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This version: December 2012

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Abstract: In 1928 Greece viewed the anchoring to the Gold Exchange Standard as the imperative choice of the time in order to implant financial credibility and carry over an ambitious plan of reforms to modernise the economy. After the pound sterling exited the system in 1931, Greece, instead of following suit, chose a defence that drove interest rates at high levels, squeezed the real economy and exhausted foreign reserves. Unable to borrow from abroad, it quitted the system in 1932 and the Drachma was heavily devalued. Despite a rise in competitiveness, improvements in the trade balance were hindered by the wave of protectionism, while the erosion of real incomes cut domestic demand and unemployment continued to rise. Rather than a fast recovery after the collapse, the country entered a period of acute social and political instability that ended with the imposition of dictatorship in 1936. The lessons are relevant today for the costs that Greece would likely face by exiting the Eurozone.

A model of Balance of Payments crises with partial capital controls is employed to analyze the response of currency pegs to external shocks and examine under which circumstances the regime collapses. Its main predictions are found to be in agreement with the actual outcomes in 1932.

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1. Introduction

A byproduct of the current Greek debt crisis is a thriving literature based on the intellectual speculation – sometimes on a market one as well –that Greece is bound to fail the stabilization process and, therefore, exit the Eurozone and default. The argument goes that under the present fiscal austerity and currency fixity, recession will deepen destroying more jobs and igniting further social unrest; for an apocalyptic foretelling see Roubini (2011). After abandoning the Euro, Greece is assumed to become master of its fate and is at last able to print its own money, rebuke the austerity program, and – of course - devalue, perhaps heavily. As warned by Feldstein (2011), a concomitant option would be to repudiate payment obligations since all public debt is presently denominated in Euro and a steep devaluation would make its servicing intolerable. But, the exit argument continues, even this is an affordable cost as the economy will soon assume a growth path, restoring competitiveness and employment, and advancing market reforms; see for example Azariadis (2011).

If not convincing enough, the above arguments are frequently enriched by historical *clichés,* according to which Greece will fail because under similar circumstances it had also failed in the past. Hartwich (2011) presents one such episode when the country left the Latin Monetary Union (LMU) in 1908 and is quick to reach the verdict that "*Greece is a basket case*". For a less prejudiced observer, the noticeable fact would rather be that Greece successfully managed *to enter and stay* in LMU for several years, despite major financial deficiencies and frequent war engagements in the last quarter of the 19th Century[1]. It was only after the disastrous war in 1897 and the burden of retributions to Ottoman Turkey that LMU participation looked untenable and Greece was obliged to exit. Nevertheless it quickly fixed its finances and managed to re-enter the Gold Standard in 1910, though now for a few more years before exiting in 1914 following many other nations after the outbreak of the Great War.

Another and oft cited incident took place in 1932 when Greece abandoned the interwar Gold Exchange Standard (henceforth GES) and subsequently repudiated its debt. In contrast to conventional wisdom, neither the collapse was predetermined by some Greek history dictation, nor the post-collapse regime managed to adequately face the economic and social problems of the time. The same applies for the current situation in Greece, as recession is looming and the scenario of failing to stay in the Eurozone is advanced both by international analysts and critics

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[1] Greece signed the agreement as early as 1867, but membership was subsequently disrupted whenever it failed to control its fiscal deficits; for an account see Lazaretou (1999).

at home.The risk is real indeed, but whether Greece fails or succeeds is an issue of policy choice, not a chance of fate. In this respect, it is useful to analyze the causes and consequences of the crisis in the 1930s and in this context the present paper sets to demonstrate three points:

First, to explain why joining the GES was a fully justified decision that helped Greece to improve fiscal stability, harness inflation and establish access to low-cost finance. In comparison with the previous situation, improvement within the GES had been remarkable though not so much relative to other countries in the system. In the 1920s, Greece was in an economic and social turmoil, experiencing the contradicting consequences of being a victorious power in the Great War and then - only a few years later – becoming a defeated nation in the campaign in Asia Minor. The country had to rapidly absorb two million national refugees, integrate them in the economic and social framework, and at the same time finance major infrastructures in order to upgrade the regions annexed to Greece during the previous decade. A turning point was when the centre-left Party of Liberals won the elections by landslide and sought a more liberalized environment in banking, trade and industry. In this strategy, participation in the GES seemed to be the unique choice in order to implant financial credibility, reduce the cost of borrowing and carry over an ambitious plan for the modernisation of the economy. The establishment of a Central Bank took place as a precondition for raising credibility in international markets and afterwards the decision to enter GES was granted in May 1928.

The second aim of the paper is to describe a number of shortcomings and policy failures that ultimately led to the currency collapsing in 1932, despite previous adjustment efforts. The pressure started to accumulate with the Great Depression, though the Greek economy was not hit as hard as other economies. Adherence to the GES remained unquestionable throughout, though fiscal and monetary tightness dampened growth and unemployment started to rise. The main shock came when the pound sterling abandoned the system in September 1931 sparking international panic and precipitating similar moves by other countries. By unwisely keeping most of the foreign exchange reserves in British currency, Greece incurred serious losses and the defenses against speculative attacks abruptly weakened. At that point, Greek authorities made the critical mistake not to orderly follow the depreciation of the pound and subsequently keep exchange rate stability, but instead chose to fight to the bitter end and keep within the GES at the old parity. As no credit facility – let alone financial solidarity from other members

of the system – was available at that time the game soon was over and Greece finally collapsed in April 1932.

The third aim of the paper is to describe the consequences on the domestic front by abandoning exchange rate stability. Instead of a speedy transition to a thriving economy, the steep devaluation and the ensuing inflation eroded real domestic demand and unemployment remained at high levels. Instability led to further devaluations for another two years and a dramatic political fall-out followed. These developments cast doubt on the prevailing view that *all* countries that exited the Gold standard and devalued in the 1930s managed to quickly return to growth and raise employment, as presented in the classic study by Eichengreen and Sachs (1985). Despite serial devaluations, Greece - like other countries in the periphery - found it difficult to improve the external accounts and, with international credit flows curtailed, it was forced to repudiate debt payments. The act tarnished the country's credibility and aggravated the financial isolation for many years making recovery slower, not speedier. If anything, the collapse and default of the 1930s is for Greece a lesson that has to be avoided rather than copied.

The literature on Balance of Payments crises is employed to analyze the response of currency pegs to external shocks and examine under which circumstances the regime becomes untenable. By building a simple dynamic model of foreign exchange reserves and the exchange rate, the paper explains the way the regime finally collapsed and highlights some policy alternatives that could have been followed after the shock of the British exit 1931. The predictions of the model are found to be in agreement with actual developments before and after the crisis.

The rest of the paper is organised as follows: Section 2 presents a reduced-form model of currency crises to portray how the Central Bank depletes foreign exchange reserves when an adverse shock hits the economy. Section 3 provides a brief account of the reasons that led Greece to adopt the Gold Exchange Standard and makes an assessment of its benefits and shortcomings. Section 4 describes the main episodes in defending the regime and examines alternative ways out of the crisis as opposed to the policies actually applied that aggravated recession and ultimately led to the collapse of the currency. Section 5 assesses the economic consequences and the political disintegration that followed the exit from the Gold Exchange System. Finally, Section 6 draws conclusions and some lessons that might be relevant for the

present debt crisis. Appendix A contains the graphs, Appendix B gives sources and definitions of the variables used in the text, and Appendix C describes the theoretical model in more detail.

2. Modeling a currency crisis

Since the Greek crisis unraveled as an interplay between market pressure on the exchange rate parity and the depletion of foreign exchange reserves, a dynamic model is set up to examine their dynamics in response to shocks and describe policy options available to counter them.

The main characteristic of the Balance of Payments crises models developed by Krugman (1979) and Calvo (1987) is that uncovered interest rate parity holds throughout and credit expansion takes place at a constant rate known to the market players. In this case, collapse is bound to occur at some predetermined point in time when foreign reserves are exhausted. Foreseeing this, agents organize a speculative attack and the system is abandoned before all reserves are depleted.

Though broadly falling in the above framework, the present model is modified to reflect certain developments that were specific to the Greek crisis: First, the uncovered parity condition is partially incapacitated in the presence of capital controls as was the case in the Greek crisis. Devaluation expectations are then influenced not only by Central Bank policies as reflected on the sovereign spread, but also by market belief that the peg may be abandoned if the current rate deviates from a sustainable level. As this 'fundamental" exchange rate may not be agreeable by all participants or not known with certainty[2], perceptions vary over time.

Second, the model assumes foreign reserves to absorb various shocks and the regime collapses if they fall below a certain floor known only to the authorities. This makes the timing of the collapse not perfectly foreseen by the market, in a way similar to that described by Flood and Garber (1984).

The exchange rate is assumed fixed at a predetermined level $X = X_0$ of domestic units per currency of the anchor country, in this case the US. The other key country in the system was UK with its rate fixed at Z pound sterling per US dollar, thus the bilateral exchange rate of Greece *vis-à-vis* the UK was X/Z Drachma per pound. An increase in X or a fall in Z denotes depreciation of domestic currency. Full details on the model set-up and how it is solved are

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[2] For example in 1932, there were fierce debates vast and disagreement on what the adjustment rate should be in case the Drachma had to abandon the GES; reported by Mazower (2002, p. 233).

given in Appendix C. Using superscript (e) to denote expectations, the over dot for time derivatives, Greek letters for model parameters and small case for logarithmic values (i.e. $x=ln[X]$, etc), the main equations of the model are summarized as follows:

$$s = R - r = \sigma - \eta Q \tag{1}$$

$$x^e = \theta\gamma(u - x) + (1 - \theta)[\sigma - \eta Q] \tag{2}$$

$$Q = J + rQ + F - RF \tag{3}$$

$$J = \beta_1 x + \beta_2(x - z) + \beta_3 W - \beta_4 V \tag{4}$$

Expression (1) postulates that the sovereign spread (s) between domestic (R) and world interest rates (r) adjusts inversely with the level of reserves (Q), the depletion of which raises the collapse probability as described by Krugman and Obstfeld (1991). Reaction parameters are denoted by (σ, η). Equation (2) reflects a situation analogous to that described by Dornbusch (1987), where depreciation expectations regarding the transition from a fixed to a floating regime are influenced by devaluation pressure and reserves behaviour in each period. Expected depreciation rises when the pressure increases and/or the level of foreign reserves is depleted, each factor weighted by the degree of capital controls[3] denoted by index θ, $(0 \le \theta \le 1)$. With free capital mobility ($\theta=0$), equation (2) collapses to the uncovered parity condition. Pressure is captured by the discrepancy between a fundamental rate (say $u=ln[U]$) that clears the trade balance and the current rate (x), while parameter (γ) indicates the nervousness in the market.

Equation (3) is a re-writing of the external financial constraint in the presence of foreign credit shortage as was the case in Greece during the crisis. Foreign reserves become endogenous and are augmented by trade surplus (J), returns on the existing stock and eventual borrowing from abroad, while diminished by payments to holders of foreign debt (F). If inflation differentials between Greece and other members of GES are assumed away due to similar monetary policies, trade balance (J) is approximated by (4) as a function increasing with nominal exchange log-rates (x) and ($x-z$) vis-à-vis the economies pricing their products in US dollars and UK pounds respectively. It also rises along an index of world demand (W), while decreasing with an index of domestic demand (V) that includes fiscal components and

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[3] In the second term of the r.h.s. in (2), capital controls act as a tax on profits from forex transactions, as in the theoretical model of Agenor and Flood (1994). In the context of the interwar crisis, Eichengreen and Sachs (1985) report that in 1931 Mexico imposed a moderate restriction on capital movements by taxing non-commercial transactions by 4%.

autonomous private spending. Parameters (β_1, β_2) are proxies for price elasticities, while (β_3, β_4) denote propensities of foreign and domestic demand respectively. The fundamental rate *(u)* can be viewed as the exchange rate that every time clears (4).

The dynamics of the model are considerably simplified by assuming that during a credit crisis new borrowing from abroad is inhibitive[4] (leading to $F = 0$) and has a unique equilibrium which is saddle-path stable. Full details are given in Appendix C and a graphical depiction of the solution (E_0) with steady-state values of foreign reserves and the exchange rate is presented in Fig. 1.

As analyzed in the following sections, two shocks relevant for the Greek crisis are the depression in world demand (expressed here by a decrease *dW<0* of the relevant index) and the depreciation of the British currency (i.e. an increase *dz>0 vis-à-vis* the anchor country). In the face of shocks, the market adjusts perceptions about the fundamental rate to a new level *(u →
u+du)* that is deemed sufficient to restore the new trade balance. If hit by such permanent disturbances, the system is displaced and the new equilibrium is transposed vertically to (E_1), implying a higher (i.e. depreciated) exchange rate X_1.

In a regime of free-floating system, the new equilibrium (E_1) would be approached on a saddle-path as shown in Fig. 1, but if the currency remains pegged, there is no depreciation taking place and this causes a rise in the market pressure *(u-x)*. To diffuse the risk of the regime collapsing, various options can be considered such as imposing full capital controls *(θ=1)* to suppress the functioning of (2), enforcing fiscal cuts *(dV<0)* to keep (4) in balance without fuelling the fundamentals, or by annulling debt obligations to an extent *(dF<0)* sufficient to ease pressure on foreign reserves according to (3). In case that the above policies misfire or are not available in practice, the system suffers from the depletion of reserves and eventually collapses as happened in interwar Greece.

3. The quest for financial stability in interwar Greece

In the aftermath of the First World War, most European nations were experiencing economic instability associated with exchange rate fluctuations, rampant inflation rates and lack of

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[4] According to Psalidopoulos (2011) the Government made desperate attempts for a new loan, but
"*international financial markets, on which Greece was relying for its needs in capital flows, were not
responding to the Greek appeals*", (p. 69, my translation).

financing. In 1919, the United States decided to adopt the Gold Standard and this prompted the League of Nations to organize, one year later, the Paris Conference seeking exchange rate stability and some form of returning to the Gold Standard. The plan was based on complicated requirements, thus it was no wonder that little progress followed the proclamation. It was only after the horrifying shock of German hyperinflation that the victor countries finally decided to endorse exchange rate fixity as *the* key factor to achieve economic stability. The Gold Exchange Standard was established at the Genoa Conference in 1922 and several countries rushed to join-in.

Joining the club of the Gold Exchange Standard became the political and financial *'zeitgeist'* and was expected to act as - using the phrase coined by Bordo and Rockoff (1996) - a '*seal of approval'* for servicing the debt of participant countries. The establishment of GES ushered in a period of solid growth, low inflation, fiscal consolidation and an easy access to financial markets. Then the Great Crash came in 1929 and a period of prolonged recession followed worldwide.

Improvements, however, were neither as extensive as initially envisaged by the participating nations, nor unequivocally attributed to the exchange rate stability provided by the GES. Regarding borrowing costs, econometric evidence by Obstfeld and Taylor (2003) on interwar markets suggests that the return to the Gold Standard after the Great War did confer lower sovereign spreads to participants on servicing their debt, but not to the extent available in the pre-war period. Similarly, there is no dispute concerning the effect that stability had on the revival of economic activity, but other factors such as the rise in world demand and the abundance of capital flows were also crucial. In fact, the external environment was so benign that may have contributed to domestic complacency; according to Yousef and Wolf (2005) the robust growth in the late 1920s concealed the inadequacies and frailties of the GES that were soon to be exposed in the wake of the Great Depression.

More important was the fact that the benefits were not equally shared by all countries, as the markets' approach in pricing the risk had changed drastically[5]. As opposed to pre-war tastes, international investors in the 1920s scrutinized the 'books' more carefully and adopted a more cautious view on the fiscal position of each country, the sustainability of trade balances and the appropriateness of its exchange rate.

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[5] Greece did not enjoy much of the reduced spreads in the pre-war system either. According to Obstfeld and Taylor (2003) it was paying a large risk premium of 215 basis points, while most other countries were enjoying a zero spread.

Greece was no exception in the widespread willingness to participate in the system to face the postwar malaise. In fact, it had reasons more pronounced than the common anxiety in Europe as inflation was at levels over 80% (see Figure 2), while public debt was swollen above 120% of GDP by war retributions for the ill-fated campaign (Figure 3). The Drachma was unstoppably losing ground to both the UK sterling and the US dollar, and its value in 1928 was fourteen times lower than in 1918; see Figure 6. The economy was badly in need of stability, but the anomalous political situation made domestic policy efforts to be short-lived and the implementation of reforms from within looked implausible.

Three challenges were most pressing: first, to speed-up recovery from war recession; second, to finance major infrastructures in order to integrate the areas annexed to Greece during the previous decade, and, third, to quickly assimilate one million refugees from Asia Minor into the economic and social sphere and restore national confidence. All these tasks required massive capital financing, while the domestic capacity was very thin due to the Drachma slide and the panic-stricken flights of wealth to foreign banks. This made investment activity to depend crucially on the availability of external inflows; for example, a loan of £4 million issued in London in 1928 was earmarked to finance specific projects. Thus, Greece was anxious to acquire credibility in order to regularly obtain the much needed finance, while at the same time hoping - as pointed by Lazaretou (1999) – that this would encourage repatriation of Greek funds.

The challenge was far from trivial, since the question of Greek solvency was receiving extensive (and usually negative) foreign press coverage and the regularity of debt payments was not taken for granted by creditors. A vivid account of how foreign investors adjusted their expectations about the viability of the Greek debt is given by Christodoulaki and Penzer (2004) by examining the content of news on Greece appearing in the British press. The dominance index of financial developments relative to total information is used as a proxy measure for market anxiety. Nervousness is found to rise steeply after 1925 and sometimes led to openly hostile actions against the country, such as when the Allies got so estranged by political developments that they cancelled the Book of Credits and imposed a financial embargo on Greece. The repercussions on domestic politics were devastating as Greece - from the status of an acclaimed ally in the Great War - was bitterly embarrassed in the financial terrain.

Terms and shortcomings

In such an environment, joining the Gold Standard was rightly seen as a precondition to facilitate the influx of foreign capital, ensure restructuring and enhance domestic stability. Given the strong dependence on London markets as well as the longtime influence of Great Britain on Greek politics, participation to GES acquired momentum after the UK entered the system in 1925 at the pre-war rate of $Z=0.206$ (or 4.86 US dollars per pound sterling) using the notation adopted in the previous section.

The decisive moment was the signing of the Geneva Protocol in 1927 between Greece and the League of Nations. A new Central Bank was established in April 1928 in order to persuade foreign investors that financial practices would be more credible thereafter, and in May 1928 Greece finally joined the GES. The currency was fixed with an eye on the British currency at $X/Z=375$ Drachmas to the pound sterling and by implication to $X=77.20$ Drachmas per US Dollar. In spite of Government's well-meaning intentions, the terms on which Greece entered GES and subsequently conducted its monetary policy were never fully convincing to the market players, keeping depreciation expectations alive as implied by equation (2). At least three factors contributed to the uncertainty:

(i) *Adherence to UK:* The Party of Liberals that triumphed in the elections of 1928 was profoundly anglophile[6] and immediately sought to advance relations with the UK in all fields of policy. The Government believed that this would help to isolate the pro-German attitudes of the toppled monarchy and could also revive the geopolitical status of Greece – at least in the domestic eyes. At a more practical level, authorities were anxious on how the Greek economy was assessed by the City financial markets as most of its foreign debt was supplied by British investors[7]. Seeking approval and policy advice from UK authorities and viewing GES membership as a tying up to the pound seemed to be the fast lane toward acquiring credibility in the financial markets.

Soon the adherence to the British system proved to be more of a political *fetish* rather than a well-grounded decision, since - after all - Greece was never a member of the Empire to enjoy extensive trade links with the UK and the Commonwealth. Trade volumes between the two

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[6] Indicative of how the Government valued the relationship with the UK is the statement by the Greek PM that only Britain could provide leadership and save humanity from the threat of communism; quoted by Mazower (2002, p 209).
[7] According to the Bank of Greece (1978, p. 107), 67% of foreign creditors were British, 10% from US and 7.5% French.

countries were slim[8] as opposed to the higher ones with the US, Germany, France and Italy. From this point of view, it would have been wiser to adopt an entry rate for the Drachma that was more competitive *vis-à-vis* its main trading partners. Besides, the argument that adherence to UK would facilitate borrowing from London markets eventually turned sour when the opposition inflamed public opinion against unpopular measures by accusing the Government for bowing to foreign creditors rather than asserting its status in the international scene.

Another improbable consequence of the *"sterling fetishism"* was that the bulk of foreign exchange reserves were kept in pounds, thus ignoring the risk of bank runs to convert Drachmas to currencies other than UK's. On the event of the British exit from GES, this proved to be a fatal decision.

(ii) Exchange rate miscalculation: The exchange rate *(X)* at which Greece entered GES did not reflect the fundamentals *(U)* for two reasons. First, because restoration of the pound itself to its pre-war level had led to a real appreciation and stringent monetary policies that were eroding the industrial competitiveness of Great Britain[9]. Although recent studies[10] suggest that the extent of damage truly due to the overvalued currency was more limited than thought of, at the time that Greece decided to join the GES the British decline was predominantly[11] attributed to the strong pound. Instead of noticing the trouble, Greek authorities disregarded warnings and entered GES by pegging the Drachma on the prevailing spot rate of the pound.

By doing so, they also ignored the fact that the spot rate was incidentally reinforced by the Stabilization Loan of £9 million issued in London in 1927 on behalf of the Hellenic Republic. One third of the loan was earmarked for setting up the reserves of the Central Bank as implied by equation (3) and this led to a technical appreciation. As can be seen in Fig. 6, the entry rate relative to the peak in 1926 was overvalued[12] by 13% on top of the appreciation of the pound discussed previously, thus leading to a total discrepancy *(u-x)* from the fundamentals in the

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[8] In 1925-29 Greek exports to the UK were counting for only 12.2% of total, while imports from the UK for just 13.4%; see Mazower (2002, p 205).

[9] For a discussion of the British recession prior to 1929, see Eichengreen (2008, p 57).

[10] For example, Solomou and Vartis (2005, Tables 3 and 4) find that real appreciation of the pound in 1928 was ranging between 7 to 10% relative to the pre-war index. However, a recent study by Hills *et al* (2010) published by the Bank of England finds that the decision to return to Gold at a high parity caused deflation and led real interest rates to climb to unprecedented levels as depicted in their Charts 12 and 14.

[11] The most notorious denouncement was fired by Keynes in his essay *"The economic consequences of Mr. Churchill",* 1925.

[12] The point was completely overlooked by Central Bank authorities. In fact, they were so complacent as to assert that the Drachma rate was depreciated relative to its three-year average, thus providing a lee-way to face unforeseen pressures; see Bank of Greece (1978, p75).

range[13] of 20% to 23%. The inappropriateness of parity was quickly picked up by currency traders and the Drachma from the onset was put on the defensive. According to equation (2), the Central Bank had to deplete a substantial part of foreign exchange reserves to calm expectations and sustain the fixity; Fig. 10 shows that more than a third of the initial stock had gone by May 1931, just two years after entering the GES.

Another implication of uncertainty was that the Bank of Greece continued to keep the discount rate at a relatively high level (marginally reduced at 9% from 10% before the GES). Thus Greece never really enjoyed a substantially cheap credit to stimulate activity and restructure the economy.

(iii) Institutional flaws: Commenting on how international markets can come to trust a currency, Caballero *et al* (2004) suggest that *"it requires a good history of inflation and a clear framework governing monetary policy and the exchange rate"*. Applying the criteria retroactively to interwar Greece, one can see that the latter was achieved by entering the GES, but the first two were addressed poorly. Though inflation was admirably brought down from 15.50% per annum in 1926 to 4.40% in 1928, memories of hyperinflation just a few years ago were still lingering.

Regarding the institutional framework, Greece – as mentioned before - established a new Central Bank to fully undertake the conduct of monetary policy from the National Bank of Greece that was hitherto acting both as a commercial bank and the monetary authority. But to everybody's surprise, the newly established institution was soon tempted to directly provide credit facilities to the industry. Mazower (2002, p 199) attributes the decision to the ambition of the Bank of Greece to antagonize commercial banks by opening up new branches and offering cheap loans to selected local markets. Kostis (1986) describes the phenomenon as a "complete paradox", while Minoglou (1995) asserts that confusion between its supervisory and credit-providing roles undermined efficacy at critical moments.

Another handicap for Greece – though outside the responsibility of the Government elected in 1928 - was that it entered the GES too late[14] and in less than two years later it was engulfed in

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[13] The range is only indicative, as trade weights in the real effective rate calculations may differ between UK and Greece. One might argue that appreciation was not such a critical factor, since the exchange rate had been massively depreciated during 1918-28 without causing a major improvement in the trade deficit. However, this nominal depreciation was mostly evaporated in real terms by the high inflation rates shown in Fig. 2. Within GES, inflation was subdued and all appreciation was biting in real terms.

[14] After Greece joined in 1928, only three more countries followed[14]: France joined the GES in September 1928, but only after a substantial devaluation of the franc; Japan joined in January 1930 but exited before

the Great Depression. This exerted a double cost for Greece: first, because most of the expected benefits from an increased world demand vanished and, second, because international credit was curtailed due to the tight monetary policy adopted at the same time by the core countries of the system. For example, when the Bank of England raised the discount rate more than twofold from 2.5% in May 1931 to 6% in September in her own struggle to sustain the exchange rate parity, the appetite of London investors for Greek bonds declined *en masse,* even after Greece raised its own discount rate to 12%.

Gains from entering GES

Despite the above serious shortcomings, Greece managed to reap quite a few benefits from participating in the GES. As shown in Fig. 2, inflation was brought down to a zero average in 1928-31, ending the post-war process of spiraling prices. Growth resumed (see Fig. 13) and several new industrial and commercial companies were established; between 1920 and 1930, the number of firms increased by more than two-fold[15], while industrial employment expanded by 80%. Exports picked up a slice of the rising world demand and, although imports increased too, trade balance somewhat improved during 1928-31; see Fig. 8.

Fiscal redress was only moderate and by no means adequate. As shown in Fig. 4, ordinary public revenues (that is excluding loans classified as state inflows) rose by an average of 5.6 percentage units of GDP in 1927-31 relative to the period[16] 1923-26, but that was mainly achieved by raising indirect taxation rather than beating evasion and improving the collection of income taxes. Moreover, imposing various surcharges on consumption was widely detested because it was perceived as an instrument of curtailing the purchasing power of the poor on behalf of the foreign creditors. In any case, the rise was not sufficient to cover the increased spending that kept rising by around 3% of GDP on a regular basis[17] and significantly more so in 1929. The budget balance of Central Government was turned from an average deficit of -6.2% of GDP in 1923-26 to a small surplus of +1.1% of GDP in the first two years of GES participation, but later it receded back to an even higher deficit of -7.8% of GDP in 1930-31.

the end of 1931, and, finally, Portugal made the shortest journey entering in July 1931 and jumping out of the ship just three months later. Dates are taken from Obstfeld and Taylor (2003), Table A1.

[15] Calculations are based on Mazower (2002, p 131) where original sources are detailed.
[16] Comparison starts from 1927 rather 1928, as data series refer to each financial year that started from April and extended well into the next calendar year; see Appendix B. When Greece entered GES in April 1928, it was still within fiscal year 1927/28.
[17] The average figure excludes year 1929 in which spending appears to skyrocket at 57% of GDP; see Lazaretou (2013, Table GR4). The outlier is probably explained by an emergency payment covered by an equal receipt or loan within the year that was classified in total revenues, but not in the ordinary ones.

As a consequence, public debt continued to rise and in 1931 it was standing at 155% of GDP from 121% in 1928, mainly due to increased borrowing from abroad (responsible for two thirds of the rise as shown in Fig. 3). Hence, the cost of servicing the debt was kept around 10% of GDP, despite the fall in borrowing costs after 1928 as shown in Fig. 14. These findings clearly demonstrate that participation in the GES was primarily viewed by Greece as an opportunity to facilitate spending for investment financing rather than a mechanism to impose fiscal restraint. In practice this made investors to keep worrying and the domestic capital outflows not to be reversed.

Several mergers and acquisitions took place in the banking sector to create more viable sizes, and red-tape was reduced to facilitate foreign direct investment. Other structural reforms were also implemented, including the distribution of large agrarian estates to landless cultivators, the foundation of the Agricultural Bank in 1929 to extend credit to small owners, and the establishment of the National Estate Bank to enhance industrial development. Government ambitions notwithstanding, archaic structures could not – of course - be transformed into a competitive economy within a few years. In certain cases, the need to satisfy large groups of population was making the decisions to betray efficiency. For example, the land distribution was so extensive that inhibited large scale production and specialisation. Industrial firms multiplied but – as seen by the proportions mentioned above - the number of employees per firm declined, implying that the expansion took place through the creation of small-scale units rather than of large industrial enterprises with a robust competitive advantage.

The situation was further aggravated after the Great Depression when the first signs of stagnation appeared in the Greek economy. Agricultural production grew only marginally due to a falling world demand and industrial production, after peaking in 1929, declined[18] in 1930-31 though less than in other European nations. Commenting upon the strains worldwide, Eichengreen and Sachs (1985) note that various policies could have been conceived, including "... *devaluation, protection, monetary expansion and fiscal stimulus*". Since none of these policies was compatible with the GES framework, several countries decided to break with the system and opted for massive devaluations, adding further pressure on those remaining within.

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[18] Earlier estimates of industrial production showed that Greece managed to escape the world depression unscathed; see Mazower (2002) and Kostis (1986). Their findings are challenged by Christodoulaki (2001) where a more representative index is found to decline in 1930; Figure 12 displays both versions.

The Greek Government ignored the temptations and adopted a stringent fiscal stance (i.e. $dV<0$ in the model) in response to the recommendations by the League of Nations in June 1931 that was urging Greece to contain imbalances and – by easing the pressure on reserves as in equation (3) - regain credibility in financial markets. The Party of Liberals was so determined to follow the advice that it opposed even its own previous legislation on a social security system and work-time regulations, disregarding hostility from the unions and risking social unrest. But in spite of the political determination, the economy was reaching its limits and defenses proved vulnerable when major new shocks occurred.

4. Sliding on the golden edge: fight, flight and failure

The Greek Government was taken by sheer surprise when the UK abandoned the GES in 21 September 1931 and devalued by 35% to the US Dollar, (i.e. dz=0.35). The move was declared by Greek authorities[19] as "*the strongest possible shock*"; even more so because - as noted by Eichengreen (2012) - the Bank of England had just previously reassured foreign central banks of its unwavering support for the prevailing sterling exchange rate. Immediately afterwards, there was a fire-sale of sterling reserves worldwide and this led to a great scarcity of credit availability. Politically, the Government lost face as the unilateral act tarnished its long held image for being a strategic partner with the UK.

The financial cost was also severe, since focusing until then on the UK meant that the non-gold stock of foreign exchange reserves was mostly held in pound sterling. In the summer of 1931 the Central Bank of Greece went to a further extreme of allegiance and sold its entire stock of gold to the Bank of England, an act that - on the event of the British abandonment - seriously incapacitated the defence of the Greek parity. In the ensuing debates on how to deal with the situation, various alternatives were considered by the Government and other interested groups as examined below.

The option of devaluation

Facing a permanent shock, the system could be reset to a new exchange rate (X_1) by an immediate depreciation of the Drachma against the anchor currency as graphically shown in Fig. 1. Adjustment should be such as to compensate for the additional pressure exerted in the currency market (i.e. $dx=du$) due both to the British exit ($dz>0$) and the world recession ($dW<0$). Differentiating (4) and setting $dJ=0$, it is obtained as:

$$dx^* = du = \frac{1}{\beta_1 + \beta_2} \cdot [\beta_2 dz - \beta_3 dW] \quad > \quad 0 \tag{5}$$

The above expression implies a one-off adjustment of a magnitude $(x_1 - x_0)$ which is close to the final devaluation after the Drachma collapsed. Had it been applied immediately, neither the foreign exchange reserves would be lost, nor would economic activity have collapsed before.

The proposal to follow the British move and immediately devalue the currency was advanced by no less than the Chief Economist of the Central Bank and the League of Nations representative in Greece[20]. Nonetheless, their arguments were fiercely opposed by commercial banks fearing that their Drachma reserves would be further diminished by a drastic devaluation[21]. The Government might as well have had been preoccupied by what Calvo and Reinhart (2002) have coined as the *"fear of floating"*, i.e. believing that any departure from the peg would automatically unleash hyperinflation and cut access to foreign credit. Such fears were not in general unsubstantiated[22], but the price threat quickly disappeared in the specific circumstances of the looming recession.

Besides, currency stability could have been reinstated after a quick adjustment so as to alleviate fears of excessive fluctuations in the future. The Greek Government would be justified to use the unexpected exit of UK as the perfect excuse to suspend convertibility and devalue along the pound sterling without invoking its own principles on exchange rate stability, thus avoiding the rekindling of inflationary fears. Other countries acted in this way without been regarded as a unilaterally reneging on prior obligations. Canada, for example, had already introduced capital controls so effectively that it was tantamount to devaluing the currency, but without moving to a floating regime. In fact, as noted by Shearer and Clark (1984), the action helped to maintain the image, if not the substance, of keeping with the Gold Standard. In the same spirit, Eichengreen (2008, p84) confirms that the group of countries that remained pegged to sterling after the British devaluation enjoyed much of the benefits of exchange rate stability, while at the same time by cutting interest rates, like Britain, they stimulated the economy. It was an irony of history that after being faithfully tied to the pound when it was widely considered

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[20] As extensively described in Bank of Greece (1978), *The first fifty years*, p. 93.

[21] Commenting upon a similar decision by the UK the year before, Keynes noted that '…the decision to maintain the gold standard at all costs has been taken … in a spirit of hysteria and without a calm consideration of the alternative before us', (in the essay *"On the eve of the Gold suspension"*, 1931).

[22] In an analysis of the interwar period, Wolf (2007) remarks that "(i)n countries which suffered a hyperinflation or a significant depreciation of their currencies relative to the pre-war parities, one can expect a wide reluctance to adopt expansionary monetary policies".

overvalued, the Drachma broke company at the moment that the fault was just about to be corrected!

The option of debt forgiveness

If devaluation is excluded as an option, one way to keep the system in the initial equilibrium X_0 is by cutting debt liabilities to an extent *dF<0* that is sufficient to compensate for the impinging shocks without sacrificing the reserves. For expression (3) to remain unaffected, debt reduction should be:

$$dF = -\frac{1}{r+\sigma}dJ = \frac{1}{r+\sigma}\cdot[-\beta_2\cdot dz + \beta_3\cdot dW] \quad < \quad 0 \qquad (6)$$

The debt reduction option was publicly suggested by influential economists[23] and domestically caused a positive political resonance. The Government initially considered the advice, but found it to be too adventurous in the institutional setting of the 1930s. Since no bail-out mechanism existed within the GES, any debt rearrangement should either take the form of a rescheduling approved by creditors or declared as a unilateral repudiation by the debtor. The latter was rightly rejected at that time by the Government on the grounds that it would destroy all previously gained credibility and put the country in financial isolation. The former was simply not available as other countries were entangled in their own recession and refused to assist the rest. The situation underscored the so called "asymmetry problem" in the interwar period: as central banks of GES participants were not cooperating, the burden of adjustment fell asymmetrically on debtor countries without the surplus ones being obliged – let alone motivated – to come to their rescue; for a discussion see Simmons (1996).

With recession spreading and deepening worldwide, the attractiveness of GES was quickly eroded and by the end of 1931 twenty two countries[24] had suspended GES membership. Greek authorities seemed to act as a late proselyte and insisted to prove that Greece is not a fair-weather participant in the system[25]. In a joint meeting between the Prime Minister, the Central Bank and commercial banks, the Government vowed to stay in the GES by keeping the peg to

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[23] The most influential economist was D. Maximos, previous Governor of the National Bank of Greece and later Prime Minister; see Bank of Greece (1978, p 98).

[24] Obstfeld and Taylor (2003, Table A1) list eighteen countries leaving the GES before the end of 1931, and four more are included in Wandschneider (2008, Table 1). It is worth noting that of those listed, Uruguay and Argentina were only effectively - though not formally - in the GES, while Czechoslovakia suspended the system in 1931 but devalued in 1934.

[25] In contrast, Wandschneider (2008) brandishes UK as behaving like a "fair-weather friend" for early breaking with GES even though its economy was not hit as hard as others that chose to fight and remained for longer in the system.

the US Dollar (i.e. X=77.20 Drachmas per Dollar) disregarding the devaluation of the British pound and the previous adherence to it.

According to the model in Section 2, if a currency stays committed to the GES under the same parity (dx=0), depreciation expectations should be controlled by suspending convertibility (θ=1) and ensuring that fundamentals do not alter (i.e. du=0). This means that the deterioration of the trade balance in equation (4) is absorbed fiscally and by setting dJ=0 the reduction required in domestic demand is given by:

$$dV = \frac{1}{\beta_4} \cdot [-\beta_2 dz + \beta_3 dW] \quad < \quad 0 \tag{7}$$

To reassure markets about their determination to stay in the GES, Greek authorities did move along the above lines in two ways:

First, by imposing capital controls to curb the ensuing capital flight. The decision misfired as implementation delayed for a few critical days, during which big withdrawals took place igniting public outrage against the Government for sheltering the profiteers. The Governor of the Bank of Greece was sacked as a scapegoat, but the political turmoil that erupted afterwards made his succession to delay for a whole month. The decision to suspend all types of transactions in the Athens Stock Exchange in order to avoid sell-out hysteria fuelled further fears that the Government is in a precarious situation and may not succeed in keeping with the GES for long.

Lacking a decisive plan and Central Bank leadership, the effectiveness of controls was quickly undermined and additional measures followed restricting convertibility only for "necessary" transactions abroad. But demand for foreign currency was widely camouflaged as import financing and, as a result, capital flight was not seriously checked. Then in order to restrain credit expansion authorities raised the discount rate to 12% and this was used as a political show-off against speculators. In a defiant mood, the Prime Minister himself called authorities "... *not to hesitate to raise interest rates to 20% or even to 50% if deemed necessary*", (Mazower, 2002, p 211). The rise was not effective to eliminate the capital flight, though it was chocking off liquidity for small firms, further aggravating the dysfunction of the economy.

Second, by declaring a rigorous fiscal stance of '*zero deficits*'. The political investment on the GES was so deeply rooted in the Party of Liberals that it made the Government to ignore the recessionary effects and the steep fall already experienced in employment; see Figure 13. Even

left-wing radicals of the Party went to the point to criticize the Government for not being as determined as to reduce public consumption further (Mazower, 2002, p 215). But the final outcome undershot the ambition, as public spending peaked during fiscal year 1931/32 and revenues could not rise any further amid the recession. In fact, budget deficit reached pre-crisis levels[26], increasing the pressure on Greek finances and reinforcing pessimistic expectations in the market.

Soon it became apparent that none of the above measures was able to thwart the tide of events. Access to international credit flows was further curtailed and the Government was trapped in a difficult situation, since '… *their shortage was making it inactive and waiting, with the hope that eventually flows would start again'*; see (Mazower, 2002, p. 214). As contraction in activity and liquidity led to widespread protests in the autumn of 1931, industries pressed commercial banks to raise liquidity capital. With much of private deposits withdrawn by worried creditors, commercial banks turned for help to the Central Bank, enforcing her to sacrifice a substantial part of foreign reserves as shown in Figure 8.

In the graphics of Figure 1, keeping the same exchange rate after a permanent shock has displaced the equilibrium implies that the system slides along the horizontal locus $X = X_0$, while foreign reserves are depleting. When they reach a critical level (Q_{MIN}), authorities will be forced to abandon the system and then the exchange rate overshoots onto the new saddle-path at point E_2 from which it subsequently free-floats to the new equilibrium E_1. Actual developments in 1931-32 closely followed the pattern of futile defense step by step.

With foreign reserves disappearing, the Government had second thoughts on debt rescheduling and in January 1932 sought financial assistance from the League of Nations and the UK in particular. The proposal was asking for a five-year moratorium on servicing foreign debt and a new loan of pound sterling 12.5 million to finance infrastructural projects and enhance growth. After three months of procrastination, the League rejected the request[27] and the Government bitterly realized that the situation was not any more defensible.

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[26] The fiscal target adopted by the Government was the so-called *"official balance"* that included a number of foreign loans as revenues; see Appendix B for a discussion on variable CGFB. The official balance was indeed close to zero or in surplus, but this could not conceal the structural fiscal imbalances as discussed in Section 3.

[27] It agreed only to a brief postponement of debt repayment, utterly insufficient to reverse the situation, Bank of Greece (1978, p. 100),

To implement the exit decision, a Law was passed by Parliament and the system was officially abandoned in April 1932. The Drachma devalued and foreign obligations were subsequently repudiated causing anger in the credit community. Post-default, the Bank of Greece sought a compromise with foreign bond-holders proposing to compensate them at 30% of the nominal value and, after some protestations, most of them accepted the offer by the end of 1932. The cost of debt service as a ratio to GDP fell to a third and this improved the budget deficit despite the shrinking in public revenues; see Fig. 3 and 4 respectively.

The time profile of the exchange rate path shown in Figure 5 closely depicts the actual trajectory of overshooting and adjustment that took place in 1932-33 as in Figure 6. Following the currency path, net exports in (4) rose strongly in the aftermath of devaluation, though later somewhat declined due to the partial revaluation E_2E_1 towards the new equilibrium. Figure 7 displays this pattern and it seems to capture well the actual behavior shown in Figure 8. According to equation (3), the improvement in trade balances gradually augments foreign reserves as in Figure 9 and, again, this is in line with actual accumulation after 1932 as in Figure 10.

5. The aftermath of the crisis

The economic consequences of devaluation were mixed and a comparison is made below between two four-year periods equally spanning within and outside GES respectively. Simple averages of key economic variables are juxtaposed in Table 1, while more details can be found in the accompanying graphs. Due to the lack of quarterly data for most variables, averaging takes place over 1928-31 and 1933-36, excluding year 1932 as the decomposition into pre- and post-collapse effects is not possible. For series with a monthly frequency, averaging spans until April 1932 for the first period and starts at May 1932 for the second.

Comparisons deliberately leave out developments after 1936 as in that year Greece entered a wholly different phase with the imposition of a right-wing dictatorship that profoundly changed the political, social and economic environment.

The most pronounced effect of the devaluation was the sharp rise in industrial production in 1933, after shrinking for the rest of 1932 as shown in Figure 12. This has led some authors to portray Greece as just another case of fast recovery as soon as it was freed from the *"golden fetters";* see Freris (1986), Psalidopoulos (2011) and Tsoulfidis (2005) among many others. Kopsidis (2012) - for example - argues that Greece had a fast recovery and an improvement in

trade deficit "*… due to its early departure from the policy of stable exchange rates*". In practice, overall developments were far less impressive and the outlook of industrial production is compromised by the fact that it was counting for roughly 10% of total output. The share of agriculture was far more extensive at 56.4% of total output, thus its slow pace after 1932 inhibited a rapid overall growth. Despite the fall in relative prices, world demand for Greek crops did not rise, while falling real incomes at home constrained domestic demand. In some rural sectors the decline was devastating. For example, the production of tobacco was halved in 1932 in comparison to the previous year, causing abject poverty[28] and fermenting political discontent.

Taking the economy as a whole, activity surpassed pre-crisis levels only in 1935, three years after devaluation as can be seen in Fig. 12 and the same applies for GDP. Looking at Figure 13, average GDP growth rate in the post-crisis 1933-36 was at 5.45%, only marginally above the average of 5.14% during the same span in pre-crisis times 1928-31. Neither was there any structural improvement in the economy as a result of devaluation. Between1930 and 1938 the share of agriculture expanded from 50.2 to 56.4%, while that of industry remained virtually unchanged (from 10.3% of GDP to 10.4% in 1931 and 1938 respectively[29]). As most of the period falls after 1932, this implies that no further industrialization took place in the aftermath of exiting the GES.

The trade deficit improved but, again, it was hardly a cause for celebration. Containment came mainly from the reduction of imports due to the fall of real incomes and the imposition of tariffs and quantitative controls. Although the volume of exports in 1932 marginally rose relative to the previous year, it did not exceed those of 1929-30. Subsequently it fell even further, as protectionism was spreading in many European countries inhibiting an export-led growth in peripheral economies; see Fig. 11. In value terms[30], exports actually fell by USD 20 million in 1932 due to the deterioration of the terms of trade.

Uncertainties continued to prevail in the labour market after the devaluation, reflecting both the confusion over the future of economic policy and the spread of industrial action to oppose the fall in workers' real income shown in Fig. 2. In such an uncertain environment, employment

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[28] In a description of the period, Psalidopoulos (2011, p. 69) notes that rural populations were living in "desperate conditions".

[29] Shares are displayed in Kopsidis (2012, Table 3) for various years.

[30] Data are taken from Bank of Greece (1978), *The first fifty years,* Table 10, p. 105.

exhibited a strong hysteresis as firms - not restricted by work-time regulations - found it easier to meet higher production by extending working hours rather than hiring new employees. According to Lazaretou (2009, p 34) employment in 1932 ended almost 15% lower as compared to the previous year. An index of employment[31] is depicted in Figure 13, showing that even in 1936 it was still lower than its peak during the GES as many jobs were not recovered along the rise in industrial production. Similar patterns of hysteresis in employment during recovery were experienced by several other countries for precisely the same reasons of widespread uncertainties; for example, Blanchard and Summers (1986) note that unemployment in the US was persistently on the rise in the mid 1930s, subsiding only after entering the Second World War.

In Greece, overall activity started to recover after the exchange rate was again stabilized in 1934, though the record remained inferior to the average performance before the crisis, as is clearly shown in Fig. 12 and Table 1.

Output and employment expanded substantially only after 1936 when protectionism was extended to many sectors, orders to industry multiplied by intensive defense procurement, and - most crucially - the political and social situation was brought under authoritarian control. Following similar practices in other oppressive systems of the time, the regime crushed political parties and trade unions, sent thousands of dissenters to domestic exile[32] and set up labour corps to work in infrastructural and communal projects on lower wages. More likely, it was the imposition of these *"iron fetters"* that made unemployment to seriously decline afterwards and output to grow steadily, rather than the currency liberation from the golden ones.

The above findings challenge the prevailing view advanced by Eichengreen and Sachs (1985) that *all* countries that either *de jure* or *de facto* devalued their currencies in the 1930s, came out of recession faster. Likely reasons for their conclusions not being universally applicable are the following:

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[31] Unemployment ratios are extremely unreliable to use for the period as the definition of the labour force was under constant revision. However, the numbers of persons unemployed reported by Kostis (1986, p139) confirm an increase in 1932 and 1933. Tsoulfidis (2005, Table 4) provides different figures showing a sharp rise in 1932 and then a decline in 1933, though the average number of unemployed during 1933-35 is still higher than the average in the GES period 1928-31.

[32] In 1941 the camps were transferred to the occupation forces and most of the interns were vanquished.

(i). Peripheriality: Although all non-anchor countries were formally sharing the same status within the GES, some were "more equal than the others". Obstfeld and Taylor (2003) suggest that there was an advanced inner group consisting of core countries (Northern Europe, Japan and of course the dual anchors) and British Empire countries, leaving a less robust group consisting of periphery and non-empire economies. The analysis of Eichengreen and Sachs (1985) is based on only ten countries of the first group, thus their conclusions may not extend automatically to those of the latter.

The key reason for peripheral economies being financially constrained after devaluations was that their domestic debt market was very thin, while at the same time the procyclicality of capital movements[33] meant that stressed countries were denied access to international credit when they most needed it. Thus, credit shortage led many countries, like Greece, to repudiate debt payments and, as a consequence, they were further cut off from lending institutions for a long period of time. As matter of fact, sovereign yields and the associated financial cost soared after Greece abandoned the GES (see Fig. 14) and, despite the resumption of growth and the rise in inflation, the debt service cost to output ratio started rising shortly after the partial repudiation (see Fig. 3).

(ii). Weak export capacity: Despite some progress, Greece was not able to get quickly transformed to an export-led economy during the GES years. Exports in 1928 were dominated by agriculture to an extent reaching 90% of total[34] and the exportability of primary sector was raised from 40 to only 50% in 1930, still leaving a large part of agricultural production unsellable in world markets. As pointed by Christodoulaki (2002), the secondary sector was also characterised by backward technology and low investment intensity, with industrial production mainly focused on domestic consumption. With a thin internal market and an increasingly protectionist environment abroad, it is no wonder that devaluation did not confer any major trade benefit. Hence, the problem in Greece was more of a structural character and had far less to do with the stability of the exchange rate versus a floating regime *per se*, especially if the anchoring to parity had taken place at a more competitive level as argued in Section 3.

Similar patterns occurred with other peripheral economies. For example, Ivanov and Tooze (2011) examine the economy of interwar Bulgaria and find that the country, after leaving the

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[33] For an analysis of this problem in today's emerging markets see Haussmann and Velasco (2005).
[34] Bank of Greece (1978), *The first fifty years*, p. 15

GES in 1931, instead of acquiring national productive competence, suffered of intense financial pressure and uninhibited foreign interference in domestic politics. Though its real effective exchange rate was substantially improved after the devaluation of the Leva, it did not confer any export gains[35] as the economy was neither able to overcome the prohibitive restrictions on international trade nor effectively retaliate against them.

On top of economic developments, the political fall-out in Greece was even more dramatic. Following the fate of the currency, the Government collapsed too and within four years the country went through an unprecedented process of chaos and disintegration. Four consecutive elections had been held (in 1932, 1933, 1935 and 1936), but all failed to form a stable coalition capable to manage the economic situation.

After each electoral round, political tensions were escalating and many atrocities took place, including one election boycott, an assassination attempt against the crisis Prime Minister, and four (!) military *coup d' etats*. The first two of them were initiated by supporters of the Party of Liberals, only to see their leaders summarily executed after failing to seize power. The third coup was pro-royal and managed to restore the monarchy through an allegedly rigged referendum. As unemployment continued to surge, social clashes intensified and finally a pro-fascist dictatorship was imposed by yet another coup in 1936 as noted previously.

The sequel of events in the 1930s should perhaps be given more attention by those currently advocating the so called 'Grexit scenario'. In a recent article written for the Bloomberg news agency, Vanatta (2012) attempts to popularize the destiny factor haunting Greece by arguing that the inability of the country to defend the Gold standard has created "an ugly precedent" looming over its current participation in the Eurozone. The previous analysis suggests that the practical consequences of abandoning exchange rate stability may set in motion an even uglier precedent that will all likely entail huge socio-economic costs if Greece follows the advice.

6. Conclusions and lessons

In late 1920s, Greek economic policy was trying to restructure parochial relations in key sectors ranging from banking to agriculture, to build productive infrastructure in order to close the gap of regional inequalities, and at the same time to become an equal partner in shaping

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[35] At a technical level, Ivanov et al (2008, Table 2) find that the regression coefficient of the real exchange rate on the volume of exports is wrongly signed and statistically insignificant. In contrast, a similar coefficient estimated by Eichengreen and Sachs (1985, Table 3, row 5) for the core countries is found to be strongly significant and properly signed.

European politics. As a means to implement this strategy, Greece vowed to participate in the Gold Exchange Standard, but - in spite of persistent and well-intentioned adjustment policies - the outcome of the project was always weak and finally negative. The interwar experience has several resemblances with the current turmoil of Greece within the Eurozone and frequently makes several analysts to jump to conclusions that a similar predicament is hard to escape.

The paper aimed to show that there is no such thing as a Greek destiny to failure and events in the 1930s could have been shaped differently if a number of specific policy mistakes had been avoided both by Greece and the leading economies of the GES. Several of the interwar debacles have been ameliorated within the Economic and Monetary Union of Europe, and this makes the survival of Greece in the Eurozone not a vain – and super costly – effort, but a feasible outcome conditional on a number of issues. The main similarities and contrasts with the interwar period are the following:

In 1928, the choice of fixing the exchange rate to another country's currency with which Greek trade was limited made the Drachma uncompetitive towards other economies and – despite some improvement - the country continued to have large external imbalances. When international credit was curtailed, the country was trapped between the need to finance the Current Account deficit and the depletion of reserves in order to defend the currency.
On entering the Eurozone, Drachma was fixed to the more representative basket of the European Currency Unit, but nevertheless competitiveness was soon eroded by rising relative prices, due to a rapid expansion of demand and pay rises unconnected with productivity improvements. In the aftermath of the 2008 crisis, the large external deficit caused again a "sudden stop" in credit flows and the country had to seek financial assistance from the European Union. The most challenging task for Greece – and to some extent for other Southern European economies – today is to pass a number of structural reforms in order to bridge the gap with the most competitive economies in Northern Europe.

Domestic policy targets for creating a dynamic business sector and generating employment in the 1930s were eventually hindered by the stringency of credit availability. With the Government pursuing at the same time a tight fiscal policy, the economy was soon trapped in recession and this further undermined – rather than encouraging - business prospects and employment. The lesson cannot be timelier for today. As part of the conditionality, Greece has to achieve within a short time-framework certain fiscal targets by cutting expenditure and

raising tax revenues. But this further deepens recession and, as unemployment currently soars above 24%, ignites social tensions and fuels unrest. Cumulatively, the real economy is shrunk by more than 20% in 2009-2012; almost three fold the total output loss of -7.3% occurred in the four years of contraction during the 1930s. Though political disintegration has not reached the interwar extremities, mainstream parties in the last general elections gathered less than half of the vote they used to attract in the previous decades. A growth initiative is urgently needed along the reform agenda, before it is too late for revival.

There have been improvements as well in dealing with the two crises. The Government in the 1930s never fully endorsed the principle that the Central Bank should be institutionally separated from commercial banking activities and the 'amalgamation' caused confusion about its true preferences and undermined effectiveness in conducting monetary policy. Today the function of the European Central Bank has eliminated the confusion and the Greek banking system is operating in a much more efficient environment.

Finally, and most important of all, the institutional coordination has been enormously upgraded. In the 1930s, mechanisms of credit facilitation to stressed countries were completely lacking and, in the event of the crisis, every member of the system was left alone and soon it was succumbing to the growing pressure. No nation was eager to underwrite part of Greek foreign liabilities, and it was impossible for the Government to borrow even at the then prevailing high rates. The ultimate lesson of the 1930s is that recession deepening, fiscal tightness and credit shortage are not at the same time workable, especially for peripheral economies with thin domestic markets. The message seems to be gradually understood in the present crisis. Today the emergency finance set up by the European Union, the European Central Bank and the IMF provided lending assistance to the economies threatened by a credit crunch, and new procedures – such as the European Stability Mechanism and the open market bonds repurchasing - are currently in preparation. If they are twinned by growth mechanisms, the tragedies of the 1930s need not be repeated either for Greece or any other nation in stress.

As always, it is the set of policy actions in Greece and the Eurozone that will determine the outcome, not chance or prior failures. To balance fatalistic *clichés*, it is perhaps suggestive to draw a parallel on another and more successful Gold-related episode from antiquity, when Greeks managed to acquire the Golden Fleece that was seized by a foreign power. After a well-planned campaign under Jason, King Aeitis of Colchis (in what is today the Republic of

Georgia in the Black Sea) agreed to hand it over, conditional on Jason performing three tasks: first, to yoke fire-breathing oxen, plough the field and sow dragon-teeth; second, to defeat the army of warriors sprouting out, and, third, to subjugate the dragon himself. With the help of protecting Gods – playing the role of external advice and support - Jason succeeded in all tasks, killing the dragon while sleeping.

If currencies were fire-breathing under the Golden yoke and external deficits were sprouting the army of unemployed in the 1930s, then international markets could be taken as the dragon, alas not quite in dormant this time. Unlike Jason, Greece was left alone without any systemic protection or international assistance on how to cope with the threat and soon succumbed to the pressure. Hopefully, today it relies on the assistance of the Eurozone partners to put the dragon under control. Given of course that - like Jason – Greece strives to put and keep its house in order.

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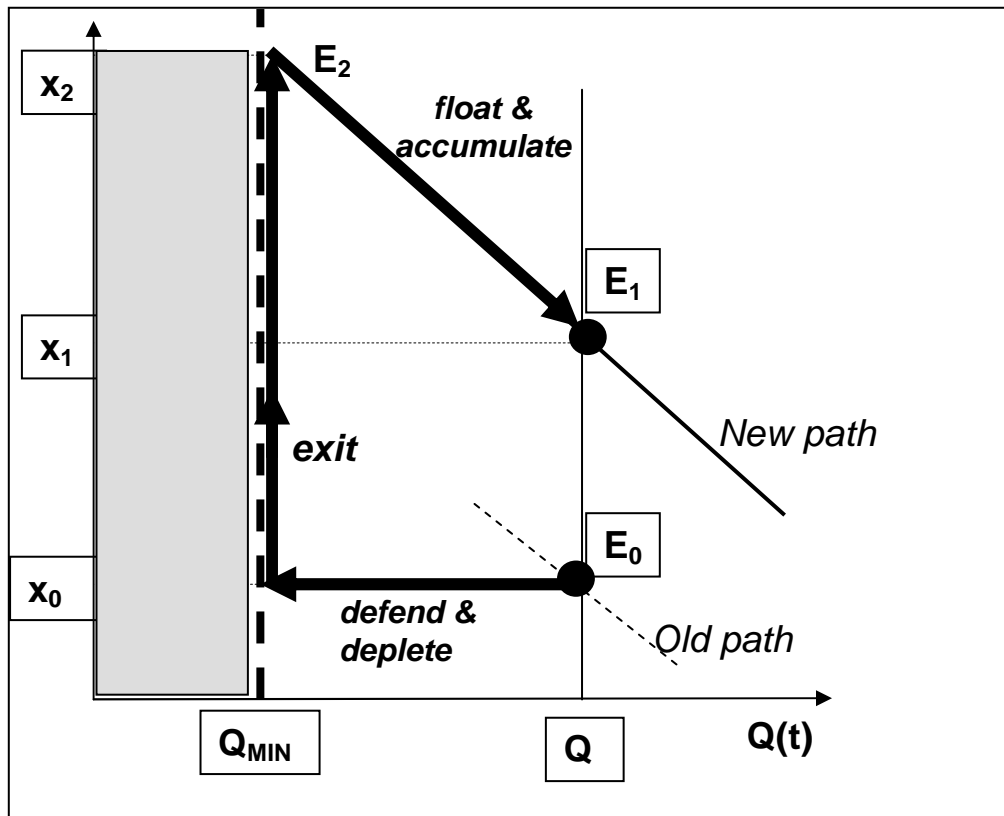
Figure 1: Saddle-path equilibria for foreign reserves and the exchange rate before and after permanent adverse shocks in competitiveness and world demand hit the economy.
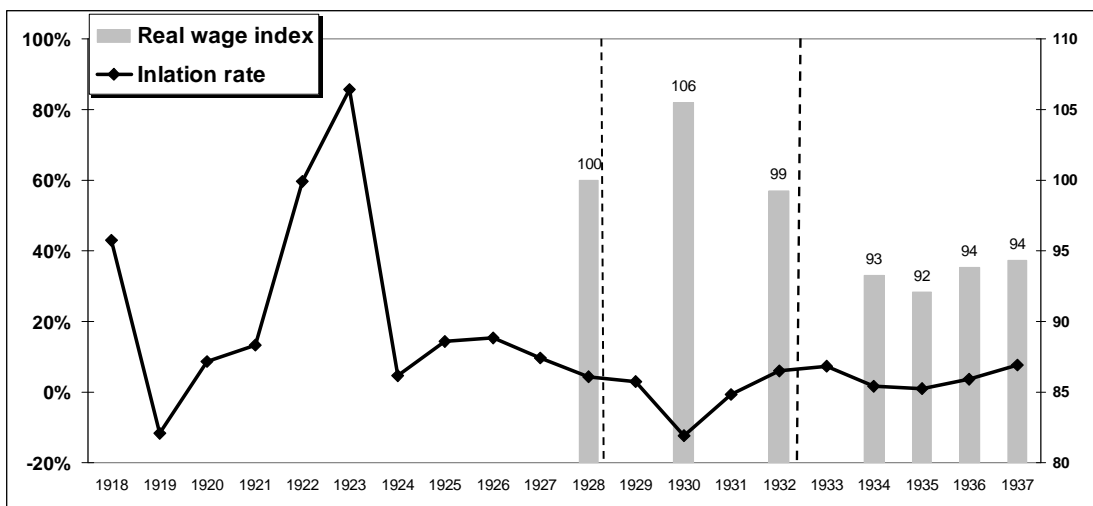

Figure 2. Annual inflation rate and a real wage index.
Note: Variables AIR and IRW as defined in Appendix B. Vertical dotted lines here and subsequent graphs indicate the period of Greece in the GES.
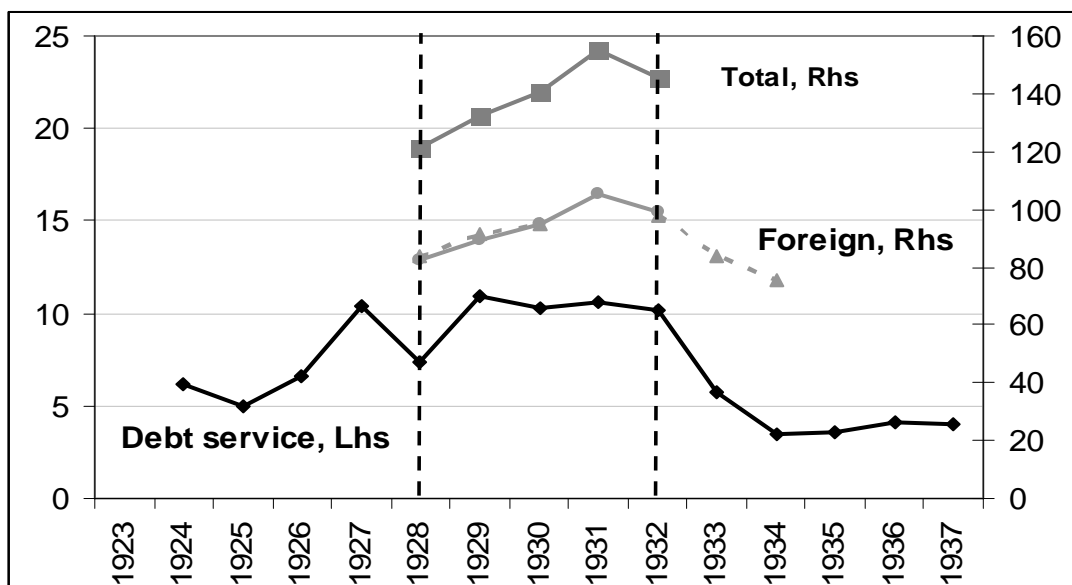
Figure 3. Total Government debt, foreign debt and debt service as percent of GDP.
Two data series are used for foreign debt: GDF1 for 1928-32 and GDF2 for 1928-34.
Note: Variables GDT, GDF1, GDF2, GDS and GDP as defined in Appendix B.
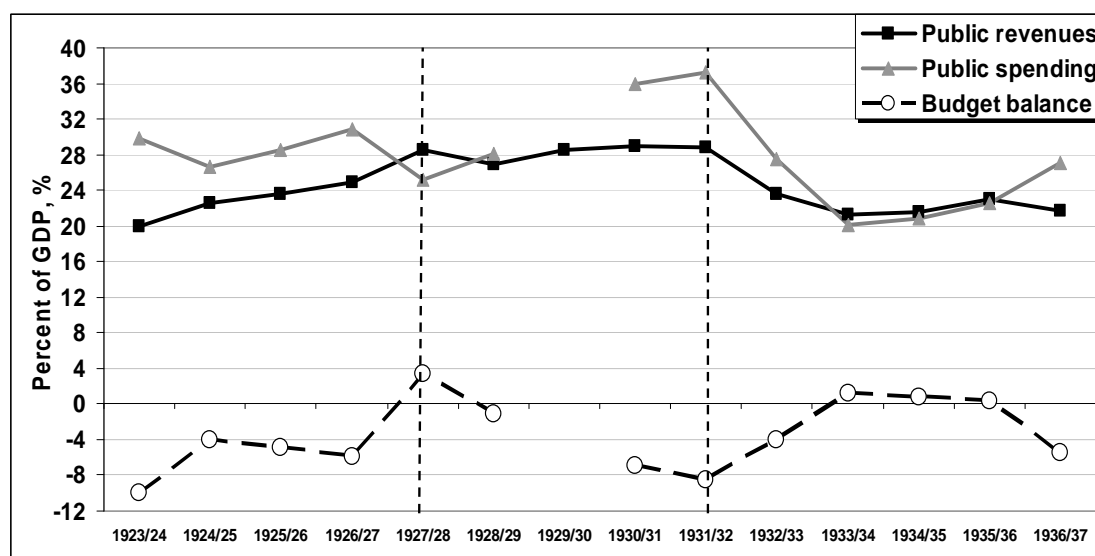
Figure 4. Ordinary revenues, total public expenditure, and the budget balance in Greece, all as percent of GDP.
Note: Dates denote fiscal years that span from April until April or July of next calendar year as explained in Appendix B. Public spending and balance in 1929 not shown here for reasons explained in footnote 8.
Variables are CGRO, CGET and CGBB as defined in Appendix B.
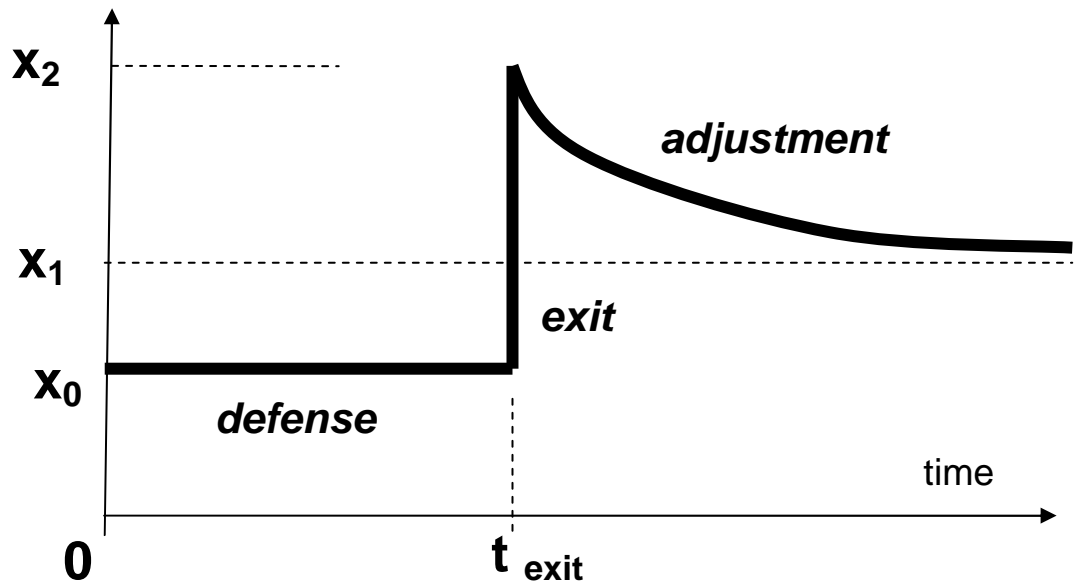
Figure 5: The response of the exchange rate after abandoning the GES, as implied in Fig.1.
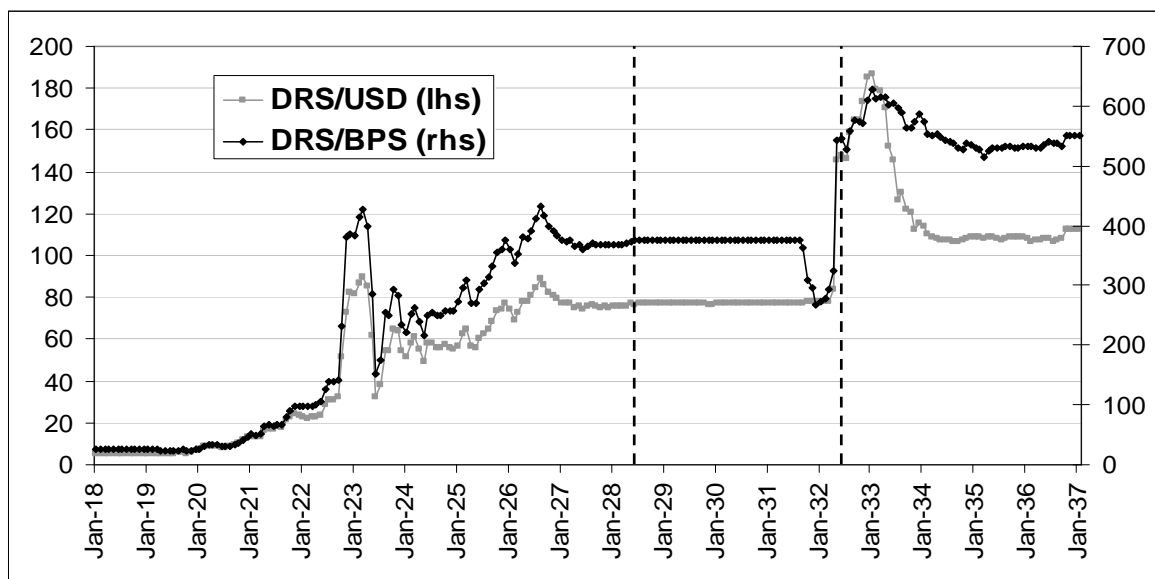
Figure 6. The Drachma exchange rate *vis-à-vis* the British Pound (left-hand scale) and the US Dollar (right-hand scale). A rise indicates depreciation.
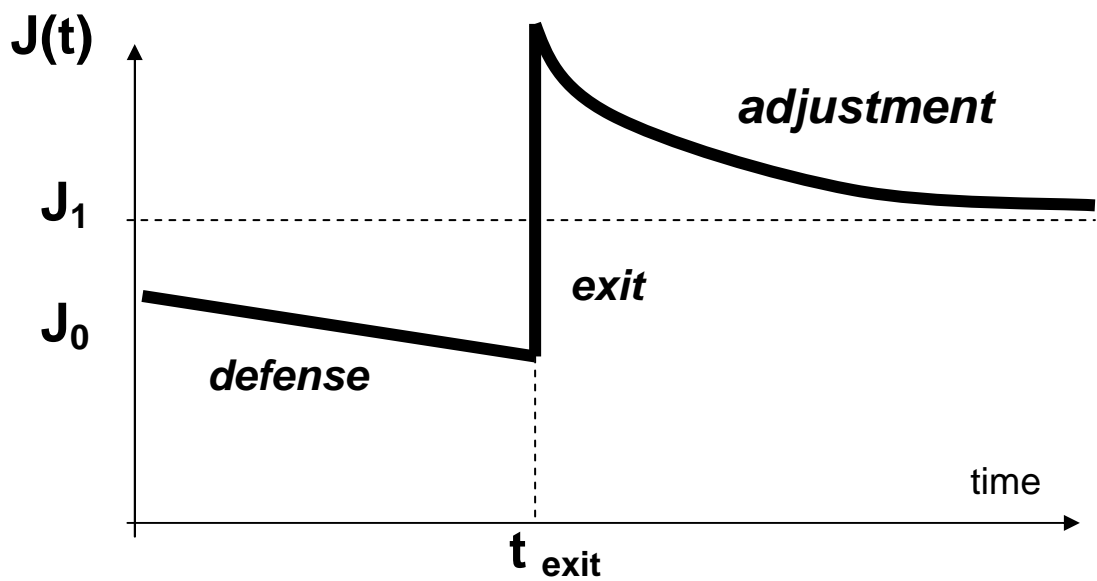*Note*: Variables XRBPS and XRUSD as defined in Appendix B.

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Figure 7: The response of the trade balance after abandoning the GES, as implied in Fig.1.
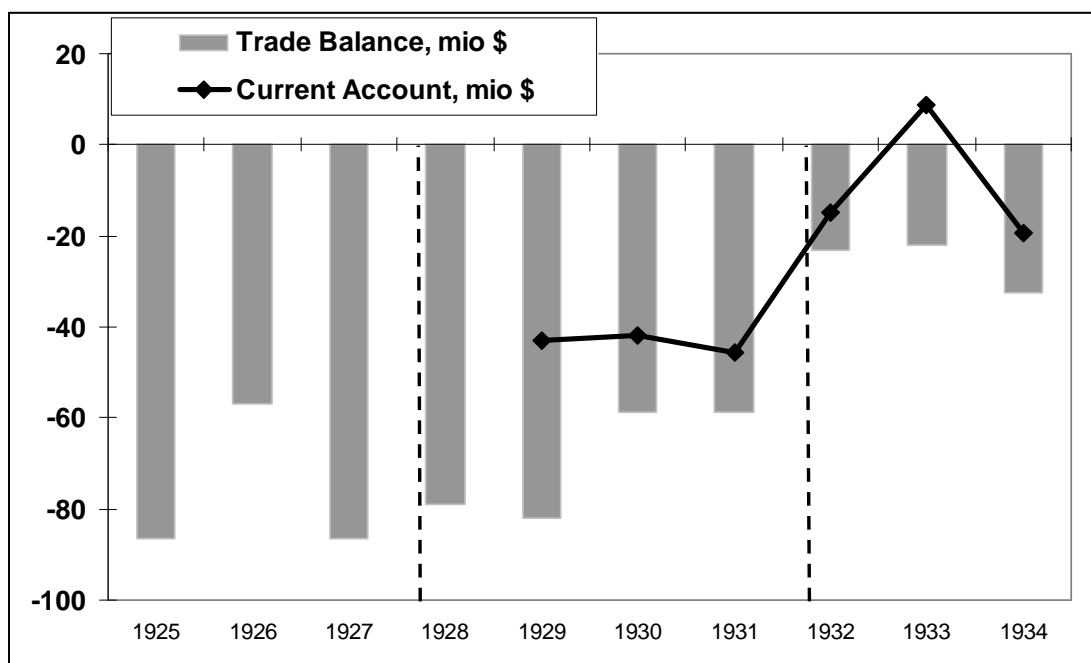

Figure 8. Trade balance and Current Account balance in Greece, million US Dollars.
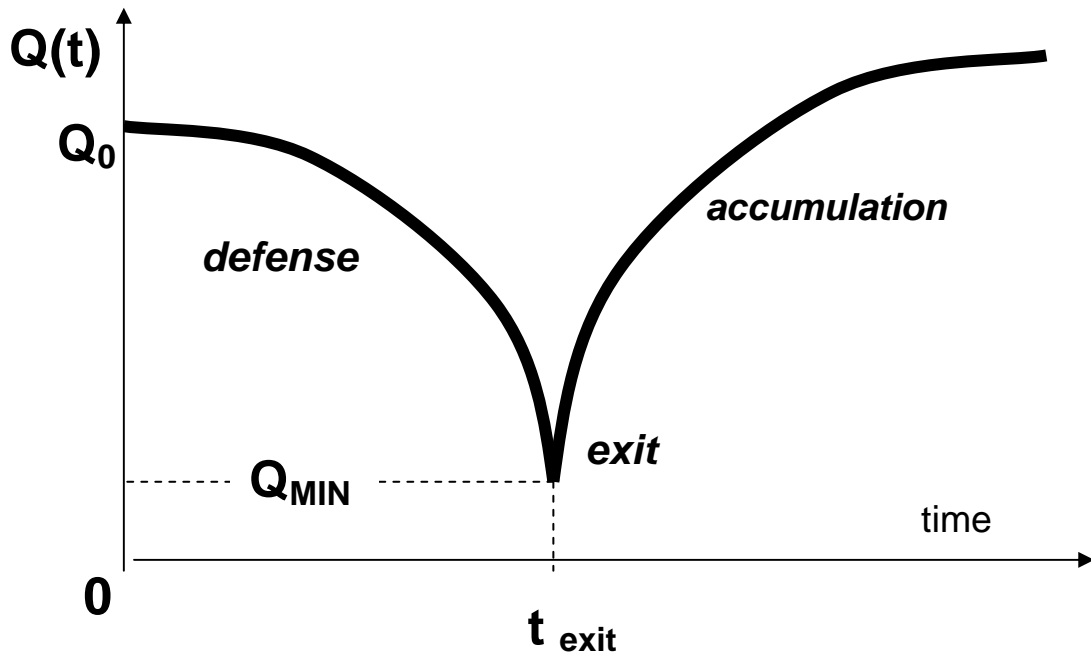*Note*: Variables TBG and CABG as defined in Appendix B.

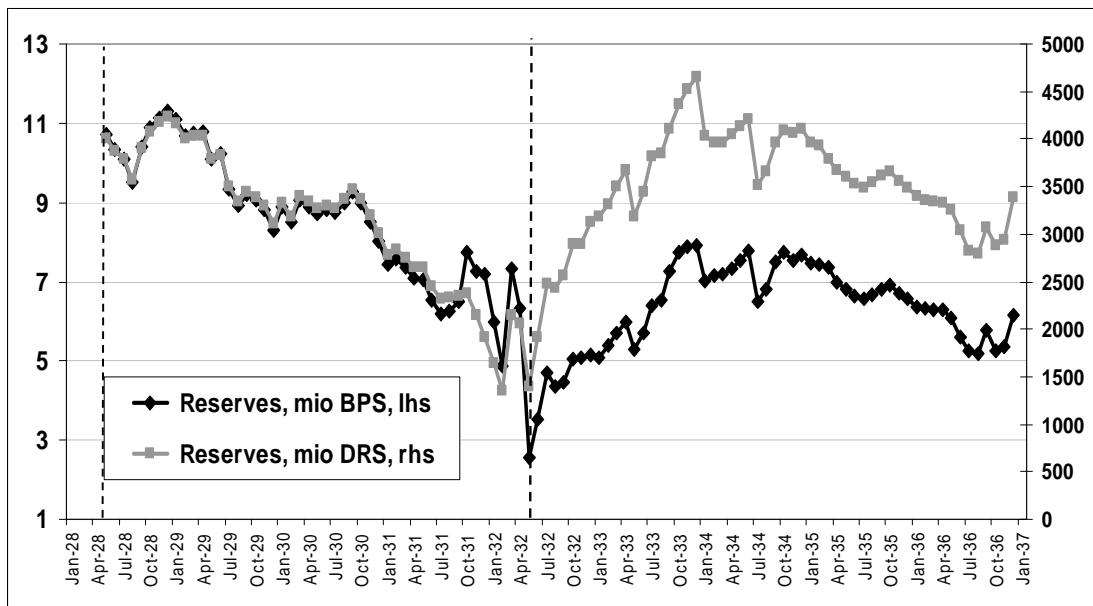**Figure 9**: The response of foreign reserves after abandoning the GES, as implied in Fig.1.

Figure 10. Foreign reserves: Monthly series in million of British Pound Sterling, left-hand scale, and in million Drachmas, right-hand scale.
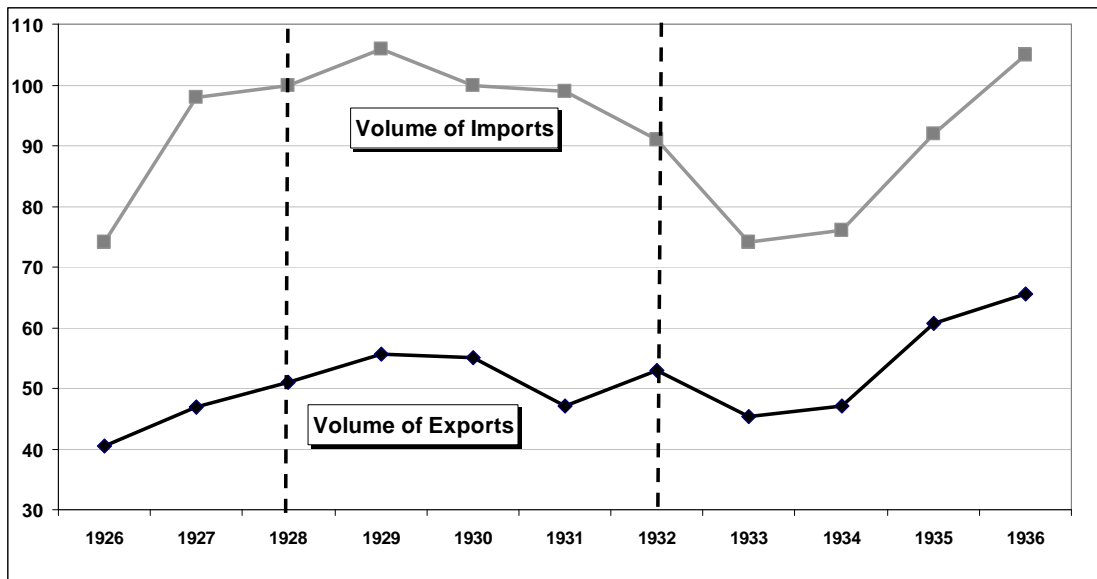*Note*: Variables FXRPS and FXRDR as defined in Appendix B.

Figure 11. Index volumes of merchandise exports and imports. For imports 1928=100.
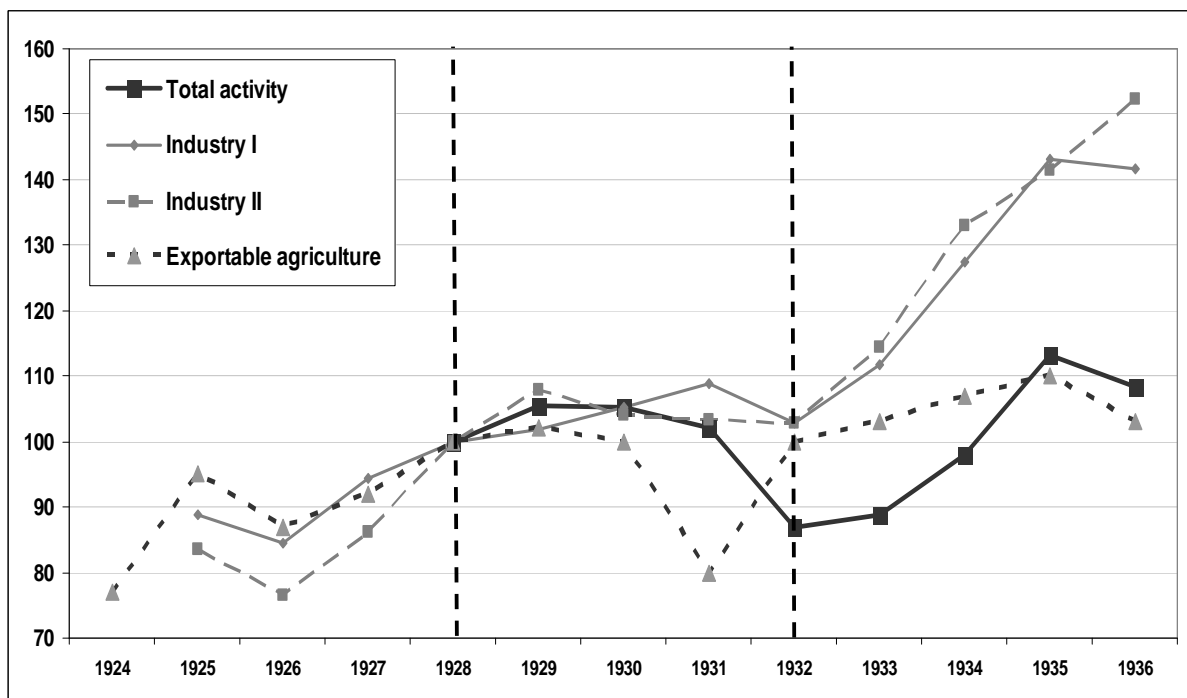*Note*: Variables VEX and VIM as defined in Appendix B.

Figure 12. Indices of annual economic activity, industrial output and an index of exportable agricultural production. Base year 1928=100.
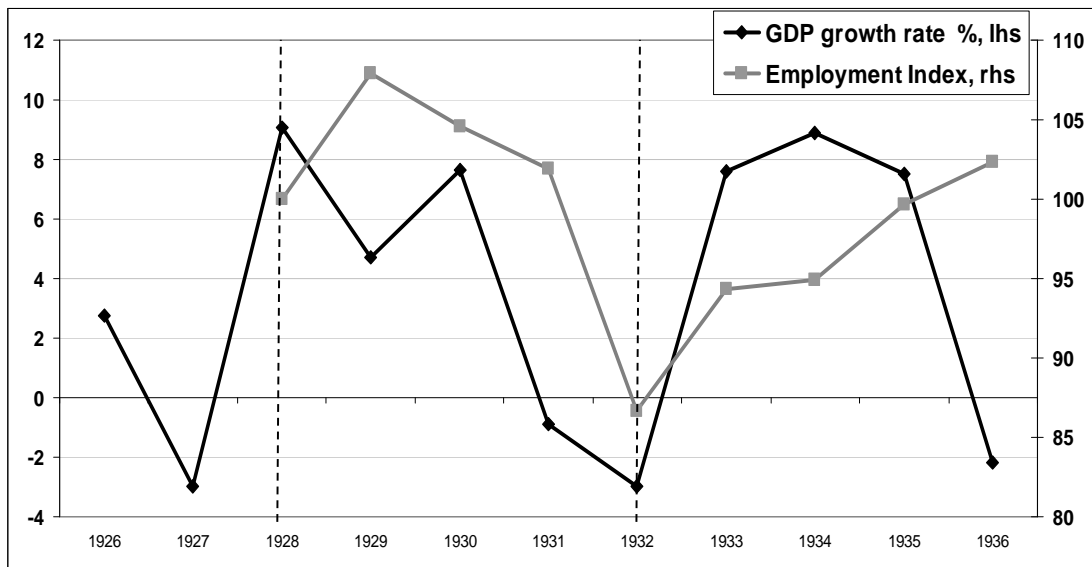*Note*: Variables IACT, IIP1, IIP2 and IAPX as defined in Appendix B.

Figure 13. Growth rate of annual GDP (lhs) and an index of employment, 1928=100, (rhs). *Note*: Variables GDP28 and IEMP as defined in Appendix B.
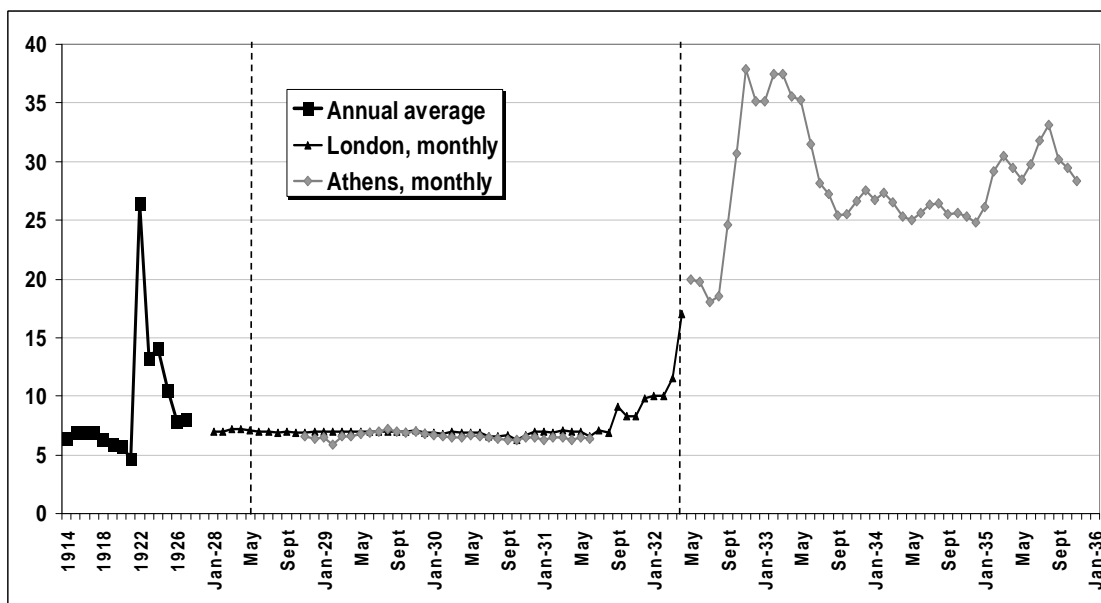

Figure 14. Greek sovereign yields quoted in Athens and in London.
Note: Data for 1914-1927 are annual averages, for 1928-1936 monthly averages. Variables SYA and SYL as defined in Appendix B.

Table 1. Comparison of key economic variables

Four-year averages before and after the collapse

	Variable	Pre-crisis 1928-31	Post-crisis 1933-36	Comments
1	Growth rate percent	5.14	5.45	*slightly better*
2	Total activity index	103.18	102.05	*slightly worse*
3	Industry index	103.76	135.25	*better*
4	Employment index	103.60	97.80	*worse*
5	Consumer Price index	96.73	110.69	*worse*
6	Real wage index	102.76	93.05	*worse*
7	Export volume	52.18	54.61	*slightly better*
8	Import volume index	101.25	86.75	*better*
9	Budget deficit %GDP	-3.33	-1.44	*better, due to default*
10	Debt service %GDP	9.80	4.19	*better, due to default*
11	Bonds yield percent	7.51	27.86	*worse, due to default*
12	Discount rate percent	9.50	7.73	*better*

Notes: Calculation of simple averages of the variables shown in the previous Graphs, where definitions and sources are given.

(i)For annual data, year 1932 is excluded from calculations as it is difficult to separate allocation before and after the crisis in April 1932. If a weighting of 1/3 and 2/3 is used to correspond to the relative length of the two phases, comparison becomes slightly more favourable for the pre-crisis years. By omitting 1932, the post-crisis average growth rate looks higher and this explains the slightly contradictory comments in the first two rows.

(ii)Bond yields and discount rates are monthly averages of similar duration. Pre-crisis period ranges from May 1928 until April 1932; post-crisis from May 1932 until April 1936.

(iii)Except for exports, all other indices are based on 1928=100. The volume of exports is relative to that of imports and in 1928 was equal to 51.

(iv)Budget deficits are calculated as simple averages of fiscal years 1927/28 until 1931/32 for the pre-crisis period and of 1932/33 until 1936/37.

Appendix B: Data series

AIR: Annual inflation rate in Greece. It is proxied by the annual changes of an index of the cost of living, and is likely to underestimate the true figures. *Source*: Ministry of National Economy, *Annuaire Statistique*.

CABG: Current Account balance in Greece, million US Dollars. *Source*: Bank of Greece, Annual Reports.

CGBB=CGRO-CGET: The actual balance of Central Government defined as the difference between *ordinary* revenues and total public expenditures.

CGET: Central Government total expenditure, million current Drachmas. *Source*: Bank of Greece, Lazaretou (2013, Table GR4), variable GR4E_A. Data refer to each fiscal year and not to the calendar ones. The use of the fiscal year was first introduced by law in 1918 and it covers a 16-month period starting on 1 April and ending on 31 July of the next calendar year. In 1934, it was defined by law a 12-month duration of the fiscal year, *i.e.* 1 April-31 March.

CGFB=CGRT-CGET: The *'official'* balance of Central Government defined as the difference between *total* revenues and expenditures. It was the reference used by the Government to describe fiscal developments. This was grossly misleading as total revenues included a number of loans (see CGRT), thus underestimating the actual budget deficit defined here as CGBB.

GDB: Debt liabilities of Central Government to the Central Bank in million current Drachmas. Before the establishment of the Central Bank in 1928, obligations were to the National Bank of Greece. From 1928 to 1939 the series refers to the net claims of the Bank of Greece against Central Government, regardless the nationality of the creditor and/or currency denomination of debt. *Source:* Bank of Greece, Lazaretou (2013, Table GR4), variable GR4F_A. End-of-year data.

GDF1: Foreign debt of Central Government in million Drachmas. *Source:* Bank of Greece, *The first fifty years*, (1978, Table 11, p 106).

GDF2: Foreign debt of Central Government in thousand Drachmas calculated by the author as the sum of foreign loans plus the railway debt as displayed by Kalafatis and Prontzas (2012, vol. III, Table 9, p 69). *Original source: Annuaire Statistique*. Observations are missing for 1931, close to GDF1 in other years.

GDS: Central Government debt servicing, million Drachmas. *Source*: Ministry of National Economy, *Annuair Statistique*. As in Mazower (2002, Table P1.2, col. 8).

GDT1: Total debt of Central Government in million Drachmas. *Source:* Bank of Greece, *The first fifty years*, (1978, Table 11, p 106).

GDT2: Total debt of Central Government in thousand Drachmas. *Source:* Kalafatis and Prontzas (2012, vol. III, Table 9, p 69). It appears lower than GDT1 by roughly 10%, possibly due to the exclusion of obligations defined above as GDB.

CGRO: Central Government ordinary revenues per fiscal year, million Drachmas. *Source*: Ministry of National Economy, *Annuair Statistique*. Reproduced in Mazower (2002, Table P1.2, col. 5).

CGRT: Central Government total revenues including receipts from loans, million Drachmas, per fiscal year. *Source*: Bank of Greece, Lazaretou (2013, Table GR4), variable GR4A_A.

FXRDR: Currency reserves, monthly series in million Drachmas. The figure is for total reserves (gold, foreign exchange, government bonds in gold), end-of-month data, not seasonally adjusted. *Source*: Bank of Greece. Annual figures are available in Lazaretou (2013, Table GR1), variable GR1D_A.

FXRPS=FXRDR/XRBPS: Currency reserves, in million Pounds Sterling.

GDP: Gross Domestic Product in million of current Drachmas. *Source:* Kostelenos *et al* (2007, p 219, col 3).

GDP28: Gross Domestic Product in million of constant 1928 Drachmas. Rebased by the author from the original series in constant 1914 Drachmas using the GDP deflator, as in Kostelenos *et al* (2007, p 219, col. 4).

IACT: Index of total economic activity, 1928=100. Source: Bank of Greece, Lazaretou (2013, Table GR5), variable GR5G_A.

IAPX: Index of agricultural exportables, base year 1928=100. *Source: Annuaire Statistique*; reproduced in Mazower (2002, Table P1.1, column 7).

IEMP: Index of employment, 1928=100. Source: Bank of Greece, Lazaretou (2013, Table GR5), variable GR5H_A.

IIP1: Index of annual industrial production, base year 1928=100. *Source:* Supreme Economic Council, Indices of economic activity 1928-1934, 1935.

IIP2: A new index for secondary production constructed by Christodoulaki (2001, Table 3), rebased by the author at 1928=100.

IRW: Index of real wages, 1928=100. Own calculations of the ratio of a nominal index to the CPI, both taken from Bank of Greece, Lazaretou (2013, Table GR5), variables GR5I_A and GR5E_A respectively.

SYA: Greek sovereign yields quoted in Athens, monthly frequency annualized rates. The yield quoted in Greece is calculated as the simple average of monthly reported yields on Greek bonds issued at 1881,1884,1887,1889, 1890, 1902, 1907, 1910 and 1914. *Source:* Bank of Greece.

SYL: Greek sovereign yields quoted in London. *Source:* Global Financial Data.

TBG: Trade balance in Greece, million US Dollars. *Source*: Supreme Economic Council, Indexes of economic activity of Greece 1928-1934, 1935, p.17.

VEX: Merchandise exports in volumes. Own calculations by rebasing the original export index of Mazower (1991, Table P1.5, column 5) to make it comparable to that of imports. Assuming the same unit price for imported and exported goods, the index is obtained as VEX= (value of exports/imports)*VIM.

VIM: Merchandise imports in volumes, taken from Mazower (2002, Table P1.5, column 6). *Original source:* Ministry of National Economy, *Annuaire Statistique*.

XRBPS: The Drachma exchange rate vis-à-vis the British Pound. A rise indicates depreciation. *Source*: Bank of Greece.

XRUSD: The Drachma exchange rate vis-à-vis the US Dollar. A rise indicates depreciation. *Source*: Bank of Greece.

<u>Appendix C</u>: Modelling the currency peg during the crisis

Further to the description in Section 2, the dynamic model is completed to include the following sectors:

The Central Bank:

The Bank controls money supply *(M)* so as to keep domestic inflation *(π)* at the same level as other GES countries, i.e. $\pi \approx \pi^W$, ensuring purchasing power parity under the peg. The Central Bank keeps international assets *(Q)*, the major part of which is held in interest-bearing accounts of foreign currency and the rest in gold. For simplicity, it is assumed that a uniform return equal to the foreign interest rate *(r)* is paid on the total stock of reserves and the net profit $(rQ - \dot{Q})$ is collected by the Government. The balance sheet of the Central Bank requires that in domestic book value:

$$D + Q \cdot X = M \qquad (8)$$

where *(D)* is domestic credit and *(X)* is the exchange rate. To sterilize changes in reserves from reaching the money aggregates, credit is adjusted to changes in foreign reserves.

The real economy:

The resource constraint implies that

$$Y = C + I + G + J \tag{9}$$

where C is consumption, *G* public spending, *I* is private investment assumed exogenous and *J* denotes exports net of imports as described[36] in (4). A rudimentary process of labour demand can be modeled to account for the persistence of unemployment. If (L) households supply their labour and the capital stock is fixed in the short run, a linear production function with constant returns to scale can be written as $Y = \phi L h$, where (h) is work time and (φ) a technology constant. The number of employees is adjusted with a hysteresis, at a rate

$$L = \lambda(\frac{Y}{\phi h} - L) \tag{10}$$

The higher the value[37] of parameter (λ), the slower the adjustment of employment to new demand. Given that work-time regulation was very weak in interwar Greece, an increase in production could be absorbed by extending working hours, thus making unemployment to persist in spite of the rise in output.

Domestic households receive all the income and invest their savings on Government bonds with a return *(R)*. Assuming a lump-sum tax *(T)* on households, the private sector constraint (PSC) dictates that changes in their wealth *(A)* are given by

$$\dot{A} = RA + (Y - C - T - I) \tag{11}$$

The Government:

The Government issues a total stock of debt *(B)*, which is financed by domestic households *(A)* and foreign capital inflows *(F)*. The Government budget constraint (GBC) requires that:

$$\dot{B} = RB + G - T + \dot{Q} - rQ \tag{12}$$

In 1931-32 authorities were trying to keep a fiscal target, thus fiscal policy is considered exogenously set, as in Krugman (1978) and Calvo (1987), in such a way as to meet the plan. Hence, there is no need for further elaborating the intertemporal budget constraint.

Domestic returns *(R)* differ from the yield *(r)* on foreign assets by a sovereign spread ($s = R - r$). Differentiating total debt (B=A+F), using (11), (12) and the output identity (9), new capital inflows in each period are given by:

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[36] Expression (4) is easily derived by assuming a simple Keynesian consumption out of disposable income and linear functions for imports and exports which are inserted in (7). Demand variable *(V)* is set as an expression of G, T, I and the autonomous part of C.
[37] Employing the few observations available, a tentative estimate with λ=0.65 is obtained confirming the strong hysteresis assumption. Details are available by the author.

$$\dot{F} = (r+s)F + \dot{Q} - rQ - J \tag{13}$$

The equation represents the external solvency constraint (ESC). It is obvious that by observing GBC and ESC, the process PSC is also stabilized. The constraint implies that in each period, new capital flows are needed to finance the trade deficit $(-J)$ and the interest payments to foreign investors, as well as to raise foreign exchange reserves on a net basis.

Capital markets:

In a currency peg, the spread is a typical measure of nervousness in the forex market and currency crises are almost invariably preceded by explosive patterns of spreads. An index of exchange market pressure based on the evolution of spreads and international reserves was initially proposed by the seminal paper of Girton and Roper (1977), and subsequently a vast number of applications employed similar measures for the identification of a currency crisis; see, among many others, Eichengreen et al. (1995). The justification is that low spreads are associated with credible exchange rate regimes, while high premia unveil uncertainty about their viability. In the approach by Hellwig *et al.* (2006), investors take into account the risk of default, thus the gap between demand and supply of sovereign bonds closes by offering satisfactory high spreads over the foreign yield.

This is a mechanism that may lead to a currency crisis, if investors are pre-committed to liquidate after spreads reach a "threshold point". Krugman (1991) refers to several occasions that a currency regime is at risk to explode if future contracts with automatic clauses are activated after certain safety margins are reached. As highlighted by Dornbusch (1991), the fear felt by the individual investor that - unless a currency position is reversed immediately - major losses may happen later, leads to "bandwagon" effects and soon the market collapses. In other cases a run-away may be triggered simply when investors are risk-averse and adopt stop-loss schemes to limit their exposure. In all these cases, the behaviour of spreads becomes strategic for the survival of the currency regime.

A strong negative correlation as implied by (1) is empirically established[38] by using monthly data for sovereign yields and foreign reserves. Taking into account that the majority of foreign

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[38] Equation (1) is estimated in various forms including absolute or proportional changes in reserves and in all cases parameter values are found to be correctly signed and statistically significant. Additionally, data series are found to imply that Granger-causality from reserves to spreads cannot be rejected at the 1% level, while it is heavily so the other way around. Econometric results are available upon request.

bond holders were British, the series of sovereign spread is constructed by taking the difference between Greek yields quoted in London and the yield on the 2.5% British consol. As shown in Figure 14, sovereign bond yields quoted in London were comparable with those in Athens until September 1931.

To display the currency market, suppose that the extent of capital controls is measured by an index θ, $(0 \le \theta \le 1)$. In the absence of controls (i.e. $\theta=0$) sovereign yield spreads cover the depreciation expected to take place in the eventuality of the peg collapsing. On the other hand, if fully constrained by capital controls $(\theta=1)$, market participants would form depreciation expectations by calculating some kind of pressure, denoted by the discrepancy $(u-x)$. With partial capital controls $(0<\theta<1)$ the weighted outcome is:

$$x^e = (1-\theta) \cdot [R-r] + \theta \cdot [\gamma(u-x)] \tag{14}$$

Substituting (1) into (14), equation (2) is obtained.

Dynamics

The paucity of external financing for Greece after the pound exited the GES 1931 is captured by assuming that foreign debt (F) remains constant, i.e. $\dot{F}=0$ and $F \approx \bar{F}$. The dynamics of foreign reserves and exchange rate described by (2) and (3) respectively are then written in state-space form for $[Q\ x]$ as:

$$\begin{bmatrix} \dot{Q} \\ x^e \end{bmatrix} = \begin{bmatrix} (r+\eta\bar{F}) & (\beta_1+\beta_2) \\ -\eta(1-\theta) & -\theta\gamma \end{bmatrix} \cdot \begin{bmatrix} Q \\ x \end{bmatrix} + \begin{bmatrix} -\beta_2 z + \beta_3 W - \beta_4 V - (r+\sigma)\cdot\bar{F} \\ (1-\theta)\sigma + \theta\gamma u \end{bmatrix} \tag{15}$$

The steady-state conditions ($\dot{Q}=0$ and $\dot{x}=0$) imply the following equilibrium loci indicated by a star:

$$\dot{Q}=0 \implies x^* = -\frac{r+\eta\bar{F}}{\beta_1+\beta_2} \cdot Q^* + \frac{\beta_2 z - \beta_3 W + \beta_4 V + (r+\sigma)\cdot\bar{F}}{\beta_1+\beta_2} \tag{16a}$$

$$\dot{x}=0 \implies x^* = -\frac{1-\theta}{\theta\gamma}\eta Q^* + \frac{1-\theta}{\theta}\sigma + u \tag{16b}$$

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From (16a, b), it is easy to show that a saddle-path stable equilibrium (Q^*, x^*) exists[39] as assumed in Section 2 and shown in Fig. 1. Uniqueness requires that the determinant of the transition matrix in (15) is negative or, equivalently in graphical terms, the slope of exchange rate locus algebraically exceeds that of the reserves, i.e.

$$-\frac{\eta(1-\theta)}{\theta\gamma} > -\frac{r+\eta\bar{F}}{\beta_1+\beta_2} \tag{17}$$

The condition is satisfied with a minimum of effective capital controls, so that

$$\theta > \theta_{MIN} = \left[1+\gamma\frac{r+\eta\bar{F}}{\eta(\beta_1+\beta_2)}\right]^{-1} \tag{18}$$

This is in line with the situation of partial capital controls prevailed in Greece after the crisis erupted in September 1931.

Calibration

In the absence of sufficient data to conduct econometric estimates, a simple way to assess the plausibility of the model is by checking if the extent of devaluation and debt reduction that actually had taken place after the collapse are compatible with expressions (5) and (6) under reasonable parameter values. All indices *(F,W,V)* are assumed equal to unity before the crisis, thus their differentials imply proportional deviations from base levels.

One year after abandoning the GES, the Drachma reached the level of $X_1 = 108$ Drs per US dollar and this is taken to imply that a depreciation by 40%, (i.e. $dx^*=0.40$) would have led to a sustainable rate. Similarly, the actual debt repudiation imposed by the Bank of Greece in 1932 was near 70%, and this is taken to imply that a reduction of $dF^* = -0.70$ would suffice to calm the pressure during the crisis. Parameter (σ) is obtained in a linear fit[40] of expression (1) as equal to 0.07, while the world yield is set at $r=0.05$.

Substituting the shocks $dz = 0.35$ and $dW = -0.25$ into (5) and (6), the following conditions are obtained for parameter values:

$$0.35\beta_2 + 0.25\beta_3 = (r+\sigma)\cdot dF \approx 0.084 \tag{19a}$$

$$0.40(\beta_1+\beta_2) = 0.35\beta_2 + 0.25\beta_3 \Rightarrow \beta_1+\beta_2 = 0.21 \tag{19b}$$

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[39] If θ is not sufficiently effective *(i.e. $\theta < \theta_{MIN}$)*, the system is not saddle-path stable and the only possible outcome is the regime immediately collapsing to the new equilibrium at (E_1).

[40] The fit gives an equation s(t)=0.07-1.19*Q(t-1). Details are available by the author.

Setting $\beta_3 = 0.20$ leads to $\beta_1 = 0.113$ and $\beta_2 = 0.097$ which look plausible as net export elasticities to the US and UK currencies respectively. For a propensity $\beta_4 = 0.30$, expression (7) gives that domestic demand should have been contracted by 28% ($dV = -0.28$) that also looks plausible.