

# **Monetary policy operating procedures in Colombia**

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## **Introduction**

The basic long-term target of Colombia's monetary policy is price stability. In an attempt to achieve this primary goal, the central bank uses the monetary base as an intermediate target and keeps the exchange rate within a band defined in terms of a single currency – the dollar. The main policy instrument is open market operations – in the past reserve requirements have been used – with the overnight interbank rate acting as its main operational variable.

Within this framework, the Banco de la República (BR) tries to fulfil the requirements of the Constitution, which are “to maintain the purchasing power” of the domestic currency and to preserve the stability of the financial system. The BR has capital, technical and administrative autonomy and makes use of a variety of policy instruments – open market transactions, a discount window and reserve requirements, among others. The Board of Directors of the BR, with seven members including the Governor of the Bank and the Minister of Finance, is the monetary, credit and exchange rate authority of the country.

This paper presents a short summary of the monetary policy implementation procedures that were adopted in Colombia during the years 1996–97. Section 2 describes briefly the type of considerations involved in defining the quantitative inflation target and the intermediate target. Section 3 describes current operational procedures and instruments, while Section 4 concludes.

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## 1. Strategic aspects of monetary policy

### *(i) Final target*

In Colombia, according to Law No. 31 of 1992, the Board of Directors of the BR must announce, each year, a quantitative inflation target lower than the observed inflation rate of the immediately preceding year. The target is a point target (not a range) with a time horizon of one year and is defined in terms of the overall CPI. Once established, it is not revised.

In defining this target, the BR staff carries out four types of technical task:

- detailed assessment of the inflationary pressures existing in the short and medium term;
- inflation projections using econometric models;
- inflation projections using an inflation model with endogenous credibility; and
- financial programming in the International Monetary Fund (IMF) tradition.

The evaluation of inflationary pressures is based, *inter alia*, on an analysis of the recent evolution of consumer and producer prices, the behaviour of different core inflation indicators, the trends of monetary aggregates and their deviation from their target or guidelines, an evaluation of productive activity in relation to different estimates of potential GDP, and the results of surveys of inflation expectations and of recent and expected behaviour of wages/salaries and the nominal exchange rate. Such evaluation of inflationary pressures is complemented with: (i) inflation forecasts derived from time series methodology (ARIMA, VAR); (ii) structural models with the stock of money, the nominal exchange rate, wages/salaries and the product gap among their explanatory variables; (iii) a simulation model in which the degree of credibility of the inflation target is endogenous; and (iv) an assessment of the impact of anticipated supply shocks.

Expected inflation is also established on the basis of an IMF-style financial programming exercise. The estimate of gross domestic product (GDP) growth implicit in the national budget and in the preliminary inflation target permits an initial estimate of the growth in nominal spending which has to be financed with the creation of liquidity. This figure, together with forecasts of the capital account in the balance of

payments and the external and internal credit requirements of the Government, allows the assessment of: (i) the coherence of financial flows among the different sectors of the economy; and (ii) the price, exchange rate and interest rate effects of monetary and fiscal policies implicit in the exercise.

If the results show a lack of coherence between monetary and fiscal policy objectives, either spending adjustment alternatives are analysed or the exercise is carried out again but with different assumptions about inflation, product growth, the exchange rate and interest rates. The final version of the financial programming exercise – completed by the technical staff of the BR and the Ministry of Finance – and its conclusions are submitted for study and approval by the Bank's Board of Directors. The Board then decides and announces the quantitative inflation target, expected GDP growth and the parameters of the exchange rate band.

The financial programming exercise is also a fundamental instrument in co-ordinating the BR's basic functions with general economic policy, in the spirit of the provisions of the Constitution and Law No. 31 of 1992.<sup>1</sup>

#### *(ii) Intermediate target(s)*

The monetary base is the intermediate target of monetary policy. In the past, M1, broad money (M3) and inflation forecasts have been used for the same purpose. The rationale for using the quantity of money as an intermediate target lies in its close relationship with inflation in the long run.

The monetary base target is formulated in terms of a corridor, with limits of plus and minus 3%. The first step in the estimation of this band is a calculation of the expected growth in broad money (M3). To estimate this growth, the GDP projection, inflation rate target and the projected change in velocity are taken into account. Once the expected annual growth of M3 has been defined, several time series models are used to forecast each of the components of broad money. The results are then

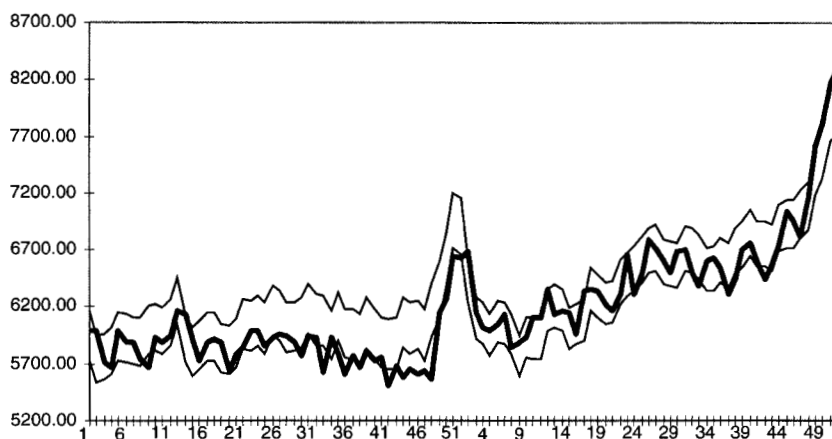
<sup>1</sup> To ensure co-ordination between the basic functions of the BR and general economic policy, the Constitution and the Law provide for the participation of the Ministry of Finance on the Board of Directors (with voting rights), the possibility for the Board of Directors to issue an opinion on the amount of external and internal credit resources included in the national budget, and an obligation of concerted management of the exchange rate. In practice, this co-ordination is carried out mainly via the participation of the Minister of Finance on the Board of Directors and through the financial programming exercise.

adjusted (re-scaled) to ensure consistency. Subsequently, these independent exercises are used to determine, given reserve requirements, the expected demand for reserves, which, together with a projection of the currency component, provide base target levels.

The monetary base corridor is approved and announced publicly by the Board of Directors of the BR. It is assumed to remain valid for the entire year. Changes in the corridor prior to the year-end are presumed to be motivated either by substantial changes in the macroeconomic indicators underlying the monetary programme or by very severe disturbances in the financial markets. In the past, the BR has opted to formally redefine the target and announce a new one (e.g. in May 1997) or to communicate its willingness to tolerate a degree of departure from the original target.

In addition to the monetary base commitment, at the end of each year the Board defines an exchange rate band applying for the subsequent year. As stated in the Introduction, the band is defined in terms of a single currency – the US dollar – reflecting to a large extent the large share of the United States and other countries of the western hemisphere in the total volume of Colombia's exports and imports. Since it was implemented (January 1994), the limits of the band have been kept at plus and minus 7%. This breadth is considered to serve two

Graph 1  
**High powered money corridor (1996–97)**  
Weekly observations (in billions of Col. \$)



purposes. First, it provides necessary flexibility in nominal exchange rate determination for control of monetary growth. Secondly, it largely eliminates the risk of having a misaligned real exchange rate vis-à-vis the value of the fundamental determining factors, particularly public spending and external capital flows.

The central parity is readjusted by a value that approximates the difference between the quantitative domestic inflation target and inflation forecasts in Colombia's main trading partners. During its first year of operation (1994), the devaluation of the explicit band was 11%. This figure, only a few points lower than the expected difference between domestic and foreign inflation, was supported by the results of several technical studies which suggested that the chosen value for the initial central rate of the band (i.e. the market rate of the previous day) was indeed misaligned with fundamentals (undervalued). During 1995 and 1996, the chosen devaluation rate for the band was 13.5%. This figure is consistent with the aforementioned formula. In 1997 and 1998 rates of 15% and 13%, respectively, were established. The idea is to guarantee that, if the inflation target is achieved, the real exchange rate level observed at the end of 1996 can be maintained.

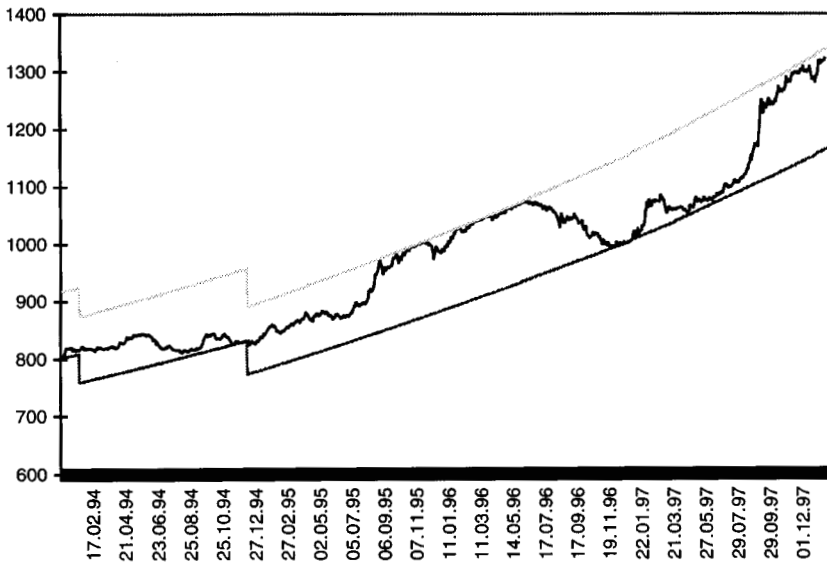
In general, the existence of a sliding band is due to two factors. First, Colombia's inflation rate has permanently been much higher than the weighted average of inflation rates in its major trading partners. Secondly, in an inflationary environment with a strong inertial component, a horizontal band would lead to significant and untenable rates of real appreciation.

In addition, the formula selected to determine the band's rate of devaluation uses the quantitative inflation target instead of past inflation data, in order to help reduce inflationary inertia. In operational terms, the limits of the band are announced only a few days in advance but, in practice, agents may readily calculate its path throughout the year on the basis of the announced target for the devaluation of the central parity.

### *(iii) Monitoring*

The final and intermediate targets are monitored continuously. Every month, the BR's Department of Economic Research draws up an inflation report to be presented at the month's first meeting of the Board of Directors. The report includes a section describing the recent behaviour

Graph 2

**Exchange rate target zone (February 1994 – January 1998)**

of prices, monetary and credit aggregates, real activity, expected inflation, the exchange rate and the results of re-estimates of inflation models. Similarly, the Economic Research and Monetary Operation Departments produce, once a week, two reports showing, inter alia, the most recent

Table 1

**Central bank intervention in the forex market**

Sales and purchases at the limits of the zone\*

Year	Amount (US\$ million)	Sales (number of days)	As a percen- tage of average MO	Amount (US\$ million)	Purchases (number of days)	As a percen- tage of average MO
1994	185.2	8	3.4	—	—	—
1995	—	—	—	178.0	14	3.0
1996	1,560.8	21	27.6	333.4	17	5.9
1997	—	—	—	—	—	—

\* These figures do not include intervention within the limits of the zone.

behaviour of monetary and credit aggregates, new data on Treasury transactions, the latest interest rate figures, open market transaction behaviour and monthly projections of monetary aggregates. These documents are presented at a weekly meeting at which the members of the Board of Directors, representatives of the Treasury and Public Credit Office and the technical staff of both the BR and the Ministry of Finance are present. The nature of any deviation in prices and monetary aggregates from their target is studied. This committee is not a decision-making entity; when decisions on short-term policy are needed, the Board has to formally delegate the relevant authority.

## **2. Operating procedures**

### *(i) General considerations*

In addition to monetary base targeting and exchange rate commitments, in 1995 the Board established an overnight interest rate band. In August 1997, the band's width was set at 700 basis points, ranging from its minimum level of a 20% effective rate to a ceiling of 27%. The main purpose of this corridor is to reduce the rate's short-run volatility and avoid fluctuations in the long-term rate that may not be consistent with movements in the monetary aggregate that is being targeted. Thus, the main level of the band is the *ex ante* rate considered to be consistent with the monetary base corridor. The bank commits itself to sell its own paper overnight at the lower limit of the interest rate band and to inject liquidity through repurchase operations with Treasury bills at its upper limits (again mostly with overnight maturity).

Macroeconomic theory recognises the difficulty of controlling monetary aggregates and interest and exchange rates simultaneously in an open economy exposed to flows of external capital. Hence, under such conditions, monetary and exchange rate policies are not independent (even in the short term). In consequence, fixing one variable requires coherent levels of equilibrium for the others. In this way, simultaneous control of the three variables can only be achieved if their targets are mutually consistent. This conclusion may be extended to include a case in which the monetary authority sets targets on ranges – not points – of the variables. Here, the simultaneous presence of an exchange band and a monetary band is not internally inconsistent in the

presence of mobility of capital, as long as their parameters (breadth and level) respect the existing equilibrium ratios among the variables.

To illustrate the above point, we may consider a small, open economy with a crawling band or target zone system in which uncovered interest rate parity holds. Starting from a point of equilibrium in money supply and interest and exchange rates, the presence of a *credible* band for the latter immediately determines the existence of an interest rate band. Such band is defined by the interest rate's uncovered parity condition and by the ceiling and floor of the exchange rate band:

$$i^* + \hat{e}_{\min} \leq i \leq i^* + \hat{e}_{\max}$$

where  $i$  is the domestic interest rate,  $i^*$  is the external interest rate and  $\hat{e}_{\min}$  and  $\hat{e}_{\max}$  are, respectively, the minimum and maximum devaluation permitted by the exchange rate band, on the basis of the initial exchange rate.

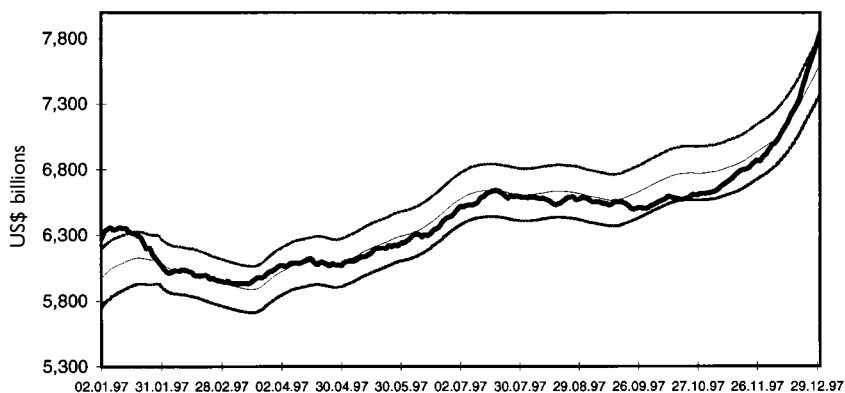
In turn, given the interest elasticity of the demand for money, the interest rate band thus defined imposes a restriction on the monetary band. This happens because capital flows adjust the money supply endogenously to levels compatible with the limits of the exchange rate band when the domestic interest rate exceeds the limits imposed by the exchange rate band. The less elastic the demand for money, the narrower the monetary band consistent with the interest rate band (fewer capital inflows and outflows are required to take the domestic interest rate to levels consistent with the exchange rate band).

This means that the monetary, exchange rate and interest rate bands condition each other. Consequently, it is feasible to set targets for them, provided that the relationship is maintained. In the event of conflicts between these targets, there is a clear-cut system of hierarchy with regard to the exit clauses of the system. The first target to be abandoned is that of the interbank interest rate. With respect to the monetary base and exchange rate corridors, the decision is made taking into account the external conditions facing the economy.

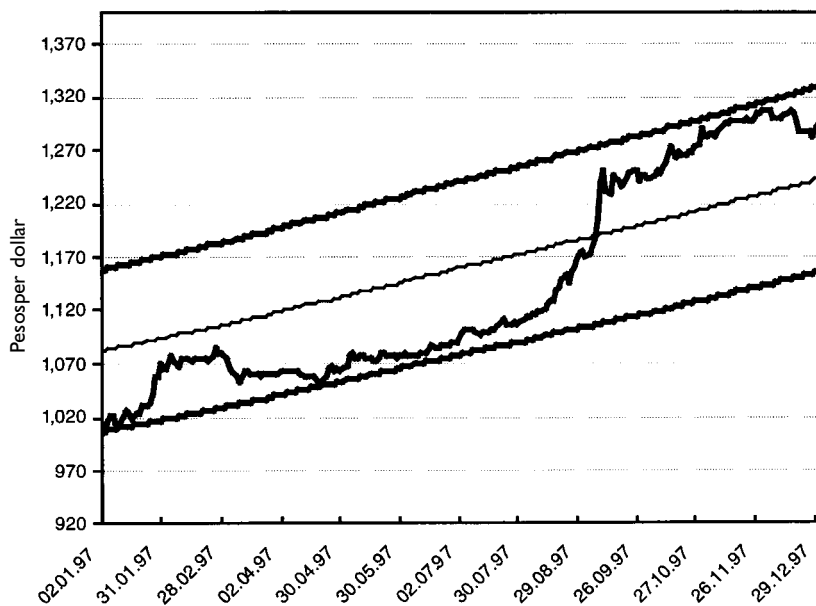
During 1997, such conflicts did not arise. As seen in Graph 3, the exchange rate and the monetary base stayed consistently inside their target zones. On the other hand, the interest rate intervention band was lowered three times, since the Board of Directors considered that the inflation rate was on target and the economy was performing well below potential.



Graph 3  
**Monetary base corridor**  
 January–December 1997 (20-day moving average)

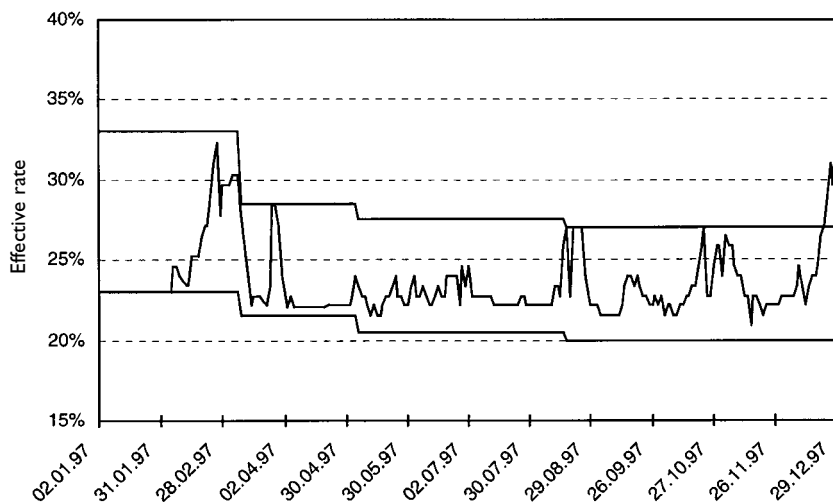


**Nominal exchange rate and the exchange rate band**  
 January–December 1997



Graph 3 (cont.)

### Interbank lending interest rate\* and intervention limits in 1997



\* Corresponds to the overnight rate.

#### (ii) Monetary policy instruments

Open market operations and reserve requirements have been the main monetary policy instruments used in recent years in Colombia. At present, open market operations (OMOs) are used for control and management of the monetary base. Credit quotas in favour of private agents and lending to the Government are prohibited by the Constitution. However, an exception to the latter prohibition is made in the case of open market operations or when there is unanimous approval by the Board of Directors of the Bank.

The Bank is currently carrying out open market operations with its own securities. The maturity of these instruments varies between one and 90 days and sale is by auction. The main agents participating in this market are banks, finance corporations, savings and loan corporations, commercial finance companies, trust companies, pension funds and stock brokers. By law, after 1999 the Bank will have to carry out these transactions with government paper negotiated on the secondary market.

The Bank also engages in repurchase agreements on its own securities. These transactions are used as a mechanism to inject liquidity into the system on a short-term basis (between one and thirty days). The Bank holds three auctions per day through its own electronic system (SEBRA). The first covers long-term transactions. Once this auction is closed, a second, geared towards control of the short-term rate (one-day contraction transactions and one to seven-day expansion transactions) is held. The third auction is identical to the second.

The Bank's Board of Directors also sets the level of reserve requirements. These depend on the maturity of deposits (the shorter the maturity, the higher the requirements) and are applicable to demand deposits, savings accounts, time deposits and bonds. Reserves are not remunerated and the accounting period lasts two weeks, with a two-day lag between the observed and the required reserve. The fine for failure to comply is 3.5% over the total of the business days of the respective month.

Reserve requirements were used as an active monetary policy instrument until 1993. Since then, reserve requirements have tended to decrease, reducing dispersion among liabilities, and their use as a monetary instrument has declined. Reserve levels now average 8.31%, 7.42 percentage points lower than three years ago. Reserve requirements are understood to be a parameter intended to hedge against bank runs.

In addition, the Bank has an open Transitory Liquidity Support (TLS) mechanism for credit institutions that suffer a sudden drop in their deposits. The TLS mechanism is made up of two facilities, known as an ordinary and a special procedure. In the ordinary procedure the Bank may lend resources to fully solvent entities to cover drops of up to 10% of the maximum level of their deposits shown in the 15 calendar days prior to the request. The mechanism employed is that of discounting or rediscounting quality A assets (portfolio or securities), provided that, if the entity holds central bank securities, these will be the first to be rediscounted. This facility is granted for a maximum 30-day period. Any increase in the amount drawn is conditional on further drops in deposits, provided that it does not exceed the aforementioned 10%. While using these resources the entity cannot increase the amount of its investment and/or lending operations. Banks may make use of the procedure for up to 90 calendar days each year but there must be at least 15 calendar days between any two instances of recourse.

Table 2  
**Maturity structure of open market operations (1994–97)**

Year	Amount (\$ millions)	Number of weeks	Distribution by maturity (days)							
			1	7	15	30	30–45	90	180	360
1994	7,797,725	52	–	56.68%	25.63%	–	10.85%	2.98%	0.95%	2.91%
1995	13,329,501	48	0.20%	0.29%	0.11%	–	0.32%	0.06%	0.01%	0.01%
1996	32,060,663	45	0.82%	0.07%	0.06%	0.03%	–	0.02%	–	–
1997	113,432,298	52	92.87%	–	–	1.58%	–	5.56%	–	–

Table 3  
**Established required reserves for financial institutions**

Liabilities	Percentage prevailing 18 May 1994	Percentage prevailing December 1997	
	Stocks	Stocks	Marginal
I. Demand deposits . . . . .	41	21	21
II. Time deposits			
Less than 6 months . . . . .	3	5	7
Between 6 and 12 months . .	2	5	7
Between 12 and 18 months .	1	5	7
18 months or more . . . . .	1	5	0
III. Savings accounts . . . . .	10	10	10
IV. Bonds . . . . .	..	7	0

The special TLS procedure is aimed at two types of entity: (i) those suffering drops in excess of those established under the ordinary procedure; and (ii) those that, due to certain solvency problems, are participating in a capital adjustment programme with the Superintendency of Banks. Specifically, the Bank will provide, also through discount or rediscount, resources for up to 180 calendar days, and up to 15% of deposits, under more restrictive conditions of capital sustainability (e.g. entities must show themselves capable of returning the resources and maintaining positive operating margins). The cost of resources and the restriction on investment and lending operations are the same as the procedure described above. However, access to this special support procedure is conditional on the entity not having used it during the last 12 months.

The use of TLS during 1995-97 was very infrequent. In this period, liquidity was provided through the ordinary procedure on three occasions and involving sums that did not exceed US\$ 2.5 million. The special procedure was not used during that period.

*(iii) The specific procedure*

The Open Market Operations Committee monitors the economy's liquidity on a weekly basis and calculates OMO requirements to place

the monetary base at the corridor's midpoint. For this purpose, it forecasts demand for currency, bank reserves and any sources of monetary expansion. Demand for currency is forecast with an ARIMA model. Demand for bank reserves is estimated by taking into account obligatory reserve requirements of intermediaries, on the basis of an estimate of liabilities subject to such reserves. On the other hand, monetary base supply is calculated by projecting, separately, the main sources of monetary expansion or contraction. The Treasury reports its weekly flow of income and expenditure in local currency and the impact of these movements on its accounts at the BR. On the basis of forecasts of international reserves, the monetary impact of the Bank's possible intervention on the exchange market is estimated. The autonomous factors affecting the supply of liquidity are depicted in the following table.

The weekly behaviour of the interbank interest rate is predicted on the basis of estimates of liquidity supply and demand, and OMO requirements are determined in order to place the monetary base at the midpoint of the corridor. If monetary base supply exceeds demand, the Bank expects the interbank interest rate to fall and absorbs excess liquidity with short-term OMOs. If demand for high-powered money exceeds its supply, the Bank may provide liquidity through repo operations once the interbank interest rate reaches the upper limit of the overnight interest rate band.

Table 4  
**Autonomous factors affecting liquidity, 1993–97**  
In billions of pesos

	Average*	Standard deviation*
Bank reserves . . . . .	38.0	170.2
Autonomous liquidity position		
Net foreign assets . . . . .	120.9	261.3
Net foreign lending to government . . .	–4.7	166.6
Other net assets . . . . .	22.3	89.5
Currency . . . . .	44.9	234.7
Other net liabilities . . . . .	55.7	321.6

\* Of monthly changes.

Thus, intervention by the bank on the interbank market takes place only at the limits of the interest rate band. Therefore, whenever the monetary base exceeds its band for a pre-established period of time, the Bank modifies the interbank interest rate band. Hence, during some weeks, liquidity projections may suggest that the monetary base will exceed the band and that OMO requirements to bring it back within the band cannot be met at the present interest rates. If this is a short-lived episode, the base will move back inside the corridor in a few weeks. If the monetary base repeatedly breaches its upper or lower limits for several weeks due to liquidity excesses or shortages, the Board of Directors will increase or decrease the intervention interest rate until such deviations are corrected.

On the other hand, there are two types of central bank intervention in the forex market. One of them is carried out when the exchange rate is inside the target zone and is aimed only at reducing this variable's volatility. To this end, the Bank retains the right to intervene in the exchange market and has carried out exceptional and direct operations with the public sector. The second kind of intervention arises when the nominal exchange rate reaches either of the corridor's limits. This type of intervention was seen in December 1994 when the exchange rate reached the explicit corridor's floor, thus having to be realigned. It was also used in the second half of 1995 and the first half of 1996 when, due to pressures arising from adverse political developments, the exchange rate reached the weak end of its crawling band. In December 1996, however, the Bank carried out a large-scale intervention to defend the band's stronger limit, in the presence of a massive capital inflow associated, in large part, with public sector operations. In the last few months, however, the nominal exchange rate has fluctuated close to the weak end of the target zone, with moderate intervention by the central bank.

Direct restrictions on indebtedness in foreign currency exist in Colombia. A control system for foreign currency indebtedness based on price incentives has been in place since September 1993. Under this scheme, loans with a term shorter than a pre-established minimum entail the constitution of a deposit, in dollars, at the central bank for a certain period of time. These deposits are called "Títulos por Financiaciones" and may be redeemed before expiry, subject to a discount table. In this way, the incentives for foreign indebtedness depend on the opportunity

cost of the deposits and on the domestic/foreign interest rate differential. On the other hand, the maintenance cost of the deposit depends on the percentage of the deposit and on the ratio between the term of the loan and the deposit. Since May 1997, these deposits have been denominated in Colombian pesos, except for export financing.

The financial sector has been forced to maintain a minimum net asset position in foreign currency. This minimum amount has fluctuated widely, from 30% of all foreign currency liabilities in October 1991 to 45% in March 1992 and 0% in November 1995. Nowadays net foreign currency asset position for the financial sector must neither exceed 20% of all technical capital nor be negative.

#### *(iv) Transparency and signals*

The response of the financial markets to expectations has grown in Colombia in the past few years. With the purpose of guiding the market's expectations, the BR publishes, each year, the quantitative inflation goal, the weekly corridors for high-powered money, M1 and M3, and the parameters of the exchange rate crawling band. The Bank makes weekly results of monetary aggregates and international reserves available to the general public with a two-week lag. On the other hand, agents have daily information on the exchange rate and the rates that define its bounds.

Every month, after analysing price behaviour, the Board of Directors, or one of its members, comments on the observed results. The convenience of releasing a monthly inflation report, similar to those compiled by a number of central banks that have adopted a final target as monetary strategy, is currently under evaluation. Moreover, twice a year the Board presents to Congress a report in which the recent evolution of economic policy and the economy as a whole is assessed. On several occasions, members of the Board participate in academic events and present their personal view regarding the economy's behaviour and its outlook.

The measures adopted by the Board of Directors are made public through resolutions, reports and press conferences. The modifications in the central bank's intervention interest rates in the money market are announced through reports and the net results of the OMOs are published weekly. In contrast, the extent of the Bank's intervention in the



exchange rate market is not made public, although an approximate estimate may be obtained through the weekly exchange rate statistics released by the Bank.

### **3. Concluding remarks**

This paper has presented the framework for monetary policy formulation and implementation in Colombia during 1996-97. Monetary and exchange rate policies are conducted in an institutional set-up characterised by a large degree of formal central bank independence, an exchange rate band regime and an increasing use of market-oriented policy instruments.

The main task ahead is to convince the Government and the general public that price stability is a necessary condition for sustainable economic growth. The Bank is committed to developing a better perception of the Bank's actions and to improving the understanding of the benefits of lower inflation. The Board and the Bank's technical staff are also assessing the current monetary policy operating procedures.