

WORKING PAPER

# The Case of Paraguay

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JANUARY 2019



# The Monetary and Fiscal History of Paraguay, 1960–2017\*

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## Abstract

This chapter characterizes the monetary and fiscal history of Paraguay between 1960 and 2017. The analysis is divided into four periods, which are mainly distinguished by inflation levels, the source of financing of the public-sector deficit, and the central bank legal framework. The four main periods are 1962–1980, when inflation and the deficit were moderate; 1981–1990, a decade characterized by fiscal imbalances and nominal instability; 1991–2003, when the worst financial crisis in the country’s history took place and inflation levels remained moderate nonetheless; and finally, 2004–2017, the period of structural reforms and low inflation. We observe, throughout the periods, that monetary and fiscal policy have maintained a generally conservative stance, that periods of macroeconomic instability have been rare, and that average economic growth has been higher than the average for Latin America. However, despite its progress in terms of convergence, Paraguay remains among the countries with the lowest levels of income per capita in Latin America.

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\*We would like to thank Juan Pablo Nicolini, Timothy Kehoe, Andres Neumeyer, Joao Ayres, and participants at “The Monetary and Fiscal History of Latin America” conference in Barcelona, Chicago, and LACEA LAMES 2017. Comments by participants at the “The Monetary and Fiscal History of Paraguay” conference helped to improve and enrich the document. We would like to acknowledge Andrea Szaran’s remarkable work on the explanation of the database construction and her research assistance. The views expressed here are those of the authors and do not necessarily reflect the position of the Central Bank of Paraguay or its board members.

# 1 Introduction

The purpose of this document is to describe and analyze the monetary and fiscal history of Paraguay between 1960 and 2017 following the framework presented in chapter 2. The analysis concentrates to a large extent on the historical evolution of the government’s consolidated fiscal deficit, its sources of financing, the trajectory of inflation, and economic performance. We used these variables to explore the relationship between unfavorable fiscal and monetary policy and macroeconomic instability.

As a first approximation, figure 1 introduces Paraguay’s economic performance, measured by the change in GDP per capita. Average growth between 1960 and 2017 is 2.4 percent.<sup>1</sup> Although the economic performance has not been significantly different from Latin American countries, it is slightly higher than the Latin American average of 1.7 percent.<sup>2</sup> Figure 1 shows there was a period of high and persistent growth in the 1970s and a significant recovery recently in the 2000s. The unprecedented economic performance in the 1970s is mainly from the increase of the agriculture frontiers—especially fields dedicated to soya bean and cotton—and the investment made between 1974 and 1981 on the construction of the Itaipu hydroelectric power station.<sup>3</sup>

On the other hand, the period of analysis also includes two periods of relative decline in GDP per capita. The first one took place during the 1980s, which coincides with the conclusion of the construction of the Itaipu hydroelectric power station. This period was characterized by high and unstable inflation and a persistent deficit of the central government and public companies. The second one took place in the late 1990s, at a time when successive financial crisis episodes occurred, mainly because of a financial liberalization that was not followed by a proper change in the

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<sup>1</sup>For a growth accounting analysis of the Paraguayan economy, see Fernández Valdovinos and Monge Naranjo (2005) and Castilleja, Garay, and Lovera (2014).

<sup>2</sup>A simple average that includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay, and Venezuela for the 1960–2017 period.

<sup>3</sup>For more details on the macroeconomic impact of Itaipu on the Paraguayan economy, see Charotti, Hevia, and Neumeyer (2017). Also, see the appendix for an explanation of the Itaipu hydroelectric power station.

financial regulatory framework. Despite the absence of persistent macroeconomic imbalances, and that average economic growth has been higher than the average for Latin America, the economic performance was not sufficient for the economy to catch up with the region's income levels. Currently, Paraguay remains among the countries with the lowest levels of income per capita in Latin America.

Paraguay has kept a record of nominal stability for more than seventy years, since the country has not experienced any hyperinflation episodes. Figure 2 illustrates this stability, and although inflation was high and volatile during certain years, average inflation was 11 percent between 1960 and 2017.

During the 1960s, inflation remained below one digit (2.1 percent on average), supported by a stabilization plan initiated in 1956, when the central bank used the fixed exchange rate as the monetary policy instrument. In the following decade, inflation accelerated and fluctuated within a broader range. In particular, in 1973, 1974, and 1979, inflation was characterized as being quite high when compared to the 1960s average, and also by the sharp decline that followed in 1975 and 1980. This pattern of high and volatile inflation persisted during the decade of the 1980s, which registered the highest average inflation (20 percent) relative to other decades. The highest record of the period was reached in 1990 (44 percent), which also marks a change in the inflation trajectory that coincides with a new legal framework of the central bank and the implementation of monetary aggregates as an instrument for monetary policy. Since then, there has been a persistent decline in inflation, and except for some episodes that occurred in 1998 and 2003, inflation has maintained a downward trend.

Fiscal deficit outcomes evidence two different fiscal policy frameworks (figure 3). The first was from 1960 until the end of the 1980s when the operations of public companies played an important role in explaining the aggregate fiscal balance (figure 4).<sup>4</sup> The second, since the beginning of the 1990s to the present, took place after a fundamental change in the legal

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<sup>4</sup>Cáceres (1991) assesses the impact of public enterprises deficits in the fiscal accounts during the 1980s.

framework of the central bank (tables 2 and 3), which modified the relationship between the central government, public companies, and the central bank.

During the early years of the first fiscal policy framework, the deficit of the central government and the deficit of public enterprises were financed with external debt (figures 5 and 6) and loans from the central bank. Once the government started to face external financing constraints in the mid-1980s, the central bank's internal resources became its primary source of financing. At that time, the public-sector financial obligations were state-contingent debt for the central bank, and its assets served as collateral in public debt contracts.

The second fiscal policy framework has been in place since the 1990s. During this period, a change in the legislation of the central bank limited public-sector financing. Under this new configuration, central bank financing to the public sector was limited to short-term loans, and therefore fiscal policy needed alternative sources of financing. For this reason, the tariffs of public enterprises were adjusted, and since then, they have maintained a relatively balanced budget. Additionally, as figure 4 shows, the central government became more relevant in explaining deficit outcomes.

The economic performance between 1998 and 2002, partially explained by a financial crisis, a weakening of regional trading partners, and the low prices of the main commodity exports, affected fiscal revenues. In addition, the central government significantly increased expenditures, especially capital expenditures in 1999, 2000, and 2002. During these years, central government deficits increased considerably (figure 4), and the government defaulted partially on its debts in 2003. The new government, elected in 2003, inherited this crisis and implemented a set of fiscal reforms with the main objective of restoring fiscal balance and supporting an economic reactivation. To restore fiscal balance, the public sector exhibited six consecutive years of fiscal surplus until 2011. In 2012, a 30 percent adjustment in public wages put pressure on fiscal accounts, generating a deficit in recent years. In 2013, a fiscal responsibility law was passed in an attempt to prevent further deterioration of the fiscal balance.

It is important to note that there were some episodes when inflation did not seem to be related to the deficit of the public sector. As shown in figures 2 and 3, there were high inflation levels in 1973, 1974, 1978, 1979, 1990, and 1991, with very low deficits or surplus. These events do not seem to conform to the conceptual framework followed in the chapter, and further analysis is needed to explain the reasons behind the high inflation and the increase in seigniorage (figure 9) without a fiscal deficit. In section 2 we provide an explanation for these episodes.

The chapter is organized into two sections. Section 2 is based on the framework presented in chapter 2. The main purpose is to describe the evolution of the main macroeconomic variables and to present the results of the budget constraint exercise. The last section summarizes the main findings and conclusions.

## **2 Historical perspective of macroeconomic variables and budget accounting exercise**

In order to properly characterize the monetary and fiscal history of Paraguay, the analysis is divided into subperiods that consider mainly two events. The first was the beginning, in 1989, of a positive and substantial flow of nontax revenues that the government received from the binational enterprise Itaipu. The second was the change in the legal framework of the Central Bank of Paraguay in the early 1990s (tables 2 and 3). These changes were made by the newly democratic government that took power in 1989.<sup>5</sup>

Until the early 1990s, the central bank's legal framework established that the institution could provide financing to public institutions, through the acquisition of government bonds or Treasury certificates. In addition, it allowed the use of foreign reserves to cover public debt service. The new national constitution of 1992 explicitly forbids the central bank from pro-

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<sup>5</sup>Between August 1954 and February 1989, a dictatorship presided over by Alfredo Stroessner ruled Paraguay.

viding resources to cover public spending. In addition, in 1995, the new central bank's charter law established that foreign reserves can be used only to cover balance of payments deficits and ensure the proper functioning of the foreign exchange market. These changes modified the interaction between monetary and fiscal policy, and ultimately induced a different debt management policy. Further, as we will illustrate, these changes explain the differences observed in the evolution of public debt in every subperiod. In addition, we will argue that these changes also explain the breaks in inflation and deficit that were described in the introduction (figures 2 and 3). It must be noted, however, that the evolution of output per capita (figure 1) does not exhibit a significant change, as compared with the other two variables.

Thus, 1990 splits the sample period we analyze in a natural way. Moreover, these two subperiods were again divided to account for two other events: the culmination of the Itaipu construction at the beginning of the 1980s and the policy reforms introduced in 2003. Again, these events coincide with relevant changes in the trajectory of debt, fiscal balance, and inflation. Looking at growth, there is some indication of a break point within the subperiods, which is not evident when we look at the two big periods. The remainder of this section will focus on the evolution of the main macroeconomic variables and the analysis of the four subperiods. Also, the results of the budget accounting exercise and the inflation outcomes are presented at the end of each subsection.

## **2.1 1962–1980**

During the early 1960s, the government in office continued implementing a stabilization plan initiated in 1956. According to this plan, the central bank used the exchange rate as the policy instrument. As can be seen in figure 2, the plan was very successful, and inflation was substantially and rapidly reduced. Fiscal policy accompanied the effort: fiscal deficits were small and financed with external sources. Those same sources were used to finance the larger deficits of the late 1960s, so inflation remained at international levels until the early 1970s.

During the 1970s, we identify some episodes in which inflation does not seem related to deficit outcomes. Inflation in 1973 was 14 percent with a fiscal deficit of 1.4 percent. In the same way, in 1974, inflation was 24 percent, with a deficit of 0.3 percent. In 1979 we have the same pattern, even with a fiscal surplus. Official sources during those years argue that these episodes of inflation are to a large extent due to the importance that imported goods had in the CPI index. In 1973, 1974, and 1979, imported goods and the oil crisis significantly affected the prices of local goods and services. This caused an increase of 24 percent in food and 46 percent in transportation in 1974.<sup>6</sup> These increases led the government to adjust salaries by 18 percent in that year. Additionally, this period coincides with a considerable increase in international reserves (figure 10) due to the large inflow of foreign currency and a considerable increase in credits to the banking and private sector by the central bank, especially in 1974 and 1979, which partially explains the increase in M0 growth (figure 8) during these years.

Additionally, in this period, despite the creation of new taxes, revenues grew below public spending (figure 7). As a result, the central government reduced investment and financed its deficit with foreign resources. Also, there was an increase in the public tariffs of public enterprises to reduce the central government's external financing needs. However, the reduction in the deficit was only temporary, so it also increased its external financing needs. As a result, the size of external debt relative to GDP increased from 9.3 percent to 24.9 percent between 1962 and 1980 (figure 5), respectively. This figure is particularly affected by the strong output growth at the end of this period. So, when looking at the real value of external debt in 1994 US dollars, we see an average annual increase of 13 percent during this period (figure 6).

Table 1 summarizes the results of the budget constraint exercise by following the conceptual framework of chapter 2. On average, the public-sector deficit was 0.8 percent of GDP.<sup>7</sup> This result was mainly explained by

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<sup>6</sup>This is an example of some important items of 1974 where we have disaggregated data from the CPI index.

<sup>7</sup>For this exercise, the deficit comprises the nonfinancial public sector and excludes external debt interest payments.

the public enterprises result, as the central government partially offset this with surpluses at the end of the 1970s. The primary financing sources of these obligations were external debt (0.8 percent of GDP on average) and seigniorage (1.6 percent of GDP).

## **2.2 1981–1990**

The events that followed during this subperiod provide relevant evidence to test the hypothesis of the relationship between fiscal imbalances, nominal instability, and poor economic performance. In this subperiod, the central bank's legal framework (tables 2 and 3) plays a key role because it shaped the interaction between fiscal and monetary policy, which ultimately helps us to understand the evolution of macroeconomic variables. This section will follow the same structure of the previous one, presenting a narrative of the events, the evolution of debt, the results of the budget accounting exercise, and the inflation outcome. This will be complemented with an analysis that follows the balance of payments crisis model presented in chapter 2 to account for the external imbalances that occurred at the end of the period.

In 1981, capital inflows experienced a significant reduction as the construction of Itaipu ended. In addition, the economic crisis of the main trading partners (Brazil and Argentina) put additional pressure on the trade balance. These two events contributed to a deceleration of economic activity, which caused a deterioration in the fiscal balance, specifically for the central government after consecutive years of surpluses. This result, in addition to the ongoing deficit of public enterprises, increased the demand for external debt financing. The government aimed to use these resources to fund investment projects from public enterprises as an attempt to sustain economic growth at levels similar to the previous decade.

The external resources, however, were not enough to cover the financing needs. So, there was also a strong increase in the domestic financing of the central bank for both the central government and public enterprises. Moreover, the public sector covered its debt service with foreign reserves as the legal framework established that the public-sector obligations were

state-contingent debt for the central bank. This put pressure on the fixed exchange rate regime and led the central bank to establish a multiple exchange rate regime (figure 14). These were different exchange rate levels for exports, public-sector imports, oil imports, agriculture inputs, and public external debt service. In particular, the exchange rate for public-sector operations was lower than the market exchange rate, so implicitly, the central bank was providing exchange rate subsidies to the public sector that were not being computed in the fiscal accounts and represented, on average, 1 percent of GDP.

The implementation of this multiple exchange rate policy was a signal that the fixed exchange rate policy could not be sustained for long, since foreign reserves started to decrease in the early 1980s, mainly for two reasons. First, the government increased its domestic financing from the central bank to cover the persistent deficits from the public sector. So, to maintain exchange rate parity, the central bank had to reduce its foreign reserves. The second reason relates to the public sector's obligations being state-contingent debt of the central bank. Then, foreign reserves were used to cover the external debt service. As a result, this put pressure on the nominal exchange rate, which experienced successive devaluations between 1981 and 1988 of 28 percent per year on average. Despite this devaluation, foreign reserves went from 26 percent to 8 percent of GDP between 1983 and 1988 (figure 10), respectively.

These changes in exchange rate policy are relevant in understanding the macroeconomic outcomes of this period. Between 1981 and 1987, the relative size of external debt to GDP increased from 23 percent to 53 percent. To obtain this ratio, external debt was deflated using a US price index and the nominal exchange rate, while GDP was deflated using the domestic consumer price index. As a result, figure 5 is affected by movements in the real exchange rate, that is, changes between the guarani (Paraguay's domestic currency) and the US dollar, and the difference between domestic and external inflation. During this period (1981 to 1987), the average real devaluation was 12 percent, which contributed significantly to changes in the external financing ratio that were not related to deficit outcomes. To control for this effect, as figure 5 shows, the external debt-to-GDP ratio was

built holding the exchange rate constant and equal to the value in 1994. When considering this series, the increase went from 19 percent to 40 percent of GDP. In addition, there was also an increase in the net credit from the central bank from 0.3 percent to 6 percent of GDP between 1981 and 1985, respectively. Despite the availability of central bank resources to cover debt service, the public sector started accumulating arrears starting in 1985, which constrained the access to new foreign financing. As a result, external debt started to decline in 1988 (figure 5).

The fiscal deficit (accounting for the exchange rate subsidies from the central bank) averaged 2.2 percent of GDP, mainly explained by the public enterprises accounts (1.6 percent of GDP on average).<sup>8</sup> This, according to table 1, was financed mainly through seigniorage (2 percent of GDP on average) and external debt (1 percent of GDP on average). The increase in public-sector financing from the central bank was partially offset by the other components of the monetary base (a reduction of 0.5 percent of GDP on average). This increase in the financing of the central bank to public-sector deficits coincides with a period of relative nominal instability. Inflation accelerated during this period (23 percent on average) and remained above its historical mean. This narrative fits qualitatively with the theoretical framework from chapter 2, which associates periods of nominal instability with persistent fiscal deficits that are financed through the central bank when the government is unable to borrow (figures 2 and 3).

Two inflation figures, occurring between 1989 and 1990, do not fit qualitatively with the conceptual framework. One hypothesis that could explain these outcomes relates to the adjustment in tariffs to reduce public enterprises deficits in 1989 and 1990. An alternative explanation is related to the fact that, between 1989 and 1990, money (measured by M0) grew by 44 percent and 41 percent (figure 8), respectively, as a result of an increase in foreign reserves.

In terms of economic performance, income per capita average growth was 1 percent during this period, lower than the historical mean, after a

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<sup>8</sup>Excluding exchange rate subsidies, the deficit drops to 1.3 percent of GDP, which reduces the transfers (residue) from -1.1 percent to -0.3 percent of GDP.

period of strong growth in the previous decade (figure 1). It must be noted that this average is affected by the recovery of output in the late 1980s. Between 1982 and 1984, output per capita fell 3 percent on average and recorded, in 1982 and 1983, two of the lowest levels of the series (-4 percent and -6 percent, respectively).

### 2.3 1991–2003

Following the crisis in the 1980s, at the beginning of 1989, a coup d'état finalized with a dictatorship that lasted for thirty-four years. This period marked the starting point of the transition of Paraguay into a democracy which was accompanied by a deregulation of the economy. In 1992, a new constitution was enacted that incorporated free-market principles and established the independence of the central bank.

The institutional changes induced a change in the interaction of fiscal and monetary policy, which resulted in a tax reform that was implemented in 1992 when the value-added tax (VAT) was introduced. In addition, there was an increase in the tariffs of public enterprises and a reduction in public investment. Previous to the legal modifications, the government had been renegotiating its public debt.<sup>9</sup> So, in 1992 the government used foreign reserves to cancel its external arrears, converting foreign debt to domestic debt with the central bank.

In addition, changes related to monetary, exchange rate, and financial policy were made. First, in order to stabilize money growth and reduce inflation, the central bank established a ceiling on the growth of the components of the monetary base, that is, the net credit to the financial system and the public sector, as well as a ceiling on the accumulation of foreign reserves. From 1991 to 2003, monetary policy was conducted based on a monetary aggregates scheme by designing an annual monetary program with targets for money growth (specifically M0) but no explicit objective for inflation. The limits established were complemented by the issuance of central bank securities to control the monetary aggregates expansion in ac-

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<sup>9</sup>Páez (1993) summarizes the renegotiation process of the public external debt arrears.

cordance with the targets established in the monetary program. These were short-term zero-coupon bonds with maturities that ranged from thirty days to one year, and financial institutions acquired these instruments through open market operations.<sup>10</sup>

Second, the new legal framework established a floating exchange rate regime with occasional interventions from the central bank to smooth sharp fluctuations. Foreign reserves accumulation was set mainly for these foreign exchange market interventions and in the case of a balance of payments crisis. Finally, there was a deregulation of the financial system, which will be described extensively in section 2.3.1.

As a result of fiscal reforms, the public sector exhibited surpluses during the first years of the decade. However, starting in 1997, the combination of a financial crisis, political instability episodes, and a regional economic crisis had an adverse impact on economic growth, reducing tax revenues. At the same time, spending on wages and pensions increased, which put more pressure on fiscal accounts, and spending on public infrastructure increased through external debt financing. By 2002, the economy had accumulated five consecutive years of a decline in GDP per capita (-3 percent on average). At the beginning of 2003, the Ministry of Finance lacked the resources to cover wage spending and missed debt service payments with multilateral banks, and, as a result, credit rating agencies declared a selective sovereign default. As will be explained in detail in section 2.3.1, this default was not associated with the monetary assistance provided to the financial system during the crisis, since most of those resources were provided by the central bank. There were disbursements made by the government and financed with domestic currency bonds; however, the default in 2003 was on foreign currency debt. Also, the definition of “deficit” in the budget constraint exercise considers the nonfinancial public sector. For this reason, this deficit does not incorporate the outlays made by the central bank.

Despite the deterioration of the fiscal balance by the end of this pe-

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<sup>10</sup>These open market operations are still implemented under the inflation-targeting regime that has been the monetary policy framework since 2011, and their maturities have been extended up to 728 days.

riod, there was a 0.2 percent average surplus. The results in the first years and the balance of public enterprises contributed to this outcome. External financing did not change on average because it only increased at the end of the 1990s, and this was offset by the reduction in debt at the beginning of that same decade. The central bank financing to cover debt service was offset by a reduction in foreign reserves.

In terms of prices, inflation remained close to its historical mean at 12 percent, well below the levels of the previous period (figure 2). At the beginning of the period, inflation dropped from 44 percent to 11 percent by the end of 1991, while money growth (measured by M0) was 30 percent (figure 8). One explanation for this difference is the adjustments that were made on public tariffs and the minimum wage at the beginning of the 1990s. This can be confirmed when considering the average rates, which show that inflation and money growth were 25 percent and 26 percent, respectively. By the end of the period, there were two years (1998 and 2002) when inflation rose above average. In the first case, even though at the aggregate level the public sector ran a surplus, the central government recorded a deficit and received funding from the central bank of 0.4 percent of GDP. The second record in 2002 coincides with a public-sector deficit of 2 percent of GDP and an increase in the net credit of the central bank to the central government of 2 percent of GDP.

### **2.3.1 Financial crisis**

Until 1989, the financial system was subject to regulated interest rates, constraints on bank operations, reserve requirements up to 42 percent on deposits, and banks' loan portfolios determined according to government guidelines established by law. Within this setup, the financial deepening—measured by credits to GDP—peaked at 18 percent in 1978 but started declining in the 1980s, reaching 10 percent by the end of 1988 (figure 15). The government that took office in 1989 implemented a set of policies in an attempt to deregulate the economy, including the financial sector. As a result, interest rates were determined by the market, banks were allowed to define their loan portfolios without government guidelines, reserve requirements were gradually reduced, and rediscounts were eliminated. Under these

new rules, the financial deepening increased as credits peaked at 24 percent of GDP in 1997.

However, as argued by Braumann, Jaramillo, and Jenker (2000), the regulatory framework did not adapt to these new arrangements in the financial system. The entry requirements were lax, which led to a significant increase in new banks and finance companies (figure 16). Some institutions did not even comply with minimum capital requirements. In addition, these capital requirements did not consider the implicit risk taking by banks in their portfolio loans.

Banking practices were weak, particularly in locally owned financial institutions. There was no formal risk assessment framework, and granting credits to related enterprises was common, since the legislation at that time did not require registered shares in bank ownership. This, in turn, prevented banking authorities from identifying any links between banks and borrowers.

Even though rediscounts were eliminated, financial intermediaries maintained the same liquidity management framework, which resulted in an accumulation of negative cash flows that were hidden from the Superintendency of Banks, which is in charge of banking supervision. Furthermore, some institutions maintained off-the-books transactions, as there was no legal obligation for them to be subject to external audits. All these practices were mainly due to inadequate financial supervision that lacked the institutional and legal capabilities to enforce regulatory requirements (Braumann, Jaramillo, and Jenker 2000).

The combination of inappropriate banking practices and poor financial supervision led to the first financial crisis in 1995. It began with four locally owned banks (which accounted for 13 percent of the financial system's deposits in 1994) that were intervened after they were unable to comply with clearing obligations. Because there was no deposit guarantee scheme, and to prevent a potential bank run on other institutions, the government chose to cover the deposits of the affected banks through a credit provided by the central bank. These interventions led to the discovery of the off-the-books deposits mentioned above, which were also covered by the government. Only

in that year, the central bank disbursed funds that accounted for approximately 6 percent of GDP (table 4). At the same time, other locally owned banks, which were perceived as being more vulnerable than foreign-owned banks in the financial system, started to raise interest rates to attract deposits. In addition, the government's decision to assist the intervened banks prompted the public to perceive that deposits in the financial system were a risk-free asset.

The combination of these two events—and even though all the banks that ceased operations were local—seems to explain, to some extent, why there was no evidence of flight to quality (i.e., an increase in deposits to foreign-owned banks), as expected. On the contrary, the participation of foreign-owned bank deposits declined from 57 percent to 52 percent between 1995 and 1996.

Following these events, a new banking law was approved that set a limit on deposit insurance, which did not represent any cost to banks. These legal changes were complemented by financial support from the public sector. The central bank established a financial assistance program to institutions that exhibited higher levels of nonperforming loans relative to the financial system's average. In addition, the Social Security Institute (IPS, abbreviated by its Spanish name) acquired equities from a locally owned bank. Despite the financial support, between 1997 and 1998, a second wave of bank closures took place and led to the closure of locally owned, publicly owned, and foreign-owned banks that accounted for 21 percent of the financial system's deposits in 1996. In this case, even though the new banking law established a limit on deposit insurance, the law was subject to amendment, and the limit was increased (from ten times to one hundred times the minimum wage).<sup>11</sup> Again, the central bank was in charge of providing the resources to cover the deposits. However, when compared with the first crisis, the participation of foreign-owned bank deposits increased from 52 percent to 82 percent between 1996 and 1998. In addition, IPS suffered a financial loss of 3 percent of GDP after it acquired the equities of a locally owned bank that had shut down (Mlachila 2010).

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<sup>11</sup>In 1998, the minimum wage was equivalent to US\$208.

The last two episodes were recorded in 2002 and 2003. A foreign-owned and a locally owned bank exhibited liquidity problems and accounted for 16 percent of the financial system's deposits. After their intervention, their liquidity and solvency problems were attributed mainly to inadequate banking practices as well as to the impact of the financial crisis in Argentina and Uruguay, which affected the foreign-owned bank.

Mlachila (2010) quantifies the cumulative direct costs of the crisis at 15.7 percent of GDP (table 4).<sup>12</sup> The disbursements made by the central bank are not reflected in the money growth series, since the central bank issued securities to restrict the growth of monetary aggregates in accordance with the targets established in its monetary program. Figure 17 shows the ratio of the stock of central bank securities to M0 between 1993 and 2003. In 1994, central bank securities accounted for 6 percent of M0, and by the end of the last financial crisis episode in 2003, this ratio climbed to 30 percent.

By the end of the last financial crisis episode in 2003, the financial deepening declined to 10 percent of GDP, a level similar to the levels recorded at the beginning of the 1990s (figure 15). Between 1995 and 2003, output grew 1.4 percent on average (0 percent in per capita terms). This economic performance is the poorest relative to the other periods, and although it cannot be attributed exclusively to the financial crisis, the uncertainty and instability derived from these episodes appear to have had a greater impact in terms of fiscal costs and economic performance when compared with the costs of the nominal instability experienced during the 1980s.<sup>13</sup>

Since 2003, the regulatory framework has been reformed to enhance the enforcement capabilities of the financial supervisor. Also, a deposit insurance scheme law was passed. It established a regime that is funded with private and public resources and covers up to an amount equivalent to seventy-five times the minimum wage (including principal and interest).<sup>14</sup> These changes appear to have contributed to the improvement of solvency

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<sup>12</sup>These are computed based on the outlays made by the government.

<sup>13</sup>As mentioned before, the fiscal deficit definition that is considered does not account for the central bank.

<sup>14</sup>In 2003, the minimum wage was equivalent to US\$160.

and liquidity indicators in the financial system, as well as to a higher financial depth (figure 15).

## 2.4 2004–2017

The fourth period begins with a set of structural reforms implemented by the government that took office in 2003. The first significant reform was the modification of the public-sector pension system, which generated a growing operating deficit for the central government in the last period. In addition, the new government implemented a tax reform that attempted to increase the formalization of the economy and fiscal pressure. This reform included changes in the income tax of businesses, agriculture, small business taxpayers, and the VAT on certain products.

The central government's main objective with this tax reform was to achieve a fiscal surplus of 0.2 percent of GDP in 2004. In addition, the government committed to covering its debt arrears by the end of the same year and to setting a limit on the financing of external debt. On the monetary side, it established a minimum level of foreign exchange reserves and a limit on the expansion of the central bank's domestic assets.

During this period, the central government recorded eight consecutive years of surplus. Given the accumulated savings, foreign debt exhibited a gradual reduction from 37 percent to 20 percent of GDP between 2003 and 2012, respectively (figure 5). The fiscal balance deteriorated by the end of the period as a result of an increase in the wage bill in 2012. This was followed by a change in the debt trajectory, which began to increase as the central government issued bonds abroad, starting in 2013, to finance its deficit.<sup>15</sup>

To prevent a further deterioration of the fiscal accounts, the government that took office in 2013 passed a fiscal responsibility law, which established (1) a maximum annual fiscal deficit of the central government of

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<sup>15</sup>It must be noted that the legal framework only allows the government to issue debt for rollover and capital spending purposes. It explicitly forbids the issuance of debt to cover current expenditures.

1.5 percent of GDP; (2) a maximum average fiscal deficit of the central government of 1 percent of GDP in the medium term (defined as three years); (3) a maximum annual increase in current real public expenditures of 4 percent; and (4) no increase in public wages, unless there is an increase in the minimum wage.

In 2004, the central bank initiated a gradual migration toward an inflation-targeting scheme. From 2004 to 2011, this institution adapted and modernized its operational instruments to change its monetary policy, which until then had been based on a scheme of monetary aggregates. At first, a 5 percent target was set for inflation within a range ( $\pm 2.5$  percent),<sup>16</sup> but there was no explicit commitment until 2011 when it was formally announced. Since then, the central bank has held monthly monetary policy meetings to set the level of the monetary policy rate, which was set as the new instrument instead of monetary aggregates. In order to provide the transparency that the scheme requires, the monetary policy committee regularly publishes press releases, minutes, and quarterly reports to communicate to the public the reasons behind various policy decisions, given the committee's expected outlook on macroeconomic variables.

These structural changes at the beginning of this period contribute to explaining the years of the surplus of the central government in the period 2004–2011. The average surplus was 0.5 percent of GDP,<sup>17</sup> and these savings led to a reduction in external debt (-0.9 percent of GDP on average). Inflation, with the new monetary policy regime, averaged 5.4 percent with a decreasing trajectory at the end of the period. Our conjecture is that both central bank independence and balanced fiscal accounts contributed to keeping inflation low and stable.

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<sup>16</sup>After the implementation, the inflation target and the tolerance range have been gradually reduced since 2014. In 2017, the target was set at 4 percent within a  $\pm 2$  percent range.

<sup>17</sup>The average is computed for the period 2004–2015 since the deficit of the nonfinancial public sector was not available.

### 3 Conclusion

This chapter has provided evidence that the Paraguayan economy follows the conceptual framework of chapter 2 reasonably well, in that the high and volatile inflation that ensued since the mid-1970s to the late 1980s coincided with the period of large fiscal deficits that were partially financed by the central bank. In addition, the permanent reduction in inflation that started in the early 1990s coincides with a change in the institutional framework that made the central bank independent, and with a more conservative fiscal policy stance that permanently changed a pattern of systematic deficits to a pattern of systematic surpluses.

However, the time series pattern does exhibit some puzzling observations, according to the conceptual framework of chapter 2, since some of the burst in inflation does happen in years of fiscal restraint, as, for example, the inflation spikes in the 1970s and in 1990. As mentioned above, one of the main factors explaining the increase in monetary growth (figure 8) and inflation in those years without a fiscal deficit is the considerable increase in international reserves (figure 10). In addition, other factors in each of these periods explain the increase in monetary growth and inflation. In the 1970s, there was a considerable increase in central bank lending to the banking and private sector. In 1990, interest rates were liberalized, legal reserves were reduced, and public-sector deposits (previously deposited in the central bank) were liberalized. This set of measures resulted in a strong increase in liquidity, which partly explains the increase in the monetary base and inflation during these years.

The instability of the 1980s did not seem to have a significant effect on economic activity, however, since it kept on growing as the trend. The main exception was the severe banking crisis of the late 1990s, a period of substantial income losses relative to trend. However, the crisis was not the result of fiscal imbalances, since after 1991, the government attained mostly surpluses. Improper banking regulation seems to have been the main cause of the crisis.

Compared with its peers in the region and with the exception of the

1980s, Paraguay has maintained low fiscal deficits. Inflation has also remained low, with no levels above 45 percent. This has allowed Paraguay to maintain the same currency for more than seventy years, an uncommon occurrence in the region. The legal framework allowed for the central bank's financing until the end of the 1980s, causing, in the decade of the 1980s, a period of fiscal imbalances and nominal instability. The successive modifications of the legal framework between 1989 and 1995 induced an important change in the interaction between fiscal and monetary policy. After this change, the central bank's main objective was to ensure price and financial stability, preventing it from financing the government deficit or public debt service. This modification of the legal framework ensured the independence of the central bank and allowed for the maintenance of nominal stability in the last two periods of analysis. Additional reforms were implemented to correct the inappropriate banking practices and poor financial supervision that led to the worst financial crisis in the history of the country.

Economic performance, on average, was not mediocre. However, this result is greatly affected by the construction of Itaipu in the 1970s. As mentioned, there is no record of sustained growth similar to the one observed between 1974 and 1981. We believe that this situation is mainly a result of the various restrictions imposed on the financial system in the first two periods of analysis, as well as the successive financial crisis episodes between 1995 and 2003.

Paraguay, compared with most Latin American countries, has not experienced major macroeconomic imbalances. Nevertheless, it remains among the countries that have one of the lowest levels of income per capita, in addition to having a low-quality infrastructure and education system.<sup>18</sup> Although Paraguay has been able to narrow the income gap, especially relative to countries that have experienced significant output collapses, its efforts have not been sufficient. The analysis of this chapter suggests that macroeconomic instability, although present for several years, is not the likely reason for the country's lack of convergence.

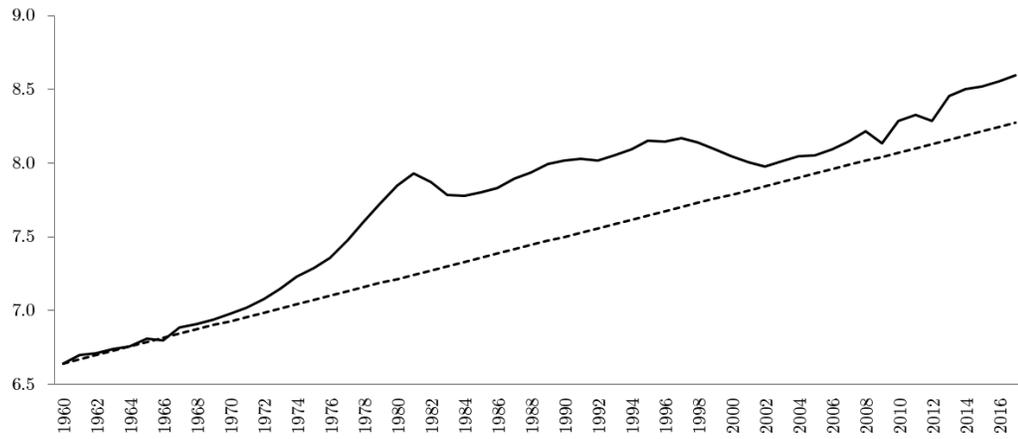
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<sup>18</sup> "Global Competitiveness Index Historical Dataset, 2007–2017," World Economic Forum.

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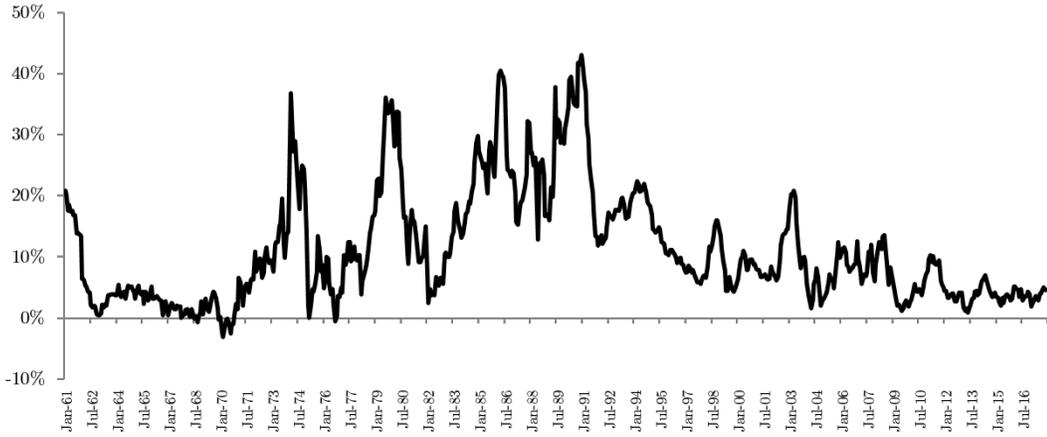
Figure 1: Real GDP per capita



Source: Central Bank of Paraguay.

Note: Log (base 2) of real GDP per capita and 2 percent growth trend.

Figure 2: Annual inflation rate



Source: Central Bank of Paraguay.

Note: Twelve-month inflation rate measured by the change in the consumer price index.

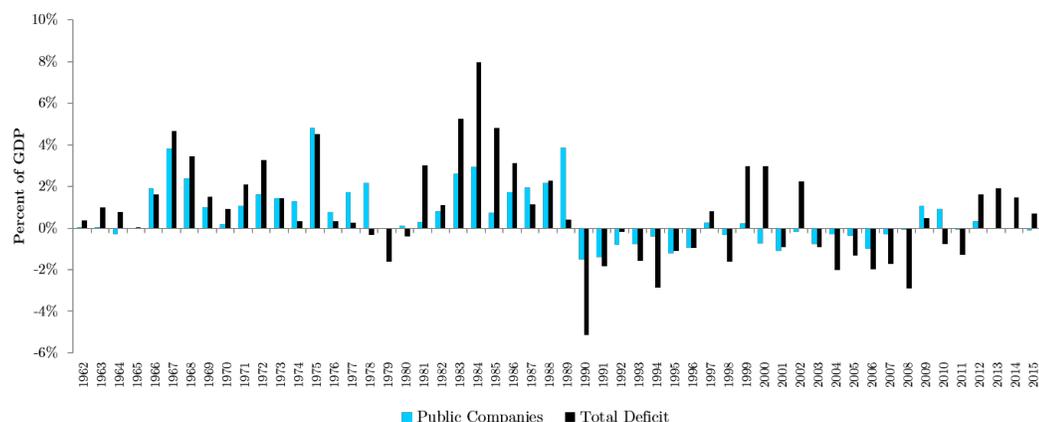
Figure 3: Total deficit, percentage of GDP



Sources: Secretariat for Planning for the 1962–1998 period and Ministry of Finance for the 1999–2015 period.

Notes: Total deficit of the nonfinancial public sector, which comprises the central government, decentralized institutions, municipalities, and public enterprises. Data for the 2016–2017 period were not available for the nonfinancial public sector.

Figure 4: Total deficit and deficit of public companies, percentage of GDP



Sources: Secretariat for Planning for the 1962–1998 period and Ministry of Finance for the 1999–2015 period.  
 Notes: Total deficit comprises the nonfinancial public sector, which includes the central government, decentralized institutions, municipalities, and public enterprises. Data for the 2016–2017 period were not available for the nonfinancial public sector.

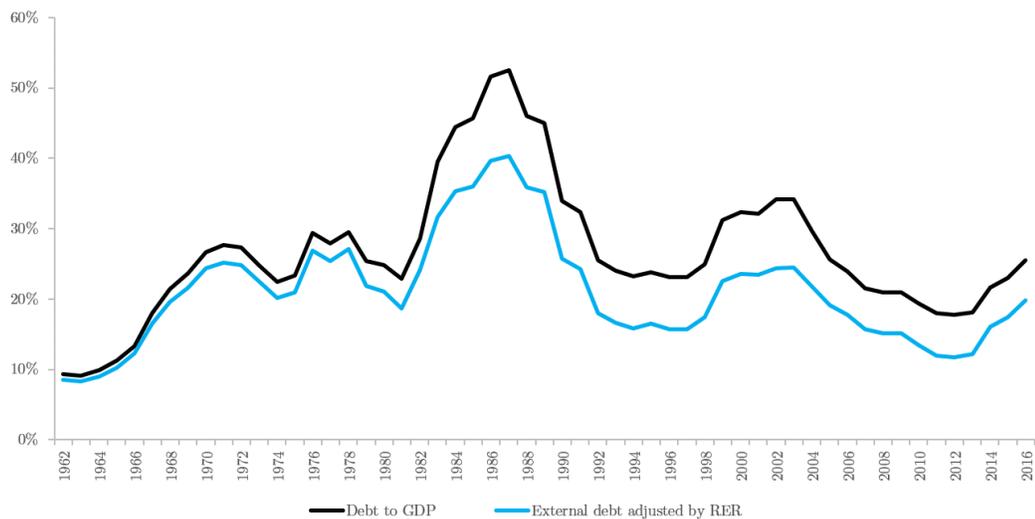
Table 1: Summary of Budget Accounting (%)

Budget constraint	1960–1980	1981–1990	1991–2003	2004–2015
Change in foreign debt	0.8	0.9	0.0	-0.9
Change in real monetary base	0.3	-0.5	0.0	0.2
Seigniorage	1.6	2.4	1.0	0.9
<b>Total</b>	<b>2.7</b>	<b>2.8</b>	<b>1.0</b>	<b>0.2</b>
Deficit	0.8	2.2	-0.2	-0.5
Interest on external debt	0.7	1.7	1.4	0.7
Transfers (residue)	1.1	-1.1	-0.2	0.0
<b>Total</b>	<b>2.7</b>	<b>2.8</b>	<b>1.0</b>	<b>0.2</b>

Sources: Central Bank of Paraguay, Ministry of Finance, and Secretariat for Planning.

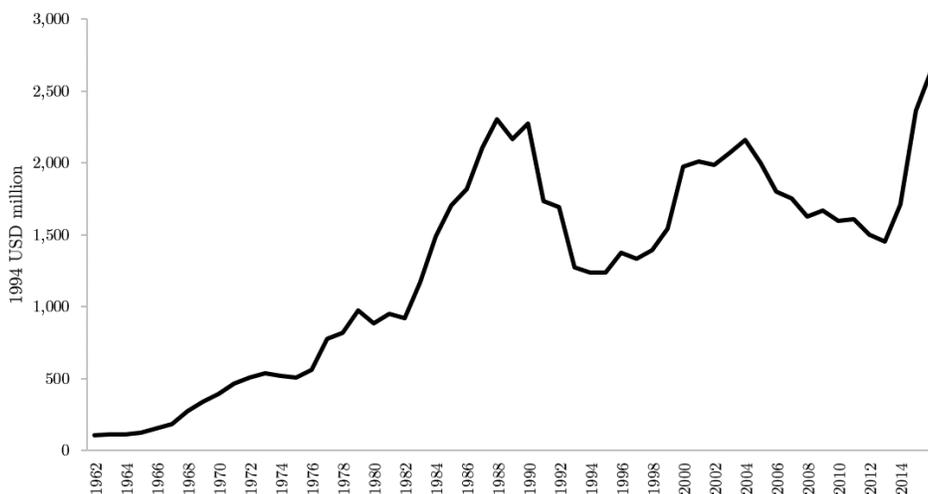
Notes: Values expressed as percentage of GDP. Seigniorage is computed as  $m_{t-1}(1 - \frac{1}{\pi_t g_t})$ , where  $m_{t-1}$  corresponds to the real monetary-base-to-GDP ratio in  $t - 1$ ,  $\pi_t$  is the gross inflation rate, and  $g_t$  is the gross real growth rate of GDP. The deficit comprises the nonfinancial public-sector deficit excluding external debt interest payments.

Figure 5: Public external debt, percentage of GDP



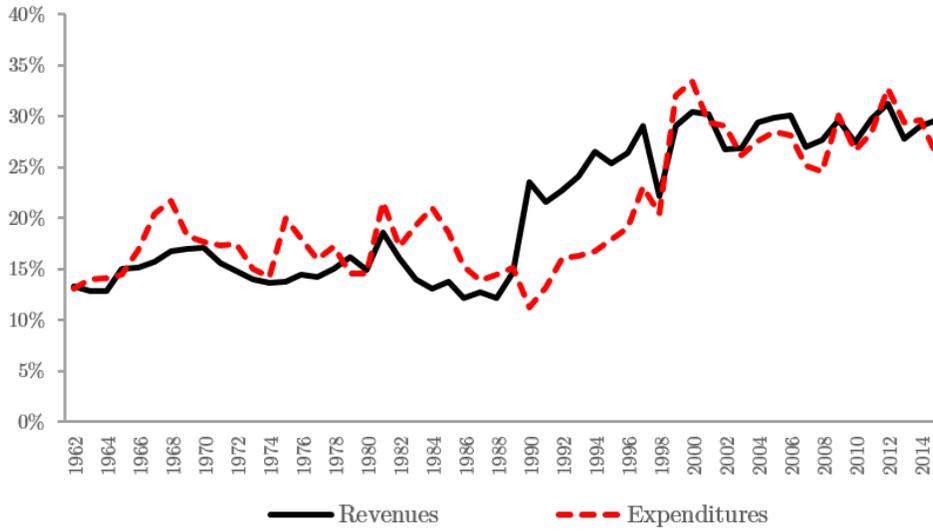
Sources: Central Bank of Paraguay and Ministry of Finance.

Figure 6: External public debt in constant USD



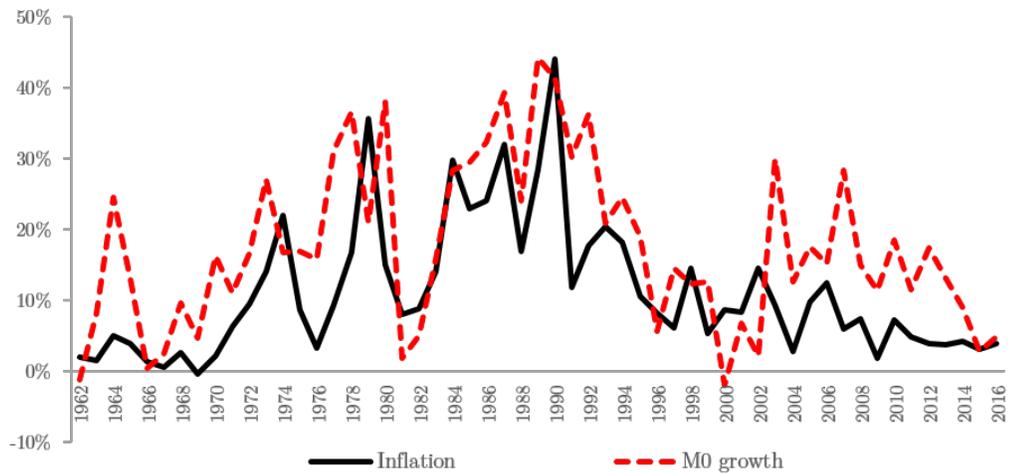
Sources: Central Bank of Paraguay and Ministry of Finance.

Figure 7: Revenues and expenditures of the public sector, percentage of GDP



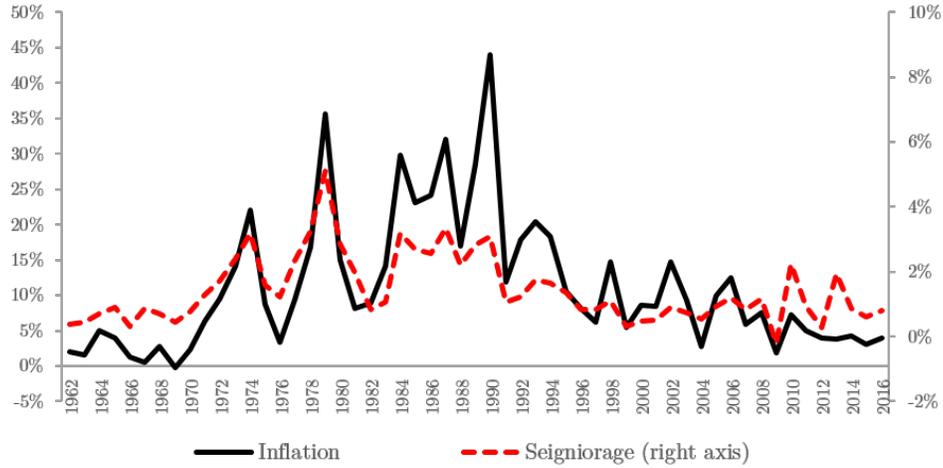
Sources: Secretariat for Planning for the 1962–1998 period and Ministry of Finance for the 1999–2015 period.  
 Note: Data for the 2016–2017 period were not publicly available for the nonfinancial public sector.

Figure 8: Annual inflation and M0 growth



Source: Central Bank of Paraguay.

Figure 9: Annual inflation rate and seigniorage as a share of GDP



Source: Central Bank of Paraguay.

Table 2: Changes in the Central Bank Legislation I

	Decree-Law Nr. 18 “That creates the Central Bank of Paraguay (CBP)” (1952)	National Constitution (1992)	Law 489 “Organic of the Central Bank of Paraguay” (1995)
Government financing	The CBP may lend to the government and other institutions affected by public law, either with promissory notes or through purchase of government bonds. These operations will be approved by the executive power and are guaranteed by the Treasury (Art. 101).	The central bank must refrain from agreeing to provide credits (direct or indirectly) to finance the public sector’s budget, except for short-term loans and in case of national emergency (Art. 286).	The CBP may provide short-term loans to the government based on the expected tax income stated in the budget. This amount cannot exceed 10% of the tax income and should be canceled by the end of the fiscal year (Art. 58).
Use of foreign reserves	The central bank will hold foreign reserves in gold and foreign currency. One of its purposes will be to ensure the external public debt service (Art. 83).		The foreign reserves are destined exclusively to ensure the stability of the free foreign exchange market, overcome transitory setbacks in the balance of payments, and preserve the external value of the currency (Art. 61).
Independence	If the central bank refrains from providing financing, this will be evaluated by the Economic National Council. The central bank will have to explain the potential impact of this financing to the economy. The recommendations adopted by the council will be binding (Art. 102).		The board of the CBP will determine the interest rate, maturity, and other required conditions to provide financing to the government (Art. 57).

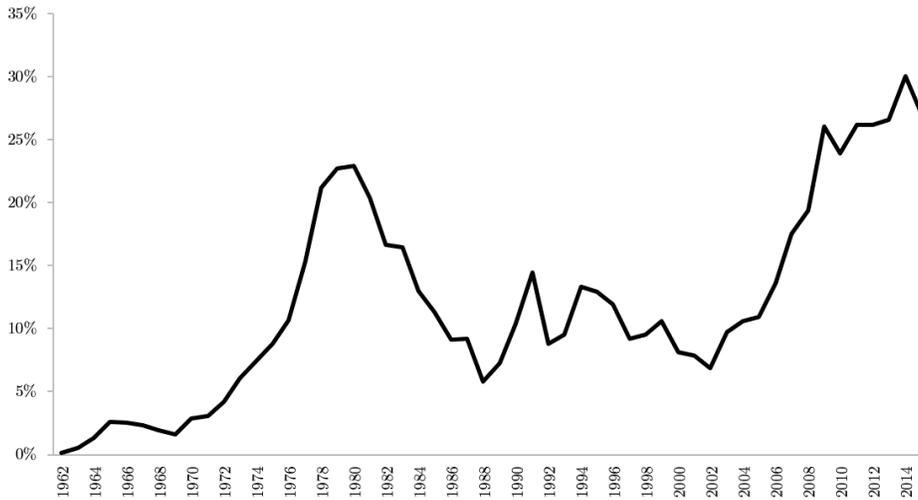
Sources: Decree-Law Nr 18/1952 “That creates the Central Bank of Paraguay,” National Constitution of 1992, and Law 489/95 “Organic of the Central Bank of Paraguay.”

Table 3: Changes in the Central Bank Legislation II

	Decree-Law Nr. 18 “That creates the Central Bank of Paraguay (CBP)” (1952)	National Constitution (1992)	Law 489 “Organic of the Central Bank of Paraguay” (1995)
Central bank functions	Collaborate on the coordination between economic, financial, and fiscal policy of the government and monetary and credit policy of the central bank. Act as a banking agent and adviser of the government (Art. 4). Implement monetary and credit policy to maintain or reestablish the country’s external balance and the competitiveness of domestic products on foreign and domestic markets (Art. 5).	Participate with other public economic institutions, on the formulation of the monetary, fiscal, and exchange policy, being responsible for its implementation by preserving monetary stability (Art. 285).	The fundamental objectives of the central bank are maintaining the value of the domestic currency (Art. 3).
Guarantees	The central bank may provide guarantees to all public-sector financing contracts, using its assets (including foreign reserves) as collateral (Arts. 90 and 91).		The CBP may not provide guarantees to any public institution without explicit authorization of the law (Art. 59).

Sources: Decree-Law Nr 18/1952 “That creates the Central Bank of Paraguay,” National Constitution of 1992, and Law 489/95 “Organic of the Central Bank of Paraguay.”

Figure 10: Net foreign reserves, percentage of GDP



Source: Central Bank of Paraguay.

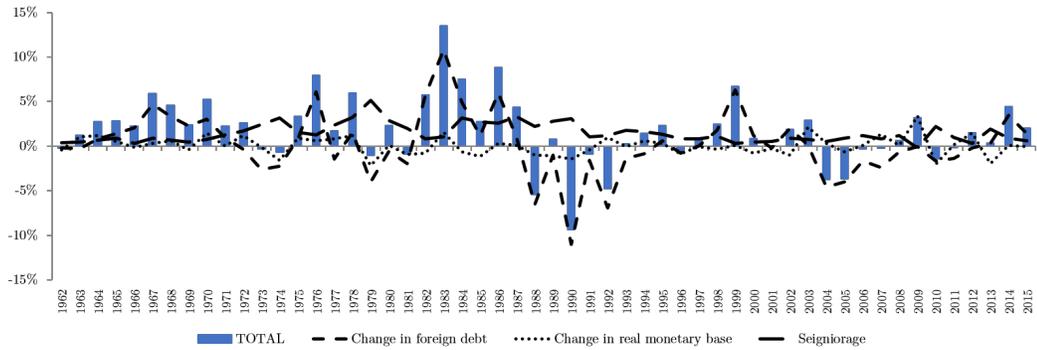
Note: Foreign reserves of the Central Bank of Paraguay, net of foreign liabilities.

Figure 11: Real exchange rate



Source: Central Bank of Paraguay.

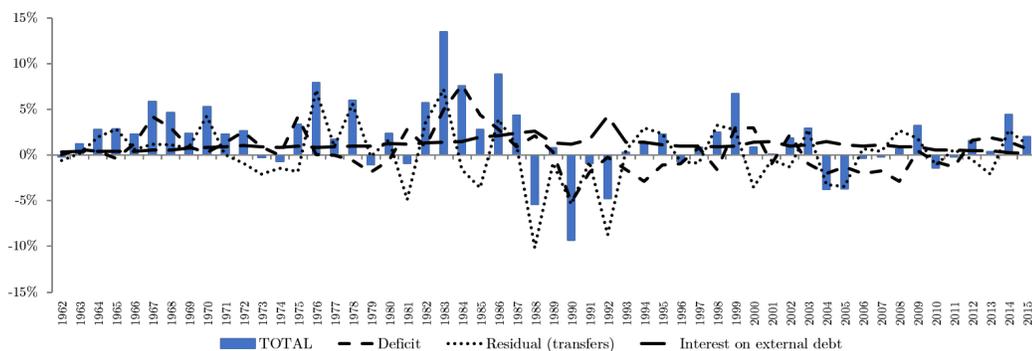
Figure 12: Public external debt, change in real monetary base, and seigniorage as a share of GDP



Sources: Central Bank of Paraguay, Ministry of Finance, and Secretariat for Planning.

Note: Results of the budget accounting exercise that correspond to the financing sources of the public-sector obligations.

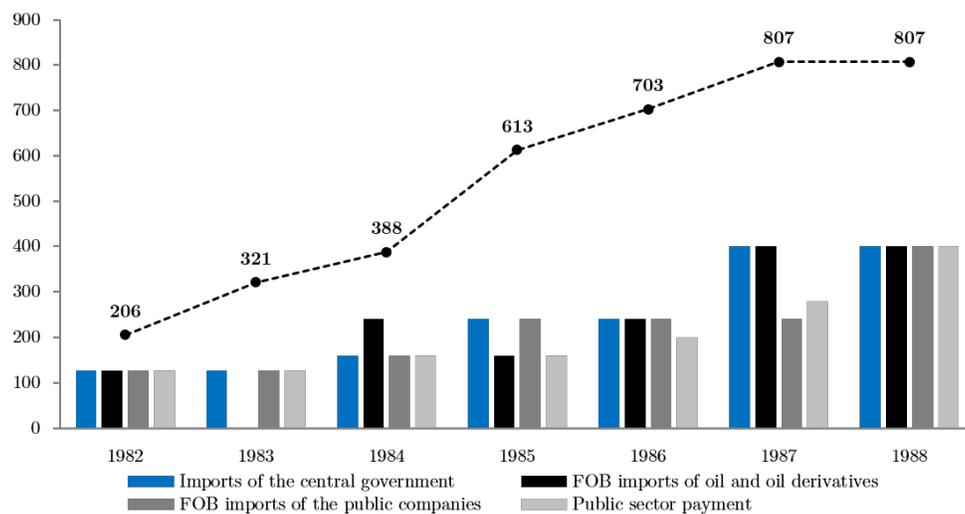
Figure 13: Deficit, interest on external debt, and transfers as a share of GDP



Sources: Central Bank of Paraguay, Ministry of Finance, and Secretariat for Planning.

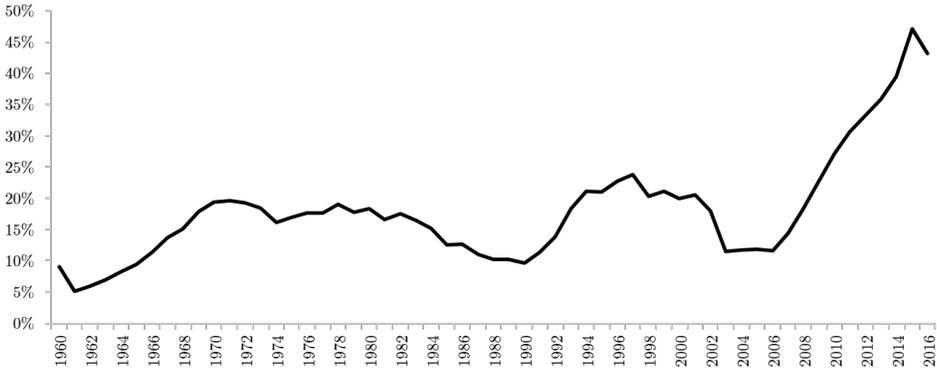
Notes: Results of the budget accounting exercise that correspond to the financial obligations of the public sector. The deficit comprises the nonfinancial public-sector deficit excluding external debt interest payments.

Figure 14: Multiple nominal exchange rate 1982–1988, guaraníes per US dollar



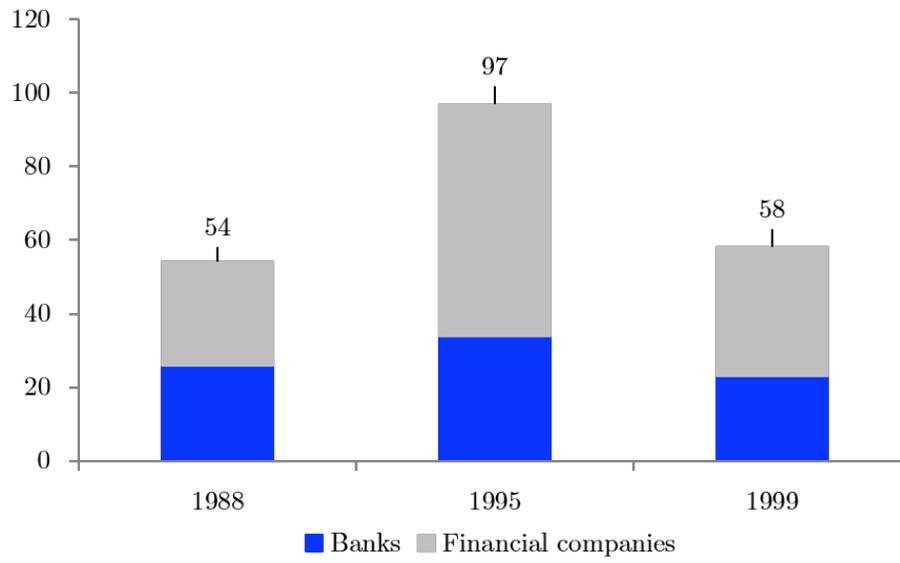
Sources: Central Bank of Paraguay and Otazú (1991).

Figure 15: Credits of the banking system to the private sector, percentage of GDP



Source: Central Bank of Paraguay.

Figure 16: Number of financial intermediaries



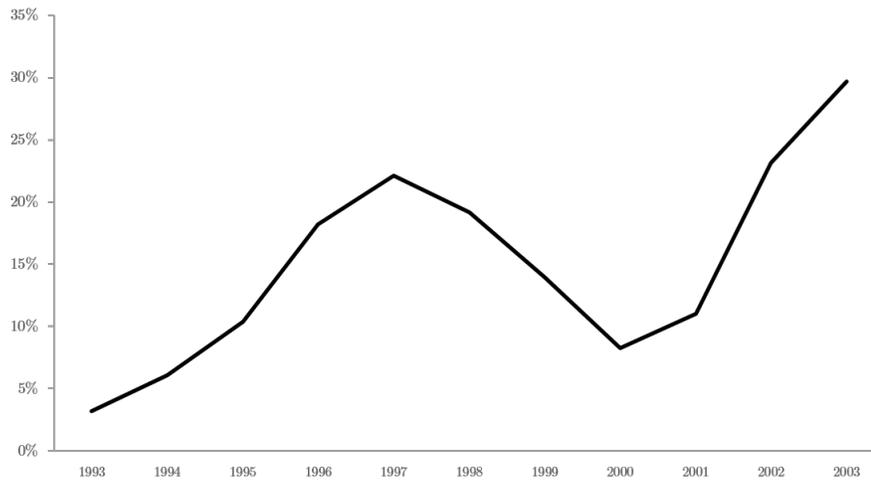
Source: Insfrán (2000).

Table 4: Estimates of direct costs of the financial crisis, percentage of GDP

Year	Annual cost (%)	Cumulative cost (%)
1995	5.6	5.6
1996	0.1	5.7
1997	3.4	9.1
1998	3.7	12.8
1999	0.5	13.3
2000	1.5	14.8
2001	0.1	14.9
2002	0.6	15.5
2003	0.2	15.7

Source: Mlachila (2010).

Figure 17: Central bank securities, percentage of M0



Source: Central Bank of Paraguay.

Note: Central bank securities are short-term zero-coupon bonds that financial institutions acquire through open market operations.

## Appendix

Itaipu Binational is an entity that was created in the 1970s by the governments of Paraguay and Brazil. Electric power production started in 1984, and since then it has been selling power to the Administración Nacional de Electricidad (ANDE—Paraguay) and the Centrais Elétricas Brasileiras (Eletrobras—Brazil).

The installed capacity of the electric power plant is divided into equal parts. ANDE and Eletrobras hire fractions of the installed capacity based on their consumption. If a country does not consume all of its share of energy produced, Itaipu Binational may assign the surplus energy to other countries in exchange for compensation.

Nowadays, Paraguay consumes only a small percentage of its share of energy production, and as mentioned in the treaty, it receives payment for ceding energy to Brazil. Also, the government of Paraguay received financial transfers, called royalties, from the use of Paraguay's natural resource (Paraná River) for electricity production. Additionally, ANDE received capital gains and compensation for management and supervisory duties.

The Itaipu Binational entity asked for loans to finance the dam's construction. The loans were mainly obtained from Eletrobras, the government of Brazil, and the Banco Nacional de Desenvolvimento Econômico e Social (BNDES). The funds raised for the construction, including financial extensions, summed to US\$26.9 billion, in addition to the US\$100 million shared capital. Currently, Itaipu Binational is still paying for the loans with revenues from electricity sales. It is estimated that by the year 2023, the company will finish paying its total debt.