*Macroeconomic Policies and Nominal Exchange Rate Regimes: Greece in the Interwar Period**

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1. Introduction

Economic development in Greece during the XIXth century and the first half of the XXth century took place against a volatile and frequently violent political background. It was continually interrupted by bloody wars against Turkey which caused sharp increases in government expenditure and culminated in a chaotic state of the nation's finances. It was frequently dominated by short-lived, short-sighted political administrations. There was a continuous alternation of periods of fixed and flexible exchange rates. Periods of moderate spending, low seigniorage needs and small exchange rate movements alternated with periods of high government spending, high inflation and wide fluctuations in the drachma exchange rates.

Greece's modern economic history is still relatively unexplored. Lazaretou (1993) sought to explore developments over a long time span and open up a previously neglected area in the monetary history of Greece. She presents some historical perspectives on the behaviour of the monetary and fiscal policies pursued in Greece during the period from the early 1830s until the collapse of the classical gold standard. Continuing with the same line of

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investigation, the main purpose of this paper is to describe the historical development of the Greek monetary system in the interwar period. More precisely, it surveys the historical record on the periodic abandonment of and return to flexible rates that Greece experienced from the outbreak of WWI until the collapse of the gold-exchange standard.

The interwar history of Greek monetary and fiscal policies is divided into three parts. The first part (Section 2.1) refers to the WWI gold-exchange standard (1915-1919). The second part of the story (Section 2.2) deals with the interwar floating exchange rate (1920-1927). The entry of the drachma into the interwar gold standard in May 1928 and its behaviour within the system are discussed in the third part (Section 2.3). Finally, Section 3 closes the paper.

2. From the Outbreak of World War I to the Collapse of the Interwar Gold-Exchange Standard

Like the pre-WWI period, the period from 1915 to 1936 was characterised by a periodic abandonment of and return to fixed exchange rates. From 1915 to mid-1919, the drachma was on the gold-exchange-based regime of the early 1910s. In August 1919 it switched to flexible rates. Eight years later, Greece entered the interwar gold standard and remained there until the devaluation of the French franc in September 1936.

The key features of this period are summarised as:

(1) After her success in the First Balkan War (1912-1914)[1], Greece was involved in a long-run war (First World War, 1914-1918 and Second Balkan War, 1919-1922) that produced important territorial and demographic changes.[2] On the eve of the First

[1] Greece freed Macedonia and Thrace from Turkish and Bulgarian occupation and extended her boundaries to roughly their current limits.

[2] Although Greece entered WWI in June 1917, war hostilities started on the Macedonian front as early as 1915. After the end of hostilities in 1918, Greece alone continued the war against Turkey (1919-1922). On 2 May 1919, the Greek Army disembarked at Asia Minor and the Greek state extended its northeast boundaries to include the Greek minority in Turkey (mainly around Smyrna). However, the country suffered a great defeat and after the Smyrna disaster in September 1922 some 2 m. refugees were settled in Greece.

Balkan War, the country covered an area of some 65,000 square kilometres with a population of about 2.8 m. After a massive influx of refugees in 1922, the population incresead to about 6 m.[3] and the area administered by the Greek state increased to 130,000 square kilometres.

(2) The events following the war created economic and political upheavals unprecedented in the history of a country which had already experienced wars and political instability in the past. The 1920s were a period of uncontrolled inflation and wide fluctuations in drachma exchange rates. On the other hand, the 1920s were also a period of rapid growth in Greek industry. Inflation led to an over-stimulation of industrial activity. Manufacturers benefited from a sharp fall in real wages after 1921 and a heavy tariff protection. Moreover, the arrival of refugees, among whom there was a high proportion of urban workers, depressed real wages and contributed to the growth of the industrial sector.[4]

(3) After a two-year stabilisation programme followed by monetary stringency, Greece returned to the gold standard in May 1928. The collapse of existing international monetary institutions in September 1931 led to a serious financial crisis in Greece that pushed the country off the gold standard seven months later. However, the government's insistence on stabilising the exchange rate rather than domestic prices led to Greece's joining the Gold Bloc in June 1933. The link with gold was maintained until September 1936.

[3] There were 7 m. Greeks in the Near East but only 2.8 m. were living in the old Greek state by 1912. After the Greek victory in the First Balkan War and the population transfers after the WWI, Greece's population rapidly increased. According to the 1920 census, the country's population was around 5.5 m. During the period 1920-24, population losses in 1919-1922 due to the "exchange" of minorities (Muslim and Bulgarian emigrants) and territorial losses (the territory occupied in Asia Minor, mainly around Smyrna, East Thrace and the two islands Imbros and Tenedos) are estimated to have been more than 1 m. (see Pallis, 1925). However, the massive and rapid inflow of refugees from Bulgaria, Russia and above all Turkey contributed to a net increase in the Greek population. According to the 1928 census, the population of the entire state was around 6.2 m.

[4] From early 1923 a large number of firms was created: 56 in 1921, 107 in 1924 and 214 in 1927 (see AOS, EO (1938)). From 1921 to 1927 industrial output was growing at an average annual rate of 7.2 percent.

TABLE 1. Fiscal and Monetary Policies: Greece, 1915-1936

Periods	*Government expenditure (1)*	*Military spending (2)*	*Direct Taxes (3)*	*Indirect Taxes (4)*	*Money supply (5)*	*Total Reserves (6)*
	Whole sample period (1915-1936)					
	160.5	30.8	18.0	46.9	14.5	11.9
	WWI gold exchange Standard (1915-1919)					
	223.6	34.9	21.0	38.3	34.6	40.8
1915*	178.1	22.9	23.2	41.3	20.9	4.3
1916*	108.9	23.4	21.0	42.4	46.6	62.1
1917*	154.8	21.8	23.3	31.1	36.8	49.0
1918*	387.2	53.9	18.2	36.6	48.1	58.1
1919*	288.9	52.3	19.0	39.9	20.7	30.2
	Interwar 'floating' (1920-1927)					
	168.8	40.6	17.6	46.3	16.4	-2.4
1920*	262.8	53.3	20.0	37.1	6.7	-17.5
1921*	286.3	57.9	18.5	38.9	25.1	-6.1
1922*	198.5	57.2	17.5	48.4	13.4	-0.9
1923*	150.9	41.1	20.2	50.1	68.5	4.2
1924	117.4	33.6	18.3	53.2	11.2	-5.4
1925	122.9	28.4	15.4	48.0	12.5	-1.9
1926	123.7	28.4	15.8	46.5	-15.3	3.5
1927	88.2	24.5	15.3	48.0	9.2	5.0
	Interwar gold exchange standard (1928-1936)					
	118.1	19.8	16.6	52.2	1.7	8.5
1928**	104.3	17.9	16.0	46.6	5.9	99.9
1929	198.6	10.1	13.6	47.3	2.5	-7.7
1930	124.0	16.5	13.4	48.2	-9.6	-10.6
1931	129.8	14.5	14.8	60.6	-13.3	-28.9
1932***	117.2	16.9	16.5	57.2	-0.9	-35.3
1933****	94.6	23.4	18.6	55.5	14.6	72.7
1934	98.2	20.0	20.0	54.8	9.0	10.4
1935	100.5	22.9	19.3	55.9	4.6	-8.5
1936*****	95.8	35.9	17.4	43.8	2.4	-15.3

Notes: Columns 1 to 4 present the mean values of the variables in question in selected sub-periods. Central government expenditure (inclusive of interest payments), direct and indirect taxes and military spending are expressed as percentage of total tax revenues (end-of-year data). Column 5 and 6 present the average growth rate of the money supply (M1) and the Bank's total reserves (gold, foreign exchange and the money credits pledged by the Entente). (The data refer to year averages). The narrow money supply is measured by the quantity of banknotes issued solely by the National Bank of Greece from 1915 to 1927 and the newly established central bank, the Bank of Greece, from 1928 to 1936. (*) war years, (**) a year of a heavy foreign loan , (***) Greece abandoned the gold standard, (****) Greece entered the Gold Bloc, (*****) dictatorship.

Table 1 presents the main features of the fiscal and monetary policies pursued. Note that high levels of government spending were accompanied by high rates of money growth, low or even negative growth rates of foreign exchange reserves and low tax revenues. Note also that there exists an inverse relation between income taxes and indirect taxes. Income taxes were falling while indirect taxes were rising during and after periods of high military spending. The data suggest that governments relied on money creation to finance wartime emergencies. Consequently, the monetary authorities switched to the interwar floating policy in order to accommodate the price changes with the drachma's exchange rate devaluations. Once hostilities ceased, governments refrained from using seigniorage as a tax instrument and made an attempt to finance spending by increasing indirect taxes. The moderate levels of spending of the late 1920s were associated with moderate rates of money growth and an increase in the Bank's foreign reserves. Thus, a switch to a fixed exchange rate regime, like the interwar gold standard, was feasible.[5]

Tables 2 and 3 examine the cross-regime statistical behaviour of inflation and the drachma/pound real exchange rate.[6] Table 2 shows, for each exchange rate regime, the mean and standard deviation of the monthly rate of change of the price level and the drachma/pound real and nominal exchange rate.

Not surprisingly, the results indicate that price inflation was not only higher in the interwar float but more volatile as well. The mean of the monthly rate of change of the cost-of-living price index was 21 times larger during the interwar floating period and price changes were five times as volatile as under the interwar gold-exchange standard. Moreover, the real exchange rate volatility was

[5] For an explanation of the historical episodes of specie inconvertibility as a consequence of the interplay between government spending and seigniorage see Lazaretou (1995).

[6] Lazaretou (1996) extends the sample period back to 1877 and finds that periods of floating were mainly characterised by the persistence of higher inflation, a larger variance of inflation shocks as well as a higher short-term volatility in unanticipated relative price changes.

TABLE 2. Inflation and Exchange-Rate Volatility: Summary Statistics

	inflation		*real exchange rate*		*nominal exchange rate*	
	μ	σ	μ	σ	μ	σ
			complete period			
1915.01-1936.08	1,102	6,107	0,130	13,856	1,357	8,972
			WWI gold-exchange standard			
1915.01-1919.08	1,841	8,467				
1915.01-1919.03			-0,946	12,194	-0,034	1,045
			Intewar floating			
1919.09-1928.04	1,693	7,235	0,468	16,629	2,622	12,270
			Interwar gold exchange standard			
1928.05-1936.08.	0,080	1,379				
1928.05-1931.08			-0,037	7,127	0,024	0,123

Notes: μ and σ are the mean and standard deviations of the monthly rate of change of the price level and the drachma/pound real and nominal exchange

rates, i.e. $\mu_x = \sum_{t=1}^{T} \Delta x_t / T$ and $\sigma_x = [\sum_{t=1}^{T} (\Delta x_t - \mu_x)^2 / T]^{1/2}$, x= p, r, s

where p is the logarithm of a cost-of-living price index, normalised at zero for the year 1914, r is the logarithm of the real exchange rate computed as the ratio of British wholesale prices, converted to domestic currency by the bilateral exchange rate, relative to Greek wholesale prices, s is the logarithm of the nominal exchange rate and T is the sample period. (The data are monthly averages).

more than twice as large during the interwar float as it was during the interwar gold standard.

As one would expect, neither inflation volatility, nor the real exchange rate volatility show any considerable difference during the WWI gold-exchange standard and the interwar float. Although the drachma/pound nominal exchange rate was kept fixed (the mean of the monthly rate of change is nearly zero), the real exchange rate exhibited an extreme volatility[7] that was largely caused by the extreme volatility of inflation. As can be seen in

[7] Note that the mean of the monthly rate of change is not zero. Moreover, it has a negative sign, implying a loss in the country's competitiveness.

FIGURE 1 - Annual Standard Deviations of Inflation and the Real Exchange Rate

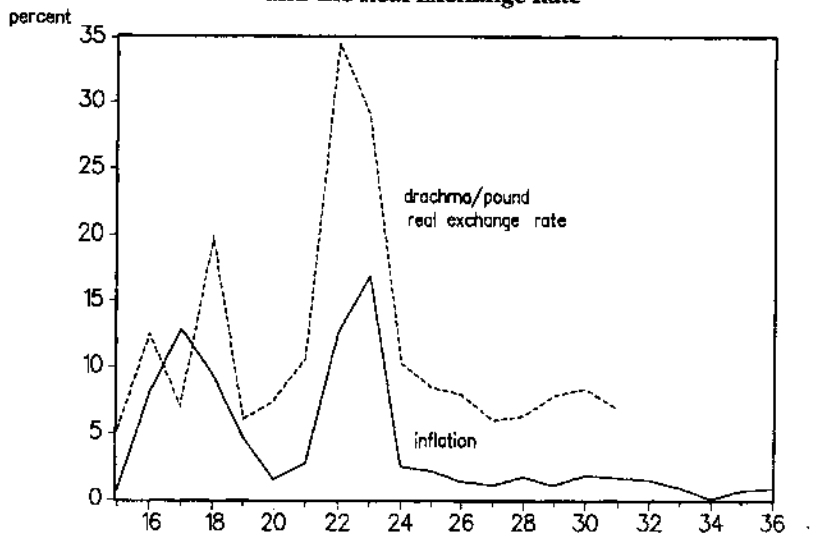


Table 1, the high wartime spending of the years 1917-19 was completely financed by the massive creation of money. The monetary authorities continued to peg the drachma, first against the pound sterling and second, against the US dollar by selling foreign exchange without any limit. Indeed, in 1919 the country's foreign exchange reserves (without including the money credits pledged by the Entente) had decreased by 51.6%. To make this result more explicit, we show in Figure 1 the annual sample standard deviations of inflation and the real exchange rate changes. Note that both variables show an atypical volatility in the pre-1922 compared to the post-1922 period.

Table 3 summarises the results of the unit roots for cost-of-living price inflation and the drachma/pound real exchange rate. We follow the Phillips-Perron framework which allows for a wider class of stochastic processes for the error terms (Phillips and Perron, 1987; Perron, 1988; Phillips, 1987). The presence of a unit root cannot be rejected for the inflation rate when the periods from January 1915 to August 1919 and from September 1919 to April

TABLE 3 - Unit Roots for Inflation and the Real Exchange Rate, marginal significance levels

			inflation	
	complete period	*WWI gold exchange standard*	*interwar floating*	*interwar gold exchange standard*
Tests	*1915.01 1936.08*	*1915.01 1919.08*	*1919.09 1928.04*	*1928.05 1936.08*
$Z(\beta)$	a	b	b	a
$Z(t_\beta)$	a	b	b	a
$Z(\Phi_2)$	a	b	b	a
$Z(\Phi_3)$	a	b	b	a
			real exchange rate	
	complete period	*WWI gold exchange standard*	*interwar floating*	*interwar gold exchange standard*
Tests	*1915.01 1931.08*	*1915.01 1919.03*	*1919.09 1928.04*	*1928.05 1931.08*
$Z(\beta)$	a	b	b	b
$Z(t_\beta)$	a	b	b	b
$Z(\Phi_2)$	a	b	b	b
$Z(\Phi_3)$	a	b	b	b

Notes: a Rejection of the null hypothesis at a significance level smaller than 5%. b Rejection of the null hypothesis at a significance level larger than 10%.
Null Hypotheses: H_0: $x_t = x_{t-1} + \varepsilon_t$ and H_1: $x_t = \rho x_{t-1} + \varepsilon_t$, $|\rho| < 1$ for $Z(\beta)$ and $Z(t_\beta)$, H_0: $x_t = x_{t-1} + \varepsilon_t$ and H_1: $x_t = \alpha + \beta(T-t/2) + \rho x_{t-1} + \varepsilon_t$, $|\rho| < 1$ for $Z(\Phi_2)$ and H_0: $x_t = \alpha + x_{t-1} + \varepsilon_t$ and H_1: $x_t = \alpha + \beta(T-t/2) + \rho x_{t-1} + \varepsilon_t$, $|\rho| < 1$ for $Z(\Phi_3)$, where x is the inflation rate and the logarithm of the drachma/pound real exchange rate, respectively. Critical values for $Z(\beta)$ and $Z(t_\beta)$ are from Fuller (1976), pp. 371-373, Tables 8.5.1 and 8.5.2 and for $Z(\Phi_2)$ and $Z(\Phi_3)$ are from Dickey-Fuller (1981), p. 1063, Tables V and VI.

1928 are analysed, implying that price increases during these periods were permanent in nature. By contrast, under the interwar gold standard, inflation seems to be stationary, indicating a lack of persistent inflationary pressures.[8]

As far as the real exchange rate is concerned, we find that the variable's stochastic behaviour does not differ substantially across regimes. It seems to be a non-stationary process in all selected sub-

[8] See also Lazaretou (1996) for similar results.

periods. However, when we analyse the whole sample period, we cannot reject the hypothesis of stability. This suggests that the real exchange rate during the period under study, was disturbed by price level shocks or exchange rate movements, but exhibited a long-run to revert to the mean tendency.

2.1 WWI Gold-Exchange Standard (1915-1919)

The French franc started to devalue heavily in February 1915. However, the drachma continued to be pegged against it. Only in May, the central bank, fearing for large losses in its reserves[9], transferred its foreign exchange from interest-bearing deposits held in Banque de France to deposits in the Bank of England and the Federal Reserve. At the same time, the drachma was linked to sterling and started to revalue against the French franc. On 16 June the par exchange rate between the drachma and the British pound was achieved (1 pound= 25.25 drs.). A year later, the Greek monetary authorities decoupled the drachma from the pound sterling and tied it to the US dollar, the only currency that continued to have a direct link with gold.

In June 1917[10], Greece entered WWI. The prolonged mobilisation of the army and the costs of operations on the Macedonian front imposed large burdens on the wartime budgets. Military spending increased rapidly from 23.4 percent in 1916 to 53.9 percent of total expenditure in 1918. The government tried to finance the excess spending by issuing domestic[11] and foreign debt.

[9] During the first semester of the war, the Bank's reserves were reduced by 60 m. FF.

[10] In late 1914, Venizelos, then prime Minister and Liberal Party leader, had urged that Greece should join the war on the side of the Entente. He believed that the Entente's victory would help Greece to fullil her irridentist dreams. However, King Constantine opposed him. This dispute culminated in a virtual civil war in 1916-17 between the provisional government set up by Venizelos in Salonika and the official government to Athens. With the Allied blockade which lasted from December 1916 to April 1917, the King was finally forced to leave the country and Venizelos returned with his government to Athens. In June, Greece joined the war.

[11] By the law of 5 April 1918, the government was allowed to issue Treasury Bills for the amount of 200 m. drachmas. The central bank was obliged to exchange Treasury Bills for banknotes.

The government could not increase revenue from taxation. Indirect taxation already stood at high levels and direct taxation was inefficient since the bulk of the population lived close to subsistence levels. Foreign loans took the form of money credits that the Allied Powers (the US, the UK and France) guaranteed. These loans were not actually released but were meant to be drawn on and settled six months after the end of the War,[12] or when the foreign reserves of the National Bank fell below the statutory limit of 100 m. FF. In wartime, the government raised money almost exclusively by borrowing from the National Bank, which in turn simply rolled the printing press. The increased banknote circulation[13], however, was not backed by foreign exchange. The convertibility was secured only by the financial support that Greece would receive after the end of the War. Actually, increases wartime expenditures were financed by means of the printing press. Consequently, an exchange crisis soon occurred.

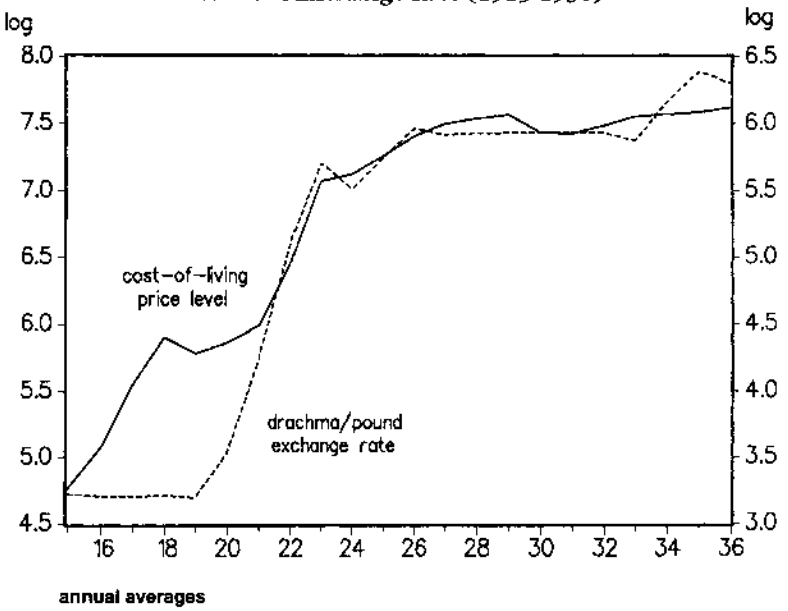
Plotting the time-series of the price level with the drachma/pound exchange rate (see Figure 2), we note that until 1918 wartime inflationary pressures[14]did not affect the behaviour of the exchange rate. Thereafter, the drachma started to devalue heavily with an enormous reduction of the Bank's reserves and a massive creation paper money.

[12] On 28 February 1918, the US, the UK and France agreed to lend Greece 750 m. FF and on 6 May 1919, France and the UK agreed to lend 100 m. FF more. In addition, the Greek central bank was obliged to issue banknotes for the amount of 250 m. drachmas in order to support the Allied troops in Macedonia. France and the UK agreed to lend Greece 250 m. drachmas two years after the War. (For details see Pharmakides (1921), pp. 120-127 and Tsouderos (1924)). Part of the agreement was the obligation of Greece to impose exchange controls (the law of 20 November 1917). However, controls were not imposed on trade imports and in conjunction with the drachma's revaluation against sterling and the currencies around it, large reserve losses occurred. It should be noted that while the controls on gold exports, imposed in 1914, suspended gold convertibility and thus introduced the convertibility of foreign exchange, the exchange controls, imposed in 1917, limited the ability to convert domestic note issues to foreign currencies. In fact, the country switched to a fiat monetary standard.

[13] In 1916, the rate of growth of note circulation was 47%; in 1917 it was 37%. The monetary expansions continued in 1918 (48%) and in 1919 (21%). (See Table 1).

[14] The inflation rate, based on a cost-of-living price index, was 15.7% in 1915, 30.7% in 1916, 47.6% in 1917 and 35.7% in 1918.

FIGURE 2 - The Price Level and the Drachma/Pound Nominal Exchange Rate (1915-1936)



On 21 March 1919, the support operations that had stabilised the British pound against the US dollar ceased and sterling was allowed to float freely. The drachma began to float with respect to sterling and all other currencies except the US dollar. By intervention in the foreign exchange market and selling dollars without any limit, the Greek monetary authorities tried to keep the drachma/dollar exchange rate fixed. After the depletion of the dollar reserves in August 1919[15], the official reserves of the Bank consisted of the money credits of the Allied countries. However, the Allied Powers refused to honour their promise and to pledge the agreed financial support[16] and thus, Greece switched to flexible rates.[17]

[15] While at the beginning of 1919 the dollar reserves were 318 m. drachmas, they were reduced to 233 m. drachmas at the end of the first half of 1919 and were depleted by the end of the year.

[16] By December 1920 Britain pledged 3 m. pounds for the support of the British troops in Salonika and only 6.5 m. of the loan of 12 m. The United States offered only $15 mil. of the agreed $50 m., while France, although it had promised to pledge 300

2.2 *Interwar Floating (1920-1927)*

The two key characteristics of the interwar floating period were: a political and an economic crisis that lasted until December 1926, and then financial and monetary stabilisation from 1927 onwards. The latter resulted in restoring the gold standard in May 1918.

Greece alone continued the war against Turkey in Asia Minor until the Great Defeat in September 1922. Financing the boom in wartime spending from regular revenues was impossible. In the four years 1920-23, the value of the ratio of military spending to total spending (with respect to its mean of 30.8 percent for the whole sample period) ranged from 53.3 percent in 1920 to 41.2 percent in 1922, reaching a peak of 57.9 percent of total expenditure in 1921. The government introduced various fiscal reforms, bringing in an income tax and raising indirect taxes (Table 1). However, these measures yielded negligible revenues. Consequently, the government began a process of raising the ceiling of the maximum fiduciary note issue. The note circulation increased to 1375 m. drachmas in 1919, 1508 m. in 1920, 2163 m. in 1921, 3150 m. in 1922 and 4681 m. in 1923, compared with only 379 m. drachmas in 1915. (The data refer to end-of-year totals). The growth of the domestic money supply between 1920 and 1923 was largely government induced.

As is well known (Barro, 1987), under a fixed exchange rate regime the link between military spending, monetary growth and inflation should be loose. By contrast, under a paper standard fluctuations in military spending explain the variations in price

m. FF, postponed the settlement (see Zolotas, 1928, pp. 56-57). That policy change can be explained by the political developments of the time. In November 1920, the pro-Allied Venizelos lost the elections and the exiled pro-Germany King Constantine returned to the throne. The Entente Powers reacted by refusing to withhold these funds permanently and thus, West European capital markets remained closed to Greece until well after the Asia Minor disaster (see Tsouderos, 1924, p. 33).

[17] While in July 1919, the drachma/dollar exchange rate was fixed at 5.20, in August it increased to 5.74 and in September to 5.82. After an unsuccessful attempt that took place in October to keep the exchange rate stable, a new crisis occurred in November. The drachma exchange rate then sharply increased to 6.16 and in December to 6.82.

inflation. High values of military spending lead to faster rates of growth of money supply and prices since governments used the printing press to finance increased military purchases.

Regressing the rate of change of money supply, M_t (and the price level, P_t) on the ratio of military spending to total government spending, gm_t, we test for the existence of a link between shocks to spending and money creation across regimes. Using multiplicative dummies[18], we take into account the "cross-regime spending effect". The OLS-estimates are given below (T-statistics are in parentheses):

sample period 1915-1936

(i) $\ln(M_t/M_{t-1}) = -5.703 + 0.820\, gm_t^{G} + 0.516\, gm_t^{SC}$
(-0.575) (2.216) (1.865)

$R^2 = 0.213$ se=19.134 DW= 1.600 Q(6)= 8.000 L(1)= 0.811
Norm (2)= 2.754 Wald test (1)= 1.272

sample period 1915-1932
(ii) $\ln(P_t/P_{t-1}) = -14.240 + 0.988\, gm_t^{G} + 0.889\, gm_t^{SC}$
(-1.119) (2.177) (2.563)

$R^2 = 0.224$ se= 23.230 DW= 1.637 Q(6)= 8.300 L(1)= 0.449
Norm (2)= 0.813 Wald test (1)= 0.088

(Q is the Ljung-Box statistic in six lags for testing residual autocorrelation. L(1) is the Breusch-Godfrey L-statistc for testing first-order serial residual correlation. Norm (2) is the Jarque-Bera statistic for testing against non-normality. All tests are asymptotically distributed as X^2).

As one would expect, during the interwar float, shocks to

[18] The dummy G takes the value one for gold-exchange-based regimes (1915-19, 1928-31, 1934-35), the value 0.5 in the years 1932, 1933 and 1936 and zero elsewhere. The dummy SC takes the value one in the years of suspension of foreign exchange convertibility (1920-27), the value 0.5 in the years 1932, 1933 and 1936 and zero elsewhere.

spending had a significant positive effect on monetary growth and the inflation rate. We also find a strong positive correlation for the years of the gold-exchange standard.[19] Moreover, Wald tests show that one cannot reject the hypothesis that the effect of wartime emergencies on nominal variables does not differ across regimes. This means that, even though the country remained on a gold-exchange standard, military spending in times of national emergency led to money creation and domestic price increases forcing the monetary authorities to shift from a commodity standard towards a paper standard.

The Greek economy suffered from strong inflationay pressures and an unprecedented devaluation of the drachma (see Table 2). Indeed, after inflation relaxed in 1919, with a moderate increase in 1920 (cost-of-living prices increased at a rate of 8 percent annually), inflation accelerated again in the three subsequent years. It increased to 13 percent in 1921, 47 percent in 1922 and 62 percent in 1923. While the drachma was under par in 1919 (1 pound= 25.25 drs.), it rose to 34.25 against sterling in 1920, to 70.90 in 1921, 166.50 in 1922 and 296.67 in 1923.

These strong inflationary pressures, the heavy devaluation of the drachma and the increased pressure on budget finance forced the government to adopt desperate measures. In the spring of 1922, the government introduced the first forced loan. The public were obliged to hand in their banknotes to the banks where the notes were cut into two: half the note was returned to the owner and the other half was exchanged for 20-year Treasury Bonds at a rate of 6.5 percent.[20] The forced loan provided the only way to cover the deficit (it yielded 1300 m. drachmas) without expanding the note issue.

Moreover, to restrain the devaluation movements of the drachma, in May 1921 the government established a syndicate of 25 banks which was given monopoly power over the exchange rate. The syndicate set an exchange rate of the drachma against the

[19] Since P_t is a wholesale price index, increased military purchases imply an increase in the demand for tradable goods and thus, the price level increases.

[20] Tsalikis (1929) and Zolotas (1928) provide full details.

British pound well below the market rate. While in the black market the pound was exchanged for 200 drachmas, the syndicate exchanged sterling for only 61-62 drachmas until June 1922 and for 138-140 drachmas afterwards.[21] This price difference caused a speculative attack on the drachma. Nobody had an incentive to sell foreign exchange to buy drachmas, while everyone was buying sterling with drachmas. Soon, large losses in foreign reserves occurred and ultimately, the drachma collapsed in September 1922.

To meet the state's urgent needs in foreign exchange, the government introduced a tax on export earnings. By the decree of 29 September 1922, it was ordered that exporters of the main agricultural products, such as olive oil, currants and tobacco, should surrender a proportion of their exchange earnings to the National Bank at an official rate (140 drachmas per pound sterling). By a new decree of 17 October 1922, exporters of silk and skins were obliged to do the same, while by the decree of 9 December, all exports were covered by that control. A new official rate was also set (155 drachmas per pound). However, in the black market the exchange rate rose to 400 drachmas. In addition, all commercial banks were required to place 15 percent of their every-day foreign exchange purchases with the National Bank at the official rate. On 23 April 1923, the government abandoned those controls and raised import duties.

The year 1924 was the beginning of a moderate level of government spending and thus moderate money creation (Table 1). The government refrained from issuing further quantities of unbacked notes. The budget deficit was financed by tax increases and mainly by Treasury Bonds issues. As a result, the monetary growth slowed down[22] and the drachma steadied on the foreign exchanges. By the second half of 1924, the drachma had settled at around 250-260 against sterling. Moreover, it experienced smaller fluctuations, dropping from 212 in January to 298 in March.

[21] See Spourgitis (1928), pp. 529-532.

[22] The fiduciary note circulation increased by 11.2 percent in 1924 compared with 68.4 percent in 1923. Consequently, the inflation rate was only 4.55 percent compared with 61.9 percent in the previous year.

Three were three reasons for the smaller fluctuations in the drachma/pound exchange rate:

(1) The expectation that the lump-sum taxation on property, imposed in 1923, would yield considerable government revenues and finance the budget deficit. It was calculated that the tax would yeld revenues of the amount of 400 m. drachmas.
(2) The government's announcement that a budget balance would be achieved and
(3) the expected foreign exchange inflow in the form of the 1924 League of Nations Refugee Loan (10 m. in sterling) which helped the rural resettlement of the refugees.

However, the political instability that occurred in June 1925 caused wide fluctuations between the drachma and the British pound. The drachma fluctuated between a minimum of 250 in April to a maximum of 368 in December 1925. The fluctuations became more severe in the next year: touching a minimum of 316 in February and a maximum of 453 in July 1926. The increased pressures on government finance resulted in the second forced loan in January 1926. Banknotes were again cut into two parts: 75% of the note was to be retained by the owner and used normally as a currency worth only 3/4 of its nominal value and the other 25% was exchanged for a 20-year 6% loan. The state received from this compulsory loan 1300 m. drachmas.

The period from June 1925 to December 1926 can be separated into three different sub-periods. The period from June to December 1925 was characterised by military intervention in the country's political affairs. In January 1926 a dictatorship was imposed that lasted until 21 August 1926. On 22 August, a revolutionary government prevailed until 3 December 1926. On 4 December, a five-party coalition government was established that undertook the difficult task of economic stabilisation and reconstruction. A committee of twelve experts was appointed by the government to study the problems of the Greek economy. It condemned the chaotic state of the nation's finances and made a number of

recommendations on budgetary procedure, stressing the need to cut expenditures and raise revenues from taxes.

The government embarked on negotiations with the League of Nations, aimed at restoring the gold standard and encouraging the inflow of foreign capital. A financial commission of four experts, chaired by the League's General Secretary, Joseph Avenol, visited Greece in 1927 in order to study the country's economic conditions as well as the public finances. In May, the commission presented its report to the League's Financial Committee (see League of Nations 1927a). In September, the League of Nations agreed to offer to Greece a 9 m. loan in sterling. It was separated into three equal parts:

(1) 3 m. to increase the central bank's foreign reserves and help stabilise the drachma;

(2) 3 m. were earmarked to finance the accumulated budget deficits and

(3) 3 m. event to help with resettling the refugees.[23] The report reassured foreign investors by creating a new central bank (the Bank of Greece)[24] and limited industrial policy to providing tariff protection and keeping real wages low. It also ordered that government expenditures should not increase over and above a statutory limit of 9 b. drachmas in the years 1929 and 1930, and that budget should be in balance afterwards.

[23] Zolotas (1929) , Part II, provides full details.

[24] The League of Nations (1927b) suggested hiving off the commercial function of the National Bank and turning it into a bank purely for note issues. Zolotas (1932) argued that banking reform was a pre-condition for the success of monetary stabilisation. He warned that if the National Bank took active steps to stabilise the drachma, the attempt would fail since commercial considerations distracted it from its public duties. Moreover, its close relationship with the Ministry of Finance would endanger any attempt to keep the budget in balance. The Bank itself resisted this idea. The Deputy Governor of the Bank proposed an alternative scheme: to turn the Bank into a pure commercial bank and create a new central bank which would have the sole privilege of note issue. This scheme was widely accepted and in the Geneva Protocol that was signed between the Greek government and the League of Nations on 15 September 1927, the charter of the new bank was included. The charter was designed according to current central bank orthodoxy: limits were set to the advances that the Bank could make to government, a legal obligation was imposed to maintain a 40% cover of the note issue in gold and foreign exchange, and free convertibility of domestic banknotes to foreign exchange ensured at the gold parity rate.

Thoughout 1927 the drachma was stabilised at around 370-75 against sterling. After the *de facto* stabilisation of the drachma, a *de jure* stabilisation occurred in May 1928. The drachma was defined to contain 0.01952634 grams of pure gold. The British pound contained 7.32238 grams of pure gold, so the par exchange rate was set to 375 (±2.5) drachmas per sterling (7.32238/0.01952634).

2.3 The Interwar Gold-Exchange Standard (1928-1936)

Since 1928, when the drachma became again fully convertible in terms of foreign currencies, the Bank of Greece had experienced a continuous drain of gold and foreign exchange. Note in Table 1 that while in 1928 total reserves were doubled (1928 was a year of a heavy foreign loan), they were dramatically reduced in the subsequent four years. The rate of reduction ranged from a low -7.7 percent in 1929 to a peak of -35.3 percent in 1932. When the severe deflation waves of the 1929 crash reached Greece, the effect was primarily on the balance-of-payments and the drachma exchange rate rather than on the productive side of the economy.[25] The crisis was accompanied by a remarkable reduction in exports[26], capital inflows and emigrants' remittances. On the other hand, the demand for imports (wheat and raw materials) was inelastic.

On 21 September 1921, sterling was devalued and Britain was forced off the gold standard. The Greek government, however, did not follow sterling out of gold. Instead, it decided to continue maintaining the drachma on the gold-exchange standard. Government officials urged continued adherence to the gold standard and expected that Britain's troubles would be temporary. More importantly, the historical experience formulated the policymakers' attitudes. Before stabilisation in 1928, Greece had experienced a period of inflation, monetary expansion, exchange

[25] Indeed, industrial growth was limited to 2 percent in 1929 compared with 6 percent in the previous year. In the next two years, industrial output grew at a rate of 3 percent annually and only in 1932 was there a remarkable slowdown (-5.9 percent). A period of recovery of industry started in 1933 that continued for several years.

[26] It should be noted that Greek exports primarily consisted of high income-elasticity products, such as olive oil, tobacco, sultanas, wine and currants.

rate crises and political turmoil. A return to those conditions, if stabilisation was abandoned and the drachma was devalued, might produce fears that inflationary pressures would build up. No one knew how far the drachma might be devalued and what the consequences might be for domestic monetary stability. Thus, Greece switched from pegging against the British pound to pegging against the US dollar, which remained on gold, with the new official exchange rate being set at 77.05 drachmas per dollar (gold points: ±0.95 drachmas).[27]

However, the drachma immediately came under heavy selling pressure. In only one week (21-26 September), the losses in foreign reserves totalled 3.6 m. drachmas. The monetary authorities reacted by raising the discount rate to 12% but the resulting credit squeeze, did almost nothing to reverse the outflow of reserves. In October, the discount rate was lowered again to 11%. In addition, the government decided that the central bank would assume a monopoly over all foreign exchange transactions. The exchange controls thus imposed, marked the beginning of a *de facto* suspension of the convertibility of the drachma.[28]

Following the uncoupling of the drachma from sterling and pegging it against the dollar, the Greek government tried to drum up international support in order to help the defence of foreign exchange convertibility. In January 1932, the government made an application to the Financial Committee of the League of Nations and the International Committee for Greek Debt Management for

[27] Both Eleftherios Venizelos, then Prime Minister, and Alexander Diomides, Governor of the Bank, supported this solution. By contrast, Kyriakos Varvaressos, economic consultant of the Bank, argued that Britain's troubles would not be temporary. He agreed with Otto Niemeyer, then Governor of the Bank of England, that the drachma should be de-coupled from gold and start to float freely.

[28] By the laws of 28 September and 8 October 1931 as well as the law of 1 February 1932, it was defined that (i) the Bank of Greece was not to be obliged any more to convert domestic banknotes into foreign exchange; (ii) all foreign exchange deposits with Greek banks were to be compulsorily converted to drachmas; (iii) all the foreign exchange accounts of Greek residents were to be frozen and (iv) all exporters of Greek products were to surrender their foreign exchange earnings to the central bank at the official rate.

permission to suspend all foreign debt payments for a five-year period. It also raised a loan of 12.5 m. in sterling to be used to stabilise the domestic currency and complete the public works programme. In other words, the Greek government defaulted again.[29] The League of Nations opposed the government's requirements and agreed to only one year's suspension of the foreign debt amortisation payments.[30] However, in April the government suspended convertibility and a month later declared a unilateral moratorium on the servicing of its outstanding foreign debt.

Following the abandonment of gold, the drachma started to depreciate heavily (see Figure 2). It declined against sterling from 293 in March, to 543 in May and to 609 in December 1932. The Bank of Greece had run out of reserves. In August, the reserves were drawn down to 20.7 percent well below the statutory minimum of 40 percent. To cover these losses, the Bank intervened in the black market, ordering brokers to purchase foreign exchange on its behalf. This unorthodox intervention method continued until the end of the year and contributed to a successful rebuilding of the central bank's reserves.

By the end of January 1933, the drachma had been devalued too much. Private agents started to fear that foreign currencies might be devalued against the drachma. The consequence was a reversal of the movement of 1931-32. An inflow of foreign currencies that was largely helped by the dollar's devaluation in April 1932, encouraged the repatriation of capital from the United States and restarted the inflow of emigrants' remittances. Adopting a "gold policy", the Bank immediately converted its exchange

[29] Greece had defaulted twice in the past. In 1827, when the government refused to pay interest payments on the 1824-25 foreign loan, and in 1893, when the government reduced the interest payments on its outstanding foreign debt to 30 percent and refused to amortise it.

[30] In February 1932, a commission of five experts, chaired by Otto Neimeyer, visited Greece. In March, Neimeyer presented his report to the Financial Committee of the League of Nations. He mentioned that the budget was already in deficit in 1931 and 1932 and the reserve-banknote ratio was reduced to 32 percent well below the legal ratio of 40 percent.

holdings into gold in an attempt to minimise any potential losses that might be caused by further devaluations. In June 1933, the country joined the "Gold Bloc" (France, Belgium, Switzerland, Poland, Italy and the Netherlands) and started to peg the drachma against the Swiss franc. When the French franc left gold in September 1936, the drachma joined the Sterling Area.[31]

3. Conclusion

This paper has presented a brief description of the historical development of the Greek monetary system during the interwar years. The historical overview of the periodic abandonment of and return to flexible exchange rates suggests that excess military spending threatened the viability of a fixed exchange rate regime. In order to have access to revenue in times of national emergency, governments suspended specie convertibility and created money. Summary statistics reveal that inflation was considerably higher during these periods. Moreover, inflation as well as the real exchange rate showed an atypical volatility relative to periods of moderate spending and, thus, low rates of money growth.

Data Appendix

The historical time-series for total tax revenues, income tax revenues, indirect tax revenues, total government spending (inclusive of interest payments) and military spending are from *Greek Government Budget, Annual Reports*, 1915-1936 (various issues), *General Records of Government* (end-of-year data). The data for note circulation and the Bank's total reserves (year averages) are taken from the *Annual Report of the Governor of the*

[31] By early 1932 at least 35 nations had left the gold-exchange standard and a new period of managed instead of freely floating exchange rates started. Britain, the Commonwealth and Dominions, Japan, the Scandinavian and Latin American countries adopted the floating regime. A large number of countries that traded with Britain, decided to keep their currencies stable in terms of sterling and to fluctuate in sympathy with the pound sterling against the remaining gold currencies. This group of countries, including the British Dominions and Colonies, the Scandinavian countries, Portugal, Egypt, Latvia, Estonia and Sweden, formed the Sterling Area.

National Bank of Greece, Historical Records of the National Bank of Greece for the period 1915-1927 and from the Bank of Greece's, *Monthly Statistical Bulletin*, for the period 1928-1936.

The historical data for the cost-of-living price index (monthly averages) are from Zolotas (1927) for the period January 1924 - December 1927 and from the *General Statistical Service of Greece (GSSG), Monthly Statistical Bulletin* for the period 1928.01-1936.08. Missing data for the period January 1915 - December 1923 are computed as the product of the seasonality factor and the annual averages. The data on the drachma/pound nominal exchange rate (monthly averages of spot rates) are from *GSSG, Monthly Bulletin.* The Greek wholesale price index is constructed as the weighted geometric average of the import and export prices. The data for the British wholesale price index are from the *Journal of Royal Statistical Society*, Sauerbeck Index (various issues).

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