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General Patterns in the Monetary History of Balkan Countries in the 20th Century

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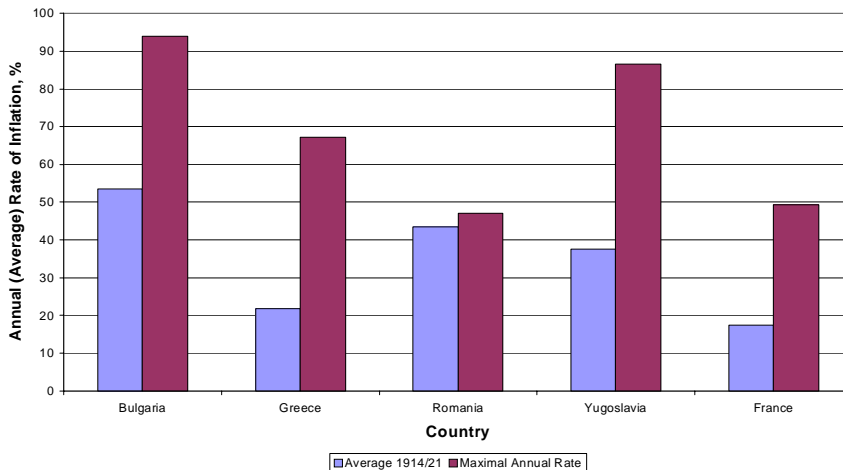
1. Introduction

The monetary history of Balkan countries in the twentieth century has been characterised by many tragic events, most of them a direct consequence of the First World War and the Second World War and the breakdown of the communist system. They have, according to the Cagan (1956) definition, experienced four hyperinflations, namely in Greece in the aftermath of the Second World War, in Yugoslavia in late 1989/90, in Serbia and Montenegro in 1992/94 and in Bulgaria in 1997. The hyperinflation in Serbia and Montenegro was the second biggest in history, only topped by that in neighbouring Hungary after the Second World War, a country which had already suffered another hyperinflation after the First World War.

But the inflations in Bulgaria, Greece, Romania, Serbia/Yugoslavia and Turkey after the First World War were also not cases of moderate, but rather of high inflation (chart 1). In the Graph France has been added to allow a comparison with a Western European country. All these inflations were like hyperinflations caused by huge budget deficits financed by money creation through the monetary authorities (chart 2).

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Chart 1: Annual Rates of Inflation of Balkan Countries around the First World War



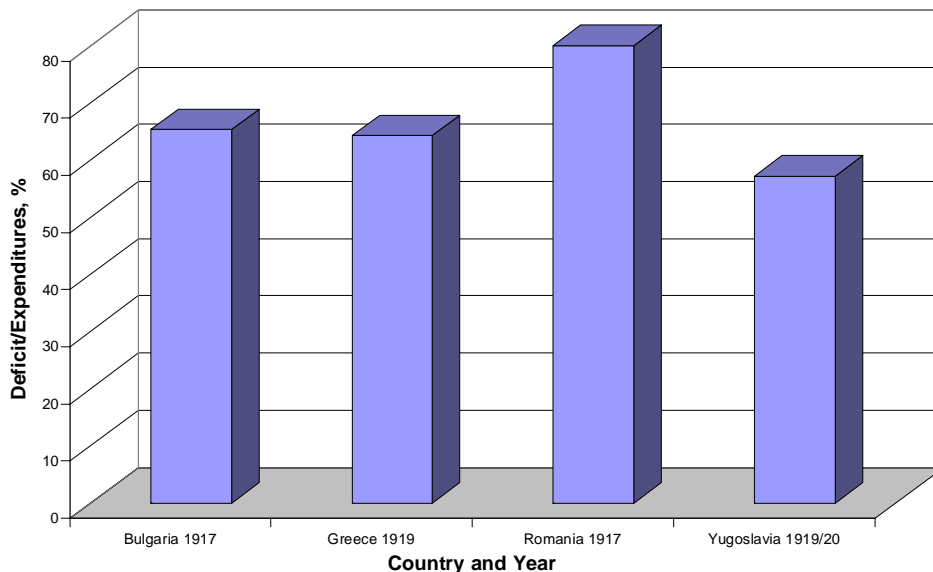
Note: No figures were available for Romania until 1921/22, for Turkey until 1922 and for Yugoslavia until 1920/21.

Source: Lampe, John R. and Jackson, Marvin R. (1982), table 11.1, pp. 380 f.

In the present paper we will look at these experiences to see whether they follow some general qualitative law-like characteristics, which have been described in an earlier book (Bernholz 2003). In the next section regularities for the hyperinflations will be analysed.

This will be done in a more detailed manner than this could be done in this book. The following sections will be concerned with the inflations in the wake of the First World War to explore whether they follow similar patterns to those already found for other countries.

*Chart 2: Maxima of Annual Deficit/Expenditure Ratios of Balkan States
Around the First World War*



Note: Figures for the war years were not available for Serbia/Yugoslavia.

Source: Lampe, John R. and Jackson, Marvin R. (1982), table 11.1, pp. 380f.

2. Characteristics of Hyperinflations in Balkan Countries.

2.1 Huge Public Deficits as a Precondition for Hyperinflation

The first hypothesis to be checked relates to high public deficits as a necessary condition for the occurrence of hyperinflations. We may call this the Sargent hypothesis, since Sargent formulated it explicitly (Sargent 1983). No difficulties arise for this hypothesis concerning the Greek, the Serbian/Montenegro and the Bulgarian hyperinflations. As can be seen from table 1, the maximal deficits ranged from 41.6 to 99% of total expenditures.

Table 1: Deficits – Expenditures

	Period	Deficit/Expenditures
Bulgaria*	1995–31.3.1997	9.7–41.6%
Greece**	1941/42–31.3.1945	71–99%
Serbia/Montenegro	1991–1993	27.7–74.4%

*Notes: *Figures refer to quarters of years. ** Not always full fiscal years*

Sources: For Greece: Delivanis and Cleveland (1950), for Bulgaria: IMF. For Serbia/Montenegro: Petrovic (1994), Bogetic, Dragutinovic and Petrovic (1994), table 17, p. 7.

Things seem, however, to be different for the Yugoslav hyperinflation, the mildest of the four. In this case the federal budget showed even surpluses of 0.86% in 1988 and of 5.2% in 1989. This, however, is judged from other hyperinflations rather incredible. As stated by several analysts (Bole and Gaspari 1991, Schoenfelder 1990) the public banking system extended the money supply by granting credits or by guaranteeing promissory notes issued by socialist firms. The banks agreed to this system under the pressure of the republics and communities in which they were located and of the respective functionaries of the communist party. All these credits implied negative real interest rates., so that they amounted to public subsidies finally financed by hidden money creation. As Schoenfelder puts it:

“For the Yugoslav banks negative interest rates on its assets resulted in huge losses. ... In the eighties the composition of the liabilities of banks and esp. of NBJ [the central bank] changed to the effect that by 1988 about seventy per cent of the liabilities of NBJ were denominated in foreign currency.

The two major sources of such liabilities have been foreign loans extended to NBJ or basic banks and foreign currency deposits of Yugoslav citizens at basic banks which were later transferred to NBJ. Thus banks and especially NBJ have to pay positive real interest rates on most of their assets. It became standard accounting method to “cover” the resulting huge losses by introducing fictitious assets into the balance sheets of banks. ...

Real interest rates declined because nominal interest rates were adjusted to inflation only with great delay.” (pp. 10 f.)

It is obvious that these losses on credits extended to socialist firms with “soft budget constraints” (Kornai 1971) had finally to be covered by money creation through the monetary authorities. For otherwise the banks including the NBJ would have fallen into bankruptcy, which was, however, prevented. Thus, if we include banks into the public sector, a huge public fiscal deficit financed by money creation was also present in the Yugoslav hyperinflation. Bole and Gaspari (1991) presented the following result (table 2).

It is interesting to note that though Bajt rejected the Sargent hypothesis for Yugoslavia, he also concluded (1990, p. 8) that "...some para-budgetary expenditures had been traditionally financed directly by the NBJ, yet they amounted to some 25% of the federal budget only (altogether 10.4% of the GMP). All other budgets have as a rule been balanced."

Now a deficit in the amount of 10.5% of GSP is certainly very substantial and would be a much higher figure if expressed as a share of total government expenditures. But I have to admit that I am not well-informed on the intricacies of the financial and monetary relations among socialised firms, banks, NBJ, republics and communities of the Yugoslavia of that time. Moreover, there is certainly a problem of definition, namely of which entities belonged to the public sector during the period.

Table 2: Deficit of the Public Sector During the Yugoslav Hyperinflation

(Percentage of Gross Social Product)

	1987	1988
Real Decrease in Dinar Credits to the Banks	2.3	1.1
Real Increase in Net Foreign Liabilities of NBY	3.1	-1.8
Issues of Real Dinar Reserve Money	5.1	6.5
Inflation Tax	6.2	7.2
Seignorage	-1.1	-0.7
Total	10.5	5.8

Source: Bole and Gaspari (1991), table 10. 6, p. 374.

From a purely theoretical point of view it is even possible that the monetary authorities grant so much credit even to private firms, organisations and households by increasing the monetary base that a hyperinflation ensues. But this would presuppose a direct dominating influence of private interest groups on them, which seems not to be a likely event, if the same groups are not able to dominate the government with the consequence of large budget deficits.

On the other hand, if we had to accept that the Sargent hypothesis had been disproved in several cases as a necessary condition for hyperinflations, it would have to be reformulated as a probabilistic hypothesis. Indeed, among the 28 hyperinflations which have occurred until now, there are four cases in which it is possible that the government deficit was lower than 20% of total expenditures and thus not high enough to engender them. Since the Yugoslav case is the most prominent among them, there are, on the other hand, serious doubts, whether we have the right figures. And it is interesting to note that all these cases refer to formerly communist countries (Bernholz 2003, p. 73). But if we grant them to be

counter-examples to the Sargent hypothesis, it remains to calculate the probability of such an event from the empirical evidence we have. If the null hypothesis is accepted that hyperinflations caused by huge government deficits are as likely as others, this is rejected with a probability of nearly one.

2.2 Real Money Stock, Undervaluation and Currency Substitution

Let us now turn to two other qualitative hypotheses concerning hyperinflations. The second states that the real stock of the inflating money decreases dramatically during the course of inflation.

The third hypothesis has been called “Bernholz Law” by Paldam (1994, p. 138) and is also characteristic for most hyperinflations. It describes the tendency towards strong undervaluation of the inflating currency. The empirical facts for the four hyperinflations are presented in table 3. As can be seen the real stock of the inflating money has shrunk very strongly in all four cases. But the hypothesis relating to undervaluation is rejected for the case of Bulgaria, though the index went down during the highest inflation, but from a level much above the normal level of 100% which it never reached. It is difficult to explain this exception, though I am inclined to reject it. Presumably it has not been caused by strict foreign exchange controls during the period considered, since in using black market exchange rates, the overvaluation is lower but still present (chart 3).

Another factor could be the selection of a wrong base year. In 1975 the official exchange rate stood at 0.97 to the dollar and the premium rate at 1.20. Price controls were only abolished in 1991. Thus if we take the rate of 1.20 as a basis and assume that prices remained on the whole unchanged from 1975 to 1991, then a strong undervaluation would result.

If we look at the broader picture of all 28 hyperinflations, the hypothesis seems to have to be rejected in six cases, if we include Bulgaria. In one of them, Peru, however, it is only rejected for the official, but not the black market exchange rate (Bernholz 2003, p. 73). For Nicaragua the real exchange rate followed a seesaw pattern characteristic for exchange controls. This was similar for Peru and also for

Table 3: Minimal Real Stock of Money and Maximal Undervaluation during Balkan Hyperinflations

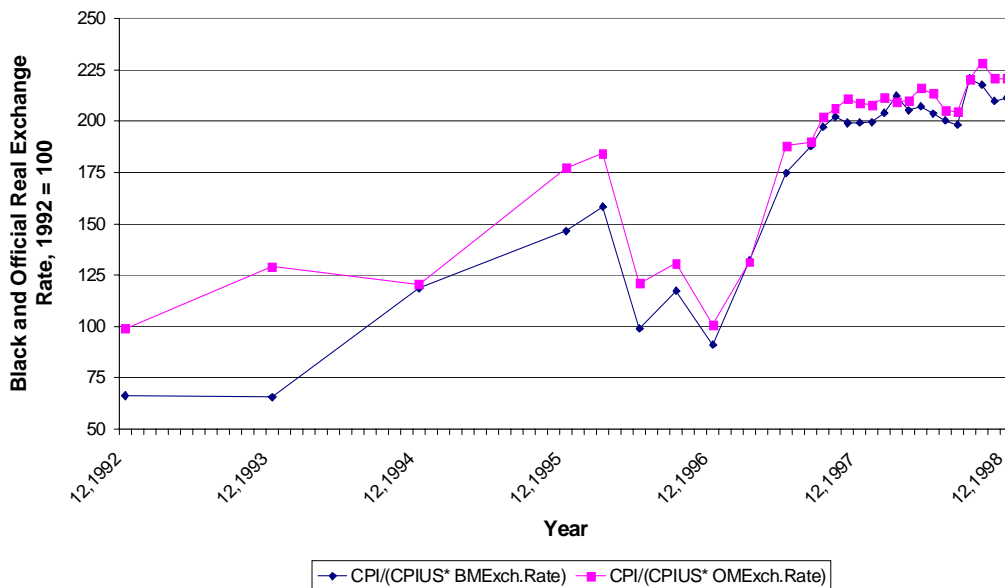
	<i>Real stock of inflating money, in base year = 100%</i>	<i>Kind of money</i>	<i>Date</i>	<i>Under-valuation 100% in base year</i>	<i>Date</i>	<i>Base year</i>
Bulgaria	12.90%	“Money”IMF	Feb. 97	131.60%	Feb. 97	1992
Greece	0.30%	Banknotes	Nov. 44	35.70%	July 45	Aug. 39
Serbia and Montenegro	4.36%	M1	Nov. 93	0.29%	Dec. 93	Jan. 92
Yugoslavia	24.66%	M1	Feb. 90	24.70%	May 89	Jan. 80

Note: The “undervaluation” figures for Bulgaria went from 100 to 183.2% in February 1996 and then fell to 131.6 % in February 1997.

Source: Bernholz 2003, tables 8.1, 8.3, 8.5, pp.167 f., 176, 180 f.

Bulgaria though less pronounced in this case. In the cases of China and the Soviet Union both countries were isolated from the outside world because of war and civil war and show a tendency towards undervaluation after the end of the isolation. The situation was probably similar for Taiwan, where the real exchange rate also moved towards undervaluation from 1947. Still, it would be better to find additional and perhaps more convincing explanations for these cases and especially for Bulgaria. From a probabilistic perspective the hypothesis of undervaluation is strongly confirmed. Cagan has defined hyperinflation as beginning in the first month in which the monthly rate reached 50% or more and as ending a year after the last month in which this happened. If we take together all these months for all hyperinflations and check for the null hypothesis that overvaluation is as probable as overvaluation, we get a probability of $9.4 * 10^{-6}$ that this could be true.

Chart 3: *Bulgarian Real Exchange Rates During Hyperinflation, 1992–1998*



Notes: The initial black market rate applied for 1992 has been calculated as a percentage of the official one. BM Black market, OM official market exchange rate.

Sources: Black Market Exchange Rates: Pick's Currency Yearbook (1995). Data from 1995 are based upon the operational rates of exchange used by the United Nations for personnel in those countries. Other data: IMF: International Financial Statistics.

The fourth hypothesis to be checked relates to currency substitution. During high inflation people seek to get rid of the rapidly devaluing domestic money. Since this is impossible for the nominal stock which is even steadily increased, this occurs through a rise in the velocity of circulation bringing about a faster growth of the price level, so that the real stock of money decreases. But in modern economies money is a necessary precondition of market exchanges and can therefore only be partly substituted by barter. As a consequence, during high inflations the inflating money is more and more driven out by stable money, in former times by gold and silver coins, under modern conditions by stable foreign money, like US dollar or German mark. Already Ragnar Nurkse (League of Nations 1946, p. 48) characterised the process for the time after the First World War as follows:

“The lack of a stable domestic means of payment was a serious inconvenience in trade and production, and foreign currencies therefore came to be desired as a

store of value but actually as a means of domestic payment. ... Thus, in advanced inflation, Gresham's law was reversed; good money tended to drive out bad ..."

I have proposed to call this phenomenon Thiers' law, since the French historian and later President of the 3rd Republic was the first to describe it for the earliest hyperinflation in history, that of the Great French Revolution. Unfortunately, we usually do not have any figures for the development of currency substitution. Only verbal descriptions or at best rough estimates are available. For governments regularly try to suppress not only currency substitution itself but also the information about it with heavy fines and penalties, since the substitution is eroding the base of their inflation tax. But exactly this process is one of the factors strongly influencing the decrease of the real stock of the inflating money and the movement of the exchange rate towards undervaluation.

Let us now look at the four Balkan hyperinflations. For the Greek case we have evidence that currency substitution by English gold coins, sovereigns, and by British, Egyptian, American and Swiss banknotes played a great role. *"These moneys were wanted for hoarding, for the conversation of business working capital, ... , and for use as the principal means of payment because during the final weeks of inflation only the salaries of public employees were paid in drachmas. The drachma ceased to be a measure of value or the generally acceptable means of payment"* (Delivanis and Cleveland 1950, pp. 98 f.).

As a consequence even the German occupation forces sold golden sovereigns during the war, and afterwards the same was done by Greek monetary authorities. Makinen (1986, 798) reports that more than 1.3 million sovereigns entered circulation in this way. And though the use of sovereigns and foreign banknotes was forbidden in 1945, when the failure of the currency reform of November 11, 1944, became obvious, this did not prevent their use. And the practice of issuing sovereigns was taken up again after some months, and the second now more successful reform of January 1946 even introduced the convertibility of the new drachma into sovereigns at the then prevailing black market rate (Makinen 1986, p. 801).

According to newspaper reports the currency substitution during the Serbian hyperinflation especially by the DM led to a nearly complete disuse of the dinar before the currency reform in early 1994. According to the Basler Zeitung of January 12, 1994, even Groschen (pieces of ten Pfennigs, that is 0.1 DM) circulated and taxi drivers and retail businesses did no longer accept dinars.

I have scarcely any evidence concerning the cases of Bulgaria and Yugoslavia. However, Gulde (1999) points out that before ending the inflation by introducing a currency board *"In Bulgaria there were heated discussions about the choice of anchor currency. Some advocated the U.S. dollar, noting its widespread use in informal transactions and as a store of value, while others supported the deutsche mark ..."* Moreover, Mulligan and Nijse (2001, p. 282.) write: *"In Bulgaria, foreign currency, as a percentage of total money holdings (M2) increased from*

approximately 5 percent in 1986, to more than 34 percent by the first quarter of 1994. Foreign currency demand continued to accelerate until Bulgaria adopted a currency board." I do, however, not know, from which sources the authors got these data. But if their figures are correct this throws again some doubt on an overvaluation of the Lev. For foreign currency could only be obtained by buying dollar, which should have worked towards an undervaluation of the Bulgarian currency.

Similarly, for Yugoslavia Bole and Gaspari (1991, p. 372) point out that "*Another source of [the public sector's real deficit] is the creation of negative net wealth in the central bank's balance sheet, stemming from its foreign-currency-denominated debt (to the rest of the world and to Yugoslav residents), i. e.. from the uncovered exchange losses arising from the net foreign indebtedness.*" And later (p. 377) they remark that "*In addition , Yugoslav households (like households in other high-inflation countries) own foreign exchange-linked assets: thus, viewed from the angle of households` demand for real balances, the proposed measure of opportunity costs takes on additional significance in that such foreign-exchange linked deposits can be seen as a close substitute for money.*"

This means that these foreign-exchange denoted assets were at least held as a store of value by Yugoslavs.

2.3 Success and Failure in the Reforms Ending the Hyperinflations

Bernholz (2003) has categorised the currency reforms trying to end hyperinflations into successful, less successful and least or unsuccessful. As a measure of success he employed the rates of annual inflation remaining during the first year after the attempted reform. The first category of up to 25% inflation comprised nine of the 30 known cases of hyperinflation, among them Bulgaria and Greece. The second category of remaining annual inflation of up to 99% contained seven cases. The third with more than 99% comprised all other 14 cases, among them Serbia and Montenegro and former Yugoslavia. According to Bernholz different institutional characteristics of the reforms were responsible for their different outcomes. In a recent paper Bernholz and Kugler (2006) have checked his qualitative with an econometric probit analysis. They concluded that only the introduction of independent central banks played a significant role for successful reforms. Turning to a regime of fixed exchange rates with a stable currency also showed the right sign, but was not significant. And indeed, Bulgaria secured the independence of its national bank with the introduction of a currency board, whereas the Greek central bank was made independent with the help of a treaty with and control by the UK and the USA. By contrast, no independent central bank was established by the Serbian and Yugoslav reforms.

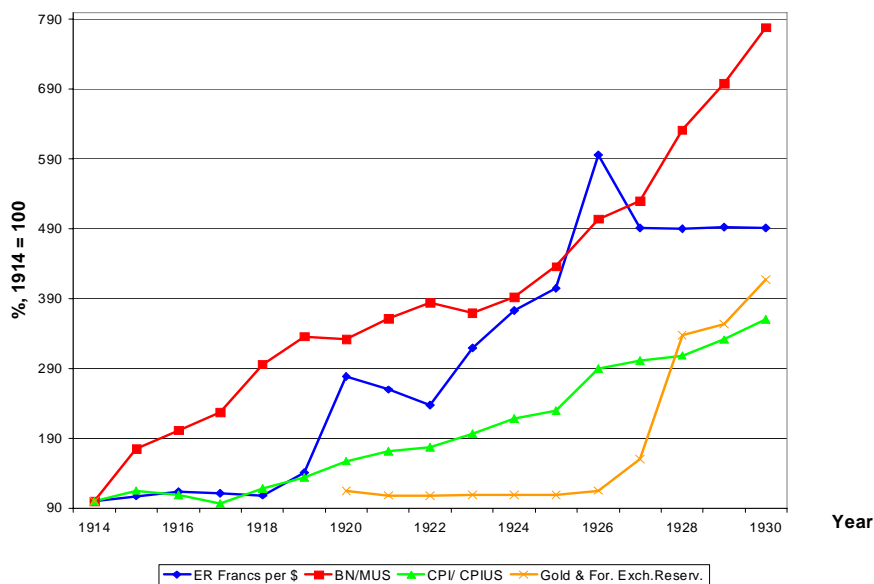
3. Monetary Developments and Inflation in the Wake of the First World War

It has already been shown in the introduction that all countries of the Balkans, whether victorious or not were plagued by substantial inflation (chart 1) as a consequence of the First World War and the events following it. The only surprising exception seems to be Albania, for which I, however, have not found any data. But *“In Albania ... were a national currency was introduced for the first time during the latter part of the `twenties, foreign gold coins had remained in effective circulation, even during the war. Foreign silver coins and bank notes were also used as means of payment, but were only accepted at rates corresponding roughly to the gold value of the currencies in which they were expressed. Albania was indeed the only European country which remained effectively on the gold standard throughout the war and the post-war period under review.”* (League of Nations, 1946, p. 93, note a to table III). It thus seems that the absence of a national money has been a blessing to the citizens of this country during the period.

In all the other countries the inflation was caused by substantial government deficits mainly stemming from war and after-war emergencies financed by money creation (chart 2). This is no exception compared to other European countries, in which some, namely Germany, Austria, Hungary, Poland and the Soviet Union even suffered from hyperinflation. Moreover, only a few countries, namely the United Kingdom, Denmark, Norway, Sweden, the Netherlands and Switzerland were able to return to their pre-war gold parities some years after the war. Therefore, the experiences of the Balkan countries were more similar to those of countries like France and Belgium, a fact which has already been analysed by Nenovsky (2006) in a paper comparing the cases of France and Bulgaria. Let us therefore first look at some characteristic developments in France (chart 4).

As can be seen from the figure, the money supply (banknotes) relative to that in the USA dragged the exchange rate and the relative price level up. The latter means that an undervaluation developed, quite in correspondence with our hypothesis (first put forward for moderate inflations by Storch 1815, compare Bernholz 1982) examined above for the case of hyperinflations. In 1926 a stabilisation was introduced which is reflected in the decline of the exchange rate for the dollar. An undervaluation is beneficial to the export and import competing industries and the people employed by them. This advantage is eroded if the undervaluation diminishes or even finally turns into an overvaluation because of a restrictive monetary policy. As a consequence political forces begin to fight for a relaxation of these policies. One possibility to do so is to fix the exchange rate at a still underdevalued level, or which amounts to the same but corresponded to the perceptions in the 1920s to fix the new gold parity of the franc at a corresponding

Chart 4: Inflation and Stabilisation in France, 1914–1930



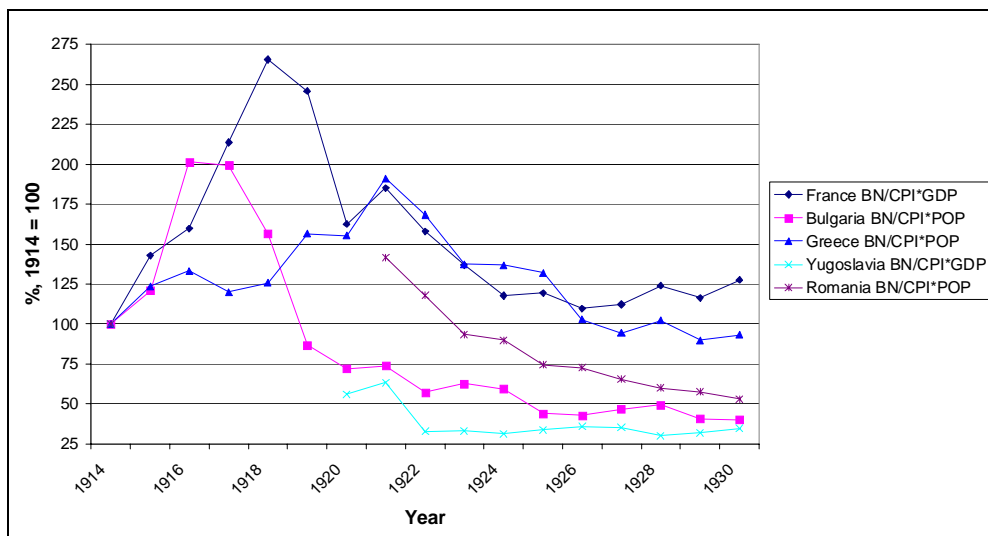
Note: BN = Banknotes in Circulation.

Sources: Statistisches Reichsamt (1921/22, 1924/25, 1936).

level. This is exactly what happened and which can be seen for the dollar exchange rate in chart 4. Moreover, as can also be seen, gold and foreign exchange reserves rose strongly after the new gold parity had been fixed. This provides additional evidence that the franc was still undervalued.

To complete the picture we have still to look at the development of the real stock of banknotes corrected for the change of real GDP (chart 5). The real stock first rose strongly caused by the financing of a huge budget deficit during the war, and since inflationary expectations of the public had not yet adapted. After 1918 it fell nearly steadily until the stabilisation in 1926, though the nominal stock of banknotes continued to rise except in 1920 and 1921 and increased even by 19% in the year before the reforms undertaken in 1926.

Chart 5: *Development of Corrected Real Stock of Banknotes in Five Countries, 1914–1930*



Notes: POP: Population, BN: Banknotes in Circulation.

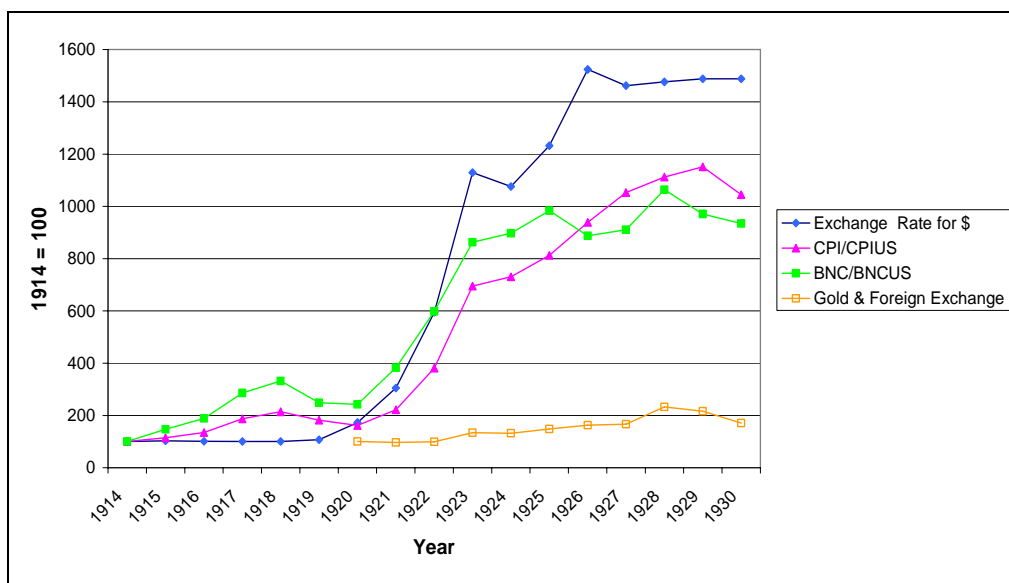
Sources: For population and GDP: Maddison (1995), pp. 108–111, 148, 153–155. For banknotes in circulation of Balkan countries: Lampe, John R. and Jackson, Marvin R. (1982), table 11.1, pp. 380 f. For France: Statistisches Reichsamt (1921/22, 1924/25, 1936).

This means that the price level climbed more rapidly since 1918 than the supply of banknotes because the public had adapted its inflationary expectations. We have seen before that this is typical for all hyperinflations, but it is also true for high inflations. Looking now at developments in the Balkan countries we can observe the same pattern for Bulgaria and Greece. For Romania and Yugoslavia the data until 1921/22 are missing, but the Romanian figures for 1921/22 suggest that the same pattern may have occurred there. The figures for Yugoslavia seem to contradict an increase during the war years, but since we have no data, everything is guesswork. Moreover, Serbia about tripled its territory by turning into Yugoslavia. As a consequence the figures are neither reliable nor easily comparable. What is surprising and quite in contrast to the French experience, is the very low real stock of banknotes in Bulgaria and Romania below 50% and 75% of the level of 1914 after 1925. One explanation could be higher rates of inflation and therefore higher inflationary expectations. Another political instability always threatening monetary stability. In both cases a higher degree of currency substitution might have been present, for which, however, I have no evidence. But the first alternative is not available, since the average rates of inflation in Bulgaria

and Romania from 1925 or 1926 to 1930 were similar or even a bit lower than those in France. So we are left with a puzzle, if we believe the figures to be correct.

Let us now try to compare the developments in the Balkans with those sketched in chart 4 for France. Greek developments are, on the whole, quite similar qualitatively.

Chart 6: Relative Banknote Circulation, Relative Development of Price Level and Exchange Rate in Greece, 1914–1930



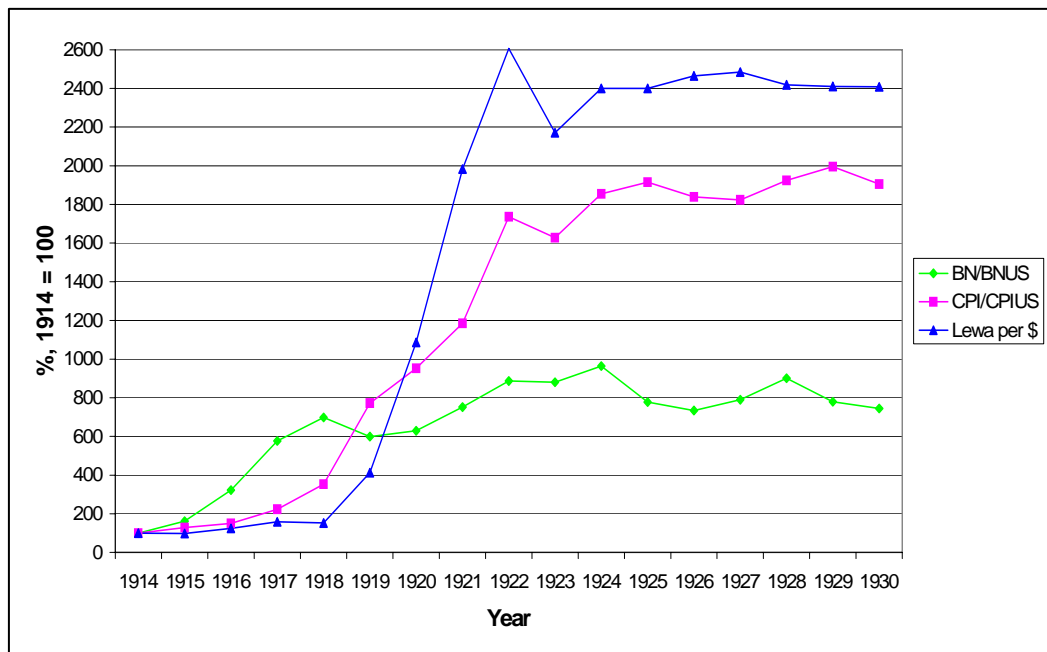
Sources: Exchange rates: Schneider, Jürgen, Schwarzer, Oskar and Denzel, Markus A. (1997). For other figures until 1919: Lampe, John R. and Jackson, Murray R. (1982). For figures until 1936: Statistisches Reichsamt (1928, 1936a and 1936b). For CPI also: B. R. Mitchell (2001).

Relative banknote circulation is dragging up exchange rate and relative price level behind it, though this is somewhat retarded for the latter. Also, an undervaluation develops. The exchange rate moves ahead of the relative banknote circulation, as it did in France shortly before the reforms. The stabilisation somewhat lowers the undervaluation. But the new gold parity established in May 1928 implies a remaining undervaluation like that in France. The gold and foreign exchange reserves rise somewhat after the monetary stabilisation, but much less than in France.

Let us now turn to Bulgaria. Here again a similar qualitative picture develops. The relative money supply is dragging up the relative price level and the exchange

rate in the beginning. Later undervaluation develops, which is maintained by the setting of the new gold parity after the undervaluation had been twice reduced in 1922 and 1928 by stabilisation efforts. Surprising is only the low level of the relative banknote circulation after 1922, especially compared to the relative price level. This corresponds to the low level of the real stock of banknotes noted before.

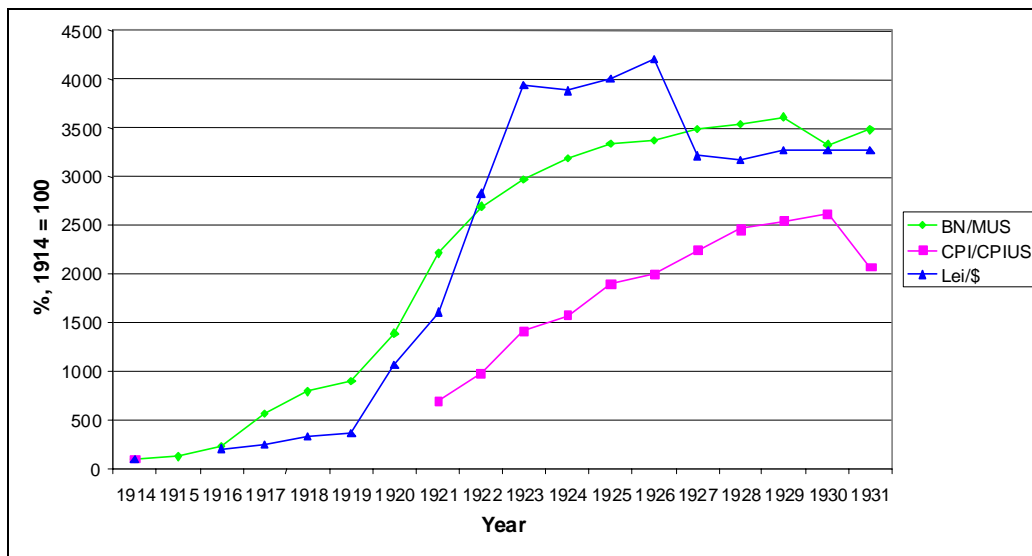
Chart 7: Development of Relative Banknote Circulation, Relative Prices and Exchange Rate in Bulgaria, 1914–1930



Sources: See chart 6.

We finally look at developments in Romania and Yugoslavia (charts 8 and 9). Here we find the same qualitative picture for Romania, which fixed a new gold parity in February 1929, except for the fact that the parity was set at a slightly overvalued rate.

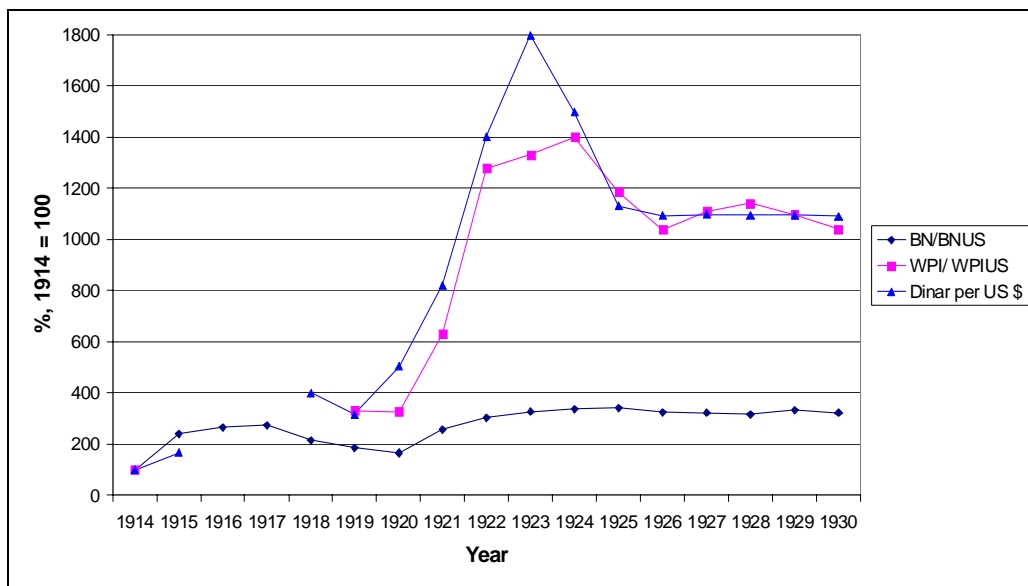
Chart 8: Relative Banknote Circulation, Relative Prices and Exchange Rate in Romania, 1914–1931



Sources: See chart 6.

Because of the lack of data for Serbia/Yugoslavia during the war period it is an open question whether the relative banknote circulation again dragged up exchange rate and relative prices in the beginning. Also, wholesale prices had to be used since cost of living or retail price index was not available. Now we know from other historical episodes that relative wholesale prices follow the exchange rate more closely. In spite of this we find an undervaluation of the dinar. The new gold parity implied, however, purchasing power parity with relative wholesale prices vis-a-vis the dollar. Measured in relative cost of living indices this might well have shown up as an undervaluation. Similar to the case of Bulgaria the relative level of banknotes in circulation is incredibly low. It again corresponds to the low level of the real stock of banknotes noted above. In both cases this remains a puzzle.

Chart 9: Relative Banknote Circulation, Relative Wholesale Prices and Exchange Rate in Serbia/Yugoslavia, 1914–1930



Sources: See chart 6.

4. Conclusions

The study of the four hyperinflations in Balkan countries as well as the milder inflations in the wake of the First World War have, on the whole shown the same qualitative characteristics typical for other inflations. The following hypotheses have been confirmed in most cases:

1. The real stock of money increases in the beginning of inflation more than price level and exchange rate.
2. When, however, inflation goes on and accelerates, exchange rate and price level move ahead more than the real stock of money even with steadily rising nominal stock.
3. An undervaluation develops rather soon and is typical for inflation.
4. When monetary stabilisation is undertaken, undervaluation diminishes.
5. The fixing of the exchange rate takes place at a still undervalued rate because of domestic political reasons in most cases.
6. Currency substitution is an important factor especially during high inflations.

We have, however, also found some exceptions and puzzles. The overvaluation of the Bulgarian currency during hyperinflation in the 1990s is remarkable, though doubtful. Also, the stabilisation of the Romanian currency in the late 1920s occurred at a slightly overvalued exchange rate implied by the new gold parity. Finally, the low level of the real stock of banknotes in Bulgaria and Yugoslavia after 1922 are puzzling. Further analysis of these events may be important to shed more light or to correct some of the above hypotheses. Moreover, a looking for evidence whether currency substitution played a role during the inflations in the wake of the First World War should also be on the research agenda.

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