

# THE ESTABLISHMENT AND COLLAPSE OF BRAZIL'S 1906-1914 CURRENCY BOARD: LESSONS TO BE LEARNED

M. Teresa Ribeiro de Oliveira and Maria Luiza Falcão Silva<sup>\*1</sup>

## Abstract

This paper examines the establishment and collapse of Brazil's 1906-1914 currency-board experiment. An analysis of the first 'successful' attempt to fit the country into the rules of the gold standard between 1906 and 1914 is developed, believing that such experience - and its failure - may throw some light on the understanding of recent stabilization efforts. The question whether currency boards are appropriate tools for maintaining monetary stability is addressed. The authors argue that the adoption of an orthodox currency-board arrangement is neither efficient to protect emerging economies, such as Brazil, from financial crises in modern times, nor sufficient to solve the time-inconsistency problem associated with countries with poor reputation for following policy commitments.

**Keywords:** exchange-rate stability, gold standard, currency boards, Brazilian currency board.

**JEL** classification: E42, E58, F33, O2

## 1. Introduction

Measures of economic policy to assure exchange-rate stability have been enforced in many countries during the last decades. These measures are either part of a strategy to stop chronic inflationary processes, or an attempt to maintain a monetary stability already reached. The exchange-rate stability has been seen nowadays as a necessary condition - even though not sufficient - for stabilizing domestic prices.

The target of keeping exchange rates stable is not new. In Brazil, it has existed as long as the country started issuing inconvertible paper money in the early nineteenth century. The disturbing effects of exchange-rate fluctuations upon emerging economies in a world in which volatile capital movements dominate the international economic transactions are quite well known. However, for economies specialized in the production of a few export primary goods, as the Brazilian economy was before the First World War, the implications of an unstable exchange rate were quite different. Given the high dependence of most of the productive activities on the export sector, effects of the fluctuations of the exchange rate over this sector's income and employment were quickly spread over the whole economy. Besides, considering the high import coefficient prevailing in primary-good producing export countries, such fluctuations had also a direct and immediate effect on the population's welfare. Moreover, unstable exchange rates created serious problems to the administration of public finances since government revenues were based, mainly, on tariffs over imports.

Recently, an alternative approach to this issue posits that the gold standard adherence to the fixed price of specie served as a *credible commitment mechanism to monetary and fiscal policies* that otherwise would be time inconsistent. It was in 1977 that Kidland and Prescott

---

<sup>\*</sup> The authors are Professors of Economics and NECEMA members at the Universidade de Brasília, Brazil. They acknowledge research financial support provided by Brazil's National Research Council (CNPq), and Professors Joaquim Pinto de Andrade and Flávio Rabelo Versiani for helpful comments. This paper was prepared for presentation during the International Atlantic Economic Conference to be held in Vienna, Austria, March 17-22, 1999.

<sup>1</sup> M. Teresa Ribeiro de Oliveira's works, previous to 1992, were published under the name M.Teresa R. de O. Versiani.

introduced the concept of ‘time inconsistency’ in the economic theory to describe temptations of policymakers to deviate from a policy once it was announced and how private decisionmakers have reacted to it. Once policymakers shift to policies different than the ones previously announced, they invalidate the expectations which private decisionmakers have formed about consumption, investment, etc., and hence the optimal policy under commitment is not time consistent under discretion. Kydland and Prescott (1977) have defended fixed rules for policy rather than discretion. According to this point of view, adherence to the specie-standard rule, for instance, could have thus enabled many countries to avoid the problems of high inflation and stagflation that troubled the late-twentieth century. It could therefore provide a nominal anchor to different countries operating in the global economy.

This paper analyzes the first ‘successful’ attempt to fit Brazil into the rules of the gold standard between 1906 and 1914. We believe that such experience - and its failure - may throw some light on the understanding of recent stabilization efforts. The monetary policy enforced in those years will be seen as the achievement of targets which had been sought for a long time by Brazilian policymakers .

The paper is structured as follows. Part II shows that the monetary policies of the years 1906-1914 were not an isolated experiment but the result of a search for stable exchange rates which had been the main desideratum of most of the previous policymakers in the country. It examines how Brazil's attempts to join the gold-standard rules, before the First World War, have been by-products of a search for exchange-rate stability, and reviews the arguments about the difficulties faced by primary-good producing countries in fitting into the rules of the gold standard. It is also presented, in this part, a description of the Brazilian 1898-1901 financial crisis. The evolution of the exchange rate from 1890 to 1905, and the persistent motivation for the enforcement of policies aimed at achieving the currency's convertibility are discussed as well. Emphasis is attached to the importance of the coffee sector in the conduction of Brazil's policy making since coffee represented the main primary-exporting product during the period considered. Part III investigates the establishment and functioning of the Brazilian 1906-1914 currency board (Caixa de Conversão), as well as its closing at the beginning of the First World War. Finally, the present and past experiences towards exchange-rate stability are compared and some concluding remarks are presented in part IV. A statistical appendix, in which all tables mentioned along the paper are displayed, comprises part V.

## **II. Stability of the Exchange Rate: A general desideratum**

### *Currency convertibility as a by-product of the search for exchange-rate stability*

When one examines the monetary economic policies enforced in Brazil during the 1890s and before the First World War, it becomes clear that exchange-rate stability was always seen as one of the major desiderata to be achieved. Not only the government wished a stable exchange rate but so did most of the population. There was then, as there is now, a consensus that exchange-rate stability - at least in principle - was desirable. The disagreement was related to the parity (search for an equilibrium rate) at which such stability should be achieved and how it should be achieved.

Considering the mainstream view prevailing at that time, it was conventional wisdom that the maintenance of exchange rate and price stability would ask for the adoption of the rules of the gold standard. As the value in gold of the Brazilian monetary unit was defined by law, the only requirement for the country to join the gold standard was to make its paper money convertible at the legal parity. Once the paper money became convertible in gold, the amount in circulation would not be anymore at the discretion of the government but the net result of the country's balance of payment performance. From then on, the government would be unable to print money as it pleased. Expenses beyond the budget would have to be met either by external

or internal loans. The superabundance of paper money - which was seen by those who advocated the convertibility as the main cause of devaluation of the *mil-réis* - would cease existing.<sup>2</sup>

Exchange-rate stability provided by the gold standard was not only attractive to peripheral economies like Brazil. As Eichengreen puts it:

the appeal of the gold standard can be traced to the belief that it provides price and exchange-stability... and of the fact that the classical gold standard provided exchange-rate stability there can be little dispute. Only a small number of countries were forced off the gold standard in the period 1880-1914... This stability not only explains why it was so popular before the First World War but also helps to understand the efforts made by most countries to return to it when the War was over. [Eichengreen, 1985, p.6]

*Difficulties faced by export economies in joining the gold standard: The Brazilian experiment in the nineteenth century.*

The success of the gold standard in providing exchange-rate stability for a large part of the World was, notwithstanding, restricted to the industrialized countries and their colonies. Portugal, Spain and Latin American countries, for instance, were not successful in sticking to the gold standard's rules for long periods.<sup>3</sup> In fact, most of the peripheral economies - primary goods export countries - were subject to constant and wide fluctuations of the exchange rate. This does not mean that to behave according to the rules of the gold standard, in these countries, did not produce exchange-rate stability. Nevertheless, it does mean that these countries faced enormous difficulties to subject their economies to the gold-standard rules. Just to recall, this system has been associated with three basic rules. The first rule relates to the fact that in each participating country the price of the domestic currency - the exchange rate - must be fixed in terms of gold. The second rule is that there must be a free import and export of gold. The third rule is an adjustment rule: a surplus country, which has a liquid gold entrance, should allow its volume of money to increase while a deficit country, which is losing gold should allow its volume of money to fall.

Of course the action of the first two rules, simultaneously, ensure that between participating countries the exchange rates are fixed. The third rule implies an automatic mechanism of adjustment in each participating country balance of payments such that any balance of payment disequilibria would be corrected through a combination of the following mechanisms by which changes in the money supply affect the balance of payments results:

(a) Through variations in the interest rate which induce corrective movements of capital. Surplus countries would lower their interest rate while the deficit countries would raise their interest rate such that capital would flow from the former to the latter.

(b) Through the functioning of the goods market when exposed to situations of deflation or inflation - as consequences of alterations of the money supplies- leading to relative changes in prices and/or real output that correct the imbalances. The adjustment through prices is associated with the classic price-specie-flow mechanism while the adjustment through output is associated with later Keynesian thinking.

The precise operation of these three rules varied depending on the institutional arrangement that was under operation in different periods of the gold standard era.

The problems faced by peripheral economies in joining the gold standard before the First World War *vis-à-vis* the relatively smooth running of the international trade for the central economies - have been widely discussed in the literature. It has been argued that the same mechanisms which assured the stability of the exchange rate in central economies, working under the rules of the gold standard, were responsible for disequilibria in the peripheral

---

<sup>2</sup> *Mil-réis* stands for the Brazilian currency in circulation at that historical period.

<sup>3</sup> According to Eichengreen (1985, p.6) Portugal, Argentina, Italy, Chile, Bulgaria and Mexico presented the major devaluations of their exchange rates from 1870 to 1914.

economies.<sup>4</sup>

Helio Schlittler Silva (1953, pp.17-18) was the first economic historian to point out the difficulties faced by the Brazilian economy in the nineteenth century in keeping a stable

exchange rate.<sup>5</sup> According to him, the continuous surplus of the trade balance after the 1860s were not large enough to cover the deficits of other items of the balance of payments specifically those related to the payment of foreign debts. Therefore, the equilibrium in the external accounts had to be obtained, either through an inflow of foreign capital (mainly as public borrowing) and/or devaluation of the exchange rate. However, recessions in the industrial economies had adverse effects upon the Brazilian balance of payments: not only the balance of trade's surpluses decreased drastically but so did, as well, the inflow of foreign capital. As the gold reserves accumulated in times of prosperity were not big enough to cover the deficits of bad times the exchange rate was left free to fluctuate in response to changes in supply and demand for foreign currencies.

One point that should be emphasized in relation to the vulnerability of the Brazilian economy to specific conditions prevailing on international trade is its high degree of specialization before the First World War. In fact, the level of economic activity and, therefore, the level of the country's income depended, directly and indirectly, on the performance of very few products. In the 1890's coffee alone was responsible for 65,4 per cent of the proceeds from exports. If export proceeds from rubber and coffee are added, these two products comprised 79,4 per cent. Therefore, changes on foreign demand for the Brazilian coffee and rubber had considerable effects upon the whole economy.

A few years later, in 1957, Furtado, echoing Silva, stressed the difficulties of primary-product-export economies - the Brazilian economy, for instance, in the 1890s - to follow the rules of the gold standard. He also emphasized the inability of Brazilian politicians and policy-makers in those days to comprehend that such difficulties were inherent to the condition of dependence of the Brazilian economy in relation to the central economies. According to Furtado, European economic science was seen in Brazil as absolute truth "becoming a doctrine which was accepted without any attempt to confront it with reality" (Furtado, 1970, p.160). Therefore, as far as monetary policies were concerned, most of the Brazilian politicians and policy-makers could not accept any arrangement outside the gold-standard rules. Any historian of the history of economic thought will be, certainly, surprised

by the monotonous insistence on charging as abnormal and aberrant everything that happens in Brazil: the inconvertibility, the deficits, the issues of paper money... There was not any serious effort to understand this abnormality... All the efforts were concentrated in an undertaking that the historical experience had already shown to be in vain: to subject the economic system to the monetary rules which prevailed in Europe. [Furtado, 1970, p.160]

*Antecedents of the Brazilian 1906-1914 currency-board experiment: the evolution of the exchange rate during the first decade of the First Republican Government and the increasing efforts to adopt a convertible currency*

The abolition of slavery in 1888, and the replacement of old plantations by *fazendas* (agricultural production organized under capitalistic basis) represented a great increase in the economy's monetization and posed an interesting challenge to monetary policy and institutions.

---

<sup>4</sup> As to the difficulties faced by peripheral economies - *vis-à-vis* the central economies - in sticking to the rules of the gold standard, and the reasons underlying such asymmetry, see, for instance: Triffin (1985); Ford (1985); Eichengreen (1985) and Franco (1988).

<sup>5</sup> The difficulties experienced by Argentina in fitting the rules of the gold standard, as well as the establishment of its currency board at the beginning of the twentieth century have attracted more attention of economic historians than did the Brazilian case. See, for instance, Ford (1985).

As far as monetary policy is concerned for many years, in Brazil, it was practically "deadlocked between *metalistas*' perennial quest for reducing the money supply to appreciate the currency to adhere to the gold standard and *papelistas*' desire for credit expansion, along the lines of the real bills doctrine in a liquidity starved economy".<sup>6</sup>

Controversies of this kind took place in many countries, replicating British currency controversies. One of the major issues involved was the transition from metallic to fiduciary money. But other issues such as the role and control of banks were also under much discussion. These discussions extended to the peripheral countries as well, and the exchange-rate regime, particularly the convenience of adopting the gold standard, was brought up with frequency.<sup>7</sup>

As far as Brazil is concerned it was only in the late 1880s that favorable positions on the balance of payments, especially surpluses in the capital account (Table A.I), which brought about an appreciation of the home currency (with the exchange rate approaching the 1847 formal parity level - 27 pence per *mil-réis*) allowed, with no resistance, the adhesion of the country to the gold standard.<sup>8</sup> To turn the *mil-réis* convertible into gold required, first of all, raising the external value of the Brazilian currency, considering that the legal parity of 1 *mil-réis* to 27 pence was still maintained. It is surprising to notice that this insistence in keeping a legal parity - created by the Law of September 11, 1847<sup>9</sup> - so far from the levels prevailing in the market had not been much contested. In fact, after the second semester of 1875, when the monthly average of the external value of *mil-réis* was kept above 27 pence for 5 out of 6 months, this average was persistently below the parity level until the last quarter of 1888 when the monthly average of the exchange rate remained at 27,06 pence. In 1889 it reached 27,2 pence but, in December of this same year, the exchange rate started falling, significant and continuously, until 1898 when its value fell to 7,20 pence (IBGE, *Anuário Estatístico* 1939/1940).

In the late-1880 a convergence of opinions regarding the establishment of a gold-standard regime was possible, since "*metalistas* did not object to money increases so long as they were fully backed by gold so that the bonanza<sup>10</sup> permitted an otherwise impossible compromise with *papelistas* around the gold standard" (Fritsch and Franco, 1992, p.5). At this time, early in 1889, the Parliament authorized the establishment of a bank of issue, Banco Nacional do Brasil (associated with the Banque de Paris et des Pays Bas), which could expand the existing money supply more than three times. However, since the 1888-89 episode lasted slightly more than a year, the gold standard could hardly operate.

The reversal of the favorable external conditions, nevertheless, a few months later, were responsible for the fact that the experiment lasted so shortly. By the end of the same year, November 1889, a successful Republican Revolution was followed by a banking and monetary reform under the leadership of the Republican Finance Minister Rui Barbosa, a *papelista*, that inspired by the U.S. National Banks, created a system of regional banks of issues that would make no secret of its unwillingness to sustain the exchange rate at the parity level. The old bank and the gold standard were clearly identified with the old monarchy and these new banks of issue had considerable power to increase the money supply. In fact, they did use this power in such a way that almost tripled the money stock (M1) between the short period of 1889 and

---

<sup>6</sup> Fritsch and Franco (1992, p.4)

<sup>7</sup> See Kindleberger (1985).

<sup>8</sup> Observe in Table A.III that in 1890 the exchange rate had already had already dropped to 22,56 pence per *mil-réis*, with a tendency towards falling in the subsequent years.

<sup>9</sup> This was the third legal parity established between *mil-réis* and gold. According to Law no 59 of October 8th, 1833, the value of one eighth of the ounce was fixed in 2\$500 (two thousand and five hundred réis) substituting the old parity of 1\$600. This new parity would imply the rate of 1 *mil-réis* = 27 pence

<sup>10</sup> The bonanza was due to the balance of payments results which were based on strong boom of capital inflows in the wake of a boom in South American floatations in London, led by Argentina's issues, and on a significant increase in exports. See Fritsch and Franco (1992) for data covering the period between 1885 and 1892.

1891 (Table A.II). Simultaneously, the nominal exchange rate experienced a sharp depreciation (Table A.III) and, since inflation occurred with a certain lag (Table A.IV), a substantial real depreciation followed it. The causes of exchange-rate depreciation in Brazil, during this period, have been very controversial and the discussions tend to center on the relative importance of domestic factors, such as the monetary expansion and economic policy measures implemented to protect the interests of the coffee producers in periods of low international prices<sup>11</sup>; and external factors, particularly the effects of the Baring crisis and Argentina's default, sharply affected capital inflows towards Brazil in the 1890s, as can be observed by examining Table A.I. However,

there has been less doubts on its consequences: on one hand, it increased coffee planters' profitability to such an extent that the new planting is said to have nearly tripled during the 1890s, with far reaching consequences in the next years.<sup>12</sup> On the other, it produced a marked deterioration in public finances and a problem of internal transfer that the government unsuccessfully sought to evade by seeking financial accommodation in London. Because of that, the Brazilian balance of payments entered into a critical state for the rest of the decade and the real exchange rate depreciated further. [Fritsch and Franco, 1992, p.7]<sup>13</sup>

Brazil only had a fully-fledged gold standard between 1906 and 1914, practically at the end of the first period, and between 1926 and 1930 which signifies almost during all of the second period of the gold-standard era. Our analysis, regardless of this long presentation of the economic and political background that prevailed in the late 1880s, concentrates on the 1906-1914 experiment.

During the last decades of the nineteenth century there were no explicit interventions of the government in the exchange-rate market. Therefore, the prevailing regime may be said to have been one of paper-money-floating-exchange-rate regime. In this case, the levels of exchange rate revealed the supply and demand conditions for foreign exchange.

Figure 1 shows the behavior between 1890 and 1906 of the Brazilian currency - the *mil-réis*. From Figure 1 it can be depicted, for instance, Brazil's currency depreciation against the pound sterling from 1890 to 1898. In 1898, the external value of the *mil-réis* was 68 per cent of that in 1890.

**Figure 1**  
Brazil - Evolution of the Brazilian Exchange Rate  
(Pence per *mil-réis*)



<sup>11</sup> See Versiani (1985) for an explanation and references on this controversy. Fishlow (1972) is an important reference as well.

<sup>12</sup> As we have already mentioned, coffee is demand inelastic and excess supply can turn into falls of export receipts.

<sup>13</sup> See Tables A.I and A . III.

Source: Table A.III

Considering that the central government's revenues depended, heavily, on import taxes<sup>14</sup> and that those taxes were calculated at the parity exchange rate some problems became obvious: the external debt faced by the government increased in *mil-réis*, given the exchange-rate depreciation, but their revenues were only slightly affected. State budget presented a growing deficit in the 1890's reaching the bottom in 1898 (Figure 2). So it is comprehensible that the stabilization of the exchange rate had become the major concern of policy-makers even though its depreciation shifted the income distribution in favor of the export sector.

As with many other independent developing countries in Latin America, Brazil was much more frequently, during this period, under a paper-money-floating-exchange-rate regime. The lack of any short-term institutional mechanism for easing the loss of gold until autonomous items could adjust themselves, together with the ever present risk of a domestic speculative run on gold reserves, made the maintenance of convertibility a harder task for these economies.

As we can see in Table A.I, displayed in the statistical appendix, Brazil's first successful experiment with the gold standard (1906-1914) happened after a change in its balance-of-payments performance: exports were rising and the implementation of an orthodox adjustment plan, imposed by the Rothschild's bankers, and under the leadership of a new Finance Minister<sup>15</sup> and a new group of policy-makers as well, resulted in Brazil's re-entry into the international financial markets.

### **Figure 2**

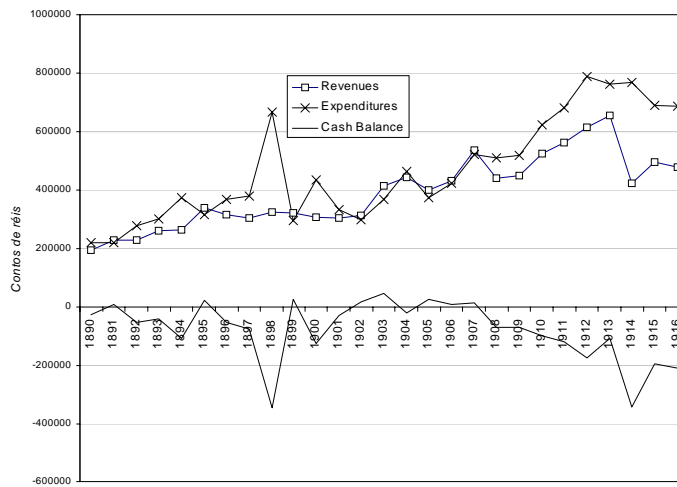
#### **Brazil - Evolution of State Budget**

---

<sup>14</sup> More than 50% of the state revenues depended on the import taxation.

<sup>15</sup> Rui Barbosa, the famous *papelista* and the first Finance Minister of the First Republic Government, lasted very little. In the beginning of 1891 he was substituted by Alencar de Araripe, that occupied the place for only four months, being followed by Lucena that remained in the conduct of the economic policy for the same amount of months. The alternation of Finance Ministers in power seems to be a chronic characteristic of the Brazilian policy decision making historiography. Such that between November 1889 and 1906 Brazil has had 12 different Finance Ministers (Abreu -org., 1990, p.5).

Period: 1890-1916



Source: Table A.V

After having reached the parity of 7,2 pence per *mil-réis* in 1898, the nominal exchange-rate peaked at 15,9 pence in 1905 (see Table A.III) and as a result of this strong appreciation domestic producers of exportables and import substitutes began to demand exchange-rate stabilization and the end of dear money, in other words, they begun to support the adherence of the country to the gold standard. The fears of exacerbating the existing pressures for currency appreciation, due to the purchase of an extremely large coffee crop (regardless of the inelasticity of demand argument) led to the adoption of the gold standard, with the creation of a Conversion Office to issue convertible notes at a newly established parity.<sup>16</sup> Now the controversy focused on what level should the new parity be established, and the main actors were: the influential orthodox policy-makers responsible for the turn of the century stabilization program, imposed by the Rothschilds, and domestic producers interested in credit expansion.

The latter wanted the exchange rate to be fixed as soon as possible in order to avoid further appreciation, while the former defended a continued appreciation towards the old 1847 parity of 27 pence per *mil-réis* - that is, near a 100% appreciation relative to the going rate. The compromise around a new parity of 15 pence per *mil-réis* was accomplished by a limit set on the note issue of the Conversion Office. This limit was explicitly demanded by deflationists based on the presumption that if the balance of payments bonanza continued the limit would be reached and the exchange rate would have to be revised upwards. [Fritsch and Franco, 1992, p.9].

Raise the exchange rate's market value was seen as fundamental and to accomplish this goal it was necessary to build up a fund of reserves in gold or in a currency convertible in gold because the target was to turn the domestic currency convertible. The future gradual substitution of inconvertible into convertible money also required the presence, in the exchange-rate market, of an institution strong enough to intervene in such market in order to avoid speculation with foreign currencies. It was under the Government of President Campos Sales and his Minister of Finance, Joaquim Murinho, that a consistent economic policy towards the convertibility of the Brazilian currency was formulated and undertaken for the first time.

Therefore, any study of the exchange-rate evolution during the first years of this century has to take into account the public policies enforced in the country. In fact, the stability of the exchange rate in 1906-1914, with the creation of a currency board, was the result of a political decision to intervene in the exchange-rate market which was made possible by discretionary

<sup>16</sup> See Fritsch and Franco (1992) for further details.



economic policy making since 1898. Surprisingly, very little attention has been paid to this point, the major emphasis being usually placed in an improvement in the international trade conditions which would have allowed a greater inflow of gold previously to 1906, shifting the income distribution against the exporter sector given the strong exchange-rate appreciation.<sup>17</sup>

*Economic Policy Towards the Valuation of the Exchange Rate and Future Convertibility of the Mil-Réis*

By the end of Presidente Prudente de Moraes' term, the Brazilian government had signed a contract with the Rothschild's Bankers, the Brazilian government London bankers, by which most of the Brazilian debts in foreign currency were converted into a new consolidated loan, the Funding Loan of 1898. Such agreement gave authority to the new government of Campos Salles to undertake monetary policies aimed at appreciating the exchange rate, viewed as a first stage towards the convertibility of the Brazilian currency.

There was a consensus between the Brazilian Government and the British creditors that the excess of paper money in circulation was one of the main causes of the low external value of the *mil-réis*. Considering that the constant depreciation of the exchange rate created difficulties for the country to honor its debts in sterling, the British creditors were willing to support any policy which allowed the external value of the *mil-réis* to rise.

Therefore, the Funding Loan agreement included a point regarding, specifically, the nature of the domestic monetary policy. It was accorded that starting on January 1st 1899 and for a period of three years, the Brazilian Government would deposit in foreign banks<sup>18</sup> the amount equivalent in *mil-réis* to the bonds issued calculated at the exchange rate of 18 pence. This paper money withdrawn from circulation could either be destroyed or used to buy, in the future, bills of exchange in favor of N.M. Rothschild & Sons for credit to the Fund. Such clause was not the result of an undue imposition of the British bankers but was much in accordance with the thought of the president in office, Prudente de Moraes and its successor, President Campos Sales, as well as their Finance Ministers. In fact, a few months after the Funding Loan agreement had been signed it was decided that the paper money withdrawn from circulation would be "effectively removed from circulation and incinerated" (Law number 559 of December 31, 1898, article 7).

*Brazilian financial crisis: diagnostic and economic policy enforced.*

For Campos Salles, as he made it clear in his pronouncement to the nation on November 15th, 1898 - the day he assumed the presidency - the depreciation of the exchange rate synthesized and expressed all the important mistakes which had led the country into a very serious financial crisis. Those mistakes were:

the big issues of inconvertible paper...; - budget deficits caused by an excessive number of employees,...and by continuous increase of expenses with inactive civil servants; - extra-budget expenses originated from extraordinary debts opened by the Executive Government and from special laws voted by the Congress; - indemnities paid judicial sentences which reached every year considerably high values;...; constant increases in the fluctuating debt and consequent rise in the consolidated debt; the inefficient collection of public revenues; the moral effect of the bad financial practices leading to government's lack of credibility; - the consequent retraction of confidence of capitals in the country and outside; - the speculation ...(Salles, 1978, pp.206-207).

Therefore, in order to overcome the financial crisis and the 'credibility problem' faced by the government, it was crucial that the external value of the *mil-réis* was raised to its legal

<sup>17</sup> See, for instance: Fritsch and Franco (1992), p.16.

<sup>18</sup> Those foreign banks were: London and River Plate Bank, Brasilianische Bank for Deutschland and London and Brazilian Bank.

parity. The valorization of the exchange rate, accordingly to the above diagnosis, would require not only to renounce to issues of more inconvertible paper to finance excessive expenses but, also, to produce budget surpluses which could be taken from circulation. Therefore, revenues had to increase and expenses to be reduced. A fiscal reform which introduced new taxes and increased old ones was carried out.

Even though the public accounts were not able to show surpluses between 1899-1902, the deficits were significantly diminished due to severe reduction on government spendings.<sup>19</sup> The annual average deficit, which was 119.926 *contos* during the President Prudente de Morais' term (15/11/1894 to 15/11/1898), decreased to 21.020 *contos* with Campos Sales.<sup>20</sup>

However, even surpluses were not enough for the purposes of the government. It was necessary to assure that the surpluses would not return to circulation. Besides reducing the paper money in circulation, reserves in gold should be accumulated if convertible paper money was planned to be introduced in the near future.

The Law number 581 of July 20<sup>th</sup>, 1899 made the arrangements for the accomplishment of those two objectives. It created a special Fund of paper-money resources to be withdrawn from circulation and incinerated and a Fund of gold reserves which would guarantee the convertibility of the *mil-réis*. The first Fund would be constituted by: proceeds from the lease of public railroads to the private sector to be paid in paper money and payments for debts due to the government; eventual revenues received in paper money by the government; and surpluses from the Union's budget. The second Fund would be composed by: tariffs of 5% imposed upon imports receipts, to be collected in gold starting on January 1<sup>st</sup>, 1900; proceeds in gold from the leasing of the public railroads; and the excess of all revenues received in gold over expenses paid in gold. President Campos Sales was succeeded on November 15<sup>th</sup>, 1902 by Rodrigues Alves who gave continuity to the on-going economic policies.

#### *Evolution of Coffee Prices and Exchange-Rates Double Losses of the Coffee Growers*

Data on exchange rates, as displayed in Figure 1, shows 1898 as a turning point. In fact, from 1898 on the trend was reversed and the external value of the *mil-réis* began to rise. The obvious dependence of the Brazilian economy on foreign demand has led economic historians to over-emphasize the effects of changes in international trade in reversing the trend of the exchange rate. Very little attention have been given to the orthodox monetary policies that were undertaken.

Coffee prices in the international trade, relatively high and stable in the first three years of the 1890s, increased, significantly, in 1893. From then on, they decreased, continuously, until 1899. At the turn of the century they had a substantial increase but returned to lower levels in the three following years. The annual average for 1904-1905 was 38,6 per cent higher than in 1901-1903. In spite of these eventual increases the tendency observed in the market as a whole was, certainly, of falling coffee prices. In fact, the average annual prices in pounds in 1904-1905 was almost half of the average for the first half of the 1890s.<sup>21</sup> The appreciation of the exchange rate associated with falling coffee prices in the international commodity markets inflicted drastic losses to coffee planters who started pressing the government for the

---

<sup>19</sup> In fact, the average annual revenues decreased by less than 1% between the same periods. As Federal Government's revenues still depended, basically, on import tariffs, any significant increase in revenues would require imports in expansion, which was not the case. Data for annual average import values in pounds show a decrease of 15% in imports between 1899-1902 and the previous period 1895-1898 [ Rates were calculated from: IBGE (1987, p. 522)]. . For data on the Federal Government Budget see: IBGE (1987, p.570, table 12.1).

<sup>20</sup> One *conto* stood for one thousand *mil-réis*.

<sup>21</sup> This fall in coffee prices has been seen as the result of an excessive increase in the Brazilian supply of the commodity. A classical study of this coffee crisis is found in Furtado (1970, pp.177-178).

establishment of a currency board (Figure 3). The Conversion Office creation represented the hope of stable rates at a level below the original parity.

**Figure 3**  
Brazil : Evolution of the Exchange Rate and Coffee Prices



Period: 1890 - 1906

Source: Table A.III

### *Adjustment Cost*

The monetary and fiscal policies were quite successful to recover the exchange value of the *mil-réis*. The effect upon economic activity, however, was severe, specially if we take into consideration the reduction of liquidity faced by the economy and its repercussions.

According to Fritsch and Franco :

the price eventually paid to obtain foreign financial accommodation in London to help stabilize the economy was a swing of domestic policies towards an extremely orthodox orientation, imposed by the Rothschilds', the Brazilian government London bankers, as a condition for a large funding loan. A combination of contractionary fiscal, and especially, monetary policies led, eventually, to a severe deflation, an unprecedented banking crisis and recession around the turn of the century. [Fritsch and Franco, 1992, p.7].

It is interesting to notice that the monetary policy started in the path of the *papelistas* to carry out the necessary conditions for the development of the incipient domestic production and the coffee producers. The disastrous consequences of this policy for the state finances, given the depreciation of the *mil-réis*, led to an orthodox policy of tight money following, eventually, the *metalistas*' proposals despite antagonizing the interests of the coffee producers. The substantial effect of the exchange-rate depreciation on the state finances may explain the general desiderata for exchange-rate stabilization (see Table V and Figure 2). Revenues were relatively stable during this period<sup>22</sup> while expenditures increased substantially.

During the implementation of the adjustment plan from 1890 to 1905, fiscal equilibrium was obtained apparently by a fall in the expenditures and an increase in the revenues. Appreciation of the exchange rate certainly contributed for both results. The curtailment of the economic activity is foreseen by the decline in the money supply during the period- about 25% in the first three years followed by certain stability from then on. It is noteworthy that the inflow of reserves, during the period, had very little impact on the economy's liquidity due to the implementation of the "sterilization policy" embodied in the adjustment plan (Figure 4).

**Figure 4**  
Brazil - Reserves and Money Supply



Period: 1890 - 1914

---

<sup>22</sup> Revenues did not follow exactly the path of the import values given that the taxes were calculated at the parity

Source: Tables A.I and A.II

Note: The balance of payments general result was taken as a proxy for reserves movements.

### 3. The establishment of the 1906-1914 Brazilian currency board

#### *Formulation and Enforcement of an Economic Policy Towards the Valuation of the Exchange Rate and the Future Convertibility of the Mil-Réis*

Although several attempts to stabilize the exchange rate may be recorded in the Brazilian monetary history of the nineteenth century they were not successful. It was only in 1906-1914, with the creation of a currency board, the Conversion Office - when the Brazilian monetary system followed, for the first time, the rules of the gold standard - that this stability was reached for a longer period.

Economic policy implemented during President Campos Sales' term - 15/11/1898 to 15/11/1902 - was generally consistent with a main objective: to create the necessary conditions for turning the Brazilian currency convertible into gold. As it was mentioned before, one of the pre-conditions for implementing the convertibility policy was the appreciation of the exchange rate to the parity level of 27 pence per *mil-réis*.

The way for the establishment of a currency board in 1906 was paved not only by favorable conditions of the international trade in preceding years but, also, by the monetary economic policy undertaken during the presidency of Campos Salles and of his successor, Rodrigues Alves.

#### *Controversies around the level of the exchange rate to be adopted by the Conversion Office*

By 1905, the idea of an intervention in the coffee market in order to increase its prices and to assure a minimum price to the producers was, already, quite mature. In fact, the Budget Law of December 30<sup>th</sup>, 1905, authorized the Federal Government to cooperate with the governments of coffee-grower states, to implement plans aimed at defending the coffee prices, and even to endorse - under specified conditions - financial transactions leading to these objectives. On February 25<sup>th</sup>, 1906, the Presidents of the states of São Paulo, Minas Gerais and Rio de Janeiro reached an agreement with respect to a plan which would protect the coffee growers from the adverse effects of falling prices in the international market, and from increasing the external value of the *mil-réis*. This plan, aimed at controlling the coffee supply, would be subject to the approval of the Federal Government.<sup>23</sup>

In order to appreciate the exchange rate it was decided that the Presidents of the three coffee-producing states would ask the President of the Republic to summon an extraordinary session of the Congress for approving a law creating an institution for issuing paper money convertible in gold at a predetermined rate.

It is clear, therefore, that, in the first proposal for creating a currency board, this board was seen as a device to protect the coffee-growers from the adverse effects of an appreciated exchange rate. Moreover, it was advocated by the Presidents of the coffee grower states. However, this does not justify the argument constantly used considering the conduction of monetary policies in Brazil, exclusively, as the result of demands deriving from exporters and

---

exchange- rate level.

<sup>23</sup> The Presidents of the coffee-producing states, São Paulo, Minas Gerais and Rio de Janeiro, met in Taubaté (town located in the state of São Paulo). The agreement that they reached became known as Taubaté's Convention (Convênio de Taubaté). A complete transcription of this agreement may be found in: the *Jornal do Comércio* (1907, pp. 9-10). Proceedings from the Taubaté meeting were transcribed, partially, in Viana (1926:766).

mainly from coffee exporters.

In fact, an argument which has been very popular in the literature on Brazilian economic history runs as follows: in periods of falling prices the exchange rate would have been devaluated in order to shift the income distribution in favor of exporters and in periods of appreciation of the exchange rate, monetary reforms were introduced to avoid income losses to the exporters.

Along this paper we have not intended to support this argument. Before 1906, there was no direct intervention by the Monetary Authorities in the determination of the exchange rate. Their actions during the period 1906-1914 were perfectly in accordance with the ideas towards the convertibility of the *mil-réis* and the policies which had been enforced since 1898 to achieve this goal. If such argument was true, the explanation for the difficulties faced by Latin American countries in joining the rules of the gold standard, before the First World War, could not be simpler: the adoption of the gold standard was ruled out from Latin America because it was not in accordance with the exporters' interests.<sup>24</sup>

However, even though the establishment of a currency board was, at least, in principle, in accordance with the monetary policies in force, the coffee growers' proposal raised fierce disagreement. On one side, there were the coffee growers aiming the stabilization of the exchange rate at a level, not only below the legal parity, but also below the level prevailing in the market. On the other side, the policy-makers were striving to raise the exchange rate to its legal parity. Therefore, the central point object of fierce discussion in the Congress was related to the level at which the *mil-réis* should be convertible in the Conversion Office.

The average monthly exchange rate in the second semester of 1905 was 16,8 pence. In January, of the following year, it reached 17,22 pence and in the month that the Taubaté Meeting took place it reached 16,97 pence. Notwithstanding such levels, the exchange rate proposed by the exporters from Minas Gerais, Rio de Janeiro and São Paulo and their representatives in the Congress was 12 pence.<sup>25</sup> In the project of law for creating the Conversion Office, presented to the Chamber of Deputies by David Campista, the exchange rate proposed was 15 pence. Such level, according to the project's author reflected the real economic conditions of the country.

### *The Working Rules of the First Brazilian Currency Board*

After being fiercely discussed in the Congress during four months, the project for the creation of the Conversion Office, presented by David Campista, was finally approved in both Houses and transformed in law, regulated by the Decree number 1575 of December 6<sup>th</sup>, 1906.<sup>26</sup>

According to this decree, the Conversion Office (*Caixa de Conversão*) was created to receive gold coins, pound sterling, francs, marks, liras and dollars giving, in return, *Caixa's* notes at the rate of 15 pence per 1 *mil-réis*. The gold received by the *Caixa* could only be used for converting its notes and those presented for conversion would be incinerated or, by any other way, made useless. Once the deposits in gold reached twenty millions pound sterling, the exchange rate could be raised by a new law. The Conversion Office would be under the direct supervision of the Minister of Finances. Since the value of the *mil-réis* was legally defined, the

---

<sup>24</sup>See, for instance, the explanation given by Ford (1985, pp.150-151) for the institution of the Caja de Conversion in Argentina.

<sup>25</sup> In the debates which took place in the Congress, the exchange-rate of 12 pences which was referred to as the one suggested by the original mentors of the establishment of the Conversion Office. However, there was no explicit mention of any level for the exchange rate in the Agreement of Taubaté.

<sup>26</sup> This observation of David Campista may be found in a document that he wrote in defense of his project An abstract of this document is presented in *Retrospecto Comercial do Jornal do Comércio* 1906 p.24.

exchange rate between the notes issued by the Conversion Office and gold - or foreign currencies convertible in gold, deposited at the *Caixa* was stable. Besides, the conversion at this rate was guaranteed by the government either for sale of gold and foreign currencies convertible in gold, or for purchases of gold and foreign currency. The ratio between the value of notes issued and gold reserves was of one to one. Therefore, the Conversion Office adopted the rules which have been associated to the classical gold standard.

Nevertheless, the rules of conversion in gold were only applied to the notes of the Conversion Office which were, at the first stages, a very small percentage of the total amount in circulation. Be that as it may, there was, side by side with the Conversion Office, a free market where the exchange rates could deviate from that fixed parity defined by law. Notwithstanding, the Conversion Office would not permit the exchange rate to go beyond 15 pence. In fact, nobody would exchange its gold at a rate higher than 15 pence per *mil-réis* if a better rate could be obtained at the Conversion Office. Then, the *Caixa* would be able, by itself, to keep a maximum limit for the value of *mil-réis* in gold. However, if the tendency was reversed, the *Caixa* would be unable to avoid a devaluation of the exchange rate. In fact, if the exchange rate in the free market was below 15 pences it would be profitable to exchange the Conversion notes at the *Caixa* for gold, selling the gold at the free market.

It is obvious that the Monetary Authorities could intervene in the free market, buying and selling gold in order to avoid such devaluation, and they did it through operating the *Carteira de Câmbio do Banco do Brasil*.

It has been argued along the paper that the exchange-rate regime prevailing in Brazil, before 1906, was a clean-floating system without any direct intervention by the government with the explicit objective of controlling the exchange rate. At this point, however, it has to be admitted that this statement implies an oversimplification. In fact, there were official attempts, usually not successful, to use the Banco da República/Banco do Brasil to avoid speculation in the foreign-exchange market and, consequently, abrupt and undesirable oscillations of the exchange rate.

For example: the period between 1898 and 1905 has been presented as a period of enforcement of relatively consistent measures of monetary policy which had the purpose of creating the necessary conditions for convertibility of the *mil-réis* at the legal parity. Then, eventual attempts by the policy-makers have taken place in order to establish a strong exchange-rate department in the largest Brazilian bank in operation, which would act accordingly with the monetary policy officially implemented by the Monetary Authorities. The September 20<sup>th</sup>, 1900, decree authorized the government to transfer part of the resources of the *Guarantee Funds* to the Banco da República so that the bank could operate in foreign exchange transactions.

It was under Presidente Rodrigues Alves and his Minister of Finance, Leopoldo de Bulhões, that a major emphasis was placed on preparing the Banco da República to play a much important role in the exchange-rate market. References to the role played by this bank are constant in the annual presidential speeches in the Congress.

In his first address to the Congress in 1903, for instance, the President said: "The Banco da República interfering in the exchange-rate transactions, has had as its main, if not unique concern to raise difficulties to significant oscillations in the exchange rates.." And in 1904 "The foreign -exchange division (of the Banco da República) has been trying to keep the exchange rates stable." <sup>27</sup>

Moreover, during a general assembly of shareholders that happened on July 29<sup>th</sup>, 1905, the Minister of Finances, Leopoldo de Bulhões, proposed a complete reform of the bank which would contemplate attributing to the Institution the functions of a central bank. The reform was part of the government's financial economic plan. According to the proposal, two out of the five

---

<sup>27</sup> Francisco de Paula Rodrigues Alves, Mensagem Presidencial ao Congresso, May 3, 1903, p.327 and Mensagem Presidencial ao Congresso May 3, 1904, p.348.

members of the Board of Directors would be appointed by the government. Surpluses from the Treasury would be deposited in the bank and it would have the privilege of issuing the receipts in gold for payment of import taxes. The bank, once reformed, would be called Banco do Brasil. According to the statutes of the bank, the director of the foreign-exchange division would be appointed by the government.<sup>28</sup>

#### *Conversion Office and the stability of the exchange-rate*

Figure 1 suggests that the changes in the monetary policy, with the creation of the Conversion Office and the reform of the Banco da República into the new Banco do Brasil, were able to keep exchange rates stable and quite close to the rate fixed by law for purchase and sale of gold. Therefore, the Banco do Brasil had to intervene in the foreign-exchange market in such a way that the value of the *mil -réis* would not rise beyond 15,19 pence per *mil-réis*. In fact, if this happened it would be worth to import gold and exchange it in the Conversion Office. In the first three years that the Conversion Office was in operation, the exchange rate was kept quite close to this level. Exceptional good conditions of the international trade in 1909 and the first months of 1910 produced a significant increase in the influx of gold and the Banco do Brazil was unable to sustain the exchange-rate parity. From 15,06 pence in March it began to increase, continuously, until September when it reached 17,81 pence. The gold deposited in the Conversion Office reached 20 millions of pounds sterling in May, 1910 and according to the law once this limit was reached the official exchange rate could be raised. By the decree 2.357 of December 31<sup>st</sup>, 1910, the exchange rate to be adopted by the *Caixa* was raised to 16 pence. The exchange rate was kept quite stable near this level until July. In September it fell to 13,53 pence. By the Decree number 11.036 of August 3<sup>rd</sup>, 1914 it was declared holidays from 3rd to 15th of August signaling that the currency board had collapsed.

#### *Assessment of the Experiment*

Two features of the Brazilian pre-war gold standard should be pointed out: the first is the argument that it was a gold standard ‘at the margin’ in the sense that only the notes of the Conversion Office were officially backed by gold reserves. The second has to do with the idea that although the Conversion Office had a purely passive role, the arrangement preserved the Banco do Brasil,<sup>29</sup> as a large state bank which accumulated the functions of both - a commercial bank and the government banker (a status that it maintains until today, 1999, in the end of the twentieth century). However, the interesting aspect of this situation is that regardless of its ability to deal with the sterilization mechanisms of monetary expansion induced by gold inflows, and trying to keep exchange rates within the gold points and prevent unnecessary fluctuations in the monetary base, the Banco do Brasil did not have the necessary amount of liquid domestic assets to counteract the effect of large external surpluses on the exchange rate and, consequently, the effects of gold flows on the monetary base.

The working of the gold standard during the 1906-1914 period was quite successful to stabilize the exchange rate but it was not so effective in stabilizing the level of economic activity. Money supply increased substantially until 1912 and fell thereafter. It is noteworthy the cyclical pattern of the money supply with much greater volatility than the change in the reserves (Figure 4).

---

<sup>28</sup> Article 9 of the statutes of the Banco do Brasil approved by the decree number 1.455 of December 30, 1905. Statutes transcribed in Vianna (1926, pp.724-740).

<sup>29</sup> Rui Barbosa had created, in 1891, the Banco da Republica dos Estados Unidos do Brasil (BREUB) that further incorporated the Banco Nacional do Brasil creating the Banco da Republica do Brasil (BRB). The Banco do Brasil recreated in 1905 was already born as a large state bank accumulating functions and power of a commercial bank and the government banker.



The small size of the domestic capital markets, during the pre-war gold standard, prevented the use of either fiscal policies or open market operations to sterilize gold movements. Therefore, in the Brazilian case, as Fritsch and Franco (1992, p.10) put it : "the adoption of this 'clean' gold standard, within which gold movements tended to have their full effect on domestic credit conditions, would considerably enhance cyclical fluctuations of the external sector". Their analysis reinforces the idea of systemic asymmetries in the adjustment mechanism inherent in the international monetary system when core and peripheral economies are examined. For the peripheral countries subject to the rules of the gold standard, in situations of balance-of-payments surpluses, pressures for exchange-rate appreciation could only be offset at the cost of expanding the monetary base, leading to sharp fluctuations in domestic activity. But, its sustainability was highly uncertain since in the absence of sustained growth of the export sector (dependent on the performance of one or two products) activity growth could only last as long as capital inflows continued. A reflux of external credit, after imports had responded to the activity boom, as the trade balance response to sudden movements of credit conditions is not fast, reserves losses tended to occur, provoking substantial contractions in the money base and sharp recessions. When the fall in foreign currency receipts at the top of a boom was heavy enough, it tended to strain governmental adherence to the gold standard and it could lead to the abandonment of the regime, to its collapse.

The evolution of Brazil's monetary base and nominal and real exchange rates during the 1906-1914 experiment with the gold standard (Table A.III), suggests that following the adoption of the new regime, the trend of the exchange rate was in the direction of appreciation but in a more smooth path than during the previous period, with a sharp change in direction towards depreciation in 1913. This depreciation trend persisted during the years that followed the beginning of the First World War. It is interesting to point out that this was also a period of external surpluses, as the consequence of growing rubber exports, during the first four years of the experiment; and especially by a favorable position on the capital account through 1912, clearly translated into fast monetary expansion. This positive external scenario (a rise in net exports and public private investment expenditures based on foreign loans), added to the pro-cyclical behavior of an expansionary monetary policy, fuelled the boom that the Brazilian economy experienced. However, in 1913, falling rubber and coffee prices and the shrinkage of international capital flows (following the Balkan Wars), the boom turned into a slump: the sudden reversal of the external position, led to a loss in reserves that was translated into a contraction of the monetary base affecting adversely the economic performance of the economy. "The ensuing slump lasted until the outbreak of the World War I, when convertibility was abandoned to preserve what was left of the deposits at the Conversion Office as a war chest." (Fritsch and Franco, 1992, p.11).

This seems to be the core of the asymmetric adjustment process: in 'export' economies the internal fluctuations in incomes are extremely sensitive to external factors . In fact, they are predominantly determined by them: the effects of booms and slumps, initially caused by variations in foreign currency receipts, are aggravated by liquidity changes and by induced capital movements. In contrast, in 'investment' economies, where booms and slumps originate for domestic reasons (e.g. fluctuations in domestically financed investment) and the quantity of money is determined by the domestic banking system, rising activity is accompanied by a tendency towards balance of payment deficits and loss of foreign exchange, falling activity with balance of payments surplus and gain of foreign exchange, so that booms meet tighter monetary conditions, slump with easier monetary conditions, and thus fluctuations in activity tend to be mitigated (Ford, 1983, p.124).

The outcome is predictable: the monetary shock caused by continuous loss of gold reserves from the Conversion Office had recessionary impacts upon the economy, which lasted until the abandonment of convertibility

#### **IV. Concluding remarks**

The paper examines the contradictory process that led to the introduction of the gold standard in Brazil as part of the monetization of the economy. The change in the political regime that followed the end of slavery brought at the fore the liquidity and financial needs of the growth of the market economy. The growing credit to the private activities led to the exchange-rate depreciation and to the state financial crisis. Price stability as exchange-rate stability became a desideratum of the state as long as its budget was tied to the exchange rate. This problem was perceived as much more important than the objective of the export-producing sector regardless of the gains that exchange-rate depreciation could bring to exporters.

The adjustment plan implemented in accordance to the British bankers tried to prepare the ‘fundamentals’ of the economy for the introduction of the gold-standard regime. The substantial curtailment of money supply and state deficit is a full proof of the power and effectiveness of state intervention. The introduction of the gold standard came through and succeeded in a very favorable external scenario. The data presented has shown how the system increased the cyclical pattern of the money supply, amplifying the external shocks. Too good in good times but too bad during negative external shocks, the gold standard could not survive the critical war years.

The gold standard, however, has become, in the late-twentieth century, a controversial issue following proposals for its re-adoption, and the experiences undertaken by several developing countries, pegging their currencies to specific foreign currencies at fixed exchange-rate parities under currency-board arrangements or not. These recent experiments closely resemble the gold standard, with fiat foreign money being used instead of gold, to back domestic money creation. In this sense, it is appropriate to treat the gold-standard regime as a modern exchange-rate regime. Further, it is fundamental to understand how the system actually worked historically to generate better insights about the future of emerging economies adopting similar regimes recently.

What we have learned from the 1906-1914 Brazilian currency-board experiment is that an orthodox-currency-board arrangement is neither efficient to protect emerging economies, such as Brazil, from financial crises, nor sufficient to solve the time-inconsistency problems associated with countries with poor reputation for following policy commitments. These aspects that were present in 1906-1914 experiment became more dramatic when long histories of chronic high inflation and budget deficits started to dominate the scenario in modern emerging economies now exposed to disinflation exchange-rate-based stabilization programs in a context of perverse effects of financial globalization.

## V. Statistical Appendix

**Table A.I**  
**Brazil: Main Identifiable Balance of Payments Items**  
(In \$ million)

	Exports	Imports	Trade Balance*	Interest on Public Debt**	Balance of Current Account Items	New Long-Term Public Loans***	Amortization of Public Debt	Balance of Capital Account Items	Total Balance
1889	28552	24002	4550	1000	3550	19837	8027	11810	15360
1890	26382	24019	2363	1319	1044	-	208	-208	836
1891	27136	25565	1571	1309	262	-	318	-318	-56
1892	30854	26302	4552	1294	3258	-	399	-399	2859
1893	32007	26215	5792	1464	4328	2857	403	2454	6782
1894	30491	27145	3346	1448	1898	-	558	-558	1340
1895	32586	29212	3374	1423	1951	4305	554	3751	5702
1896	28333	27880	453	1942	-1489	-	615	-615	-2104
1897	25883	22990	2893	1907	986	-	1743	-1743	-757
1898	25019	23536	1483	1078	405	-	1574	-1574	-1169
1899	25545	22563	2982	375	2607	-	1196	-1196	1411
1900	33163	21409	11754	453	11301	-	706	-706	10595
1901	40662	21377	19285	1312	17973	1001	216	785	18758
1902	36437	23279	13158	2357	10801	-	227	-227	10574
1903	36883	24208	12675	2860	9815	7860	419	7441	17256
1904	39430	25915	13515	3000	10515	1735	464	1271	11786
1905	44643	29830	14813	3204	11609	5855	656	5199	16808
1906	53059	33204	19855	4189	15666	9161	657	8504	24170
1907	54177	40528	13649	4742	8907	5366	2060	3306	12213
1908	44155	35491	8664	8284	380	6263	3396	2867	3247
1909	63724	37139	26585	6904	19681	3802	2214	1588	21269
1910	63092	47872	15220	6473	8747	15505	3624	11881	20628
1911	66839	52822	14017	6959	7058	8697	5975	2722	9780
1912	74649	63425	11224	6944	4280	3669	4857	-1188	3092
1913	65451	67166	-1715	7596	-9311	19133	6913	12220	2909
1914	46803	35473	11330	7505	3825	4200	1498	2702	6527
1915	53951	30088	23863	4977	18886	-	2616	-2616	16270
1916	56462	40369	16093	5417	10676	270	1435	-1165	9511
1917	63031	44510	18521	6540	11981	-	3078	-3078	8903
1918	61168	52817	8351	8264	87	-	5212	-5215	-5128
1919	131133	80275	50858	8555	42303	2730	3657	-927	41376

**Source:** Brazil IBGE, *Anuário Estatístico do Brasil: 1939-40*, p.1359 and Fritsch, 1983, p.266, Table A.11

Notes:

\* The trade balance actually approximate the value of the balance of merchandise trade plus outpayments for insurance and freights since in Brazilian trade statistics exports were valued FOB while imports were valued CIF, and the share of total foreign trade carried by Brazilian merchant ships was quite small.

\*\* Includes annual commissions and fees paid to the issuing banks.

\*\*\* Nominal value of all Federal, State, Municipal and coffee long-term foreign loans issued during the year net of the usual discount and commissions charged by the underwriting banks. It excludes all funding loans issued for payment of current interest and amortization on past loans, the 1901 issue

of Rescission Bonds for purchase of foreign owned interest-guaranteed railways, and the 1908 and 1922 coffee loans for purchase of foreign held short-term coffee bills financing the stocks bought in 1907 and 1921, respectively. Note that, the net foreign exchange proceeds of the 1930 Coffee Realization loan were much smaller than the amounts shown above.

**Table A.II**  
**Brazil: Yearly Evolution of Money Stock (M1)**  
(In millions of *mil-réis*)

	M1	% Change		M1	% Change
1889	270.4	-	1902	686.1	1.2
1890	538.7	99.2	1903	683.8	-0.3
1891	811.4	50.6	1904	725	6
1892	720.1	-11.2	1905	726.3	0.2
1893	733.4	1.8	1906	777.7	0.2
1894	785.3	7.1	1907	855.9	10
1895	801.7	2.1	1908	863.8	0.9
1896	820.4	2.3	1909	960.5	11.2
1897	885.1	7.9	1910	1092.4	13.7
1898	913.1	3.2	1911	1228.1	12.4
1899	869.8	-4.7	1912	1272.8	3.6
1900	733.7	-15.6	1913	1150.6	-9.6
1901	677.8	-7.6	1914	1071.2	-6.9

Source: Fritsch, 1983, Table A.16, p.271

**Table A.III**  
**Brazil: Exchange Rates and Coffee Prices**  
Period:1890-1916

	Exchange rates: pences per <i>mil-réis</i>	Price of coffee in pound sterlings*	Price of coffee in <i>mil-réis</i> *
1890	22.56	3.49	37\$168
1891	14.91	3.26	52\$888
1892	12.03	3.09	62\$096
1893	11.59	4.09	85\$232
1894	10.09	3.74	80\$505
1895	9.94	3.33	80\$854
1896	9.06	2.91	77\$749
1897	7.72	1.74	55\$551
1898	7.19	1.49	50\$250
1899	7.44	1.48	48\$203
1900	9.5	2.06	52\$905
1901	11.38	1.62	34\$526
1902	11.97	1.54	31\$150
1903	12	1.47	29\$728
1904	12.22	1.99	39\$061
1905	15.89	1.98	30\$005
1906	16.19	1.97	29\$959
1907	15.22	1.82	28\$939
1908	15.16	1.82	29\$095
1909	15.16	1.98	31\$603
1910	16.23	2.74	39\$644
1911	16.11	3.58	53\$875
1912	16.16	3.85	57\$812
1913	16.11	3.07	46\$103
1914	14.8	2.39	39\$016

1915	12.56	1.88	36\$369
1916	12.06	2.24	45\$188

**Source:** Brazil IBGE, *Anuário Estatístico do Brasil 1939/13940*, pp.1354 and 1375.

Notes:

Price in bags of 60 kg.

**Table A.II**  
**Brazil: Price Indices – Cost of Living in Rio de Janeiro**  
Period: 1889 - 1914  
(1919 = 100)

Cost of Living/Rio		Cost of Living/Rio	
1889	15.6	1902	31.2
1890	16.8	1903	31.8
1891	21.5	1904	33.7
1892	30.8	1905	30.2
1893	32.9	1906	36.8
1894	31.9	1907	34.9
1895	30.2	1908	35.7
1896	38.6	1909	33.9
1897	45.8	1910	31.5
1898	48.3	1911	35.1
1899	47.4	1912	37.9
1900	41.1	1913	37.2
1901	33.8	1914	35.1

**Source:** Fritsch, 1983, Table A. 3, p.258.

**Table A.V**  
**Brazil: Public Budget**  
Period: 1890 - 1916  
(In contos de réis)

	Revenues	Expenditures	Cash Balance
1890	195253	220646	-25393
1891	228945	220592	8353
1892	227608	279281	-51673
1893	259851	300631	-40780
1894	265037	372751	-107714
1895	337755	314767	22988
1896	316213	368921	-52708
1897	303411	379336	-75925
1898	324053	668113	-344060
1899	320837	295363	25474
1900	307915	433555	-125640
1901	304512	334517	-30005
1902	313814	297721	16093
1903	415375	368180	47195
1904	442770	463460	-20690
1905	401025	374808	26217
1906	431685	423416	8269
1907	536060	522211	13849
1908	441259	511013	-69754
1909	449898	518288	-68390
1910	524819	623536	-98717
1911	563549	681913	-118364
1912	615391	789211	-173820

1913	654391	762945	-108554
1914	423252	766701	-343449
1915	494278	688522	-194244
1916	477897	686558	-208661

Source: Brazil IBGE, *Anuário Estatístico do Brasil: 1939-40*.

## REFERENCES

Abreu, Marcelo de Paiva. *A Ordem do Progresso – Cem Anos de Política Econômica Republicana :1889-1989*. Rio de Janeiro: Editora Campus Ltda. 1990.

Alves, Francisco de Paula Rodrigues, "Mensagem Presidencial ao Congresso, a 3 de maio de 1903", *Câmara dos Deputados, Mensagens Presidenciais, 1890-1910*, Câmara dos Deputados, Brasília, 1978, pp.309-329.

Conselho Nacional de Estatística, Instituto Brasileiro de Geografia *Anuário Estatístico do Brasil*, Ano V-1939/1940, IBGE: Rio de Janeiro (several issues).

Eichengreen, Barry. "Editor's Introduction" In Eichengreen , Barry (ed.), *The Gold Standard in Theory and History*. Methuen: New York and London, 1985, pp.1-36

Fishlow, A. "Origins and Consequences of Import Substitution in Brazil" In Di Marco(ed.), *International Economics and Development essays in honour of Raul Prebisch*, New York, Academic Press, 1972.

Ford, A.G. *The Gold Standard 1880-1914: Britain and Argentina*. New York & London: Garland Publishing, Inc., 1983.

Ford, A.G., "Notes on the working of the gold standard before 1914" In Eichengreen , Barry (ed.), *The Gold Standard in Theory and History*. Methuen: New York and London, 1985, pp. 141-165.

Franco, Gustavo H. Barroso, Assimetrias Sistêmica sob o Padrão Ouro, *Textos para Discussão* n. 184, Departamento de Economia/PUC, Rio de Janeiro, 1988

Franco, Gustavo H. Barroso, "A Primeira Década Republicana", In Marcelo de Paiva Abreu (org.), *A Ordem do Progresso, Cem Anos de Política Econômica Republicana, 1889-1989*, Campus, Rio de Janeiro, 1992, pp.11-30.

Fritsch, Winston and Franco, Gustavo H. Barroso, "Aspects of the Brazilian Experience under the Gold Standard", *Texto para Discussão* n. 286, Departamento de Economia/PUC, Rio de Janeiro, 1992.

Furtado, Celso, *Formação Econômica do Brasil*, 10th ed., Companhia Editora Nacional, São Paulo, 1970.

Instituto Brasileiro de Geografia e Estatística, *Anuário Estatístico do Brasil, 1939/1940*, Rio de Janeiro (no date)

Instituto Brasileiro de Geografia e Estatística, *Receitas e Despesas da União, 1823-1885*, Rio de Janeiro (no date)

Instituto Brasileiro de Geografia e Estatística, *Estatísticas Históricas do Brasil*, , Rio de Janeiro, 1987

Jornal do Comercio, *Retrospecto Comercial 1898*, Tipografia do Jornal do Comércio, Rio de Janeiro, 1907, pp.5-7.

Jornal do Comercio, *Retrospecto Comercial 1906*, Tipografia do Jornal do Comércio, Rio de Janeiro, 1907

Kindleberger, Charles P. . *Keynesianism versus Monetarism and Other Essays in Financial History*. London: George Allen& Unwin, 1985.

Rodrigues Alves, Francisco de Paula, "Mensagem Presidencial ao Congresso, a 3 de maio de 1904" ,*Câmara dos Deputados, Mensagens Presidenciais, 1890-1910*, Câmara dos Deputados, Brasília, 1978, pp.331-350.

Salles, Campos M. Ferraz, Pronouncement to the nation on November, 18th, 1898. In *Câmara dos Deputados, Mensagens Presidenciais, 1890-1910*, Câmara dos Deputados, Brasília, 1978, pp.201-209 .

Silva, Hélio Schlittler, "Tendências e Características Gerais do Comércio Exterior no Século XIX", *Revista de História da Economia Brasileira*, I:1, June, 1953,pp.5-21

Triffin, Robert, "The myth and realities of the so-called gold standard" in Eichengreen , Barry (ed.), *The Gold*

*Standard in Theory and History*. Methuen: New York and London, 1985, pp.121-140.

Versiani, M.T. Ribeiro de Oliveira. “Café e câmbio no Brasil: 1890/1906”. Rio de Janeiro: *Pesquisa e Planejamento Econômico* 15(3) : 1985, pp.597-614.

Viana, Vitor, *O Banco do Brasil, Tipografia do Jornal do Comércio*: Rio de Janeiro, 1926.