

Fiscal rule and central bank issues in Chile

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Currently, Chile has solid institutions for economic governance and a sound framework for stabilisation policies. This environment contrasts with the policy regime prevailing for several decades around the middle of the 20th century. That was a period of chronic fiscal deficits, high inflation and continuous shortage of foreign exchange. Since then, the key institutions for sound management of fiscal and monetary policy have been reformed; in addition, independence was granted to the central bank in 1989. Also, the policy framework has been improved, embracing the recommendations that emerge from past experiences and policy lessons of other countries.

Today, based on an autonomous central bank, monetary policy pursues an inflation target and there is a floating exchange rate. Fiscal policy, in turn, pursued rather conservative objectives in the 1990s, with an average fiscal surplus of 1.5% of GDP from 1989 (Table 1) and consolidated public debt declining from 40% of GDP in 1989 to 8% in 2002 (Table 2).

This comfortable fiscal position has deteriorated to some extent since 1997, when there was a marked fiscal expansion and a surge in private spending prior to the Asian crisis. Furthermore, the 1999 recession and sluggish recovery have weakened the fiscal accounts. The deficit reached almost 2% of GDP in 1999, a level considered high compared to the average of the past two decades. With the firm purpose of restoring a sound fiscal position, the new government that took office in early 2000 announced that fiscal policy would follow rules designed to maintain a structural surplus of 1% of GDP. The purpose of this rule was to confirm the government's commitment to sound fiscal policies.

This paper reviews several issues that are relevant to assessing this rule approach to fiscal policy, with special consideration given to its connection with the central bank's policies.

1. Methodology of the structural balance

The diverse factors influencing the public sector budget in Chile suggest the use of an indicator such as the structural balance in order to assess properly the fiscal stance. The tax system is simple, and broad-based. This makes tax collections directly related to the output gap. Transfers by CODELCO, the state-owned copper company, make a hefty contribution to the budget. Inflation and interest rates are less relevant since the tax system is indexed and debt is low. On the whole, the economic cycle explains a significant portion of the exogenous influences on the budget. Also, the standard methodology for structural balance used by the IMF was adapted to consider copper price fluctuations, which exert an important influence on the budget.

Accordingly, the structural balance is defined as the level of revenues minus expenditures if GDP were equal to potential and the copper price equal to its medium-term trend. In addition, the accounting classification of some items in the budget is improved to obtain more meaningful figures. Although the size of the latter adjustments may be relevant in specific years, the idea of the structural balance is to exclude the cyclical effect of domestic activity and the short-term variability of the copper price.

The result of this methodology is a fiscal indicator that changes over time mainly due to discretionary fiscal policy, but also due to exogenous non-cyclical factors affecting revenues and expenditures. Isolating discretionary fiscal policy completely would require estimating all exogenous variables affecting fiscal aggregates, which is extremely difficult. So, this is a limitation of the structural balance methodology that needs further analysis to find out its probable magnitude.

¹ The ideas expressed in this paper are those of the author and do not necessarily reflect those of the Central Bank of Chile or its Board.

The methodology for the structural balance applied in Chile covers the central government, which represents the most direct sphere of control of fiscal policy. This definition includes all agencies subject to the annual budget proposed by the executive and approved by Congress.

The estimation of the structural balance follows three steps: (i) correction of accounting criteria; (ii) cyclical adjustment; and (iii) modification of the copper price. The first step tries to approximate the actual fiscal balance to the variation in net worth of the central government. This requires reclassification of those items that represent deficit financing of the central government, but do not necessarily modify its net worth position. Their counterpart is a change in the "other assets" account, rather than revenue from the private sector. These adjustments include: (a) registering below the line (deficit financing) revenue items such as purchases of bonds and securities, revenues from privatisation, sales of financial assets, recovery and granting of loans; (b) computing all copper sales as fiscal revenues, which means that deposits (or overdrafts) in the Copper Compensation Fund are included in the structural budget; (c) registering the operations of the Oil Price Stabilisation Fund as standard fiscal operations; and (d) computing the flow of payments according to the stock of social security bonds rather than the change in the stock of these bonds.

The second step of the structural balance methodology takes into account the cyclical component of the budget. In the Chilean public sector, the cyclical component of spending is not considered because there is no explicit link between the output gap and public expenditure programmes, such as unemployment benefits. In contrast, the cyclical component of tax revenues is calculated from income elasticities and the output gap.

The output gap is a key concept in the structural balance methodology and is subject to methodological debate. In the case of Chile, the output gap is obtained from the average estimation of a panel of experts, appointed by the Minister of Finance. They estimate the relevant parameters for potential GDP, such as the growth rate of the capital stock, labour force (adjusted by education) and total factor productivity for a period of five years ahead. These figures are then used to obtain the annual output gap. The income elasticity of tax revenues, in turn, is given a value of 1.05, which results from standard econometric estimates. Therefore, structural tax revenue is defined as the amount that would have been collected if the output gap were zero. The difference between actual and structural tax revenues is the cyclical effect of the fiscal balance.

Table 1
Chile: structural balance and fiscal indicators
(% of GDP)

	1989	1995	1996	1997	1998	1999	2000	2001	2002
Public saving	3.0	4.9	5.3	5.1	3.8	2.3	3.5	3.2	2.7
Actual balance	1.3	2.3	2.1	1.8	0.4	-1.4	0.1	-0.3	-0.8
Adjusted balance	3.2	2.9	2.1	1.9	0.1	-2.2	-0.8	-0.6	-1.1
Cyclical effects									
Output gap effect	0.4	0.2	0.4	0.6	0.4	-0.5	-0.4	-0.5	-0.9
Copper price effect	4.1	1.2	0.3	0.2	-0.7	-0.9	-0.4	-1.0	-1.0
Total	4.4	1.4	0.7	0.8	-0.3	-1.4	-0.8	-1.5	-1.9
Structural balance	-1.1	1.4	1.3	1.1	0.5	-0.7	0.0	0.9	0.9

Source: Ministry of Finance, Chile.

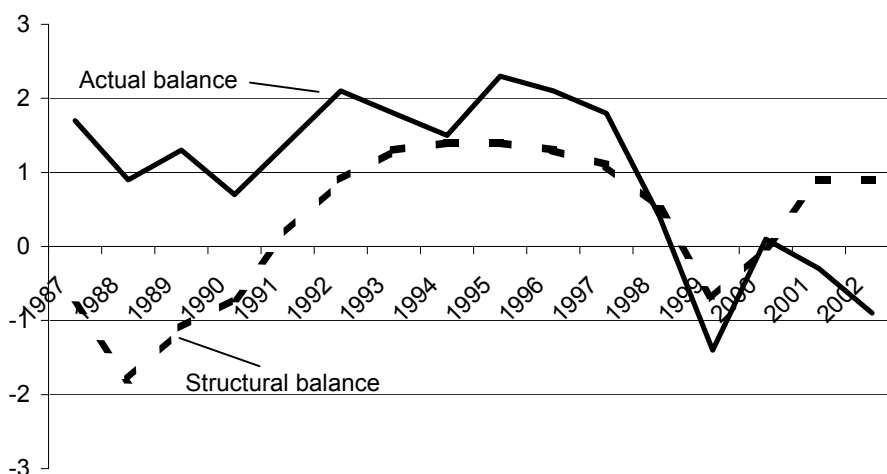
The third step takes into account the discrepancy between the actual and the medium-term copper price. In other words, the structural balance computes CODELCO's physical sales at trend value. The medium-term copper price is difficult to forecast. So, the same treatment is applied as for the output gap, with a second expert commission, also appointed by the Minister of Finance. This methodology may be summarised in the following expression:

$$\text{Structural balance} = \text{Actual balance} + A + [T_t^* - T_t] + [IC_t^* - IC_t]$$

where A represents the accounting adjustment mentioned above. The cyclical effect is reflected in $[T_t^* - T_t]$, where the tax revenue at zero output gap is defined as $T_t^* = T_t(Y_t^*/Y_t)^\varepsilon$, T_t represents the amount of the actual tax collection, and ε is the income elasticity of tax revenues. Finally, $[IC_t^* - IC_t] = (\text{physical sales of CODELCO})(P_t - R_t^{ref})$, that is, the difference between the value of physical sales at the market and reference copper prices.

The results of applying this methodology to the Chilean fiscal accounts are presented in Table 1. Graph 1 illustrates that the structural balance is more stable than the actual fiscal balance. Unquestionably, the structural balance is a more meaningful concept and reflects better the evolution of the fiscal policy stance. The total amount of the three adjustments varies from 2.4% of GDP in 1989 to -0.7% in 1999. The breakdown of the three effects confirms that each of them is relevant to the overall estimation. For example, the average absolute adjustment to copper revenues was 1.3% of GDP during 1989-2001. This shows that applying only the cyclical component of the methodology may distort the assessment of the fiscal stance.

Graph 1
Chile: actual and structural fiscal balance
(% of GDP)



Source: Ministry of Finance, Chile.

In 1989, for example, the actual surplus was 1.3% of GDP; nevertheless, if the economy had been at its potential GDP and the copper price at its long-term trend price, there would have been a deficit of 1.1% of GDP. So most of the surplus reflected the cyclical position of the economy, as actual tax revenues were higher than structural tax revenues since actual GDP was above potential output. Besides, the short-term copper price was considerably higher than the long-term price; so actual revenues from copper were considerably higher than structural copper revenues. In total, the cyclical component in 1989 was 4.4% of GDP.

In 1999, the situation was reversed as the actual balance showed a deficit of 1.4% of GDP, while the structural deficit was zero. This is due to the gap between potential and actual GDP and between short-term and long-term copper prices. Therefore, it is concluded that the evolution of the traditional balance tends to overstate the changes in fiscal stance during the cycle.

2. Fiscal rule and public sector debt

The public sector balance represents a flow indicator that over time defines a debt path. Therefore, setting a certain level for the structural surplus as the target of the fiscal rule is equivalent to delineating a desired path for public debt. To decide on the optimal path, one needs to recognise the

tension between two goals: intergenerational transfers and sustainability. On the one hand, debt accumulation increases the risk of an escalating cost of financing future fiscal deficits. This states a sustainability constraint. However, on the other hand, reducing the level of debt is equivalent to a wealth transfer to future generations, which would presumably be richer. It is necessary, therefore, to obtain a suitable balance between sustainability and intergenerational fairness.

In choosing the optimal debt path, it is also important to recognise that financial markets are less tolerant of public debt in emerging than in advanced economies. This may be a consequence of institutional or governance weaknesses and emerging economies being more exposed to external volatility and exogenous shocks. Whatever the reason, the evidence tends to corroborate the fact that, from a certain threshold of public debt, the economy starts to experience not only higher sovereign risk premia, but also additional volatility in financial markets. Although public debt is well below this threshold (probably around 25-30% for the net debt/GDP ratio), the current heightened sensitivity and risk aversion of financial markets make it prudent to keep the debt ratio below this sensitive zone.

This rather conservative policy principle should lead to a long-term balance as the final result of fiscal accounts. However, in the Chilean case a long-term fiscal rule must consider some contingent liabilities not included in the actual budget, such as the minimum pension guarantee, other social security liabilities and state guarantees for infrastructure concession projects. These items have little effect on the short-term risk assessment of the economy, but represent resource commitments that may become more important over time. Also, Chile's central bank runs a cash flow deficit as the effective interest paid on its liabilities exceeds the average yield on its assets.

Therefore, since the fiscal rule of a 1% structural surplus is applied only to the central government, once these other factors influencing fiscal accounts are considered, the consolidated balance is close to zero, implying that the consolidated public debt is constant in the medium term. In other words, this structural surplus makes it possible to confront contingent liabilities that are not included in the government budget. This analysis excludes public enterprises which have independent financial management linked to their productive aims and are not used as instruments of fiscal policy.

The central government running a 1% of GDP structural surplus keeps consolidated debt a fairly constant proportion of GDP in the medium term, including a provision for contingencies. Furthermore, the application of this rule contributes to sustaining a sound level of public saving, which has been an important source of investment financing in the past in both Chile and other emerging economies. In addition, the structural surplus accounts for the fact that future generations might not benefit from the exploitation of exhaustible resources such as copper.

3. Debt sustainability

The most important indicator of public sector indebtedness and fiscal solvency is the debt/GDP ratio. The standard definition of public debt in advanced economies corresponds to gross central government debt. But in emerging economies other public institutions may hold significant portions of public debt, so the relevant institutional concept must be considered on a case by case basis. For example, Chile's central bank has accumulated significant liabilities from financing bank rescues in the early 1980s and the purchase of international reserves in the 1990s. Therefore, a more meaningful concept is the consolidated debt of the central government and the central bank, which may be gross or net of international reserves. Given the financial characteristics of international reserves, it is probably more appropriate to use the net concept, but the distinction is irrelevant for sustainability calculations, since the primary balance should include the interest payment on international reserves if gross debt is used and exclude these payments if the net debt is used.

The consolidated net debt declined from 40% of GDP in 1989 to 8% by 2002. This reduction responds to three factors: (i) the accumulated fiscal surplus, up to 1997; (ii) the strong growth of GDP in this period; and (iii) the reduction in market interest rates. However, as shown in Table 2, debt indicators display a slight increase in the period after 1997, with central government net debt increasing from 4% in 1997 to 11% in 2002. This is due to fiscal deficits and low growth in recent years.

The level of public sector debt in Chile compares favourably with the levels shown by other emerging economies and most advanced countries. Also, the Chilean public sector does not have large amounts of net debt denominated in foreign currency. On the contrary, foreign currency denominated financial assets, of around 25% of GDP, exceed the same type of liabilities, of around 15% of GDP. In addition,

the central government balance improves with peso depreciation because transfers received from CODELCO, the state-owned copper company, are larger than foreign currency denominated payments.

Table 2
Chile: public sector debt
 (% of GDP)

	1989	1995	1996	1997	1998	1999	2000	2001	2002
Central government									
Domestic currency debt									
Gross	5.8	2.1	1.8	1.6	1.5	1.4	1.3	1.1	1.0
Net	2.0	-1.9	-2.0	-2.2	-2.1	-3.1	-2.8	-3.3	-3.4
Foreign currency debt									
Gross	38.1	15.6	13.3	11.6	11.0	12.4	12.5	13.9	14.9
Net	36.3	10.4	7.9	5.6	5.7	8.6	9.8	12.1	14.2
Total debt									
Gross	43.8	17.7	15.1	13.2	12.5	13.8	13.7	15.0	15.9
Net	38.3	10.4	7.9	5.6	5.7	8.6	9.8	12.1	14.2
Central bank									
Total debt (net)	2.1	4.2	4.9	6.0	5.2	3.9	3.6	0.6	-2.5
Consolidated public sector									
Total debt (net)	40.4	12.8	10.9	9.5	8.8	9.4	10.6	9.4	8.3

Source: Ministry of Finance, Chile.

To calculate the primary surplus that keeps current debt a constant proportion of GDP in the medium term, one needs to estimate future growth and effective interest rate. Choosing some reasonable values for these parameters and using the relationship $primary\ fiscal\ balance = \frac{(r-g)}{(1+g)}\ debt\ ratio$ generates the required primary balances shown in Table 3.

Table 3
Required primary balances (% of GDP)

Interest rate (r)	Growth rate (g)		
	3.0%	3.5%	4.0%
6.5%	0.5	0.4	0.3
7.0%	0.6	0.5	0.4
7.5%	0.6	0.5	0.5

These figures are not significantly different from the current primary surplus, which averaged 0.6% of GDP in 1997-2001 and 0.4% in 2000-01. This performance indicates that the policy rule aimed at keeping a 1% of GDP structural surplus is consistent with keeping the consolidated public debt constant in the medium term. These calculations explain why sustainability is not a concern in Chile.

4. Economic consequences of the fiscal rule

The application of the fiscal rule has two essential consequences for central bank policies. First, the structural surplus rule ensures long-term fiscal sustainability, which in turn allows for an independent monetary policy. Second, the rule increases the efficiency of fiscal policy as a tool for short-term output stabilisation, setting a new framework for more efficient coordination of stabilisation policy.

4.1 Long-term sustainability

The first effect of a fiscal rule is to strengthen fiscal discipline. Fiscal sustainability is a crucial condition for independent monetary policy. Before the Central Bank of Chile became independent in 1989, monetary policy was repeatedly subordinated to fiscal financing decisions, leaving little room for an effective stabilisation policy. This is evident in the chronic inflation of those years and the extreme fluctuations of output.

Conversely, when fiscal policy is sustainable, monetary policy can be conducted to deliver price stability and to contribute to reducing both inflation and output volatility. Therefore, meeting an established target of 1% of GDP for the structural balance every year ensures that public debt is not accumulated throughout the cycle.

Cyclical changes of the fiscal balance are a consequence of the operation of the budget's automatic stabilisers and will not lead to risky fiscal deficits. As the structural balance ensures a sound financial position, it also permits the transitory deterioration of the fiscal balance in the recessive phase of the cycle, to be compensated by the strengthening of the balance during the expansionary phase.

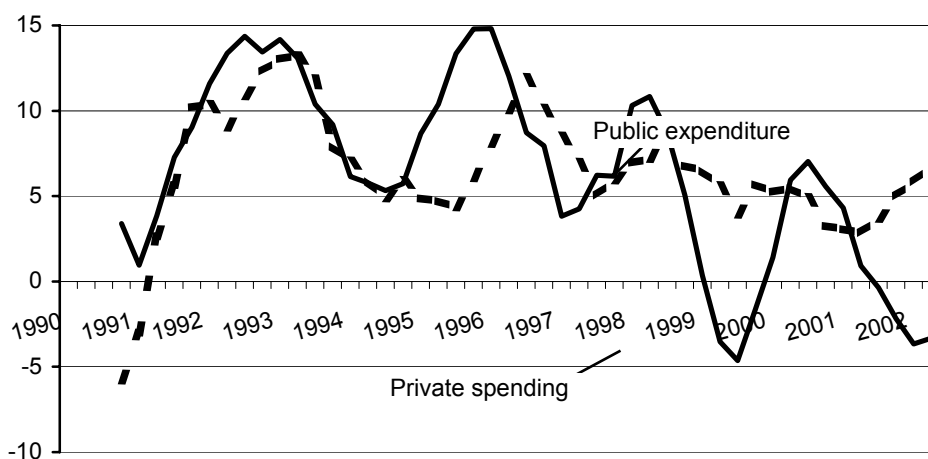
This fiscal rule does not mean that the budget result will always have a surplus or there are never going to be fiscal deficits; it simply means that maintaining an appropriate level of structural surplus will only permit temporary fiscal deficits up to desired levels. This is a fundamental condition for maintaining a stable monetary regime, with an independent monetary policy.

4.2 Short-term stabilisation

The second important effect of the structural surplus rule is the increased efficiency of fiscal policy as a tool for short-term stabilisation. The structural balance rule gives countercyclical fiscal policy room to maintain the stability of public finances. The explicit distinction between actual and structural balance allows automatic stabilisers to operate, although in the Chilean budget structure these stabilisers operate only in tax collection and not in government expenditure. Nevertheless, this device helps to reduce output variability throughout the cycle.

Graph 2

Chile: growth of private and public spending



Source: Central Bank of Chile.

Graph 2 shows the recent trajectory of private and public demand in Chile, clearly indicating the countercyclical character of fiscal policy. Since mid-2001, private demand has sharply declined while public expenditure has been more stable and has even increased in line with the fiscal rule.

The operation of a fiscal rule is equivalent to a change in the composition of fiscal policy, with less weight for discretionary policy and a larger weight for systematic policy. On the other hand, systematic policy is linked to the output gap and also to the difference between actual and trend copper prices.

Consequently, the structural surplus rule makes fiscal expenditure independent of variations in the budget balance resulting from exogenous shocks to aggregate demand, real GDP or the copper price. For example, an exogenous cyclical shock such as a contraction in aggregate private sector demand will tend to reduce tax revenue, thereby reducing the government's budget balance. In these circumstances, the maintenance of government spending is likely to help mitigate the effect of the initial adverse shock on private aggregate demand. As mentioned, expenditure does not operate as an automatic stabiliser. If this were the case, the magnitude of the countercyclical effect of the fiscal rule would be increased.

In general, keeping the budget away from discretionary policy contributes to smoothing the cycle. The reason is that discretionary fiscal policy is affected by irreversibility problems. It greatly depends on political considerations that interfere with its timing, and also it is subject to long implementation lags. However, once implemented, the effect passes through to the economy faster than do the effects of monetary policy. Conversely, systematic policy offers fewer incentives for time inconsistency problems, which affect credibility and have counterproductive effects. Credibility increases the effectiveness of automatic stabilisers of fiscal policy, which smoothes the cycle.

Under a rule regime, economic agents know how fiscal policy reacts to changes in the output gap and the terms of trade. This makes it easier for the market to anticipate fiscal measures, also smoothing the cycle. Consequently, it is more difficult to surprise the market, as economic agents can easily distinguish changes within the rule from changes of the rule. This explains the common finding that changes in discretionary policy tend to have a significant effect on interest rates, while changes of systematic policies do not. The same contrast is also found for the effect of fiscal policy on exchange rates.

In addition, the use of a fiscal policy rule changes the character of policy coordination between the ministry of finance and the central bank. On the one hand, fiscal and monetary policies will operate in the same direction and effectively exert a countercyclical influence on aggregate demand, which, in turn, improves the capacity of stabilisation policies. But, this will be achieved through implicit rather than open coordination, as most changes of fiscal policy are automatically driven by the cyclical position of the economy.

4.3 Further policy issues

Calculating the structural balance requires an evaluation of the output gap and the medium-term copper price, and these will change if significant shocks affect the economy or the copper industry. Consequently, operating the fiscal rule requires assessing the type of shock as either permanent or temporary. The former will affect the parameters of the methodology used to obtain the structural balance, while the latter will affect only the actual balance. If a permanent shock were treated as temporary, then the fiscal stance would be inappropriate - either too tight or too loose. The correct application of the fiscal rule therefore requires an active analysis of economic developments.

A fiscal policy rule such as the structural surplus has important benefits for stabilisation purposes. In this respect, it is an excellent companion for monetary policy. But the rule also limits the extent to which fiscal policy can operate as a stabilisation instrument, which could become relevant in rather severe circumstances. This is an issue that deserves further analysis in the Chilean case. The counterpart of this constraint on fiscal policy operating as a stabilisation instrument warrants consideration in monetary policy decisions. In normal times the fiscal rule will back the same purpose as monetary policy, but in special circumstances there is a limit in the fiscal policy side.

The stabilisation potential of the fiscal rule strongly depends on the structure of the budget. Specifically, items operating as automatic stabilisers give more flexibility to the structural balance, which allows for a larger difference between actual and structural balance on both the up- and downsides of the cycle. The output gap effect of the structural balance in Chile ranged between -0.9 and 0.6% of GDP during 1989-2001. This range is smaller than in OECD countries, in which automatic

stabilisers exert a greater effect on the structural surplus. This comparison indicates that the aggregate automatic stabilisers in Chile are less significant than in advanced countries.

Two additional issues related to the stabilisation capacity of the fiscal rule are the relative size of the government and the output elasticity of tax collections. Though the structural balance provides a valuable measure for assessing the fiscal policy stance, there are at least two other indicators that are used by the Central Bank of Chile to obtain a more comprehensive picture of fiscal policy changes and their expected influence on the economy. These indicators are expenditure growth and budget implementation ratio.

Real expenditure growth gives a simple measure of fiscal policy, especially when computed as a deviation from trend or compared to output growth. The inconvenience is that each item tends to have a different effect on aggregate demand. For example, interest payment abroad has no influence on domestic demand (even if it directly affects the current account of the balance of payments). For monetary policy purposes, a measure of the real growth of expenditure with relevant macroeconomic effect is calculated. In practice, this is done by excluding interest payments and a few other items such as the change in the stock of social security bonds.

Finally, the degree of budget execution is another indicator of the fiscal position, which provides complementary information on previous measures. It is estimated as the executed percentage of total budgeted expenditure and revenues. Frequently, the expenditure execution ratio is reasonably useful in assessing fiscal policy stance.

5. Central Bank of Chile's balance sheet

The composition of the Central Bank of Chile's assets and liabilities reflects two key features of macroeconomic performance and management over the past two decades. First, the financial crisis at the beginning of the 1980s resulted in the accumulation of fiscal promissory notes, subordinated debt and deferred losses. Second, the strong balance of payments in the 1990s, combined with a policy of trying to hold back peso appreciation, produced a substantial accumulation of international reserves. To finance these assets, the Central Bank issued promissory notes, which make up the bulk of its current liabilities.

Table 4
Central Bank of Chile balance sheet
(% of GDP)

	1989	1995	1996	1997	1998	1999	2000	2001	2002
Liabilities	51.9	39.5	38.6	40.3	36.5	35.5	35.6	34.6	32.2
Central Bank's notes	25.0	28.6	30.0	31.6	28.6	30.3	31.3	31.2	30.3
Government's deposits	2.6	5.6	5.8	6.3	5.6	3.9	3.2	2.5	1.0
Other liabilities	24.4	5.4	2.8	2.4	2.2	1.3	1.2	1.0	0.9
Assets¹	49.8	35.3	33.6	34.3	31.2	31.6	32.0	34.1	34.7
International reserves	13.0	21.7	21.5	23.1	21.1	21.2	21.4	21.8	23.9
Government's notes	25.1	11.7	10.7	9.8	9.1	9.6	9.8	10.2	9.8
Other assets	11.8	1.9	1.5	1.3	1.0	0.8	0.7	2.0	0.9
Central Bank net debt	2.1	4.2	4.9	6.0	5.2	3.9	3.6	0.6	-2.5

¹ Excluding non-performing assets.

This balance sheet structure has gradually changed, as assets linked to the financial crisis have been gradually absorbed and the floating exchange rate regime has kept international reserves roughly constant (Table 4). However, given the high volume of asset accumulation in the past, total assets still represent around 10 times the balance of the monetary base. This means that it will take several decades to strengthen the Central Bank's balance sheet, which is reflected in the slow decline of the asset/monetary base ratio.

International interest payments are the main determinant of the average yield on the Central Bank's assets. In 2001, the average yield was 4.5%. Conversely, the average weighed cost of interest paid on liabilities, which consist mainly of promissory notes, was 5.7%. Therefore, the difference between liability costs and asset yields was 1.2%. This figure is the base for calculating flow losses of the Central Bank, which the IMF estimates at 0.3% of GDP in 2001.

Financial earnings of the Central Bank also include changes in the relevant indexing of assets and liabilities, which are generally linked to exchange rate movements. Therefore, the recent peso depreciation accounts for most of the gains shown in the annual results of 2001.