In search of Lost Time.
Foreign Exchange Reserve Management in Portugal Between the Wars

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Rui Pedro Esteves[†]

Abstract

In the interwar period central banks accumulated foreign exchange as part of the gold exchange standard recommendations. The problems of credibility of the system, and its later demise, created the need for an active reserve management policy by banks. In this paper we study the repercussion of these international developments in the reserve policy of the Portuguese central bank. Empirical evidence shows that the composition of the reserve by currencies was mainly adjusted to the needs of foreign trade and reflected the choice of peg. The return on the Bank's portfolio was a minor consideration.

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[†] Brasenose College, Oxford Email: rui.esteves@economics.ox.ac.uk

Introduction

For a monetary economist, the interwar period constitutes an especially interesting research field. Compared to the relatively stable periods before 1914 and after 1945, the world in the 1920s and 1930s went through a series of difficult transitions in an unstable context. In a new and uncharted world, the intuitive reaction was to hold on to old rules and prescriptions of sound behavior, with the hope of regaining the stable order of affairs before 1914.

Systematic gold imbalances, the lack of an international hegemon, persistent deflationary problems, and the changing social and political structures in the interwar years all added up to the worries of the monetary authorities in this period. Against the backdrop of the proven "rules of the game", governments and central banks were now faced with new problems that required untested policies. Trial and error, under the duress of a world depression and the collapse of international trade and capital flows, eventually led them to converge to a new set of policy priorities and corresponding instruments.

One of the obvious, although less studied, places to look for changes in monetary policy is the composition of international reserves. This subject was specifically considered in the international conferences leading to the gold exchange standard. Fears of a global shortage of gold led to the two-tiered distinction between currencies directly convertible into gold and those only indirectly convertible. Second tier monetary authorities were enjoined to accumulate foreign exchange, instead of gold. The obvious coordination problem involved in this solution was not effectively addressed and contributed to the eventual disintegration of the system in the 1930s. At the same time, the prewar leadership of sterling as international reserve currency was eroded through the competition from other currencies, especially the US dollar.

The purpose of this paper is to capture the repercussion of these international developments in the reserve policy of the Portuguese central bank. The interwar years were also abundant in major domestic developments with implications for monetary policy. The period starts under mounting external disequilibria, and inflationary pressures inherited from World War I, later compounded by political instability and social unrest. Between 1922 and 1924, the government achieved an effective stabilization of the currency (the *escudo*) and the price level. From then on, the avowed policy of the

government, supported by the central bank, was to return to the gold standard. This was formally accomplished in June 1931. In preparation for this move, the Bank of Portugal's reserve policy had to accommodate to the expected needs of a second-tier currency in the gold exchange standard. Once Britain left the system, Portuguese authorities pegged the currency to the sterling area, a natural option given the traditionally close international ties with Britain.

In order to study the management of Portuguese reserves, I draw evidence from several accounting ledgers of the Bank of Portugal that allow me to reconstruct the composition of reserves, by currency, and assets (bills, securities, and foreign drafts). I then estimate the determinants of the choice of reserve composition by the Portuguese monetary authorities. Because the collection of data for this project is still incomplete, I only report preliminary results for the 1930s.

The paper is organized as follows. The next section outlines the monetary history of the interwar period, namely the resurgence of the gold standard and its demise during the world Depression. Following that, the second section describes, in succession, the external and domestic challenges to the Portuguese monetary authorities, the untimely return of Portugal to the gold standard, and the constraints on central bank independence. The third section covers the reserve management problems facing peripheral currencies both before and after the demise of the gold exchange standard. The empirical results for Portugal are also discussed in this section. Some transitory conclusions follow.

Monetary Policy Between the Wars

Compared to the havoc wrought by World War I, the international economic order existing before 1914 shone with an aura of stability and prosperity. Not surprisingly, the expedient recovery of such arrangement became the focal point of postwar government policy, once the outstanding war accounts had been settled. The gold standard was seen as one of the main components of this prewar liberal world order and its recovery was held high among the political priorities after the war. The traumatic experiences of hyperinflation in central Europe and of excessive currency volatility under the free float

of the early 1920s also helped to create majorities in favor of the reestablishment of fixed parities, stable prices and monetary discipline (Eichengreeen 1996).

The transition, however, was not a trivial problem for countries awash with war money, burdened by domestic and foreign debt, unbalanced productive sectors and, in the case of Europe, unfavorable balance of payments and misaligned currencies. The opportunity and the means to return to gold were the object of a number of international monetary conferences, held under the auspices or with the support of the recently-created League of Nations. The first of such meetings, in 1920, codified the "Brussels consensus" on the policies necessary to return to gold: balanced budgets and central bank independence from government pressure, if necessary by means of international supervision.[1] With some modifications, this package was prescribed by a variety of "money doctors" to governments in Europe and Latin America (Schuker 2003). Given the unfriendly attitude of US authorities towards the League of Nations and the reemerging Franco-British rivalry, the control of postwar stabilization plans reflected the competition among the central banks of the core economies. Despite the symbolic recovery of the gold status of the sterling at the prewar parity and the efforts of the Bank of England to directly or indirectly reestablish sterling as the major reserve currency, the postwar gold standard was no longer anchored to a single dominant currency. The economic and financial might of the US had a natural corollary in the ascendancy of the dollar, whereas French authorities were not prepared to cede financial preponderance to Britain, especially after the successful stabilization of the Franc (Moreau 1954).

This was all the more significant in the context of the gold exchange standard recreated in the 1920s whereby the monetary authorities of peripheral countries accumulated balances of the three reserve currencies, instead of gold. While the system was credible it was relatively costless for central banks to convert their assets between these currencies, what opened the opportunity to manage their reserves according to return considerations. Unfortunately, central bankers could also now speculate against the credibility of the reserve currencies (Oye 1985). The pound was the early victim of this new central bank activism, having to face the conversion demands of the two largest foreign owners of sterling, the Banque de France and the Reichsbank. The ensuing

[1] In many countries this also meant the creation of a central bank to start with.

speculative attacks would eventually lead the sterling out of the system, in 1931, scarcely five years after having reentered it. In the aftermath of the devaluation of the pound, many countries also opted out and joined one of the two clubs of currencies pegged to the pound or the dollar. Some other countries remained committed to gold for a few years still, depending on their initial external position, previous hyperinflation experience, and the political composition of their governments (Wandschneider 2005).

Many authors have sought underlying or structural causes of the weakness and brief life of the interwar gold exchange standard. Explanations abound from the lack of an international hegemon to replace Britain's position of financial and free trade power (Kindleberger 1976), the weak adjustment mechanism to correct systematic gold imbalances in the period (Triffin 1947), the persistent deflationary problems after 1929 (Bernanke and James 1991), and the changing social and political structures in the interwar years (Eichengreen 1992, Simmons 1994). The rise of unionization reduced the margin of prewar wage and price flexibility, while the enfranchisement of labor interests conditioned the independence of monetary authorities to focus on exchange rate and price stability. This was a world where the internal contradiction of the "macroeconomic policy trilemma" was more pressing (Obstfeld and Taylor 2004).

With the deepening of the world Depression, governments everywhere sacrificed currency stability, freedom of capital movements (and often both) to an autonomous domestic monetary policy to pursue autarkic industrial policies or to reflate their economies (Díaz-Alejandro 1984). Despite warnings against the consequences of beggar-thy-neighbor policies, there is evidence that devaluation helped solving the problems of the 1930s (Eichengreen and Sachs 1985). On the contrary, the interlocking nature of the two-tiered reserve system in the gold exchange standard led to a scramble for gold which contributed to the spread and deepening of the Depression through the destruction of foreign exchange reserves (Eichengreen 1992). Managed float seemed, therefore, as a more rational alternative until the new Armageddon abated over the World in the summer of 1939.

The Portuguese Race to Gold

From Turmoil to Stabilization

As many other countries, World War I brought severe supply constraints to the Portuguese economy, later aggravated by the entry of the country in the conflict largely financed through foreign credit and domestic monetization. The government resorted to successive increases in the legal limit of debt to the Bank of Portugal, substantially increasing its share in the composition of the Bank's assets (see Table 1). Despite an average of inflation above 20% during the war years, the exchange rate did not fully adjust, leaving an overvalued currency in the immediate aftermath of the conflict. The markets reacted with severe capital flight and corrected the imbalance with an offsetting nominal depreciation that more than compensated the real appreciation during the war (Santos 1996). The depreciation also helped to fuel a domestic inflationary process, during a period when weak governments were unable to curb rising budget deficits financed through the Bank of Portugal (see Table 1).[2]

Following the recommendations of the many "money doctors" of this period, nominal instability was reined in through a stabilization plan that comprised increased taxation, reduced public expenditure, and government intervention in the foreign exchange market to stabilize the external value of the currency. To gather resources for this intervention, the government forced, in 1922, exporters to deposit half of the foreign currency earned on their sales in the Bank of Portugal, later raising this obligation to three quarters, in 1924.[3] Finally, the government reduced its pressure on the demand for foreign currency by forcing the payment in domestic currency of the coupons of its external debt, denominated in foreign currencies but held by Portuguese citizens (Nunes and Valério 2005). According to Xavier (1950), around 80% of the Portuguese foreign debt was "nationalized" in this way, permitting an economy of c. 1 million pounds per year.

The success of this stabilization program can be seen, on Table 1, by the reduction in the growth of the money supply, prices, and budget deficit; the leveling of the debt ratios and a slight appreciation until 1928. The year 1928 marks also a political caesura with the rise to power of the conservative dictatorship which would rule the country until 1974.

[2] Twenty-one governments were in office between the end of the War and 1923.
[3] It also determined the sale of demonetized silver kept in the reserve of the Bank for foreign currencies.

From the beginning, Salazar, the newly appointed finance minister and soon to become personal dictator, elected the external stability of the currency as the guiding objective of his policies. The missing step, the return to full convertibility, was announced as soon as 1930, and implemented in June 1931. To achieve this objective, a new tax reform was implemented in 1928-29, which resulted in the first budget surpluses in 15 years.

The work of nominal stabilization seemed thus completed, placing the real side of the economy on a sounder footing. Conventional analysis, in fact, associated the recovery of a stable nominal anchor to an acceleration of growth in the late 1920s (Mata and Valério 1996, Mateus 1998). More recent reconstruction of the interwar national accounts disproves this interpretation (Batista *et* al. 1997). In fact, the data on Table 2 show that real GDP grew much faster before rather than after nominal stabilization, following an inflation-growth cycle in the 1920s, not unlike other European countries (Eichengreen and Simmons 1995). For Carvalho (2001), the inertia of inflationary expectations (still grounded on the prewar environment of price stability) during this period allowed for a real decline in production costs, namely wages. This then created the conditions for a spurt in investment and growth until expectations had fully adjusted and contractionary policies had been put in place to stop inflation and depreciation. On a different take, Telo (1994) argues that the investment surge was concentrated in low-productivity inward-looking industries, and was especially dependent on the higher levels of nominal protection of the domestic and imperial markets.

Nice Guys Finish Last

Portugal regained formal convertibility in June 1931. Although the exchange had been stable since 1924 the move back to gold had to wait for another stabilization, of political nature, between the later years of the democratic republic and the early stage of the military dictatorship that followed it in 1926.

Prepared for some years, the return to convertibility was carried through without deflation by choosing a rate close to the market price of the Portuguese currency. Probably to gain some price competitiveness or to avoid credibility problems, the new par was actually fixed almost 2% above the current market rate (Santos 1996). Following the

blueprint of the gold exchange standard, the Bank of Portugal was authorized to convert bills into gold or foreign reserve currencies.

Concomitant with the return to gold, the Bank of Portugal received a new legal ordering which, although falling short of the ideal of an independent central bank, effectively set it a private bank with central banking responsibilities (Reis 1999). The new legislation entrusted the Bank with the objective of keeping a stable exchange by regulating the levels of domestic credit and prices. The Bank was also given control over new policy instruments, namely the ability to set interest ceilings for other banks, while it was expected to phase out the commercial side of its operations.[4]

The timing of the return to gold, although consequent with the internal policy developments, was particularly unfortunate in external terms, as Portugal joined the gold exchange standard just 82 days before sterling exited the system. During the short tenure in the system the markets behaved as expected, which is not surprising given the long and public preparation of this move. Although the Bank of Portugal had been given the freedom to choose the gold assets with which to stock its reserve, the fact is that Portugal rejoined the system on an effective "gold sterling standard." At the end of 1931 64% of the Bank's reserve was composed of pounds, against only 29% of gold, and 7% of other currencies. Once sterling became unconvertible, the credibility of the gold backing of the Portuguese currency was therefore placed into question. Rather than risking deflation and real appreciation by sticking up with the "gold club," Portuguese authorities quickly decided to peg to the pound at the previous parity of 110 escudos per pound. This was not tantamount to a reversal of policy, as the government remained committed to a stable foreign value of the escudo, and initially expected that the pound would quickly go back to convertibility (Santos 1996). At any rate, joining the "sterling area" also made sense from a commercial and financial viewpoint, as the UK was still Portugal's main trading partner, and most of Portuguese foreign assets were denominated in sterling.

[4] This namely to avoid competing with other private financial institutions and also to prevent the contradiction between its roles as a commercial bank and a lender of last resort.

The Business of Central Banking in the Thirties

Although out of the gold club, Portuguese monetary policy remained remarkably conservative throughout the 1930s. Internal and external stability of the currency trumped other objectives and conditioned the options for policy. On several occasions, the sterling peg was replaced with a dollar or franc reference in order to avoid the steepest devaluations of the British currency. Likewise, in a period with repeated external surpluses, the government and the Bank of Portugal tried to keep a moderate growth of the money supply by sterilizing part of the increase in foreign reserves. The last column on Table 2 suggests a significant external surplus mainly driven by financial movements. As noted by Reis (1999), the Bank kept its note issue around ¾ of the legal limit based on its reserves.[5] Furthermore, the Bank also resorted to some account dressing by keeping an increasing share of its gold and foreign exchange holdings formally "outside the reserve." Such assets that sized around 1% of the formal reserve in 1931, rose steadily to about 15% in 1939 (Figure 3).

Nevertheless, the abundance of money and some measure of government suasion led to a steady decrease in interest rates in the money market. On the one hand, the government was interested in guaranteeing cheap credit for domestic investment. Accordingly, the Bank of Portugal's discount rate steadily fell from 7.5% in 1930 to 4% in 1937. On the other, the favorable external position left commercial banks awash in liquidity and, hence, less dependent from the central bank's discount policy.

The lower control of the Bank of Portugal over the money multiplier ironically coincides with the legal elevation of its responsibilities as central banker. Reis (1999) comments that the Bank in the 1930s was much less able to act as a central bank than in previous periods. Its effective control of monetary policy was not only limited by the failings of its discount window, but also because it lacked control over some basic central banking instruments. In particular, it could not fix reserve requirements or conduct open market operations. It was also hampered in its supervisory role by the competition of the government, which also owned the largest banking institution by size of assets, the *Caixa Geral de Depósitos*.

[5] The 1931 monetary law required a 30% reserve in gold or reserve currencies to back up a note issue up to 2.2 billion escudos. Any issue above that limit would have to be fully covered.

World War II brought fresh challenges to monetary policy, which the government and the Bank tried to accommodate with the least loss to external and internal stability. The especially favorable external accounts during the conflict could not be entirely sterilized, and the resulting increase in money supply put pressure on prices that were also bid up by the rationed access to foreign commodities and intermediate products. Nonetheless, compared to World War II, nominal instability was much less of a problem. Inflation didn't reach the heights of the previous conflict, while the external position and value of the escudo were reinforced. Significantly, with the start of the war, the government replaced its steadfast peg to the pound with a new anchor to the US dollar.

Reserves Management

The Need for a Reserve Policy

The promotion of the accumulation of foreign exchange by second-tier countries within the gold exchange standard naturally created the opportunity for an active management of central bank's reserves. Banks could now optimize their reserve composition with respect to a number of objectives. The first one was the return to their portfolio. The Bank of Portugal justified retrospectively its accumulation of reserves as follow, in its 1931 annual report:

> *For some time now, namely in Belgium, the advantage of productive reserves of issue banks has been emphasized. The League of Nations, on its own, supported it in all the stabilization operations carried under its guidance. In this way, instead of being solely composed of gold, reserves also started to include, at least partially in some banks, gold securities and currencies. As for the banks they realized interesting gains by investing what until then was immobilized wealth* (p. 27).

Taken at par value, this would mean that reserve composition should react to differential in rates of return in the money markets of different reserve currencies.

Another consideration was the availability of reserves of the currencies most required by the import trade or the service of financial liabilities to foreigners.[6]

Figure 1 represents the composition of the Bank of Portugal's reserves by main currency of denomination. The Figure seems to imply that the Bank's officials applied a simple policy rule, privileging sterling assets until the abandonment of the gold standard, and replacing them afterwards with gold stocks. Despite the inconvertibility of sterling, and its unpleasant tendency to depreciate, it is remarkable that the Bank kept an appreciable 30% of its reserves in sterling, while gold hovered above 60%. The remaining currencies had a small and decreasing share in the reserves, with the exception of the US dollar that rose to 7% of the total in 1939. The Bank justified this change of heart with the risks of holding foreign inconvertible currencies:

> *The sterling crisis, which dimension went beyond all forecasts, showed with terrible evidence the weaknesses of this solution. The sterling denominated reserves suffered an implicit depreciation when sterling fell. And, as it is obvious, the gold assets that guaranteed the fiduciary circulation fell accordingly* (Annual Report 1931, p. 28)

It is interesting to note that, although no longer bound by convertibility, Bank officials kept such a close scrutiny of the gold coverage of the currency. Two years latter, the Bank repeated that "*also this time, we followed … the effort started two years ago to approach the volume and proportion of our metallic reserves from those of the issue banks of the countries with which we should expect a legitimate comparison*."[7] It is not clear from the report which were these countries, but we can surmise that these included small open economies either in gold or in the sterling area. Table 3 compares the share of gold in the reserve composition of Portugal with three sets of countries: the 24 countries included in a 1944 League of Nations study, the countries in the "gold bloc" and those in the "sterling area." Throughout the 1920s, and again in the transition years of 1931-32, the gold share in Portuguese reserves effectively trails that in all groups of countries, namely the future members of the "sterling area." Nevertheless, the gold appetite of the

[6] Again in the words of the Bank, "*Our only care was not to affect the sum of foreign currencies considered necessary for the movement of transactions and for the convenience of government economy*" (Annual Report 1932, p. 28).
[7] Annual Report 1933, p. 28.

Portuguese authorities clearly overshoots after 1933, compared to other countries pegging their currencies to sterling.[8]

Another approach to the data is to describe it by type of application. The no. 27 of the 1931 bylaws of the Bank of Portugal authorized the Bank to accumulate a reserve composed of gold in coin or bullion, as well as banknotes and financial assets denominated in convertible foreign currencies. Among the latter were included first quality commercial bills accepted abroad, short term treasury bills, as well as net current accounts kept by the Bank of Portugal in a number of foreign corresponding banks and financial houses. Transitorily, the Bank was also allowed to keep in its reserve bonds of the Portuguese foreign debt. Figure 2 traces the evolution of these components. Once more, the only significant change occurs in the two years immediately after the adoption of the sterling peg. The share of gold in coin and bullion more than doubles, but converges thereafter to a stable share above 60%, while net current accounts in corresponding banks and bonds share the remaining.

The special conditions of World War II, namely non-belligerency and high foreign demand for mineral products, resulted in important external surpluses. Their monetary counterpart was partly sterilized by the government and the Bank of Portugal, as can be gauged from the balance sheet of the latter. On the one hand, the Bank maintained the previous policy of retaining a reserve larger than the 30% required by the monetary law of 1931. On the other, it decided to keep an increasing share of its gold and foreign exchange assets out of the reserve (Figure 4).[9] At the end of 1945, out of reserve foreign assets represented 118% of the official reserve. After 1941, the official reserve includes exclusively gold, but more than 20% of the Bank's total gold was registered as out of the reserve. Such accounting standards reveal both the attempts at sterilizing balance of payments surpluses, and also the conservative bend of the Portuguese monetary authorities that completely discarded inconvertible currencies from the required legal backing of banknote circulation.

[8] The values for Portugal in the 1930s are obviously above the ones we calculated from the internal ledgers of the Bank of Portugal. The discrepancy is due to the fact that the League of Nations' study omits the bonds held as part of the reserve of the Bank (more on this below).

[9] Many of these foreign reserves were deposited by the Portuguese government, as indicated by a correspondent rise in the treasury's deposit account at the Bank.

Preliminary Empirical Results

The data on Portuguese reserve composition comes from several internal accounting ledgers of the Bank of Portugal. At the end of each week, the Bank prepared a weekly statement of its accounting position (*situação semanal*), which namely included the list of foreign-denominated assets and liabilities. From these ledgers we can extract the composition of the net foreign position of the Bank (both reserve and out of reserve accounts) by currency and with weekly periodicity. As mentioned in the introduction, the underlying data gathering process is still incomplete, and we only report here the information for the end-of-year positions between 1931 and 1945. The next step will be to complete the time series for the remainder of the interwar period, 1919-30. Even though the collection of information with sub-yearly periodicity would perhaps provide better understanding of short-term phenomena, namely in the transitory years of 1931-33, and 1939, their usefulness for an empirical analysis of the determinants of reserve composition is hampered by the fact that most covariates are only available on an yearly basis.

Following other studies (Eichengreen and Mathieson 2000; Gosselin and Parent 2005), I estimate reserve demand functions for foreign currencies. In these studies, particular attention is given to variables such as composition of foreign trade, structure of foreign debt (currency denomination, and maturity), valuation effects, and the choice of monetary regime. Gold reserves are the omitted category in this analysis. Nevertheless, the time series of the Portuguese official gold stock seems sufficiently explained by the anxiety of the authorities with having inconvertible foreign currencies as part of the baking of domestic currency circulation.

At the current stage of this project, we also only have limited access to some of the required information. In particular, we were not able to find data on the currency distribution of the service of Portuguese external government debt.[10] In any case, as mentioned before, the 1924 abrogation of the gold clause for the service of external bonds owned by Portuguese citizens reduced the effective need of foreign currency by close to 80%. The remainder should have amounted to less than 200,000 pounds per year,

[10] It is possible, however, that such data is available from the reports of the debt administration, the *Junta do Crédito Público*.

on average, throughout the 1930s, not an insignificant sum, but arguably insufficient to create a severe constraint to the choice of reserve currencies.[11]

Given the data limitations, we estimate the following model:

$$s_{it} = c_i + t + \alpha_1 Trade_{it} + \alpha_2 Interest_{it} + Peg_{it} = \varepsilon_{it}$$

Where s_{it} stands for the share of currency i on year t reserves, c_i and t are the usual fixed and time effects, $Trade_{it}$ is the share of country i on Portuguese total trade (imports and exports), $Interest_{it}$ stands for the interest rate differential between short-term assets denominated in the currency of country i relative to equivalent applications in escudos, and Peg_{it} is an indicator variable that takes a value of one in years when the escudo was pegged to currency i. This system was only estimated for the three main reserve currencies held by the Bank of Portugal in this period: the sterling, the dollar, and the French franc. The three averaged more than 99% of non-gold reserves throughout the period. The model was also only estimated for the period 1931-39 to avoid the abnormal conditions of World War II, where the degree of discretionary domestic monetary and trade policies was severely limited by international capital controls, clearing arrangements, and trade restrictions imposed by the belligerents.

The information on trade shares was compiled from Mitchell (2003), while interest rate differentials are calculated as the difference between average short-term private discount rates in several countries and the Bank of Portugal's discount rate. The use of the Bank of Portugal's discount rate in this context raises two questions. One that it is not a market rate, and two that it may be endogenous to the choice of the reserve composition, as both decisions were concurrently taken by the Bank. Although we would have preferred to use comparable private discount rates, we haven't yet found the relevant information and we also believe that the two caveats above may not be too relevant for the following reasons. The Bank of Portugal had a very limited control over its bank rate, since it impinged on the government's policy of guaranteeing cheap domestic credit. This reduces the concern about endogeneity.[12] Furthermore, the Bank was entitled to fix a ceiling on commercial bank's discount rates, which was precisely

[11] This value was estimated as 20% of the average of amortization and interest paid on the external funded debt from data in Valério (1994).

[12] This concern would also be more of a consideration if we estimated the demand for total reserves, instead of the composition of the latter.

defined as 150 basis points above its own discount rate. For this reason, one may expect that there was enough commovement between private and official discount rates. To control for exchange rate movements, we also calculated the differential net of the rate of depreciation of each currency against sterling.[13] The underlying data come from Homer and Sylla (2005) and the Global Financial Database.[14]

The results of this preliminary exercise are available on Table 4, estimated by pooled OLS.[15] Despite the small sample size and the data caveats we just mentioned, the results consistently underscore the relevance of trade relations and also, albeit less strongly, of the choice of pegs. On the contrary, returns considerations seem not to have significantly guided the choice of reserve currencies by the Portuguese authorities in the 1930s. In the models with time controls, the only significant effect is that of 1933, capturing the gold-sterling swap completed on that year (Figures 1 and 5).

In lieu of a conclusion

The interwar years are among the most salient periods for macro analysis, for the unfortunate reason that hardly any other time concentrated so many convulsions and challenges to the world economy. The consequences of one major international conflict that brought about profound political and institutional changes, as well as the rise of a new leading economic power, were soon followed by the deepest and most widespread economic downturn and a war of even more dantesque proportions. The intense policy experimenting motivated by this elusive environment also contributes to the retrospective interest of the period.

In this paper we studied the conduct of monetary policy from the perspective of peripheral nations and as reflected in the management of their foreign reserves. The interwar years are also remarkable for witnessing the change of identity of the dominant reserve currency, from the sterling to the dollar, in a comparatively short time. The only other similar change in the modern period occurred in the eighteenth century, when the

[13] Sterling is obviously taken as reference because it was the chosen peg throughout the period.
[14] Address: http://www.globalfinancialdata.com
[15] We also estimated this system by panel techniques, but found no explanatory power for the panel component.

rising financial clout of Britain displaced the Dutch guilder. More recently, a vivid debate developed on the potential competition to the leading position of the US dollar from the emergence of the Euro (Lim 2006). The limited experience of the past 5 years suggests that most of that challenge might just have been wishful thinking. As Eichengreen and Mathieson (2000) conclude, there is considerable inertia in the determinants of reserve composition and, if anything, one should expect a gradual evolution of the international monetary system, instead of a sudden discontinuity. And yet, the interwar years were one such discontinuity, during which monetary authorities tried to cope with mounting uncertainty through drastic reallocations of their foreign exchange portfolios.

Portugal's case is instructive in this context. Having overcome the typical problems of postwar nominal instability at no small cost, and having evolved to a political arrangement staunchly committed to external stability, this good student of the contemporary "money doctors" was denied its just prize in the last minute. The exit of sterling from the gold standard, in 1931, undermined the strategy of accumulation of sterling in the 1920s in accordance with the recommendations of the international monetary conferences of this period. Despite the tradition of close commercial and financial ties to Britain, Portuguese authorities swiftly converted to a moving peg between sterling, the dollar, and the franc, depending on which guaranteed the highest measure of exchange rate stability at any point in time. The preponderance of sterling in the reserve of the Bank of Portugal was also replaced by a swap of gold for sterling, although the latter kept an appreciable quota until the beginning of World War II. Empirical evidence in this paper shows that the composition of reserve currencies was mainly led by the convenience of trade relations and the choice of peg, while the objective of maximizing the return on the Bank's portfolio was a minor consideration. Although a private corporation, public priorities trumped private return at the Bank of Portugal.

Other than the necessary completion of the time series for the 1920s, a natural sequel to this project is to extend it to more countries in similar conditions (small and peripheral open economies) in order to improve the quality of the empirical results and gain a broader understanding of the determinants of reserve composition during the interwar.

This, however, requires a similar work of audit of the reports and ledgers of other central banks in this period.

Table 1: Portugal's nominal performance, 1914-1945

	Growth Money Supply	Inflation	Depreciation	Deficit/GDP	Debt/GDP	Debt to BoP (% of Assets)
1914-18	19.9	23.4	8.6	-2.8	59.2	19.2
1919-23	41.8	48.4	69.2	-5.9	63.2	32.4
1924-28	8.4	9.2	-0.3	-2.6	61.0	32.4
1929-39	6.6	-0.4	0.2	0.3	39.1	25.7
1940-45	24.9	11.0	-1.6	-0.7	25.2	8.7

Sources: Mata and Valério (1996), Batista *et al.* (1997), and Valério (2001). Average values.

Table 2: Portugal's real performance, 1914-1945

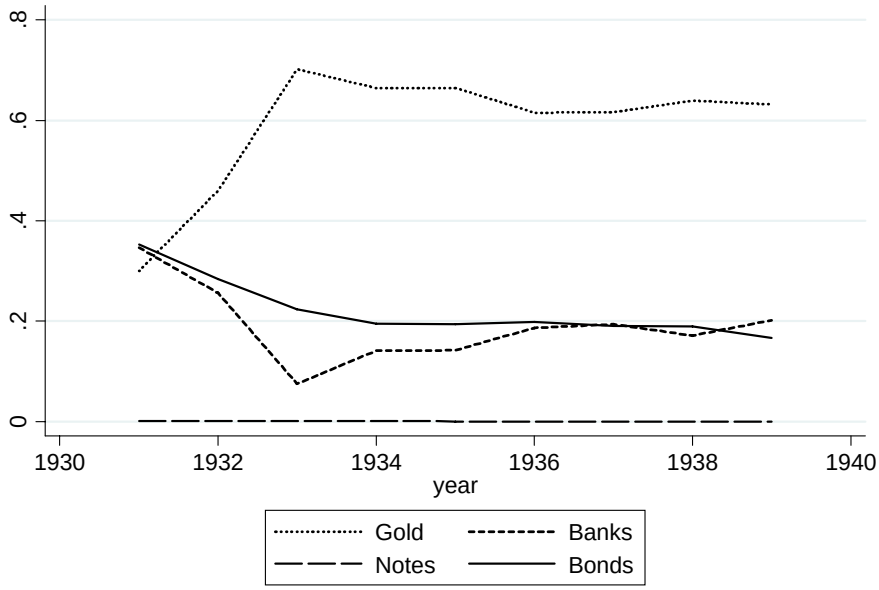
	Growth GDP *per capita*	Trade Balance (% GDP)	Trade+Financial Accounts (% GDP)
1914-18	-2.7	-4.7	0.1
1919-23	5.3	-13.7	0.0
1924-28	1.0	-12.3	0.0
1929-39	2.1	-5.3	0.9
1940-45	1.5	0.0	7.7

Sources: same as Table 1. Average values.

Figure 1: Currency composition of reserves, 1931-39

Source: Bank of Portugal, Situação Semanal no. 52, 1931-1939

Figure 2: Composition of reserves by assets, 1931-39



Source: Bank of Portugal, Situação Semanal no. 52, 1931-1939

Table 3: Gold share of central banks' reserves, 1931-39

	1924-30	1931-32	1933-38
23 countries[1]	65.3	86.7	
Gold bloc	64.5	85.6	
Sterling area[1]	63.0	60.7[2]	47.5
Portugal	42.4	54.0	82.4

Source: League of Nations (1944). Average values.
[1] Portugal excluded. [2] Only 5 out of 14 member countries (Demark, Finland, Latvia, Norway and Switzerland).

Figure 3: Reserve and out of reserve foreign assets, 1931-39

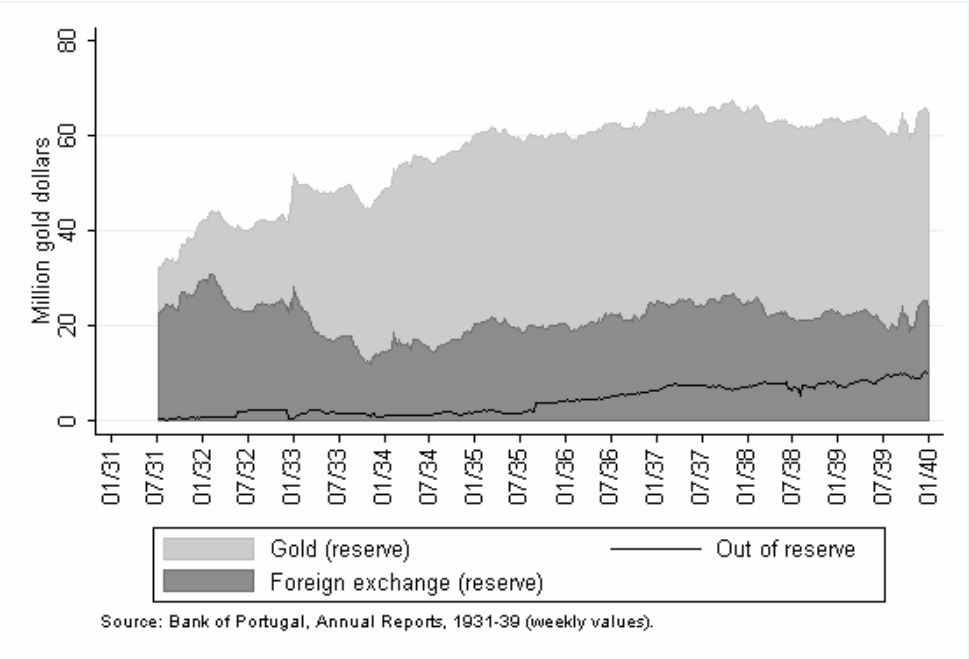


Figure 4: Reserve and out of reserve foreign assets, 1939-45

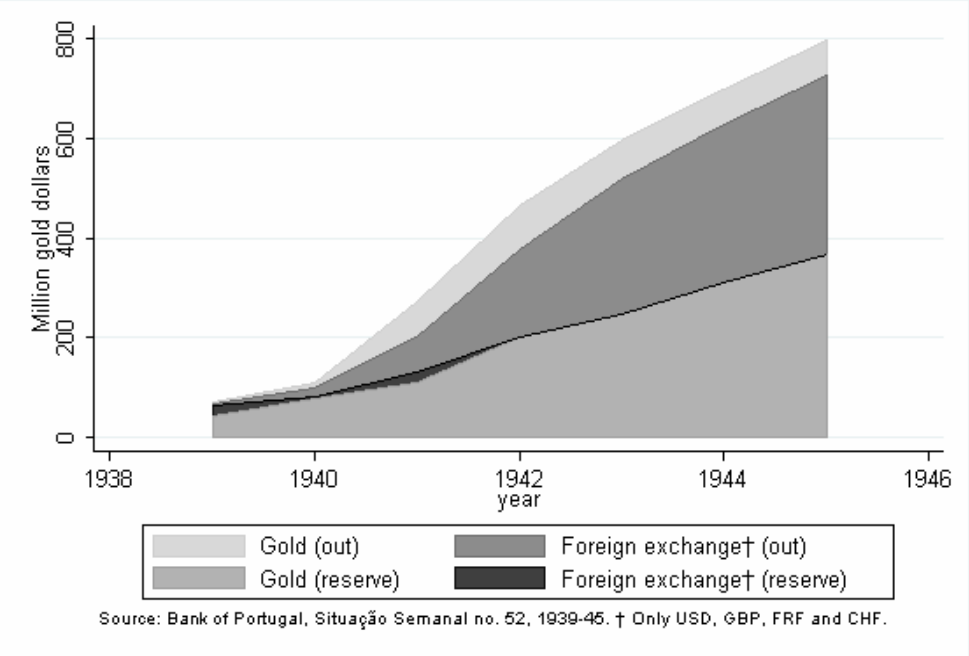
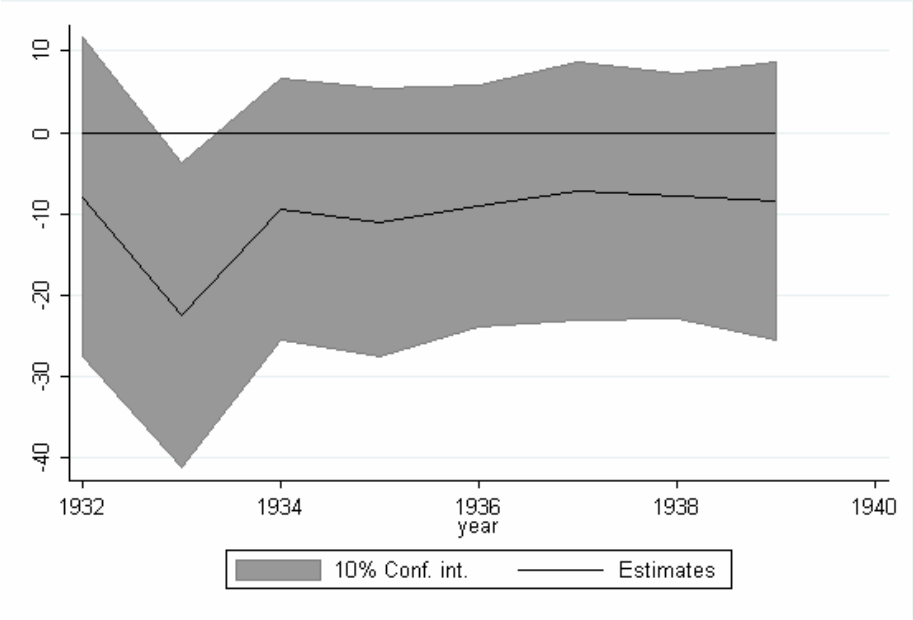


Table 4: Pooled OLS estimates

	(1)	(2)	(3)
Constant	-17.95	-7.04	-10.26
	(3.67)***	(8.99)	(10.93)
Trade	2.23	1.81	1.92
	(0.41)***	(0.44)***	(0.58)***
Interest	-0.04	-0.1	-0.1
	(0.05)	(0.10)	(0.11)
Peg	4.67	12.97	13.55
	(3.30)	(6.81)*	(6.87)*
Observ.	27	27	27
R^2	0.83	0.89	0.89
F stat	38.45	11.42	9.83
year effects	no	yes	yes
country effects	no	no	yes

Robust standard errors in parenthesis.

Fig 5: Time effects from regression (3)



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