank's president for life, Rudolf Havenstein who, according to several authors, was a strong advocate of the real bills doctrine[7] and his replacement by the fiscal conservative and defender of the gold standard Hjalmar Schacht. What is not mentioned is that the nomination of Schacht as president of the Reichsbank was not immediate. Industry, the National Socialists, and the Reichsbank staff (maybe reflecting Havenstein's desire) were opposed to Schacht nomination and in favour of Karl Helfferich. Helfferich, although advocating a currency reform, would almost certainly not be able to resist to the pressure of industry for credits. In this respect, it is interesting to quote the Wall Street Journal in the period between Havenstein's death and the nomination of Schacht to the presidency of the Reichsbank:

> "Schacht ... is slated to replace Havenstein ..., and will put an end to the cheap credits favouring industry and will propose a charge of 10 percent interest for the property marks". (November 26, 1923)
>
> "Although industry banks failed to get cheap rentenmarks credits, they are confident of preferential treatment alter the Reichsbank's decision to make Helfferich the next president". (December 7, 1923)

Clearly, up to the beginning of December, a decision on the presidency of the Reichsbank, and hence on the path the stabilization would follow, had not been taken.

Sargent's analysis is too optimistic with respect to the success of a "sound" stabilization plan. The question not addressed by him, as Dornbusch (1985) has pointed out, is how a government willing to take all the necessary measures to stabilize prices and the exchange rate is able to convince the public that these measures will be followed.

Another important problem facing a stabilization program is related to the fact that real balances in a hyperinflationary situation are at very low levels. In order to allow for the rise in real balances the monetary base will have to be expanded quite substantially. In case, this expansion cannot be achieved through gains in reserves monetary authorities will have to face a dilemma. If interest rates are to be brought to normal levels domestic credit must be increased, but if domestic credit is

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[6] See Web (1985), p. 504.
[7] See Yeager (1981), p. 78.

increased the success of the program may start being doubted. The situation of excessive tight credit and high real interest rate in the period following the implementation of a stabilization program.

It is interesting to note that Sargent was well aware of this issue. He discusses in a footnote the necessity of a jump in the money supply (or a drop in prices) because of the increase in the demand for money in the post reform period[8]. He notes, however, that "what actually occurred ... was not a once and for all jump but a gradual increase in the money supply over many months"[9]. Sargent notes that this was consistent with people's confidence in the stabi1ization program evolving gradually but according to him "it was hard to accept this explanation".

3. Keynes' stabilization program for Germany

Dornbusch (1985) in a recent paper pointed out that in addition to the so often mentioned dramatic increase in real balances, two other things accompanied the German stabilization of November 1923. The real exchange rate appreciated and real interest rates remained at very high levels for a substantial period of time. He then argues, following closely a stabi1ization plan for the mark presented by Keynes in November 1922 in two lectures given at the Institute of Bankers[10], that high interest rates, instead of being a minor side effect, were vital for the success of the stabilization. As the exchange was stabilised well before the causes for its depreciation were removed it was natural to expect that the program would be received with some (if not great) amount of scepticism. It was thus of great importance to avoid speculation in the period immediately after the implementation of the program. High rates of interest would contribute to make the public be willing to bet in the success of the program, avoiding therefore a run into the reserves ofthe Central Bank or the storage of goods. The appreciation of the exchange by inflicting capital losses in speculators holding foreign exchange also worked in the right direction, as far as the stabilization program is concerned.

According to Keynes, budget deficits were the cause of the German inflation[11]. But the cause for having budget deficits was primarily the reparation payments imposed on Germany by the Allies for the damages suffered during the First World War. In fact, when presenting his stabilization program to the mark Keynes started by saying that in his opinion the budget could be balanced, provided that a moratorium on the reparation payments was granted to Germany. As inflation had drastically reduced the value of the outstanding 1ong term bonds issued to finance part of the war effort, budget deficits were not a chronic problem.

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[8] See Sargent (1982), pp. 92-94.
[9] Id., ib., p. 94.
[10] Keynes (1981), vol. XIX, pt. I, pp. 6.43.
[11] With respect to Keynes' view on the causes of the German inflation, see Keynes (1978), vol. XVIII, p. 181.

The "First step was to have the mark pegged to the dollar. Keynes was very much aware of the importance of price stability to equilibrating the budget. In his opinion it would be "immensely easier for the budget to be balanced when you have stabilized than as a preliminary to stabilizing"[12]. To support this argument, he mentions that "[i]f the unit of legal tender is depreciating as fast as is now the case in Germany, you are inevitably always collecting your tax in a worse currency than that in which you levied it and at which you have assessed, so that by no ingenuity that I can see you can hope to get a full return, the return which you ought to get, from direct taxation. You must first stabilize in order to be able to collect your revenue in the same unit as that in which you are assessing"[13].

The precise value at which the mark should be pegged was not important, provided that it was "in accordance with the existing facts"[14]. And by this Keynes meant that the German authorities should take "some figure between the external and the internal value of the mark at the date of the stabilization"[15]. However, he was very much opposed to choosing any rate "which attempted to raise the value of the mark"[16]. The pegging of the exchange should be combined "with a prolonged period of dear money in order that the present incentive to remit money to Germany rather than otherwise, apart from the fear of the loss of money on the exchange, should continue to operate"[17].

In his opinion there would be no problems of reserves losses when the exchange was pegged. In fact, Keynes thought that the Reichsbank would be gaining reserves as "people who would want to take advantage of the very high interest rates ... would buy marks". The risk of reserves lasses would only come "nine months or a year later in the event of the attempts to balance the budget failing and inflation continuing so that [the Reichsbank was] always issuing more notes available for redemption"[18].

It is interesting to contrast Keynes' position with the position of the German authorities, and in particular the president of the Reichsbank, Rudolf Havenstein. In a letter written by Keynes to Havenstein we are told that according to the 1atter, stabilization of the exchange could only come alter the budget and the trade balance were equilibrated[19]. Besides, the fear of reserve losses was so strong that Havenstein did not agree on having the Reichsbank ready to buy and sell foreign currency at a fixed rate. In his opinion the Reichsbank should only participate in the exchange market "from time to time to punish bear speculators"[20]. It is interesting to note that this was also the opinion held

[12] Keynes (1981), p. 25.
[13] Id., ib., p. 24.
[14] Keynes (1978), vol. XVIII, p. 67.
[15] Id., ib.
[16] Id., ib.
[17] Keynes (1978), vol. XIX, pt. I, p. 37.
[18] Id., ib., p. 33.
[19] Keynes (1978), vol. XVIII, pp. 66-68.
[20] Id., ib., p. 68.

by the three other experts called to Berlin by the German authorities in the Fall of 1922 to help them in writing a proposal to the Allies in relation to the reparations payments[21].

Keynes disagreed strongly with the opinion held by Havenstein, especially with respect to the impossibility of stabilizing the mark with an adverse trade balance. Keynes' position is clearly illustrated in the following passage of his letter to Havenstein: "The greater part of your letter is directed, it seems to me, to the argument that the conditions in Germany are at the present such that even with a moratorium any project of stabilization would be extremely rash. I admit great force in your arguments. But, nevertheless, I do not agree with them, mainly I think because I do not attach the importance that you do to statistics of an adverse trade balance. If I felt confident that I could control the budgetary position, I should not doubt my capacity, in Germany's present situation, to control the exchange. As soon as the supply of new currency is limited, I do not see how it is possible that the balance of trade should be adverse. I believe that the point of view which looks first to the balance of trade, and seeks for an improvement in that first of all, or alternatively to the support of a foreign loan, is deeply erroneous and has not penetrated to the true process of causation lying behind the current events"[22].

Summary, Keynes' stabilization plan for Germany was to have "absolute fixity of the exchange rate", "dear money", and the subsequent attempt to balance the budget.

The importance given by Keynes to the credibility issue involved in a stabilization program is apparent from his emphasis on the necessity of a prolonged period of "dear money". It was dear to him that as the ultimate success of his program depended on measures that would be taken in the future (balancing the budget), it was of vital importance to avoid speculation against it. High interest rates would do just that, avoiding the collapse for the time being, and hence giving some "breathing space" for the program to work.

The preoccupation with avoiding destabi1izing speculation is even more explicit when Keynes mentions the importance for the stabilization program of the government dealing also in the forward exchange market. According to him, "the official body ... in control of the exchange should not only deal spot but should also deal in forward exchange; that is to say, at appropriate rates it would always sell you marks spot and buy those marks back from you forward one month, or three months. That would mean that a German who had foreign assets which he would like to employ for the time being in Germany but did not dare to remove altogether from the form of foreign assets because he was not certain that the stabilization scheme would last, would be perfectly protected"[23]. Thus, Keynes clearly advocates the use of exchange rate guarantees.

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[21] Keynes was the fourth expert, See Keynes (1981), p. 39-40.
[22] Id., ib., p. 67.
[23] Keynes (1981), vol. XIX, pt. I, p. 39.

Finally, it is interesting to note that Keynes also mentioned the possibility of introducing a new currency with a fixed parity to the dollar instead of attempting to peg the existing one[24], with people being free to establish their contracts in either currency. According to him the advantages of such an arrangement were that the demand for foreign currency would be reduced as the new currency would provide both a unit of account and a store of value. Moreover, by doing this the Reichsbank would not risk its reserves in hard currency. However, as part of the taxes were still to be collected in the old currency (unless as Keynes wrote "the paper mark was a completely exploded thing") the "budget instability" would persist.

4. Germany's stabilization of November 1923

The stabilization scheme adopted by Germany in November of 1923 did not follow Keynes' program very closely. However, our understanding of what happened is in a great deal enhanced if we keep in mind his proposals.

On November 20th the paper mark was pegged to the recently created renternmark at a parity on one trillion to one. The rentenmark, which was issued by the also recently created Rentenbank, was not legal tender, but had to be accepted at all public offices. It had a fixed parity to the gold mark (and hence to the dollar at a rate of 4.2 rentenmarks per dollar) and could be converted on demand into a gold bond paying an annual interest rate of 5 percent.

An important change brought about by the decree that created both the Rentenbank and the rentenmark was the imposition of a limit to the issuance of rentenmarks. With this limit the government would be able to finance its budget deficits for a while. Sargent (1982) stresses the fact that it was this measure which imposed financial discipline on the government.

After the stabilization of the exchange, prices with a time lag also stop increasing. However, it was not obvious that the program would be successful in the long run. It could well be a repetition of the failed Reichsbank's attempt to stabilise the mark in February of 1923. Bresciani-Turroni (1937) mentions that "in December 1923 complete confidence in German money was not yet established and the premium for the risk of depreciation remained"[25]. The uncertainty surrounding the stabilization attempt is evident from the following description of the events in Germany given by The Economist at the end of December 1923:

> "The currency is still a mystery and a puzzle. It becomes every day more doubtful whether (even a part from the state firm question) a non-convertible paper currency like the rentenmark

[24] See Keynes (1981), pp. 41 and 42.
[25] Bresciani-Turroni (1937), p. 360.

can maintain a fictions exchange so far above its buying power"[26].

The lack of confidence in the immediate success of the stabi1ization program is well reflected by the behaviour of the rates of interest. Dornbusch (1985) reports the rates of interest charged on very short term loans at the Berlin Bourse in the weeks surrounding the 20th of November. He points out that they not only remained at the previous very high levels, but went up in the week after stabilization took place. It was only at the beginning of December that the nominal interest rate started declining. It is therefore clear that at the beginning the stabilization was taken with some disbelief. In fact, there were plenty of reasons to do so. In late December, for instance, when the government had used almost all its credit with the Rentenbank, the Finance Minister was still asking for additional credits.

At the beginning of February 1924 the mark's quotation at New York started diverging from the one set in Berlin by the Reichsbank[27]. This was an indication that the future of the stabilization program was in doubt. The response of the Reichsbank came in Apri1 when the authorities became convinced that Germany was heading again towards inflation and the rate of growth of the domestic credit was reduced[28]. Table 1 shows the monthly and daily rates of interest in Germany in the first half of 1924. From it we can see the credit crunch implemented by the Reichsbank in response to the resurgence of inflationary pressures. The rise in interest rates shown in Table 1, although reflecting in part a credibi1ity loss, was mostly caused by the adaption of a more restrictive monetary policy. In fact, as we can see from Table 1 the rate of interest on loans de nominated in gold (stable currencies) went up from 7.8 percent in February to 12.8 percent in early May.

Table 1

Rates of Interest and Prices in 1924 in Germany

Month	Rates of Interest (% per year)			Wholesale Prices
	Monthly	Daily	5% Gold Bond	(Jan = 100)
January	28.3	87.6	7.8	100.0
February	22.6	34.9	7.8	97.2
March	30.1	33.1	9.2	97.8
April	44.5	45.9	10.5	99.3
May	44.3	27.8	12.8	98.2
June	32.6	22.6	13.3	92.8
July	22.9	16.8	11.2	91.0
August	18.8	17.1	9.3	94.5
December	12.6	11.1	8.3	101.4

Source: International Abstract of Economics Statistics, 1919-1929, p. 93 and Garber (1982), p. 27.

[26] The Economist, December 27, 1923.
[27] On February 9th the quotation at New York of paper marks per dollars was 17 percent above the parity set at Berlin. See Bresciani-Turroni (1937), p. 350.
[28] See Brescani-Turroni (1937), p. 352.

The picture that emerges from the successful German stabilization is that although price and exchange stability was achieved suddenly there was still uncertainty, as reflected by the rates of interest, on the success of the program. Agents' believes about the stabilisation program are better described by some sort of Bayesian updating rule than by Sargent's views of a program as a fully understood change in the monetary and fiscal policies[29].

Finally, it is interesting to note that Graham (1930) in his important study on the German hyperinflation had already indicated that confidence in the stabilization program usually takes time to be developed. Indeed, according to him, one of the problems of a stabilization program is that "confidence must be restored at whatever cost, but confidence develops but slowly"[30]. He also pointed out that "circulation in Germany was greatly expanded after stabi1ization had been affected. The process was somewhat too greatly accelerated at first and success was ultimately achieved only after the relative excess of circulating medium had been reduced through a sharp restriction of bank credit"[31].

5. Austria's stabilization of August 1922

The Austrian stabilization program of the second half of 1922 was in a number of ways similar to the failed German stabilization attempt of February 1923[32]. In both cases, stabilization started with the central bank intervening in the exchange market, leaving the budget to be equilibrated in the future. And in both cases fiscal policy, and hence monetary policy as budget deficits were being financed almost exclusively by money creation, remained expansionist in the period immediately after the stabilization. Yeager (1981) tells us that in Austria "during the first three months after stopping the crown's depreciation, the government continued its old habit of covering its deficits by borrowing newly printed money from the central bank"[33].

The degree of uncertainty at the time of the stabilization attempt was also very high in both countries. Germany, although having a substantial amount of reserves in gold – as compared to the amount of currency in circulation – had an enormous and unsolved problem to deal with; the reparations to the Allies. Austria had almost no gold in reserves and, at the time of the stabilization, negotiations were still being undertaken to obtain a foreign loan.

The difference between the Austrian and the German stabilization program of the beginning of 1923 is quite obvious. While the latter was a failure, the former was a complete success. After

[29] Recently, Baxter (1985) analysed how confidence in the ultimate success of a stabi1ization program in Argentina carried out by Finance Minister Martinez de Hoz evolved within a Bayesian framework.
[30] Graham (1930), p. 290.
[31] Id., ib.
[32] For a description of this stabilization attempt, see Bresciani-Turroni (1937).
[33] Yeager (1981), p. 50.

reaching almost 84,000 crowns to the dollar in the 1ast week of August of 1922, the exchange rate under the influence of the central bank drifted downwards, being stabilized at 71,000 crowns per dollar in December. Prices, with a time lag, followed a path similar to the one of the exchange rate.

As in Germany after her successful stabi1ization, interest rates remained very high in Austria in the period after the crown's depreciation was put to an end. According to the correspondent in Vienna of The Economist "during the first fortnight of November [1922] very high rates of interest were being offered for money, i.e. 2-2.5 percent per week"[34]. With falling or even stable prices this represents an (ex post) real interest rate above 200 percent per annum. As we have argued before the high interest rate is directly or indirectly related to the uncertainty with the respect to the maintenance of price stability.

At the beginning of December 1922 the public was more confident that the exchange and price stability would last. Rates of interest for short term credit had fallen to 0.5 percent per week, and the government successfully issued a six month gold bond paying a 8.0 percent interest rate (annual)[35]. However, the possibility of a resurgence in inflation was still in the air. Van Walré de Bordes (1924) mentions that in October 1922 and early 1923 confidence in the stabilization was lost for a while. Yeager (1981) writes that at the very beginning of 1923 "a delay in the floating of the first foreign loan, together with the government's difficulties in finding funds to meet its ob1igations, weakened confidence in the crown"[36]. The deterioration in the degree of confidences in the stabilization program was reflected in the black market. The spread over the official exchange rate at the black market (Schleichandel), which had been eliminated, was in January 1923 above 6.0 percent[37].

The way out of the inflationary spurt was, as it was the case in Germany in February and April of 1924, a credit crunch. The rate of growth of domestic credit was vigorously reduced in the first two months of 1923. In fact, The Economist reports at the end of January 1923 that "conditions on the money market have again become worse of late. Exorbitant rates of interest are charged on the Stock Exchange and by the banks for short sight loans. Even first-class firms must pay the Viennese banks about 35 percent for interest. and bank charges[38]. In mid-March, almost seven months after the stabilization was initiated, The Economist was still reporting that rates of interest were abnormally high and that the credit policy was excessively tight[39].

Sargent (1982) mentions that the stabilisation of the crown was attended by a substantial

[34] The Economist, December 16, 1922.
[35] This bond had a maturity of six months and was to be repaid either in dollars or in Austrian currency at the exchange rate of 70,000 crowns per dollar, at the option of the holder.
[36] Yeager (1981), p. 51.
[37] The Economist, February 17, 1923.
[38] The Economist, February 17, 1923. Interest rates paid by "ordinary merchants" were above 50 percent.
[39] According to The Economist, "there are many complaints in the financial circles, as well in those of the commerce and industry about the tight credit policy of the new National Bank, which is getting numerous concerns into trouble. Rates of interest in the open market are extraordinari1y high...". See The Economist, March 17, 1923.

increase in unemployment. However, according to him, some of the increase in unemployment had to be blamed on the "real dislocations affecting the Austrian economy" at that time (disintegration of the Austro-Hungary empire)[40]. One is left with the impression that in Sargent's opinion stabilization in Austria was achieved suddenly and at a not very high cost in terms of output losses. As we have seen, although stabilization was indeed achieved suddenly and fast, it was followed by a prolonged period of abnormally high rates of interest and the appreciation of the real exchange rate. Having this in mind, it is difficult to accept Sargent's conclusion that the stabilisation program was a fully believed and understood change in fiscal and monetary policies and that price stability was achieved with almost no pain.

6. Concluding Remarks

The role of monetary policy in a stabilization program based on the uses of price or exchange control policies is still an unsettled issue. The recent experiences of Argentina, Brazil and Israel with price freeze clearly shows that there is a lack of consensus with respect to how remonetization of the economy should be earned on. While in Argentina and Israel the government in the first months of the program pursued a very restrictive monetary policy, in Brazil nominal interest rates were drastically and promptly reduced.

In this paper we have discussed the role of monetary policy in stabi1ization programs aimed at putting a halt on very high inf1ationary processes. Instead of analysing in detail the experiences of the three countries we have just mentioned, we focus on the German and Austrian hyper inflations. We have contrasted Sargent's views on the subject to the position hold by Keynes in his plan for stabilizing the mark.

Sargent in his study on the end of four hyper inflations does not give any special importance to it. According to him, what was important for achieving stabi1ization was fully understood and believed change in regime. However, as we have pointed out before, in Sargent's analysis there is a complete disregard for what we may call a credibility issue. He takes for granted that government can make the public believe in the change of regime.

Keynes, on the other hand, emphasizes the necessity of pursuing a restrictive monetary policy in the period following stabilization. As we have seen, for Keynes stabilization should start by the pegging of the exchange rate. Only after that should the government attempt to balance the budget. Thus, it was of great importance to avoid people from speculating against the program through either the accumulation of inventories or the attack on the Central Bank's foreign reserves in the period

[40] Sargent (1982), p. 56.

between the pegging of the exchange and the balancing of the budget. Keynes' recipe to keep credibility high was the maintenance of a policy of "dear money".

In case remonetization cannot be achieved through reserve gains, monetary authorities will face a dilemma. If interest rates are to be brought to normal levels domestic credit must be increased, but if domestic credit is increased the success of the program may be jeopardized. Thus, it is the fear of losing credibility what usually accounts for a situation of excessive tight credit and high real interest rate in the period following the implementation of a successful stabilization program. Thus, the main lesson to be drawn from both the past experiences and the recent ones is that, borrowing Albert Fishlow's expression, there is no end of a hyperinflation without tears.

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