The Colombian government bond market

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1. Introduction

This document describes the recent development of the Colombian public bond market and the role played by the central bank, Banco de la República (BR). Section 2 shows the aggregate size of the Colombian bond market and its main characteristics: the issuers, the instruments and the exchange, over-the-counter and interbank markets. Section 3 examines public debt in greater detail. The last section underlines how BR has contributed to the development of the Colombian market.

2. Colombian capital markets

At end-2000 the Colombian capital markets, measured as the sum of total fixed income and equity securities traded on exchanges or on the over-the-counter markets, represented 212% of GDP. The trading is not evenly distributed; while the value of transactions in equities was only equivalent to 2% of GDP, the value of transactions of fixed income securities was equivalent to 210%. Of the total fixed-income transactions (mostly trading and repos), those conducted over-the-counter were equivalent to 173% of GDP while those taking place on exchanges were equivalent to 37%.

Table 1

Securities listed in the National Securities and Intermediaries Register

(number of securities)

	1990–94 average	1995–99 average	2000	2001[1]
Equities	267	232	161	163
Securitisation	29	66	70	70
Ordinary bonds	68	72	65	67
Local government bonds	24	34	39	38
Other bonds	8	11	15	17
Convertible bonds	13	12	10	7
Commercial papers	5	4	3	4
External government bonds	1	0	0	0
Total	415	431	363	366

[1] June 2001.

Source: Superintendencia de Valores

[1] The authors, respectively Deputy Governor and Head of the Operations and Market Development Department, thank Carolina Gómez, Ivonne Martinez and Silvia Juliana Mera for their assistance. All views expressed are those of the authors and not necessarily shared by the central bank.

According to the National Securities and Intermediaries Register, in June 2001 the main issuers of securities were the financial sector (26% of the total number of issuers), mortgage-backed funds (19%), the industrial sector (15%) and government agencies (10%).

In June 2001 these issuers had 366 different securities listed. The most common type of listed securities were stocks (of which there were 163), but their number has fallen 39% since 1997. In the same period the number of mortgage-backed securities has grown by 31%.

Table 2

Issuers on the National Securities and Intermediaries Register, by economic sector

(as a % of the total number of issuers)

	1990–94 average	**1995–99 average**	**2000**	**2001**[1]
Real sector				
Industrial sector	33	19	15	15
Farming and cattle breeding	9	7	6	6
Electricity, gas and water	2	4	6	5
Health services	0	2	2	2
Commerce	7	2	2	2
Construction	2	2	1	1
Mining	1	1	1	1
Transportation	1	2	1	1
Tourism	2	1	0	0
Education	0	1	0	0
Financial sector				
Financial corporations	30	34	27	26
Mortgage-backed funds	1	13	19	19
Entities supervised by SV	0	1	2	2
Market indices contracts	0	0	1	1
Government agencies	3	5	8	10
Other				
Other non-financial services	8	6	7	7
Cooperative sector	0	1	1	0
Total	100	100	100	100

[1] June 2001.

Source: Superintendencia de Valores.

2.1 Securities exchange

Table 3 summarises the value of securities traded on the Colombian exchanges during the previous decade. While the nominal value of securities traded grew fivefold, the total volume traded on exchanges grew eightfold. Since Law 51 of 1990 authorised BR to carry out its monetary policy with government bonds and the elimination of the Certificados de Cambio, BR's securities have moved from having the largest trading volume to not being traded at all more recently. While certificates of deposit (CDs) were heavily traded in the middle of the decade, they have been replaced recently by government bonds, specifically Class B Treasury Bonds (TES B).

Table 3

Value traded on exchanges

(billions of pesos)

	1990–94 average	**1995–99 average**	**2000**
Equities	1	3	3
CDs	2	12	12
Private bonds	0	7	4
Central bank[1]	2	1	0
TES	1	9	35
Other[2]	2	9	6
Total	**8**	**41**	**60**

[1] Títulos de Participación y Certificados de Cambio. [2] Different securities for each year.

At their peak in 1997, international investors held US$ 1.2 billion of stocks, but since then the value of these portfolios has dropped to a third. Their holdings of fixed income securities suffered an even greater variation: the investments first occurred in 1996, reached $377 million the next year, and had disappeared by 1999.

2.2 Over-the-counter market

A similar pattern can be seen in the over-the-counter market (which includes trading through electronic systems). For example, trading in BR's securities has stopped; there has been a slight decline in transactions in CDs and other private sector securities (down 10% from 1998 to 2000); and trading in government bonds has jumped significantly (up 53% by the close of 2000). In fact, the value of government bonds traded up to June 2001 was greater than that traded in all of 2000. The increase in trading of external government debt, where volumes have tripled since 2000, and in repos should also be noted.

Table 4

Over-the-counter market

(billions of pesos)

Financial instruments		1998	1999	2000	2001[1]
Banco de la República		**17**	**0**	**0**	**0**
Public debt					
Central government bonds	issued in Colombian pesos	22	49	81	76
	issued in UVR[2]	0	0	24	27
	issued in dollars	0	2	1	2
	issued in external markets	0	1	4	11
Other public debt bonds		57	15	11	9
Total		**79**	**67**	**121**	**125**
Private debt					
Certificates of deposit		39	31	34	22
Short term deposits		0	4	7	2
Bankers' acceptances		0	0	0	0
Private bonds		8	4	4	3
Commercial papers		0	0	0	0
Convertible bonds		0	0	0	0
Certificates of deposit of constant value		3	0	0	0
Participation in securitisation funds		1	1	1	1
Total		**51**	**40**	**46**	**28**
Money market securities		**98**	**52**	**90**	**32**
Purchase agreements		**67**	**77**	**127**	**54**
Total		312	236	384	239

[1] June 2001. [2] Real value units.

Source: Superintendencia de Valores.

2.3 Interbank market

During the last decade the size of the Colombian interbank market[2] has oscillated between 0.3 and 6% of M3. In the last two years the average volume has been 3.8% of M3, compared to 2.2% for the decade as a whole. This growth has coincided with the increase of banks' investments in fixed income securities.

In recent years BR has carried out changes to achieve a greater stability in the money market. Specifically, it has lowered significantly the level of reserve requirements and reduced the dispersion for different types of deposits. For example, at present, chequing accounts have requirements of 13%,

[2] Both interbank operations and repo operations of financial institutions.

compared to 41% for private accounts and 70% for public accounts in December 1993. In a similar fashion, the structure of reserve requirements has been simplified so that the same types of accounts have the same requirements.[3]

Table 5

Structure of reserve requirements

(in percentages)

Current account deposits, trust funds, special deposits and others	13
Savings deposits, savings accounts, repos and others	6
CDs and other bonds with issuing period of less than 18 months	2.5
CDs and other bonds with issuing period equal to or longer than 18 months, investments with the Treasury	0

Source: Banco de la República

Another important factor in the evolution of the interbank market has been the implicit corridor BR has set for short-term rates to avoid large variations in the interbank rate. The central bank supplies liquidity to the economy through auctions and window facilities. The auctions are Dutch style, where the offers are ranked and allocated in descending interest rate order until the auction amount is completed. All the offers are awarded at the interest rate at which the auctioned amount is completed. All the offers below this cutoff rate are denied. The maximum and minimum bidding rates are limited by the central bank. On the other hand, the liquidity window is a facility through which the credit institutions have access to it at a fixed rate announced by the central bank, which corresponds to the maximum bidding rate from the auction.

Currently, credit institutions have three restrictions on accessing BR's resources. First, they cannot maintain liabilities originated in temporary monetary expansion operations with BR (repos), on average during the last two weeks, for an amount larger than 15% of the stock of their deposit liabilities subject to reserve requirement. In that case they can use the "liquidity support" facility.[4] Secondly, the expansion operations of the central bank can only be backed with certain government bonds.[5] However, this is not a real restriction since most counterparties have enough of these bonds, mostly TES B. Finally, BR establishes on a periodic basis the limits to its liquidity supply at the regular meeting of its Monetary and Exchange Rate Intervention Committee.[6]

[3] In Colombia, the reserve position is defined as the difference between the resources available to credit institutions for meeting the reserve requirement and the reserve requirement. They are calculated every two weeks.

(a) The reserve requirement is an arithmetic average for every working day during the biweekly period (from Wednesday to Tuesday inclusive of every second week).

(b) The resources to achieve the reserve requirement correspond to the arithmetic average of every working day during the biweekly period (from Wednesday to Tuesday inclusive of every second week). Each biweekly period begins one week after the period for calculating the corresponding reserve requirement.

If (a) exceeds (b), then there is an excess daily average.

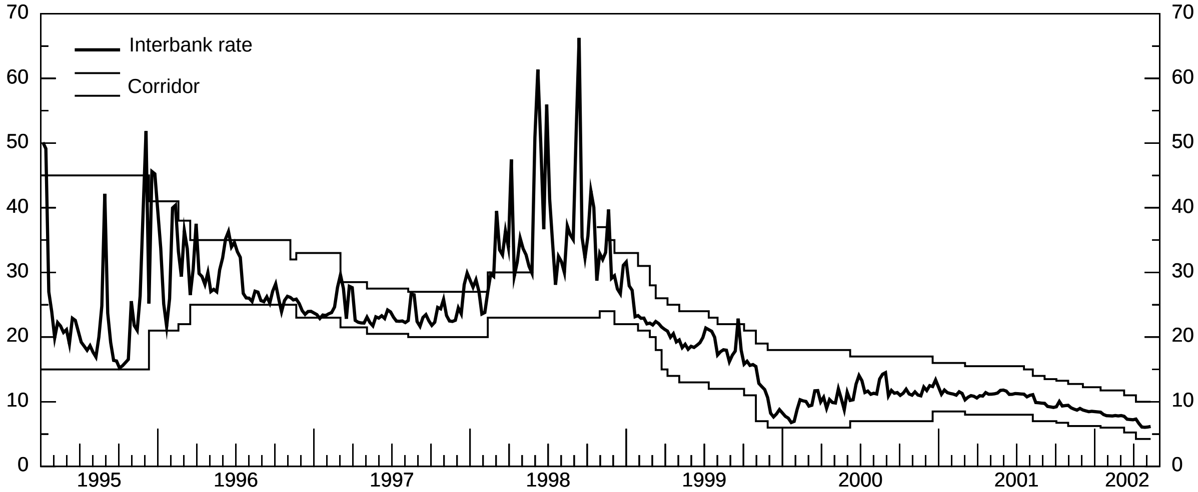
[4] As a lender of last resort, BR has a facility called "liquidity support" through which it lends to financial intermediaries which have temporary liquidity problems. A credit institution can access the central bank's resources for a maximum amount of 15% of the highest liability that the institution had during the 15 days before the date of the requirement. This facility has an initial period of 30 days, extendable for a further 150 days.

[5] Agricultural Development Bonds (TDA), Class B Treasury Bonds (TES B), Class A Treasury Bonds (TES A), Security Bonds (Bonos para la Seguridad), FOGAFIN Bonds, External Debt Bonds from the Nation, Law 546 Treasury Bonds (TES Ley 546) and Debt Reduction Bonds (Títulos de Reducción de Deuda) issued for the rescue of those affected by the crisis in the mortgage system.

[6] Comité de Intervención Monetario y Cambiario (CIMC).

Graph 1

Banco de la República interest rate corridor and interbank rate



The National Treasury actively manages its cash position and at present it is the main agent operating in the money markets. On a daily basis it collects resources, makes payments, enters into repos and participates in the interbank market. And each weekend it presents its cash flow projections to the central bank. When these projections are not met, the central bank implements corrective actions to minimise the effects of deviations on market liquidity.

3. Government bond market

3.1 Background

The foundations for the development of the public debt market were laid in the early 1990s. First, the 1991 Constitution created an independent central bank with strict and clear limits on financing the central government. Second, the reform and liberalisation of the financial market permitted a regulatory framework that increased competition and strengthened intermediaries. And third, the reform of the social security system fostered the consolidation that long-term investors needed to complete the foundations of the government debt market.

In the first year of the last decade, central government financing relied heavily on external sources, particularly syndicated loans and multilateral financial institutions. During subsequent years financing with foreign bonds gained more importance for the central government, and this enhanced the diversification of sources and the speed of disbursements. Meanwhile, central government financing in the local market was concentrated on obligatory placements with the national Social Security Institute (ISS) and other public entities.

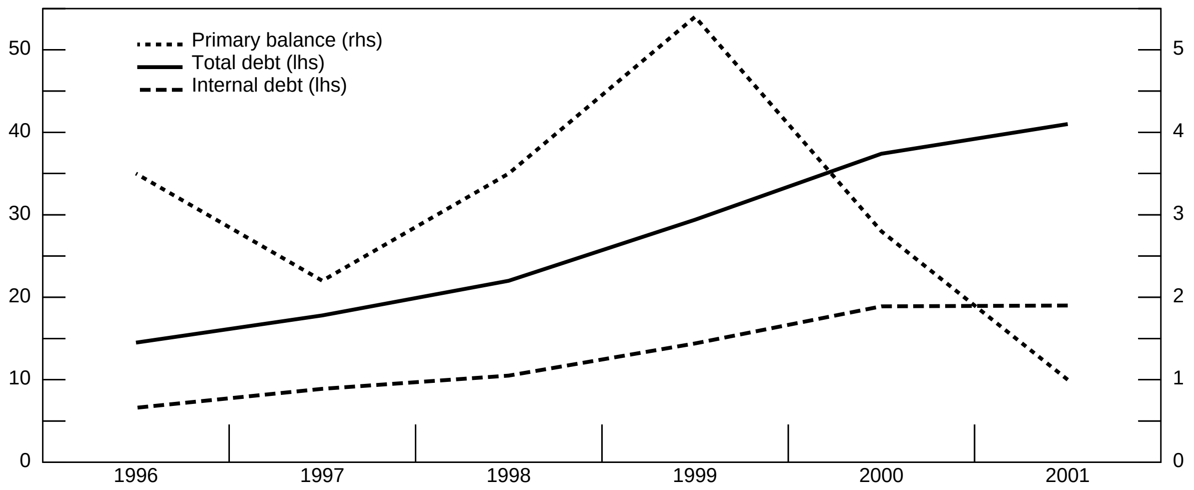
It can be said that central government financing through domestic bonds gained strength in 1996 following:

- the definition of a stable calendar for TES B auctions;
- the selection of specialised intermediaries, market-makers, with privileges and obligations (see below); and
- the construction at BR of a robust and secure information infrastructure to auction, administer, register and trade dematerialised bonds and transfer the related payments.

Graph 2

Ratio of primary balance, total debt and internal debt to GDP

In percentages



Source: Ministry of Finance and Public Credit.

In August 2001 central government domestic debt stood at P37 trillion (and external debt P39 trillion). Of the domestic debt, 82% of it, some P31 trillion, was in TES B and the rest in the other securities listed in footnote 5.

3.2 Central government TES B auctions

The Ministry of Finance and Public Credit designates annually a group of placement agents for treasury bonds: those commercial banks, financial corporations and brokerage firms are referred to as "market-makers".[7] Only the market makers that have successfully bid in the primary auction have access to the additional placement known as the second round. A market-maker's privileges and obligations are determined by their efficient distribution of government debt securities.

Obligations

- All the agents for placement of TES B must be affiliated to the BR's SEBRA[8] network, which includes payment and settlement systems, transactions systems, known as SEN, and security custody, administration and settlement, known as the DCV.
- Commercial banks must have paid capital plus legal reserve exceeding P50 billion (P30 billion for financial corporations) and brokerage firms must have technical equity of over P10 billion.
- They must be rated BBB- or better by a recognised credit rating agency.

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7 There are two classes of market-makers. The main market-makers are those institutions which have acquired over 4% of the total amount auctioned and obtained one of the highest grades for participation in the primary and secondary markets for TES B. "Market-maker candidates" are those that either no longer achieve a sufficient grade or have only acquired over 2% of the amount auctioned.

8 Electronic Services of the Banco de la República, an electronic transaction system that allows agile, secure and efficient transactions and communications between the central bank and the financial intermediaries.

Privileges

- Exclusive access to the periodic primary auctions of TES B
- Meetings with the Ministry of Finance and BR related to public debt titles
- Opportunity to propose measures to improve the functioning of public debt markets
- Access to the centralised trading system, SEN, and its restricted market for TES B
- Exclusive access to the second-round auctions of TES B.

BR acts as an agent of the central government in the issuing and administration of domestic bonds. It announces on behalf of the Ministry of Finance and Public Credit (up to two working days in advance) the date, size and nominal value of the auction. The Ministry determines the target amount of total financing and periodically announces the level of compliance with the established targets, but it does not provide the market with a specific calendar showing the dates of the auctions. As a consequence, the market does not trade bonds prior to their issuance. Table 6 shows the intended frequency of auctions.

Table 6

Auction dates

Fixed rate in pesos	Wednesday of every monetary week, except the first week of each month.
Inflation-indexed in pesos	Infrequent, as they are being replaced by UVR auctions.
Fixed rate in US dollars	Wednesday or Thursday.
Fixed rate in real value units (UVR)	Wednesday of third monetary week of each month.

Bids are accepted between 10 and 11 am on the day of the auction. BR receives through SEBRA bids from the placement agents, who must supply the nominal value of the bonds they intend to acquire, taking into account the minimum level of issuance and the effective annual interest rate at which they intend to bid for the bonds. All offers are considered firm and no agent can present offers with a total value exceeding the announced size of the auction. Each agent can place several bids but the differences between the interest rates of the bids cannot exceed 150 basis points. Offers exceeding any of these limits will be cancelled.

The Ministry sets the rules for the Dutch-style auctions. Depending on the announced size of the auction, the offers are approved if their interest rate is below or equal to the cutoff rate. All the offers are allocated at the cutoff rate, which can be higher than the interest rate of the offer, so all the favoured participants will obtain the same rate of return. Offers will be approved until the desired quantity of bonds is sold. If the auctioned amount is inferior to the accumulated value of the offers at the cutoff rate, the following criteria will apply:

- the offers presented below the cutoff rate will be approved in their totality; and
- the difference between the total auctioned amount and the approved offers will be proportionally distributed among the remaining offers with the cut rate.

As mentioned above, there is an additional placement of TES B known as the second round. The amount offered then is determined automatically in accordance with the demand in the first round and the size of the auction.

- If the value of the demands is greater than twice the amount auctioned in the first round, the size of the second round will be half that offered in the first round.
- If the value of the demands exceeds 1.2 times (but is less than twice) the amount auctioned in the first round, the second round will be a quarter of that offered in the first round.
- If the value of the demands is less than 1.2 times the amount auctioned in the first round, there will be no second round.

Only those market-makers that participated in the first round and were awarded an amount at the auction can participate in the second round. Each of them can send one and only one offer by maturity, and its value cannot exceed the size of the second round. If this happens, the offer will be cancelled. The cutoff rate will be equal to that of the first round. The offers for the second round must be made between 3 and 4 pm on the same day that the first round was held.

If demand exceeds the amount offered, the offers will be ranked, with the market-maker assigned the largest amount in the first round approved first, the market-maker assigned the second largest amount in the first round approved second and so forth.

3.3 Types of securities

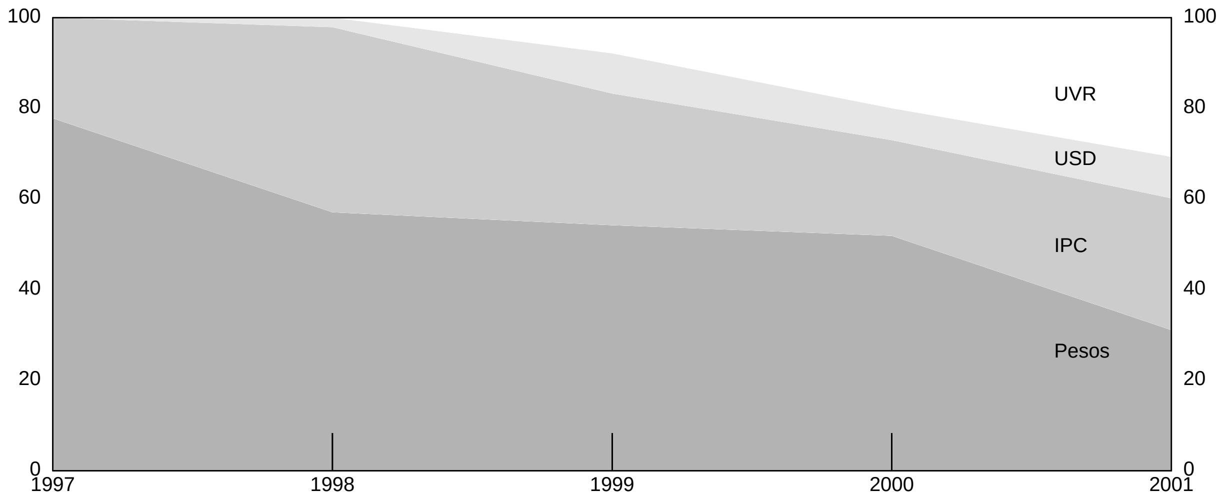
Even though TES B have for some time been the main source of local financing for the central government (and the only one that is carried out directly with the market), the features of these bonds have changed substantially in recent years. There are four types of TES B, as listed in Tables 6 and 7. All TES B bonds are dematerialised and are registered in the Depósito Central de Valores (DCV), the book entry system of the BR. The Ministry of Finance covers the costs of the DCV. A tax of 7% is levied on the return on TES B.

Graph 3 shows that basic peso-denominated TES B accounted for 78% of the total in 1997 but now represent only 31%. Inflation-indexed securities have become more popular. Dollar-denominated TES B were first offered in 1999 but their share has stayed below 10%.

Graph 3

Weight of TES B by type

As a percentage of total stock



Source: Ministry of Finance and Public Credit.

Table 7 shows the same evolution but in the nominal value of the TES B.

Table 7

TES B by type

(in trillions of pesos)

	1997	1998	1999	2000	2001[1]
Fixed rate in pesos	7.7	8.1	11.0	14.0	9.5
Inflation-indexed in pesos	2.2	5.8	5.9	5.7	8.9
Fixed rate in US dollars	0	0.3	1.8	1.9	2.8
Fixed rate in real value units (UVR)	0	0	1.6	5.4	9.4
Total	9.9	14.2	20.3	27.0	30.6

[1] August 2001.

Source: Ministry of Finance and Public Credit.

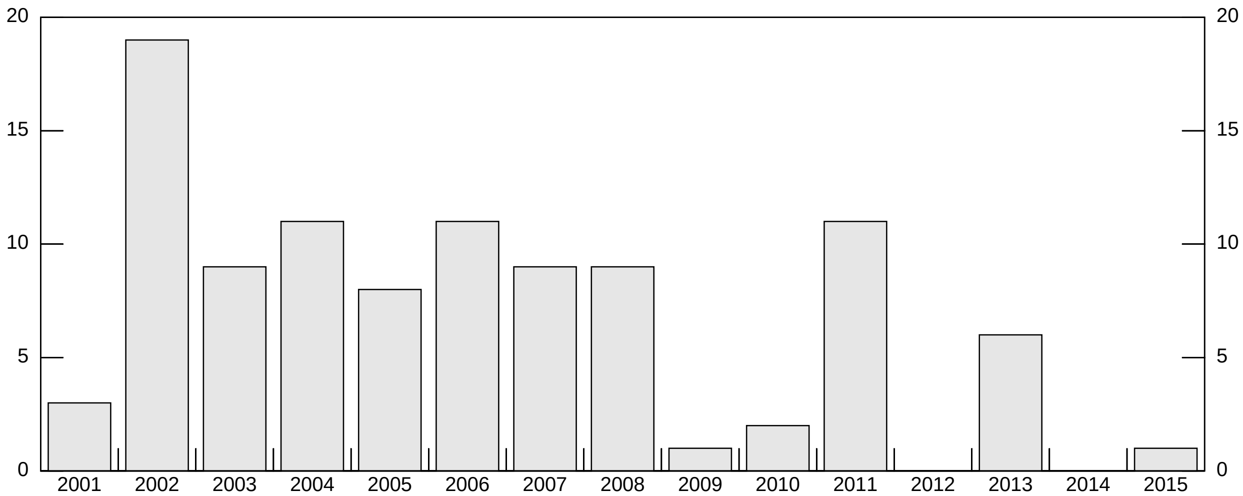
3.4 Average amount and maturity profile of government debt

The average maturity of the domestic debt of the central government has lengthened from less than two years in 1996 to over five years now, mostly due to the issuance of longer term TES Bs. (The average maturity of the foreign debt is a little over six years.) An important step was the successful exchange in June 2001 of peso-denominated TES B soon to mature for those with longer maturities (and in some cases inflation-indexed). The debt exchange was carried out in several auctions by BR and reduced central government debt servicing obligations up to 2002 by P3.8 trillion. Graph 4 shows the maturity profile of all central government domestic debt (not only TES B) with the percentage of the stock that matures each year.

Graph 4

Central government internal debt maturity profile

As a percentage of total stock



Source: Ministry of Finance and Public Credit.

During 2001 the Ministry of Finance placed peso-denominated TES B with maturities of one, two, three, five and seven years; inflation-indexed TES B with maturities of seven and 10 years; and dollar-denominated TES B of two, five and eight years.

Recently BR has authorised the use of up to P 260 trillion of the administration quota for TES B for the issuance of 90-day peso-denominated TES B. It is expected these new instruments will complete the sovereign yield curve and foster the derivatives market in interest rates.

3.5 Secondary market

During an average day in 2000, P44 billion of TES B were traded, equivalent to a turnover ratio of 0.2% of the stock outstanding (P27 trillion). As of August 2001, 46% (P79 billion) of secondary market operations in TES B were conducted on electronic systems, with over-the-counter transactions making up the remainder (Table 8).

Table 8

Public debt market, by trading system

(in billions of pesos)

	Cumulative amount		Percentage share	
	2000	**2001[1]**	**2000**	**2001[1]**
SEN	15.3	47.8	11	27
Colombia Stock Exchange and interface trading	41.9	32.1	31	18
Total electronic systems	57.2	79.9	42	46
Interface booking	80.0	93.9	58	54
Total debt market	137.2	173.8	100	100

[1] August 2001.

Source: Colombia Stock Exchange and SEN.

The average issue size of TES B is P 500 billion (around $200 million). Nevertheless, the Ministry of Finance and Public Credit can increase the size of the issue until it considers it has sufficient liquidity. Table 9 shows the how the increase in liquidity over the last year has narrowed the bid-ask spreads.

Table 9

Narrowing of bid-ask spreads

(in basis points)

TES B in pesos – seven-year maturity	5
– five-year maturity	10
– three-year maturity	10
– two-year maturity	15
TES B in UVR or US dollars	40

In terms of liquidity, the most important maturity among government bonds during 2001 was five years.[9] The preference for longer maturities is explained by expected and confirmed decreases in interest rates.

There are no available statistics on turnover in the derivatives market. However, it is known that some forward rate agreements and swaps are carried out. This slow development is sometimes due to regulations on derivatives and their bookkeeping and sometimes due to the lack of adequate benchmarks. For example, the tradition of pricing off the DTF,[10] the benchmark for credits to the private sector, has restricted the use of the sovereign curve as a reference for short tenors. It is expected that once 90-day peso-denominated TES B gain acceptance, they will be used as the best guide for expectations of interest rates.

3.6 Clearing and settlement system

The main government bonds are deposited in the DCV, a computerised system designed for the management, through electronic registers, of securities issued or managed by BR. Its objectives are to eliminate the risks associated with the physical circulation of bonds and facilitate secondary market transactions and the collection of capital and interest returns. Dematerialised securities of the same specie - with identical characteristics and financial conditions, issue date and maturity - are consolidated in the same electronic register.

The DCV offers online real-time connection, matching of data on seller and buyer, real-time gross settlement, dematerialised bonds, delivery versus payment and settlement finality.

3.7 Public debt: summary

In sum, during recent years the Colombian capital markets has made good progress. Specifically, the central government has moved its financing from captive sources to domestic markets, established a regular auction of standardised securities of increasing maturity and completed its yield curve. During the same period, the competitiveness and sophistication of the financial system increased. For example, risk management systems have been widely adopted, the repo market has matured and a number of electronic and specialised intermediaries, such as brokers, have appeared. Finally, pension funds have taken the lead as long-term investors.

4. BR and the bond market

BR has played a crucial role in developing the government bond market. It has executed temporary monetary expansion with TES B since 1996, permanent monetary expansion since 1998 and temporary and permanent monetary contraction since 1999. BR is also responsible for the auction, administration, registry, transaction and settlement of TES B.

At present BR deals only in government bonds in its open market operations. For temporary operations, BR accepts as guarantee TES B and bonds issued by FOGAFIN (the deposit insurance agency) and FINAGRO (a support agency for coffee growers). For permanent operations, BR prefers to buy TES B. These purchases have helped consolidate the bond market. For example, during 1998 they helped to sustain the price of TES B during the exit of international investors and supported the activity of market-makers.

The permanent monetary expansions in 1999 and 2000 were so large that BR had to resort to auctions, due to the illiquidity of the secondary market. Unfortunately, these auctions distorted the yield curve, increased prices for BR and reduced the overall liquidity of the market. To mitigate these

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9 According to SEN, the issues maturing on 8 November 2005, 3 May 2006 and 4 February 2005 were the most heavily traded up to August 2001, accounting for 53%, 19% and 15% of the total market respectively.

10 A weighted average of 90-day deposit interest rates from banks, financial corporations, financing companies and mortgage banks. This benchmark is calculated weekly by BR.

negative consequences, BR has since modified its auction system to require bid and ask quotes with a maximum spread. It has also determined that cutoff rates should correlate with market prices, and it has carried out most of its purchases on electronic trading systems.

In June 2001, BR's portfolio of public debt stood at P2.3 trillion, almost totally comprised of TES B (Table 10).

Table 10

BR's public debt portfolio[1]

(in billions of pesos)

	Títulos de Tesorería - TES Clase A	**Títulos de Tesorería - TES Clase B**[2]	**Títulos de Tesorería - TES Ley 546**[2]	**Bonos FOGAFIN Capitalización BR**	**Bonos FOGAFIN**[3]	**Total**
1999	307	1,674	0	0	10	1,991
2000	245	2,116	50	474	12	2,897
2001[4]	184	1,764	51	318	12	2,329

[1] Excluding coupons. [2] Bonds TES class B and TES Ley 546 that are denominated in UVR (real value units) were changed to pesos with the last UVR of the respective year. [3] Corresponds to different bonds issued by FOGAFIN. [4] June 2001.

BR has also played a decisive role in the information infrastructure on which the bond market has expanded. BR has created a robust and secure information system for the administration, registry and dematerialised transaction of bonds and for the transfer of the related payments. BR administers the primary placement of government debt through weekly auctions executed electronically, for which payment occurs in real time through SEBRA. These bonds are then registered in the DCV.

As mentioned above, in 1998 BR developed and launched SEN, an electronic trading system for government bonds. This system has considerably facilitated price setting through transparent real-time operations. Finally, with the recent launch of the electronic fixed income trading system of Bolsa de Colombia, the national securities exchange, BR has opened SEBRA, and thus delivery-versus-payment, to other agents.

4.1 Challenges for BR

Even after taking into account these successes, there are still many challenges to consolidate them and support the progress of the rest of the Colombian capital market. For example, BR is currently:

- increasing its coordination with the Ministry of Finance and Public Credit in liquidity management and the development of the public debt market;
- reviewing which bonds, at which price and with which haircuts, it receives and delivers in its temporary expansion and contraction operations;
- analysing which mechanism for permanent expansion (purchase through SEN, spot or forward auctions) creates least distortion to the sovereign yield curve;
- closely tracking the 90-day TES B to see its impact on the sovereign yield curve, and interest rates in general, with the hope it will advance the interest rate derivatives market;
- improving the analysis and administration of its own TES B portfolio and of those it administers for pension funds and the central government; and
- carefully studying the liquidity of the payment system, especially as an important part of the new electronic equity trading system will settle through SEBRA.