WESTERN HEMISPHERE PAYMENTS AND SECURITIES SETTLEMENT FORUM

CENTRE FOR LATIN AMERICAN MONETARY STUDIES

THE WORLD BANK

PAYMENTS AND SECURITIES CLEARANCE AND SETTLEMENT SYSTEMS IN BRAZIL

SEPTEMBER 2004

(PRELIMINARY VERSION FOR COMMENTS)

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A Note to Readers

This report on *Payments and Securities Clearance and Settlement Systems in Brazil* has been prepared by an international team in cooperation with local representatives of the Central Bank of Brazil (*Banco Central do Brasil*, BCB). The report is prepared under the umbrella of the Western Hemisphere Payments and Securities Settlement Forum (WHF), led by the World Bank in partnership with the *Centro de Estudios Monetarios Latinoamericanos* (CEMLA) and whose objective is to describe and assess the payments systems of the Western Hemisphere with a view to identifying possible improvement measures in their safety, efficiency and integrity.

The report is posted on the WHF web-page for public consultation after being approved by local authorities. The **consultation period will last until Dcember 3, 2004** (6 weeks after posting), and interested parties are invited to comment on any aspects of the report. The statistical tables and a glossary will be completed in the final version.

During this time, the report will also be reviewed by an International Advisory Council (IAC), established in the context of the WHF. The IAC comprises the World Bank

(Chair), CEMLA (Secretariat), Bank for International Settlements, Bank of Italy, Bank of Portugal, Bank of Spain, Council of Securities Regulators of the Americas (COSRA), De Nederlandsche Bank, European Central Bank, Federal Reserve Board, Federal Reserve Bank of New York, Inter-American Development Bank, International Monetary Fund, International Organization of Securities Regulators (IOSCO), Securities Commission of Spain, Swiss National Bank and the U.S. Securities Commission (SEC).

At the end of the consultation process, the report will be formally published by CEMLA. Comments may be sent to:

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1 ECONOMIC AND FINANCIAL MARKET OVERVIEW

1.1 OVERVIEW OF RECENT REFORMS

Brazil, like most Latin American countries, has undergone major economic reforms during the nineties. Although each country had its own agenda, they shared a similar core of reforms based on privatization, deregulation, lowering of trade tariffs and trimming the state to achieve macroeconomic stability and foster economic growth.

Since many years ago and up to 1994, high inflation rates were one of the main features of the Brazilian economy. In fact, since October of 1942 Brazil has experienced nine reforms of its monetary system. The second half of eighties and the first of the nineties were particularly problematic in terms of inflation. Five different price stabilization plans were launched from February 1986 to January 1991, none of which lasted more than 7 months.

The frequent changes in the monetary standard suggested both the difficulty of establishing macroeconomic conditions consistent with long run stability and the capacity developed in the Brazilian economy to coexist with inflation for long periods, preserving the pricing system with economic growth. This coexistence was made possible through, *inter alia*, the indexation of virtually all the prices in the economy, including wages, contracts, exchange, interests, etc. This arrangement allowed for the government and a minority with access to the mechanisms of protection against the inflation not only to remaining insulated from its negative effects, but also to benefit from it.

With the launching of the Real as the national currency in 1994 (see Box 1), the Brazilian economy successfully moved to lower and sustainable levels of inflation. The consumer price index (IPCA) dropped from 2,477 percent in 1993 to 1.65 percent in 1998. Price stability induced more transparency to the broad public finances, which pushed the government into furthering reforms primarily aiming at a fiscal consolidation coherent with sustainable low inflation.

Recent governments have attempted other major reforms in the following fronts:

- *Administrative reform*: administrative adjustments and correction of distortions between local, state and national governments' payrolls.
- *Reform of the pension system*: necessary to reach actuarial equilibrium in the pension system. Some progress was made but important issues like civil servants retirement actuarial equilibrium remain pending.
- *Reform of the Economic Order*: aims at eliminating monopolies and allow private investment in areas previously reserved for the public sector. Much has been done on this front, especially in the case of state monopolies.
- *Patrimonial reform*: to promote the restructuring of public sector assets and liabilities. A lot of progress has been achieved in this area, including the renegotiation of state debts and the recognition of the so-called "*esqueletos*" (hidden public sector liabilities).
- *Fiscal reform*: although fiscal discipline was enacted, little progress has been made during the last eight years. This reform is crucial to remove tax distortions that hamper production, investments and exports.

Box 1: The Launching of the Real Plan

In early 1993, the then Minister of Finance Fernando Henrique Cardoso and his economic team set out a strategy to tackle inflation that, at that time, had reached a 30% monthly rate. The Plan of Immediate Action (PAI) was launched in June 1993 and comprised the following measures: i) reduction of expenditures and increasing spending efficiency; ii) recovery of tax revenues; iii) solving the financial situation of states and municipalities; iv) control over the state-owned banks; v) financial rescuing of the federal banks; and vi) enhancing the stabilization program. In July 1 1994 the Real, a new currency, was launched.

In order to put a downward pressure on inflation, the government boosted the already ongoing process of opening up the domestic market to foreign competition. In line with this policy, the Banco Central do Brasil (BCB) established a ceiling for the exchange rate beyond which it would sell foreign currency, gradually dismantled indexation arrangements and raised domestic interest rates.

This de-indexation movement throughout the economy was preceded by another one aiming at breaking the inertial component of inflation. For this purpose, in February 1994 the "Real Value Unit" (*Unidade Real de Valor*, URV) was created. Initially, the URV was only a unit of account and reference (including for exchange rate policy purposes), without the prerogatives of means of payment or reserve of value. Later on, with the possibility to invest in financial assets denominated in URV, it also acquired the characteristic of reserve of value.

This provisional "half" currency allowed for a smooth transition to the new currency in July of 1994. The disarray to the financial markets associated with the conversion of assets was less severe than in previous stabilization plans. The URV had its daily parity with the old currency, readjusted by an index composed of three price indexes. During this period, a natural realignment of relative prices took place. As nominal prices were eventually denominated in URV, an automatic pegging to the United States dollar (USD) occurred. The stability of prices in URV facilitated the identification by agents of distortions in relative prices caused by years of high inflation rates and indexation. The URV gave the agents an anticipated vision of the upcoming economic scenario with stable prices. Paradoxically, the URV can be depicted as an "over indexation" that allowed for a smooth transition to an unindexed economy without compromising the regular provision of goods and services.

In the context of high interest rates and availability of international capitals, there was a strong inflow of foreign capitals. As the BCB did not intervene in the foreign exchange market in the aftermath of the launching of the Real, the monetization necessary to make up for the increase in the demand for currency (natural in a newly-born stabilization) was effected through net redemption of public debt instead of through the accumulation of foreign reserves. Thus, the excess of liquidity in USD in a semi-fixed exchange rate regime promoted the appreciation of the exchange rate. The foreign trade balance deteriorated significantly as a result of the latter. On the other hand, the combination of exchange rate appreciation and trade liberalization was very effective in withholding the growth of internal prices, characterizing the so-called foreign exchange anchoring.

This policy was successful in breaking the inertial inflation and in stabilizing the purchasing power of the new currency. Moreover, this combination forced transformations in the production process in domestic industries. Technology transfers through imports of equipments and goods raised the quality standards of made-in-Brazil products and, thus, its competitiveness in international markets.

Notwithstanding some of this so-called "structural reforms" were rejected or approved only partially, price stabilization lived up to all international financial crises during the 90's —, from the Mexican crisis on December 1994 to the January 1999 currency crisis in Brazil —, thanks to improvements on the fiscal stance, a strong foreign direct investment inflow and tight monetary policy conducted by a more independent central bank.

In the financial system, a whole set of reforms was put forward and implemented. After the 1995 banking crisis, prudential regulation and bank inspection procedures were thoroughly

revised and improved. State-owned banks were either closed down or privatized. Many were acquired by foreign banks, which increased their share to 25 percent of the banking system assets. Federal banks were restructured and recapitalized.

An important event in the monetary policy framework took place on January 1999 when Brazil was forced to adopt a floating exchange rate as a result of several external and internal imbalances. Mainly as a result of the exchange rate appreciation, the current account deficit reached US$33.4 billion[1] in 1998, nearly 4.5 percent of the gross domestic product (GDP). High domestic interest rates to support an overvalued Real had also damaged the government's consolidated fiscal position.

Further adjustments were made to the Real due to the currency crisis. On the fiscal front, the government put forward a set of measures to improve its primary surplus. Congress eventually approved some of them. On the monetary side, an inflation-targeting framework was introduced in mid-1999. Since then, the new policy framework has been tested by a new wave of internal and external shocks, including the surge in oil prices, electricity shortages and increased volatility in international financial markets.

The newly elected president has showed firm commitment with fiscal austerity and has built a political coalition to get some other reforms, like the one regarding to public servant pension system, approved in 2003, and other related to taxes still in process of discussion in the National Congress. Top officials of the government have repeatedly expressed their support for fiscal equilibrium.

1.2 MACROECONOMIC BACKGROUND

The recent evolution of the activity level confirmed the ongoing growth trend in the Brazilian economy. Though growth in exports has continued as a major factor underlying this process, emphasis should also be placed on the importance of recovery in internal demand, particularly as of the second half of 2003, to the burgeoning dynamism of the nation's economy.

The credibility of macroeconomic policy was regained with the austerity of fiscal and monetary policies. The commitment with a primary surplus and the fight against inflation was reflected in the reversal of the expectation for the inflation targeting objectives, in the improvement of the ratios that measure the perception of country risk and in the favorable trajectory of the exchange rate.

External sector results have clearly benefited from the positive performance of the world economy. The current account result has undergone a significant improvement from USD 123 million, in the first quarter of 2002, to a surplus of USD 1,627 million in the same period of 2003, mainly as a result of a 29 percent growth in exports. On the other hand, expansion under imports in 2004 has been consistent with the scenario of an upturn in the pace of economic activity. Analysis of the accumulated twelve months result indicates that the positive current account balance closed May 2004 at USD 6.4 billion, equivalent to 1.24 percent of the GDP, the best result since December 1993.

In the first quarter of 2004, the GDP expanded by 2.7 percent, compared to the same period of the previous year. Growth in recent months, which has been confirmed by the GDP result

[1] Throughout this Report, the "USD" symbol will be used to represented the United States dollar while "R$" will be used for the Real, the national currency of Brazil.

and monthly activity level indicators, has reflected continued recovery in internal demand coupled with a highly dynamic export sector performance (Inflation Report, June 2004).

The national consumer price index (INPC) grew by 7.7 and 8.1 percent in 2003 and 2004, respectively. The Monetary Policy Committee (COPOM) of the BCB has reduced interest rates since June 2003. One of the key rates, the SELIC rate, declined from 26 percent in June 2003 to 15.8 percent by July 2004.

The policy mix has also involved a tight fiscal stance. In April 2004, the non-financial public sector registered a primary surplus of USD 35 billion. When this result is incorporated, the surplus accumulated in the year rose to USD 95.5 billion, compared to USD 191.2 billion in 2003. Responsibility in fiscal affairs at all government levels was secured and institutionalized by a Fiscal Responsibility Law approved in May 2000. This law basically states that there must be equivalent new revenues or expenditures cuts if a new permanent expenditure is to be created. It also defines ceilings for the public debt, personnel expenditures and, perhaps more importantly, it outlaws public authorities that break or neglect the rules.

Notwithstanding the improvement in the fiscal position, the devaluation of the exchange rate and the persistent high interest rates were detrimental to the public sector debt. On May 2004, 67.2 percent of the outstanding government securities were indexed either to the USD or to the SELIC rate. The net public debt to GDP ratio increased from 55.5 percent in December 2002 to 58.7 percent in December 2003. The average maturities of government securities in public offerings has followed a downward trend, from 26 months on June 2003 to 23 months on a June 2004.

Table 1: Macroeconomic Indicators

	1999	*2000*	*2001*	*2002*	*2003*
GDP (real annual growth rate)	0.8	4.4	1.3	1.9	-0.2
Imports (in USD million)	49,210	55,783	55,572	47,241	48,283
Exports (in USD million)	48,011	55,086	58,223	60,362	73,084
Current account balance (as percentage of the GDP)	-4.7	-4.0	-4.6	-1.7	0.8
National Consumer Price Index (inter-annual growth rate)	8.4	5.3	9.4	14.7	10.4
Unemployment (in %)	7.1	5.6	10.6	10.5	10.5
Public Sector Deficit (as % of the GDP, nominal result)	5.8	3.6	3.6	4.6	5.2
Basis Interest Rate (SELIC)	18.9	16.2	19.1	23	16.9
Memo: Exchange rate *Reais* per USD (annual average)	1.8	1.9	2.3	3.5	2.9

Sources: Banco Central do Brasil, Secretaria do Tesouro Nacional and Instituto Brasileiro de Geografia e Estatística.

International investment flows, as indicated by the Emerging Markets Bond Index,[2] which had declined continuously during 2003, were more confident in relation to their perceptions towards Brazil. This is mainly due to the expanding international liquidity and, principally, renewed foreign investor confidence in the economic policy administration.

1.3 THE FINANCIAL SECTOR

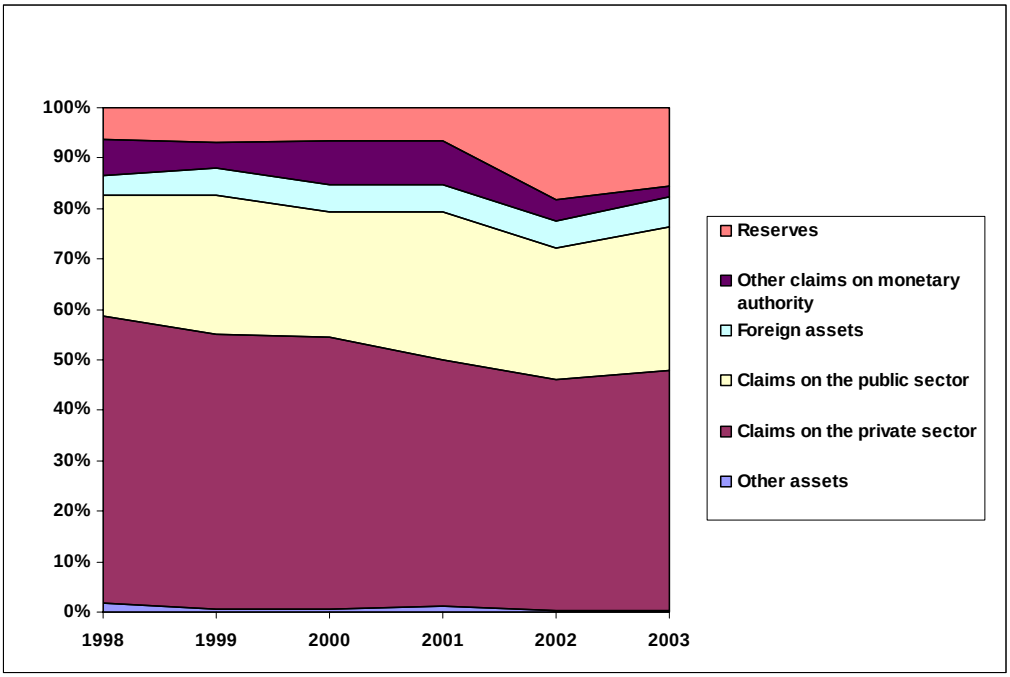
The financial sector has improved its soundness in recent years and at present it is no longer a source of systemic vulnerability. This process of improvement of the banking system dates back to 1994-95 when banks had a sudden decline in inflation-derived revenues after the stabilization plan. The introduction of the Program of Incentives for the Restructuring and Strengthening of the National Financial System (PROER) and the Program for the Restructuring of the State-Owned Financial System (PROES) as well as the creation of the Credit Guaranty Fund (FGC) contributed to a fast and orderly consolidation including the almost complete phasing out of state-owned banks. Under these programs, the BCB was given a mandate to deal with issues related to controlling stockholders, the adoption of preventive measures aimed at restructuring failing institutions, including possible market solutions, and a more flexible approach to privatizations. More than 40 percent of the operating bank licenses that existed at end-1993 have since then changed owners or exited the system via mergers or closures. Four large banks were absorbed between 1994 and 1998. Some smaller institutions were liquidated. In addition, foreign participation in the Brazilian financial sector increased.

The financial system is large in terms of assets but shallow in terms of financing to the private sector. Banks are typically at the center of complex financial conglomerates. Considering the banking sector alone, the financing to the private sector, as measured by total claims on the private sector, has diminished over the last 6 years and accounted only for 47.4 percent of total assets in 2003 (see Chart 1). One interesting aspect is that the amount of credit operations with non-earmarked funds has increased from 27.6 percent of total credit operations on December 1996 to 54.7 percent on December 2003, which might indicate some deregulation in the credit markets.

However, the financial system continues to be dominated by public institutions, which hold 37.2 percent of banking sector assets on December 2003. As long as other sub-sectors of the financial system are concerned, the reinsurance industry is a state monopoly. The insurance and pension sectors are among the largest in Latin America, but as of yet have not given rise to significant long-term financing for the private sector. Securities markets do not yet constitute a significant alternative to bank financing for the private sector.

[2] The EMBI index, published by JP Morgan Chase, measures the spread of sovereign debts (e.g., Brazilian Bradies) over equivalent US securities.

Chart 1: Banks' Asset Allocation



Some of the structural problems still to be addressed by the Brazilian authorities include: (i) the crowding out of the private sector by the government; (ii) distorted financial sector taxation (particularly, but not limited to, the debit tax - CPMF); (iii) high intermediation spreads (e.g. 30 to 40 percentage points); (iv) massive risk-shifting to the public sector, as the government is the main provider of hedges for market risks to the private sector.

1.4 SECURITIES MARKETS

Capital markets in Brazil are relatively sophisticated in terms of infrastructure and availability of instruments. However, private corporations do not use capital markets intensively as an alternative financing source.

The *Comissão de Valores Mobiliários* (CVM) is the main regulatory agency in this field and has jurisdiction over brokers and dealers, some commodities brokers, exchanges and securities clearing and settlement systems. A Provisional Act published on October 31, 2001, and converted into Law 10,411 on February 26, 2002, made the CVM an independent regulatory agency, increasing its operational and financial autonomy. This legal reform also endowed the CVM with adequate enforcement powers. In addition, the CVM's jurisdiction was considerably enlarged as a result of reforms to both the Corporate Law (*Lei das SA* – 6,404/76) and to the Securities Markets Law (SML) on October 2001. Mutual funds and derivative instruments were included under the scope of CVM.

The market for government debt dwarfs markets for private equity and debt securities and securities market liquidity has been adversely affected by taxation, fragmentation, concentration, and continued migration of large issuers to the main international markets. Liquidity is also hampered by a high degree of fragmentation, *i.e.*, a large variety of non-standardized securities, particularly in the private equity and corporate debenture markets.

Despite the recent reforms, there has been a general decline in activity. Stock issuances in 2003 amounted to only R$80 million, 93 percent below the already poor performance of R$1,100 million in 2002. The number of companies listed in the BOVESPA, the main stock exchange in Brazil, has declined consistently over the years, from 550 on December 1996 to 361 on June 2004. The debentures market increased 2 percent in 2002, reaching R$15,400 million, and had poor performance in 2003, 66 percent below the performance in 2002. It should be noted that the latter figures refer to registration and not necessarily to actual placements.

To cope with this decline in activity, stock exchanges in Brazil recently merged under the leadership of BOVESPA. Under the agreement, the stock exchanges of São Paulo, Rio de Janeiro, Minas-Espírito Santo-Brasília, Extremo Sul, Santos, Bahia-Sergipe-Alagoas, Pernambuco and Paraíba, Paraná and the Bolsa Regional now comprise a single Brazilian stock market on a nationwide level, with a single trading, custody and settlement system. The trading of stocks is now carried out in São Paulo, while trading of public securities is conducted in the Rio de Janeiro. The other regional exchanges concentrate activities such as market development and providing services to the local markets.

Recent developments in the securities markets have concentrated in modernizing the corporate governance framework. Particularly important were the new Corporate Law, which, among other things, gives a more adequate protection to minority shareholder rights, the creation by BOVESPA of the Novo Mercado (New Market), a very rigorous level for share listing, and the issuance of a Code of Best Practices on Corporate Governance by the CVM on June 2002. However, the concentrated ownership structure coupled with a high proportion of non-voting shares still represents a structural hurdle to improved corporate governance.

1.5 MAJOR TRENDS IN PAYMENT SYSTEMS

Brazil had some fairly sophisticated payment systems even prior to the recently carried out payment system reform. In particular, payment instruments and networks were highly automated, in part because of hyperinflation which prompted banks to make heavy investments in information technology so as to provide their customers with products and services which allowed them to move their money faster and, hence, prevent significant losses in terms of purchasing power.

Starting 1995 inflation appears to be under considerable control. As the economy stabilized, the attention shifted from the speed of payment processing to risk management. It became clear that the Brazilian payment system presented serious problems in terms of risks, which were incurred mainly by the BCB and, ultimately, by the system as a whole.

The first shortfall was the lack of a sound and reliable legal framework for payments. Regulations governing the rights and obligations of participants in payments transactions were scattered, and large gaps had existed in terms of a legal underpinning for many transactions involved in the payments process. Key examples were the lack of legal validation of multilateral netting, the existence of the “zero hour” rule, the lack of protection of assets pledged as collateral in case of failure of a participant, and the lack of legal empowerment of the central bank to undertake payment system oversight. These features made the Brazilian payment system particularly vulnerable to shocks and crises.

Second, implicit in the previous system was an informal assumption that, should any problem occur, the BCB would guarantee the closure of the settlement cycle. In particular, it was only in the morning that the BCB and the banks knew their reserve account balances of the previous day. As the payments system worked on a deferred net settlement (DNS) mode, there was a high degree of intraday credit exposures. Therefore, during the day the

payments system worked on the understanding that each transaction was final since market participants believed the BCB would fund any shortfalls at settlement time. Thus, in this environment the Brazilian large-value payments system was not compliant with many of the CPSS Core Principles and the BCB was bearing the ultimate risks.

Third, the system did not allow an efficient integration of payments and securities settlement procedures. Several additional and cumbersome steps were needed to guarantee delivery versus payment (DvP) in the settlement of securities transactions.

Four, there was no specific payment system for critical funds transfers, and both large value and retail payments were settled within the COMPE -- a clearing house for cheques and credit transfers -- on a consolidated multilateral netting basis, with no risk management mechanisms in place.

As a result of the diagnosis, the BCB undertook a major payments and securities system reform program with the overall objective of satisfying the evolving funds and securities transfer needs of all sectors of the economy. The reform of the Brazilian payment system had four main specific objectives. First, the development of a real time gross settlement (RTGS) payment system within the BCB to migrate large-value payments from the traditional COMPE. Second, the strengthening of the major clearinghouses. Third, a more balanced sharing of settlement risks between the central bank and the participants. And fourth, the compliance of the main systemically important payment systems of the country with international standards and best practices.

A number of actions were envisaged in this program; many of which have already been accomplished and some other are ongoing. The launch of the new system, the "Reserves Transfer System" (*Sistema de Transferência de Reservas,* STR) occurred on April 22, 2002. The main features of this system are: a) bank reserve account balances are settled in real time and on a gross basis; b) it reduces to zero the risk for the central bank since all funds transfers occur only if the paying institutions have the necessary positive balance in their reserve account; c) the system is consistent with international standards and best practices since, among other things, it allows only credit transfers.

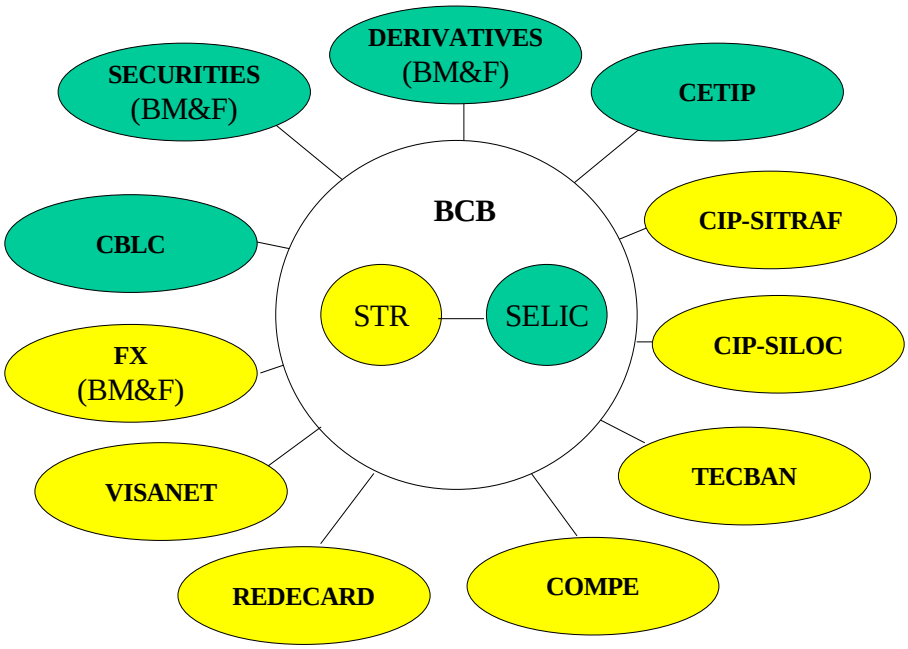
The BCB also aimed at providing irrevocability and finality in the shortest time possible. With the implementation of the STR, funds transfers are considered final in the exact moment when the accounts are moved at the central bank.

The scope of the reform initiative was comprehensive, covering large-value funds transfer systems, payment clearinghouses, securities trading and settlement systems, foreign exchange clearance and settlement systems, commodities and futures clearance and settlement systems.

In 2002, along with the launching of STR, four new payment clearinghouses were created: the *Câmara Interbancária de Pagamentos* (CIP), a CHIPS-type system, the TecBan, which settles transactions from Banco24Horas, a shared automated teller machine (ATM) network with 52 associated financial institutions, and Visanet and Redecard, which settle credit and debit card transactions.[3] The traditional cheque clearinghouse, the COMPE, still exists. Chart 2 shows the general architecture of the new system.

[3] VisaNet and RedeCard together process over 93% of the transactions with payment cards.

Chart 2: General Architecture of the Brazilian Payments System[4]



Regarding other retail payment systems, several developments are under way in the Brazilian retail market, in part as a result of the on-going reform of the large vale payments systems. The BCB believes there is also considerable room for improvement in the efficiency of retail payment instruments and systems.

In particular, ATMs and electronic funds transfer at the point of sale (EFTPOS) systems still lack interoperability in many cases. The BCB is currently pushing the banking system into higher levels of consolidation and interoperability amongst proprietary ATM networks. The BCB believes the new payments system will force banks to re-think the strategy of having a private ATM network as a source of competitive advantage. On the other hand, the multiplicity of EFTPOS at the same merchants should be mitigated in the near future by decisions like the VisaNet and CrediCard installing new generation mutually compatible EFTPOS.

Additionally, the BCB is currently working on a program called SPB-2, a second generation set of reforms aiming at the modernization of payment instruments, especially those intended for low value payments, in order to promote cheaper and more efficient substitutes for cheques and cash itself. [5] According to BCB's preliminary documents on SPB-2, the project should comply at least the following actions:

- evaluation of inefficiencies;
- incentives to foster cooperation;
- adjustment of the legal and regulatory base;

[4] Systems associated with funds transfers are shadowed in yellow, while systems dealing with securities clearance and settlement in blue.

[5] The BCB has indicated publicly its interest in playing a catalyst role in the effort of improving the efficiency of the retail system such a role recently.

- standardization of communication protocols to be used by systems that convey payment transactions;
- integration of networks;
- truncation of cheques;
- promoting a more intensive use of electronic instruments.

1.6 MAJOR TRENDS IN SECURITIES CLEARANCE AND SETTLEMENT SYSTEMS

The securities clearance and settlement industry in Brazil is fragmented as the various types of securities are deposited cleared and settled in specific central securities depositories (CSDs). All securities are dematerialized and transfer of ownership is accomplished through book entries at the relevant CSD.

There are currently four securities and one derivatives clearance and settlement systems operating in Brazil:

- The Special System for Settlement and Custody (*Sistema Especial de Liquidação e de Custódia*, SELIC), owned and operated by the BCB. The SELIC is the CSD for government securities;
- The Clearinghouse for Custody Settlement (Câmara de Custódia e Liquidação, CETIP) is the main CSD and clearinghouse for debt securities issued by private sector entities;
- The Brazilian Clearinghouse for Settlement and Custody (*Câmara Brasileira de Liquidação e Custódia,* CBLC), a BOVESPA affiliate, is the CSD and clearinghouse for equities and some equities derivatives;
- The BM&F Securities Clearinghouse (*Câmara de Ativos*), operated by the Brazilian Mercantile & Futures Exchange – BM&F(*Bolsa de Mercadorias e Futuros*); and
- The BM&F Derivatives Clearinghouse (*Câmara de Derivativos*), operated by the BM&F, which is the main clearinghouse for commodities and derivatives.

With the launch of the new Brazilian Payments System (*Sistema de Pagamentos Brasileiro*, SPB) in April 2002 the securities clearance and settlement systems are approaching full compliance with international standards. In particular, the SELIC is now able to settle all transactions (securities and cash) in real time on a gross basis achieving Delivery versus Payment (DvP) for all trades. For this purpose, the SELIC maintains a direct link with the BCB's RTGS funds transfer system.

Another major recent event in this area has been the enactment of Law 10,214, the Payment System Law, which states that systemically important payment and securities clearance and settlements system (as defined by the BCB) must hold settlement accounts within the BCB and act as central counterparties and guarantee the final settlement of the transactions they accept for clearance and settlement. At present the CBLC and the BM&F, the latter in its capacity as clearinghouse for commodities, derivatives and securities, are full under the BCB's definition.

The launch of the BM&F Securities Clearinghouse, occurred in May 13, 2004, along with the re-launch in the same date of the SISBEX, an electronic trading platform, should contribute to further develop the fixed-income securities secondary market in Brazil.

2 INSTITUTIONAL ASPECTS

2.1 GENERAL LEGAL FRAMEWORK

The regulatory framework for the Brazilian financial system and markets operates on multiple levels. These include: the Ministry of Finance (*Ministério de Fazenda*, MinFaz), the National Monetary Council (*Conselho Monetário Nacional*, CMN), the BCB and the CVM. The BCB and CVM are under the umbrella of the MinFaz, which has overall authority over them as well as over other key regulatory agencies.

The CMN is the highest regulatory entity within the national financial system. It is made up of the MinFaz, who presides over the council, the Minister of Financial Planning and Budgeting, and the Governor of the BCB. The Law 4,595/64, which created the CMN, assigns the latter regulatory-making powers, and the regulations it issues, namely "*Resoluções*", are binding upon all members of the system, including the BCB. In practice, the CMN approves the main regulations relating to market intermediaries and issues general policy guidelines and the BCB complements them for the areas under its responsibility. Before the amendment of Law 6,385/76 that came into force in March 1, 2002, the CVM was also subject to regulations approved by the CMN. This amendment eliminated the CMN's power to enact regulations for the securities markets. At present it only enacts general policy guidelines for these markets that must be taken into account by the CVM when performing its functions.

The BCB and the CVM are also subject to other rules, such as the so-called "Provisional Acts", which, according to Brazil's Constitution, are enacted directly by the President.

In turn, the BCB issues infralaw regulations. The main types are the *Circulares*, issued by the BCB's Board of Directors, and the *Cartas-Circulares* and *Comunicados*, issued by any of the BCB's Heads of Departments, which are intended to go into further detail or explain what is stated in the *Circulares*. In the case of the CVM, it issues "Regulatory Instructions" (*Instruções Normativas*).

2.1.1 Payments

The general responsibilities of the BCB are stated in Law 4,595, of December 1964. On the other hand, the Payment System Law (Law 10,214, of 27 March, 2001) defines the scope of the Brazilian payments system, which comprises the entities, systems and the procedures regarding the transfer of funds and other financial assets or the processing, clearing and settlement of payments by any means. This law sets out the specific responsibilities of the BCB towards payment systems. In particular, it reinforces the BCB's broad mandate stated in Law 4,595 to regulate payments and securities clearance and settlement systems.

The CMN's Resolution 2,882 of August 30, 2001 states the payments system objectives of the BCB,[6] namely efficiency, safety, integrity, and reliability. It also defines the scope of application of BCB's rules and interventions,[7] namely all clearinghouses and system operators that handle interbank transfers and settle among at least three direct participants. The core of this Resolution is the specification of nine general rules that payment system operators must comply with. In general, these rules resemble the CPSS Core Principles for Systemically Important Payment Systems.

[6] Article 1 of CMN's Resolution 2,882.
[7] Article 3 of CMN's Resolution 2,882.

Furthermore, according to this Resolution, the BCB will conduct oversight on a continuous basis over payment systems and to this purpose it is entitled to regulate the activities of system operators, authorize the functioning of the systems and apply sanctions. The Resolution also specifies that the BCB may apply specific provisions to those systems that are considered systemically important and clarifies the role of the securities regulator (*i.e.*, the CVM) and the cooperative framework between it and the BCB. Finally, it states that the BCB will only operate payment systems that settle on a gross basis, in real time.

Following up on this Resolution, in August 31, 2001 the BCB issued Circular 3,057. This Circular contains the detailed regulation of the functioning of clearinghouses and other payment system operators and defines several features these entities must comply with, including capital requirements, transparency standards, risk control measures, operational requirements, etc. All these elements had to be submitted to the BCB for their revision and approval. The Annex to the Circular also defines a formula to determine whether a system is systemically important, based on the average value of the largest transaction and/or the aggregate value, both over a 6- month time span. Several other BCB Circulars and Letter-Circulars have been issued to regulate a wide spectrum of aspects within the national payments system.

2.1.2 Securities

The legal framework of the securities market has been recently improved and modernized in many areas, including the protection of minority shareholders, developing a culture for corporate governance, and increasing transparency. These legislative changes also defined and toughened the capital market crimes. For example, a five-year prison sentence can now be imposed in cases involving market manipulation, use of insider information etc.

CVM's Regulatory Instructions are used to supplement these laws. For example, Instruction 358 deals with use of privileged and insider information. Instruction 361 outlines important shareholder protections in tender offers or transfers of corporate control.

2.1.3 Derivatives

An array of derivatives is traded in the Brazilian financial markets. Futures and forward are the most relevant, followed by options. As far as clearance and settlement are concerned, the same legal framework applicable to securities governs derivatives exchanges.

2.1.4 Specific Legal Issues Related to Clearance and Settlement

2.1.4.1 Netting, Settlement Finality and Zero Hour Rule

The legal framework established by Law 10,214 in March 2001 granted private clearinghouses certain legal rights and protections, e.g., in terms of the use of collateral, and the legal recognition of multilateral netting. More specifically, it granted legal rights to seize the collateral of bankrupt participants held to secure financial transactions, protected the payments system against the implications of a zero hour rule, and gave legal recognition to multilateral netting schemes. The new legal framework also clarifies specific responsibilities for the clearinghouses. According to this Law, clearinghouses that are designated as systemically important by the BCB must act as central counterparties and guarantee final settlement of the transactions they accept for clearance and settlement and include the legal segregation of the net assets of each discrete clearing and settlement environment, thus assuring that any collateral posted in a specific environment be solely used for settlement in that specific environment. In addition, clearinghouses are now subject to sanctions similar to those that are applicable to financial institutions. A specific restriction is that the net assets of

a clearinghouse cannot be used as pledged collateral for any loans sought by the clearinghouse.

2.1.4.2 Electronic Documents and Signatures

The electronic signature is protected legally. However, some issues regarding the certification authority for cryptography are still open.

2.1.5 Anti-Money Laundering Measures

Following the signing of the "Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances" – the 1988 United Nations Vienna Convention – the Brazilian government undertook a series of international obligations directed towards fighting against the crime of money laundering. Other international accords signed on this matter include those under the auspices of the Organization for American States (OAS), of the United Nations, and of the Organization for Economic Cooperation and Development (OECD).

In response to these obligations, the Brazilian government enacted an anti-money laundering law (Law 9,613 of March 3, 1998), which created the Council for the Control of Financial Activities (COAF), which functions as a financial intelligence unit. Its primary function is to evaluate suspicious transactions reports and to refer cases for investigation and prosecution. The Law 9,613 also requires COAF to issue customer due diligence and reporting instructions to nine business sectors that fall outside of the jurisdiction of the banking, securities, and insurance supervisors. It is also responsible for monitoring compliance with and enforcement of the anti-money laundering legislation in these sectors, and is the principal agency involved in arrangements for domestic and international cooperation. In this regard, the COAF coordinates the efforts of various governmental agencies in Brazil to implement anti-money laundering policies on a nationwide basis.

Law 9,613 states in its article 12, the application of the following administrative sanctions to the institutions under the control of the COAF. These sanctions shall apply together or separately in case of non-compliance with the regulations and information requirements established by the COAF:

- a warning
- a monetary fine of R$200,000 or, alternatively, a fine ranging from 1 percent to twice the value of the corresponding transaction, or up to 200 percent of the profit made or that presumably would have been made with the transaction
- up to ten years banning from holding any management position in entities under the scope of the referred law
- the cancellation of the authorization to operate

In case of noncompliance with the administrative decision of COAF, a member of the Office of the Attorney General is entitled to make a judicial case.

According to the 2001/2002 annual reports of the Financial Action Task Force (FATF), Brazil has complied with the "Forty Recommendations Against Money Laundering".[8]

[8] Only three other countries had achieved this as of 2002.

2.2 THE ROLE OF FINANCIAL INSTITUTIONS: PAYMENTS

2.2.1 The Banking Sector

Banking institutions in Brazil can be commercial banks, universal banks with commercial bank capabilities and the Caixa Econômica Federal (Caixa), a state-owned savings & loans institution equivalent to a commercial bank. As of December 2003 there were a total of 116 universal banks with commercial bank capabilities, 23 commercial banks and the Caixa.

Table 2: Bank Branches

	Dec-2001	*Dec-2002*	*Dec-2003*
Municipalities in Brazil	5,654	5,658	5,578
Municipalities not served by banks	1, 681	1,665	1,600
Municipalities served by only one branch 1	2,013	2,060	2,066

1. Includes service outpost (PAA's).

Source. Banco Central do Brasil.

Banking institutions are allowed to take deposits in current accounts from the public and hold reserve accounts, which are also settlement accounts, at the BCB. Regarding payment services, bank customers may use cheques, money transfers and payments of bills, which are processed through the cheque clearing system. Moreover, through the payment systems operated by the BCB banks are also able to offer electronic payment products that allow their customers to make same-day or even real time interbank payments.

Additionally, banks are the major credit and debit card issuers in Brazil. As of December 2003 there were over 44 million credit cards in the country.

2.2.1.1 Banco do Brasil S.A.

Banco do Brasil S.A. plays a very important role in the national payments system as, under a mandate of the BCB, it is the operator of the COMPE, the cheque clearinghouse. Banco do Brasil S.A. also holds a seat in the COMPE Group, which assists the BCB in policy issues regarding the clearance of cheques and works as a forum for the discussion of operational problems and proposals for improvements.[9]

2.2.2 Other Institutions that Provide Payment and Settlement Services

The Tecnologia Bancária S.A. (Tecban) operates Banco24Horas that is a shared ATM network that connects 52 financial institutions. It also offers a debit card (*Cheque Eletrônico*) and a payment card for e-commerce transactions (*Cheque Eletrônico.com*).

Rede Verde-Amarela, another ATM shared network operated by State and Regional Banks Brazilian Association (*Associação Brasileria de Bancos Estaduais e Regionais, ASBACE*), offers ATM services although on a smaller scale, for 11 state-owned banks.

[9] The BCB and bankers' associations also hold seats in the COMPE Group.

The Brazilian post service (*Empresa Brasileira de Correios e Telégrafos*, ECT) offers a credit-type, retail payment service called "*Vale Postal*". This service is very important for those individuals that do not have access to banking services or when either the payer or the payee is located in very small towns not yet reached by banks (see Table 2). In 2000, this service processed credit orders worth R$300 million.

Recently, ECT and Banco Bradesco S.A., the largest private bank in Brazil, launched the Banco Postal. Through this joint venture, ECT and Banco Bradesco S.A. provide banking services for lower-income individuals and are present in virtually all municipalities in Brazil.

2.3 THE ROLE OF FINANCIAL INSTITUTIONS: SECURITIES

2.3.1 Securities Market Participants

The main participants in the Brazilian securities markets are the following:

Issuers: private and public sector corporations, governments or private companies that meet registration requirements of the CVM to sell an offering of securities. There are currently over 800 publicly held companies.

Underwriters: in Brazil, underwriters, usually investment banks or universal banks with investment bank capabilities, may or may not assume the risks in bringing the issue to the market.

Brokers-dealers: at present there are approximately 400 brokers-dealers in the country.

Banks: the role of banks in the securities markets is threefold. Banks can operate as settlement agents for securities market transactions as long as this is for a non-banking institution.[10] Secondly, banks may become clearing members of a clearinghouse designated as systemically important, in which case they are responsible before the clearinghouse for the timely settlement of transactions they made on behalf of third parties. Finally, banks can act as custodians of securities on behalf of third parties who do not hold a securities account at a central securities depository.

Institutional Investors: these are usually mutual funds, insurance companies and pension funds. At present there are over 1,000 mutual funds operating in the country.

Securities Risk Rating Firms: the main risk rating firms operating in Brazil are Standard & Poor's, Moody's Investors Services and Fitch.

Central Securities Depositories (CSDs): in Brazil, all entities that act as a CSD offer clearance and settlement facilities as well.

Registrars: this is an entity authorized by a securities issuer to keep the records of the number of securities issued. The registrar is usually a commercial bank.

2.3.2 Exchanges

Equities are mainly traded at the São Paulo Stock Exchange (BOVESPA), which consolidated its leadership after reaching a merger agreement between the exchanges of São Paulo, Rio de Janeiro, Minas-Espírito Santo-Brasília, Extremo Sul, Santos, Bahia-

[10] By law, banks are not allowed to hold settlement accounts at other banks.

Sergipe-Alagoas, Pernambuco and Paraíba, Paraná and the Bolsa Regional to create a national equities market with a single trading, settlement and custody system. Currently, the other regional exchanges only perform a variety of services mainly related to market development.

The BM&F, also located in São Paulo, is the commodities and derivatives exchange.

2.3.3 Securities and Derivatives Clearance and Settlement Institutions

The securities clearance and settlement industry in Brazil is fragmented as the various types of securities (*i.e.* government securities, equities, etc.) are deposited, cleared and settled in specific CSDs. Four securities settlement systems are currently operating in Brazil: SELIC, for securities issued by the federal government, with settlement in RTGS mode; BM&F Securities Clearinghouse, which settles federal government securities in DNS mode; CBLC, a BOVESPA affiliate, for equities and some equities derivatives; and CETIP, for private securities and some low liquidity state and federal government securities. BM&F Derivatives is the main settlement system for commodities and derivatives.

2.4 MARKET STRUCTURE AND REGULATION

Four agencies are responsible—under the aegis of the CMN—for the regulation and supervision of financial entities. The CMN is the highest regulatory entity within the National Financial System and it holds the ultimate responsibility for issuing the sector's regulatory policies. The BCB supervises banks as well as several other types of financial intermediaries, including credit cooperatives. Bank-based conglomerates are supervised on a consolidated basis by the BCB. The CVM supervises the stock exchanges, the exchanges' clearing systems (jointly with the BCB), and mutual funds[11]. The insurance supervisor, the SUSEP, supervises open-end pension funds and the insurance industry.[12]

Regarding the supervision of financial markets, the BCB is responsible for supervising all transactions in the foreign exchange, credit and money markets. Due to its responsibility over the money market the BCB has jurisdiction over government securities (federal, state and local) and debentures and notes issued by financial institutions. In turn, the CVM is responsible for the regulation and supervision of the equities and derivatives markets as well as for the transactions made with all other debt securities.

2.5 THE ROLE OF THE CENTRAL BANK

2.5.1 Monetary Policy and Other Functions

The CMN is the principal decision-making body in charge of formulating the country's monetary policy, while the BCB is responsible for the implementation of such policies. The Monetary and Credit Technical Committee (*Comissão Técnica da Moeda e do Crédito*, COMOC), established by Presidential Decree 1,304 of November 9, 1994, provides technical support to the CMN in the formulation of the monetary and credit policies.

[11] Legal amendments in February 2002 gave the CVM jurisdiction over debt and equity mutual funds. Until then, debt funds were supervised by the BCB.

[12] The Ministry of Social Security, through an agency called SPC, supervises private closed pension funds. The government-owned re-insurance monopoly, IRB, has also some supervisory roles.

The Monetary Policy Committee (*Comitê de Política Monetária*, COPOM) has been created within the BCB, denoting an institutional advancement towards a more autonomous central bank. In particular, the COPOM has a prominent role in the formulation of monetary policy as it sets up the target for the overnight interest rate for open market operations (the so-called SELIC rate), and is in charge of elaborating quarterly inflation reports.

Other functions of the BCB include foreign exchange policies, the prudential supervision of financial institutions (shared with other agencies), and the oversight of the payments system.

2.5.2 Supervision of Financial Entities

The BCB is in charge of the prudential supervision of banks as well as several other types of financial intermediaries. It also supervises bank-based conglomerates on a consolidated basis.

Brazil has signed the Basel accord on minimum capital requirements and has imposed even higher capital requirements. Minimum capital requirement in Brazil have been raised from 10 to 11 percent of risk-weighted assets, three percentage points higher than the minimum standard set by the Basel Committee on Banking Supervision.

Box 2: Deposit Insurance and Bank Resolution Framework

The Brazilian deposit insurance scheme (*Fundo Garantidor de Créditos*, FGC) was established in August 1995 by Resolution 2,197 of the CMN, as a response to the banking crisis experienced in the mid-1990s. The FGC is a non-government, non-for-profit, tax-exempt, industry-based organization whose purpose is to promote public confidence in the banking system and protect the savings of small depositors by providing limited deposit insurance. It is directed by a Board elected by member banks, although it receives public policy guidance from the CMN[13].

FGC membership is compulsory and includes all financial institutions, both private and public, that collect deposits from the public[14]. The insurance covers all types of deposits (demand, time, and savings), bills of exchange, real estate financing notes, and mortgage notes. The coverage limit is R$20,000 per depositor, per bank, and there is no co-insurance.[15]

Article 192 of the Brazilian constitution states that no federal funding is available to the FGC. Neither can the FGC borrow from the BCB as it does not have the status of a financial institution. Thus, its funding comes mainly from contributions made by member banks. All member banks pay a flat monthly premium of 0.025% of total deposits, which translates into an average premium of 0.7% on insured deposits. On the other hand, approximately 10% of its income stems from penalty fees over returned cheques[16].

If the liquid assets of the FGC are insufficient to cover insurance obligations in case of a bank failure, the FGC Board may approve an extraordinary contribution of up to 50% of the regular contribution and/or the payment in advance of 12 months' worth of contributions. On the other hand, once the FGC's liquid assets reach 5% of insured deposits the CMN may decide to temporarily suspend or reduce the contributions.

[13] Additionally, all changes in the statutes of the FGC have to be approved by the CMN.
[14] With the exception of credit cooperatives, which have their own solidarity-based guarantee scheme.
[15] Available data indicate that, as of December 2003, the limit of R$20,000 would fully cover approximately 97 percent of the total number of depositors and about 33 percent of total deposits.
[16] Financial institutions are charged for the inclusion/exclusion of names in the national record of accounts that have been closed due to cheques returned because of lack of funds.

In the nine years of its existence, the FGC has reimbursed insured deposits of 24 failed banks, including one large bank (*Bamerindus*) and one public bank (*Banco do Estado do Amapá*). Moreover, it has successfully generated confidence in its ability to pay out depositors of failed banks quickly, hence enhancing the authorities' willingness not to delay the closure of nonviable banks.

On the other hand, Law 9,447 contains the legal framework for bank resolutions. This law gives the BCB strong powers to require prompt capital injections by shareholders or a solution via a merger or acquisition; and, if that fails, to intervene or liquidate the bank.

2.5.3 Involvement in the Payments System

The BCB acts as overseer of the national payments system and as a provider of payment and securities settlement services.

As overseer, the BCB is responsible for supervising all the settlement systems, including those, which settle securities, derivatives and foreign exchange transactions. Its up to the BCB to indicate which systems are regarded as systemically important. So far this distinction applies to the SITRAF, the SELIC, the CBLC, the CETIP, the BM&F Derivatives (*Câmara de Derivativos*), the BM&F Securities Clearinghouse (*Câmara de Ativos*) and to the BM&F's Foreign Exchange Clearinghouse (*Clearing de Câmbio*).

In capacity as provider of payment services, the BCB currently operates the STR, the Brazilian real-time gross settlement system, and the SELIC, the central depository and settlement system for government securities.

2.6 THE ROLE OF THE SECURITIES REGULATOR

The responsibilities of the CVM are stated in two main Laws, Law 6,385 and Law 6,404, and in complementary regulations. Law 10,303, of October 2001, which, as mentioned before, eliminated the power of CMN to enact regulations for the securities markets, strengthened the role of the CVM after the amendment of Law 6,385.

Law 10,411 of February 26, 2002 granted the CVM independent administrative authority and gave CVM Directors the necessary stability by, among other things, fixing their terms in office.

As defined in article 2 of Law 6,385, the CVM is responsible for the regulation and supervision of transactions with securities (*valores mobiliários*). However, not all securities fall under the jurisdiction of the CVM as it is only responsible for transactions made with equities, debentures, subscription rights and warrants, and all other privately issued securities and derivatives. Government securities and debt securities issued by financial institutions fall under the jurisdiction of the BCB.

In practice, the CVM is responsible for supervising the operations of the exchanges associated with securities and their trading systems. This includes the BOVESPA, the BM&F and the SISBEX. Under the amendment of Law 6,385 by Law 10,303, the CVM is also responsible for supervising privately traded securities. Also, effective March 1st 2002 the CVM was granted responsibility for the authorization and supervision of all types of pooled investment vehicles.

Some securities settlement system, like the ones that settle stocks and debentures, are supervised by the CVM jointly with the BCB.

2.7 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR ENTITIES

2.7.1 National Association of Open Market Institutions (*Associação Nacional das Instituições do Mercado Financeiro, ANDIMA*)

The National Association of Financial Market Institutions (*Associação Nacional das Instituições do Mercado Financeiro, ANDIMA*) is a non-for-profit civil association located in Rio de Janeiro that holds a controlling stake of the CETIP. Additionally, together with the BCB it manages the SELIC.

3 PAYMENT MEDIA USED BY NON-FINANCIAL ENTITIES

3.1 CASH

The currency unit in Brazil is the Real. Paper money is legal tender. Coins are legal tender as well, except for a sum in excess of R$100. Cash is used for very low value payment transactions.

The BCB has the exclusive legal mandate to issue money, which it does by hiring external providers for printing and coinage services. At the end of 2003, total currency issued amounted to R$51.4 billion, of which R$43.1 billion are outside banks. Currency in circulation comes out in seven denominations of banknotes (R$1, R$2, R$5, R$10, R$20, R$50 and R$100) and in six of coins (R$0.01, R$0.05, R$0.10, R$0.25, R$0.50, R$1.00). The amounts issued for each currency denomination are depicted in Table 3.

Table 3: Local Currency Denominations

Banknotes			Coins		
Denomination	Quantity	Value in R$	Denomination	Quantity	Value in R$
R$ 1.00	708,075,054	708,075,054	R$ 0.01	2,979,169,845	29,791,698
R$ 2.00	197,128,414	394,256,828	R$ 0.05	2,017,878,432	100,893,922
R$ 5.00	224,286,170	1,121,430,850	R$ 0.10	2,089,613,385	208,961,338
R$ 10.00	769,676,170	7,696,761,700	R$ 0.25	816,425,206	204,106,301
R$ 20.00	145,593,752	2,911,875,040	R$ 0.50	734,964,086	367,482,043
R$ 50.00	709,745,388	35,487,269,400	R$ 1.00	308,021,294	308,021,294
R$ 100.00	18,243,365	1,824,336,500			
	Total	50,144,005,372		**Total**	1,219,256,596

Posicion on 12/ 31/ 2003
Source: Banco Central do Brasil

Currency distribution is also under the responsibility of the BCB. This duty is carried out through ten decentralized regional offices located in the cities of Brasília, Porto Alegre, Curitiba, São Paulo, Rio de Janeiro, Belo Horizonte, Salvador, Recife, Fortaleza and Belém. Given the size of the Brazilian territory and the need to improve capillarity in money distribution, the BCB uses the services of Banco do Brasil S.A., a state-owned commercial bank that has a large branch network throughout the country.

In recent years, along with the restructuring of the Brazilian payment system the procedure for commercial banks to request cash from the BCB changed significantly. Prior to April 2002, cash withdrawals and deposits either from/to the BCB or from/to Banco do Brasil S.A. were settled at the end of the day on a net basis. The BCB had no assurance that the net debit positions generated from cash withdrawals would be timely settled.

Under the new framework, banks are now able to make requests through a messaging protocol that connects their computers to those of the BCB with no interruption. Thus, the BCB is able to reject, on a real-time basis, any withdrawal requests due to lack of funds in the reserve accounts. If enough balances exist, the requested amount is set aside in the reserve account and remains unavailable until the moment when banknotes are physically delivered or until the end of the day, whatever comes first.

During the 1999-2003 period, the average ratio of currency outside banks and M1 was 39.4 percent.

Table 4: Currency Outside Banks to M1 Ratio

In R$ million (end-of-period balances)

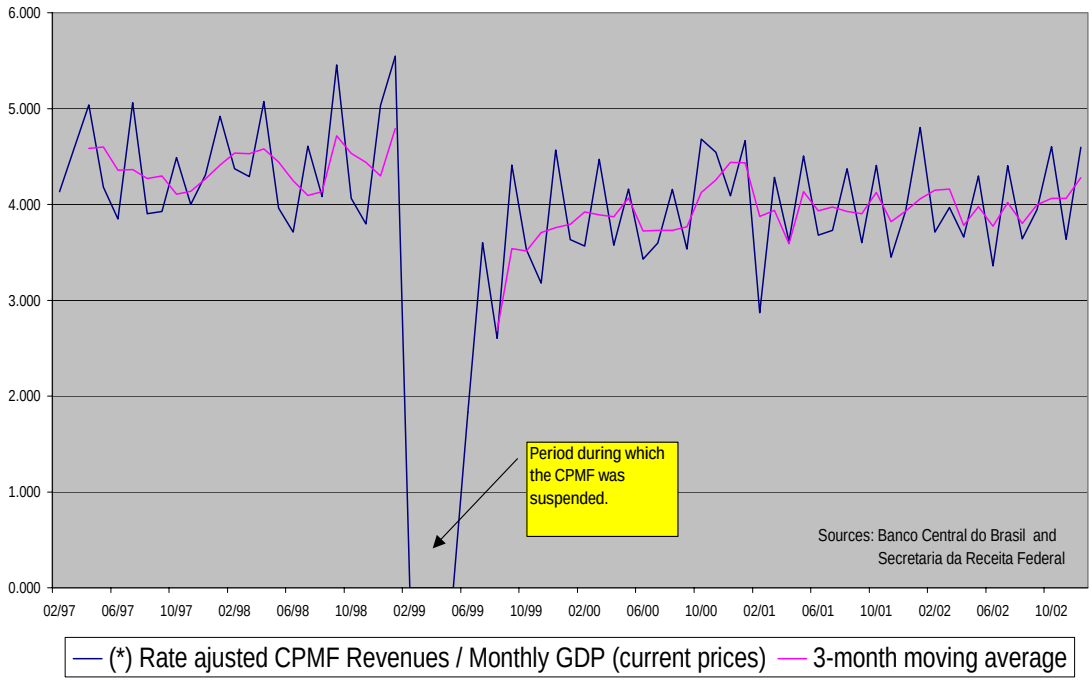
Year	Currency Outside Banks (A)	M1 (B)	A/ B (%)
1999	25,951	62,744	41.4
2000	28,641	74,352	38.5
2001	32,628	83,707	39.0
2002	42,351	107,846	39.3
2003	43,064	109,648	39.3

Source: Banco Central do Brasil

One event that could have affected the use of cash for payment transactions was the introduction, in January 1997, of the "Provisional Contribution on Financial Transactions" (*Contribuição Provisória sobre Movimentação Financeira,* CPMF), a tax levied on financial transactions. The CPMF was first introduced with a rate of 0.20 percent over financial transactions. Subsequently, the tax rate moved up to 0.38 and down to 0.30 percent while financial transactions related to equities markets and capital inflows were exempted. At present, the CPMF rate is 0.38 percent.

Chart 3 below shows the evolution of the CPMF tax base to GDP ratio, which was obtained by dividing monthly CPMF revenues by the prevailing tax rate and then dividing the result by the GDP on the same period. These data suggest that CPMF has had no considerable effects in the level of financial intermediation provided by the banking system.

Chart 3: CPMF Tax Base* as a percentage of the GDP



3.2 PAYMENT MEANS AND INSTRUMENTS OTHER THAN CASH

3.2.1 Cheques

Consumers and non-financial economic agents usually hold current accounts at banks to make cashless payments. Cheques and electronic payment instruments can only be drawn from bank current accounts. The number of current account increased from 52.5 million in 1998 to 87.0 million in 2003. This represents a 51.2 percent growth in the number of per capita accounts. Funds available in savings accounts, time deposits or mutual funds can easily be moved back and forth to current accounts.

Cheques used to be the most important payment instrument in Brazil for many years. Cheques were used not only to purchase goods and services but also to settle transactions in financial markets. At present, cheques are almost exclusively used for the first purpose, although on a smaller scale. Postdated cheques are frequently used as a credit instrument.

In recent years payments through electronic means have far outgrown cheques, both for large-value transactions as well as for retail ones. One relevant indicator, the ratio of total cheque clearinghouse settlement throughput to the GDP shows a 63.2 percent decrease over the last six years. In terms of volume, the annual number of cheques cleared through the COMPE declined from 2.9 billion to 2.2 billion in the same period. Finally, the number of payments made by cheque as a percentage of total payments[17] decreased from 68.3 percent in 1998 to 40.7 percent in 2003, and from 41.9 to 21.9 percent in terms of value in the same period.

Table 5: Evolution of Cheque Usage

Volumes in milion; Values in US$ milion

	1999	2000	2001	2002	2003
Number of per capita issued cheques	16	16	15	14	13
Volume of cheques above treshold 1/	455	465	472	481	505
Volume of cheques below treshold	2,157	2,172	2,128	1,916	1,741
Value of cheques as a percentage of G	179 %	164 %	157%	129 %	72 %
Value of cheques above threshold	867,902	891,838	725,420	522,024	301,666
Value of cheques below threshold	90,920	95,193	75,931	58,244	53,985

1/ The Central bank establishes a value threshold wich is used by Compe – the Check Clearing House – for settlement lag definition purposes. This threshold is currently R$ 300,00

Source: Banco Central do Brasil

Two events made possible this significant reduction of the systemic importance of cheques. First, the BCB's RTGS system, the STR, was launched in April 2002. The average daily settlement throughput at the COMPE, the cheque clearinghouse, went down from R$7.0 billion in March 2002 to R$4.5 billion in March 2003.

Later on, the BCB introduced the "*Depósito Prévio sobre Cheques e DOCs*",[18] a policy intended to boost the migration of large-value cheques towards electronic instruments by imposing a compulsory, non-interest bearing deposit on banks (see Box 3 below). This policy

[17] Cheques, debit and credit cards, direct debits and interbank credit transfers.

[18] The DOCs are credit-type payment instruments that, at the time of introduction of the "*Depósito Prévio*", were cleared and settled at the COMPE (nowadays they are settled at the SILOC). For more details see Section 3.2.3.

became effective on November 6, 2002. Nowadays the "*Depósito Prévio*" applies to cheques only.

Box 3: Non-Interest Bearing Compulsory Deposit on Cheques and DOCs *(Depósito Prévio sobre Cheques e DOCs)*

Along with the restructuring of the Brazilian payment system, the BCB introduced a "reserve requirement-like" mechanism to induce the migration of payments cleared and settled at the COMPE of amounts equal to or higher than R$5,000 to the new, safer payments system (*i.e.*, the STR or the SITRAF).

The mechanism is based on a non-interest bearing, compulsory deposit that commercial banks have to make by 9:30 a.m. everyday at the BCB in order to qualify for participation in the daily COMPE clearing sessions. The amount to be deposited by each bank is based on a fortnightly average of daily total value of cheques drawn against the bank plus the amount of DOCs issued by it. For this calculation, only cheques and DOCs with face value not lower than R$5,000 are considered. This threshold was obtained by using COMPE data to simulate defaulting events and their possible systemic effects.

The phase-in period of this policy took three months, during which participants had a decreasing exemption from the deposit requirements, starting from 80% for cheques and 50% for DOCs in November 2002, to 20 and 3%, respectively, from February 2003 on.

As intended, this compulsory deposit created an economic incentive for banks to offer alternative payment products and services. In fact, as of May 2003 all major banks and some of the smaller ones had already made available real-time electronic interbank funds transfer services to their customers. Remains to be seen, though, the extension to which banks will be able to expand these services to reach the points of sale, pushing cheques into full obsolescence by allowing customers to make safe and cost-effective paperless payments for goods and services regardless of the bank they hold an account with.

The BCB keeps record of issuers of unpaid cheques. In 2003, returned unpaid cheques represented 5.3 percent in terms of volume and 5.8 percent in value in relation to total of changed documents. In the same year cheques returned because of lack of funds accounted for 94.2 and 91 percent, in volume and value respectively, in relation to total of returned cheques.

3.2.2 Bar-Coded Documents for Bills Payment (*Bloquetos de Cobrança*)

The *bloqueto de cobrança* is a paper document that providers of goods and services began to issue to facilitate the payment of bills. A customer that receives one of these documents takes it to a bank and pays in cash, through a debit card or writes a cheque to authorize payment through his account. Alternatively, the customer can enter the bar-coded numbers at an ATM, home banking or Internet banking station. Banks charge the payee an interbank fee. They are cleared and settled electronically and when it is the case the physical item is truncated at the collecting bank.

The *bloqueto de cobrança* is typically a retail instrument as 97 percent of the documents are R$5,000 or less and its average value in 2003 was R$1,013. On average, they comprise about 25.2 percent of the volume processed in the COMPE and 38.6 percent of the value.

From February 2005 on, the *bloquetos de cobrança* will be settled through CIP-SILOC or STR according its value is respectively lower or higher than R$5,000.

3.2.3 Credit Document - DOC (*Documento de Crédito*)

DOCs are used for making interbank credit payments. A client can issue a DOC from an ATM, home-banking or internet-banking station and a limit of R$5,000 should be observed (for higher values, the credit transfer should be made through TED). Nowadays DOCs are cleared and settled electronically through the SILOC, a new settlement system operated by CIP.

Table 6: Relative Importance of the Main Instruments Cleared and Settled in the COMPE

		1999 (%)	2000 (%)	2001 (%)	2002 (%)	2003 (%)
Volume	DOC	1.8	2.1	2.4	3.1	3.0
	Checks	80.7	79.2	77.3	74.0	71.8
	Bloquetos de Cobrança	17.5	18.7	20.3	22.8	25.2
Value	DOC	46.2	37.5	42.7	35.9	8.9
	Checks	43.3	48.7	43.5	45.6	52.5
	Bloquetos de Cobrança	10.5	13.9	13.8	18.5	38.6

Source: Banco Central do Brasil

Table 7: DOCs and Bloquetos de Cobrança

		1999	2000	2001	2002	2003
DOC	Volume (in millions)	59	70	82	102	94
	Value (in US$ billions)	1,024	760	786	449	60
	Average value (in US$)	17,471	10,839	9,562	4,413	645
Bloquetos de Cobrança	Volume (in millions)	566	624	682	739	789
	Value (in US$ billions)	232	281	253	232	262
	Average value (in US$)	410	450	371	314	332

Source: Banco Central do Brasil

3.2.4 Electronic Express Transfers - TED (*Transferência Eletrônica Disponível*)

This instrument became available as part of the overall Brazilian payment system modernization process. The TED is an express electronic funds transfer operation that can be settled through the STR, in real-time, or through the SITRAF, a hybrid settlement system operated by CIP, in same-day funds. In both cases the funds must be available at the beneficiary's current account no later than the end of the same day the credit order is issued. The usage of the TED has soared since its implementation. Considering only those TEDs processed through the STR, monthly transactions on behalf of banks' customers increased from 1,383,924 in January 2003 to 2,343,604 by the end of that same year, i.e. a 69 percent growth. Table 8 contains detailed data on both the TEDs processed through the STR and through the SITRAF.

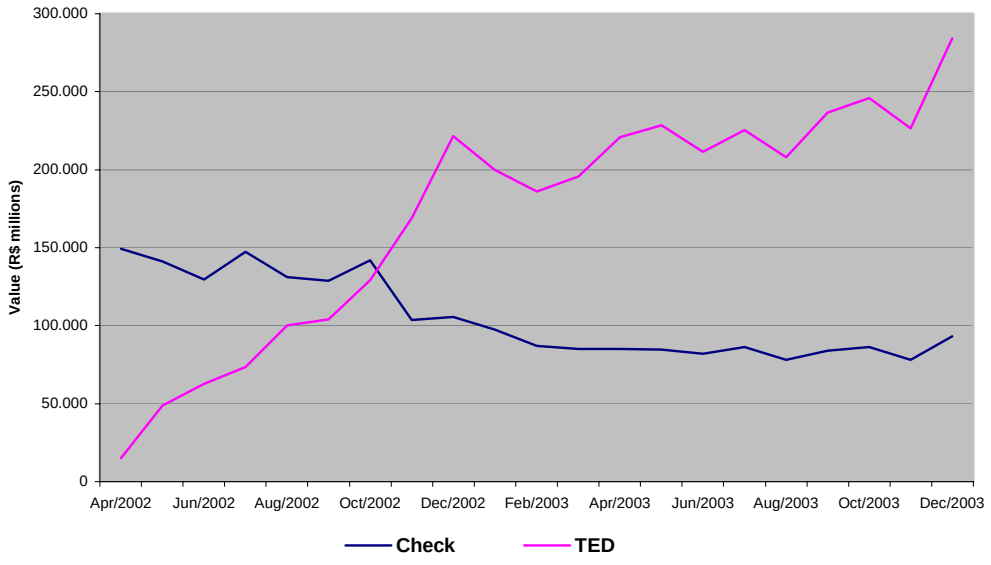
Table 8: . Evolution of TED Usage

	TED Customers Payments					
	Volume			Value (in US$ millions)		
	Total	CIP-Sitraf	STR	Total	CIP-Sitraf	STR
Jan/2003	1,382,924	107,352	1,275,572	58,183	692	57,491
Feb/2003	1,398,213	366,759	1,031,454	51,846	4,889	46,957
Mar/2003	1,459,955	546,693	913,262	56,779	10,560	46,219
Apr/2003	1,658,817	753,361	905,456	70,932	17,752	53,180
May/2003	1,780,800	906,670	874,130	77,469	23,229	54,241
Jun/2003	1,748,953	945,737	803,216	73,467	24,367	49,100
Jul/2003	1,962,874	1,109,439	853,435	78,347	28,822	49,525
Aug/2003	1,895,429	1,079,841	815,588	78,459	26,124	43,335
Sep/2003	2,094,599	1,195,858	898,74	81,155	29,162	51,993
Oct/2003	2,195,721	1,323,427	872,29	86,316	31,944	54,372
Nov/2003	1,988,541	1,235,428	753,11	78,213	30,472	47,741
Dec/2003	2,343,604	1,493,786	849,82	97,683	36,657	61,026

Source: Banco Central do Brasil

While the BCB has set no value limits for payments to go through the STR, banks usually take only payment orders R$5,000 or higher from their clients. This is one sign of the cooperative relationship between the banks and the BCB. In particular, the threshold prevents the STR from being flooded with numerous low-value payment messages. On the other hand, this threshold is exactly the same the BCB has established as the maximum value that can be transferred through the DOC. In this regard, in 2003 the total value of TEDs issued by bank customers was already 160 percent higher than that of cheques, reaching R$2,669 billion as opposed to R$1,027 billion in the case of cheques.

Chart 4: TED vs. Cheques



3.2.5 Direct Credits/Debits

There are direct debit services in Brazil, although only at the intrabank level (*i.e.*, both the payer and the payee must hold accounts at the same bank). The commercial banks have made a series of efforts to increase customer awareness regarding the convenience of using direct debits to pay utilities bills, which as of December 2003 amounted 627.8 million of transactions worth R$97.4 billion. In that same year approximately 25 percent of public utilities bills were paid using direct debits.

Direct debit are thus expected to increase significantly in Brazil in the upcoming years. The infrastructure that was created with the restructuring of the Brazilian payment system already makes it technologically feasible to develop a wide range of retail payment products.

Likewise direct debit, there are direct credit only at the intrabank level. It is used for recurring payments, mainly those relation to payments of wages, pensions and tax refunds.

3.2.6 Payment Cards

3.2.6.1 Credit Cards

Credit cards were first introduced in Brazil in 1956. It was not only in the mid-nineties, however, especially after the Real Plan became launched, that this instrument grew in importance. The industry is now consolidated and in 2000 it represented 42% of the business in Latin America market and 2.6% of the global credit card market.

The main brands in Brazil are Visa, MasterCard, Diners Club, Amex, and HiperCard. The issuer segment of the industry has increasingly become a bank business. The main players in this latter area are Banco do Brasil S.A., Bradesco S.A., Amex, Credicard and HiperCard.

The number of credit cards issued has increased from 23.4 million in December 1999 to 44 million in December 2003. The number of transactions increased from 553.2 million in 1999 to 1.08 billion in 2003. Finally, during the 1999-2003 period, while the volume of cheques cleared through the COMPE declined 14 percent, the volume of credit card transactions expanded by 96 percent.

Table 9: Evolution of Credit Cards in Brazil

Year	Number of cards (millions)	Change to previous year (%)	Number of transactions (millions)	Change to previous year (%)	Value of transactions (US$ billions)	Change to previous year (%)	Average value of transactions (in US$)	Credit cards per 1,000 inhabitants
1999	23.4	-	553.2	-	19.6	-	35.4	142.9
2000	29.4	25.5	705.9	27.6	25.0	28.8	35.4	177.0
2001	35.4	20.3	825.0	16.9	23.5	20.6	28.5	205.2
2002	40.8	15.2	969.6	17.5	22.1	17.3	22.8	233.4
2003	44.0	8.0	1,083.5	11.8	25.1	19.2	23.2	249.0

Sources: Banco Central do Brasil, Instituto Brasileiro de Geografia e Estatística - IBGE and Credit Card companies

According to industry representatives, the potential for growth is still considerable. Acquirers have sought new merchants, especially small businesses, outside large cities in less attended regions. The number of the affiliated merchants on the North/Northeast region has grown 20 percent as fast as the Southeast region between 1998 and 2003 (see Table 10).

Table 10: Distribution of Affiliated Merchants by Region

POS by region (thousands)	1998	2003	1998-2003 % change
South	73.6	235.1	219.4
Southeast	292.4	922.6	215.5
North/Northeast	113.0	406.0	259.3
Centre-West	35.8	116.7	217.1
Total	514.8	1,680.4	226.0

Sources: Acquiriers and Credicard

Since April 2002, the interbank settlement of credit card transactions was removed from the COMPE to safer bilateral clearing arrangements with finality. In line with BCB to make the COMPE a non-systemically important payment system by significantly reducing its turnover, two new retail clearinghouses were established to clear and settle credit card transactions. Visanet and Redecard, the exclusive acquirers for Visa and MasterCard brands in Brazil, turned themselves into clearinghouses to provide settlement services on a bilateral netting basis for the card brands they represent. Although not designated by the BCB as systemically important payment systems,[19] they guarantee with their own capital the timely completion of the daily settlement cycle in the event of an inability to settle by the participant with the largest single settlement obligation.

3.2.6.2 Debit Cards

In Brazil the number of debit cards per thousand inhabitants has grown more than twice between 1999 and 2003 while the number of transactions increased roughly six times due to an increase of the usage by cardholders.

As of year-end 2003 there were nearly 162 million of debit cards in circulation that are accepted in more than 1.4 million of affiliated merchants throughout the country. They are operated under the same umbrella of major credit card brands: Visa and MasterCard. Banco24Horas has its own brands: “Cheque Eletrônico” and “Cheque Eletronico.Com”, the last is a debit card for e-commerce.

Table 11: Debit Cards

Year	Number of cards (millions)	Change to previous year (%)	Number of transactions (millions)	Change to previous year (%)	Value of transactions (US$ billions)	Change to previous year (%)	Average value of transactions (in US$)	Debit cards per 1,000 inhabitants
1999	67.4	-	106.9	-	2.8		25.9	411.3
2000	85.5	26.7	205.8	92.5	5.0	80.2	24.3	514.4
2001	101.1	18.3	326.2	58.5	6.0	20.5	18.4	586.5
2002	114.2	13.0	451.3	38.4	6.7	11.6	14.9	654.1
2003	162.8	42.6	661.6	46.6	9.6	43.2	14.5	920.4

Sources: Banco Central do Brasil, Instituto Brasileiro de Geografia e Estatística - IBGE and Acquiriers

In Brazil, debit cards with a PIN offer on line electronic checking services. They draw funds from the cardholder transaction account at the issuing bank. As a rule cardholder account is debited the same day when purchase is done through EFTPOS networks. In 2003 the

[19] If a clearinghouse is designated as a systemically important payments system, under the Brazilian payment system law it must become a central counterparty for the transactions it clears.

volume of transactions with debit cards was around 662 million, which represents nearly 30% of the volume of cheques. Nevertheless, at present debit card volumes are growing much faster than cheques.

3.2.6.3 ATMs

All of the major private banks in Brazil operate their own ATM network. Smaller banks usually prefer a different strategy. They share an ATM network in order to benefit from economies of scale.

As of year-end 2003 there were around 137 thousand of ATM devices, connected to 29 ATM proprietary networks. Through ATMs banks offer wide range of banking services such as cash withdrawals, check printing, balances inquiries, statement requests and payment transactions. In 2003 the number of cards with withdrawal functions – allow access to ATM functions, was around 150 million. The volume of transactions increased around 50% between 2001 and 2003, achieving an amount of 5,672.4 million in 2003 year-end.

Table 12: Electronic Banking and ATMs

Accepting devices and transactions	1999	2000	2001	2002	2003
Number of networks	29	29	29	30	29
Number of terminals:	86,170	97,539	111,370	129,913	137,354
with open access	22,569	31,764	43,171	49,813	51,887
with limited access	63,601	65,775	68,199	80,100	85,467
Volume of transactions (millions)	n.a	n.a	3,817	5,546	5,672
Value of transactions (US$ billions)	n.a	n.a	183	212	231

Source: Banco Central do Brasil, commercial banks and Tecban.

3.2.6.4 Smart Cards and Prepaid Cards

In Brazil, only a few banks issue smart cards to their customers. There are two systems currently being adopted: the VISA Cash and SIBS.

The VISA Cash system is an electronic purse based on the "*Tarjeta Inteligente de Bancos y Cajas"* (TIBC) operational system developed by Visa Spain. Visa owns the trademark and the licensing rights to use the system and it is responsible for the interoperability, clearing, integrity of information and certification and ratification of transactions, terminals and cards used by the system. Once the system is started, Visa conducts the operation and clearing for the system using the same procedures adopted for its credit cards. There are fifteen electronic-money-issuing institutions through the Visa Cash in Brazil.

The SIBS system, from Portugal, is used only by one issuing bank in Brazil, which has acquired the rights of use and has also made functional adaptations on the original technology to the local needs, especially those regarding security. The most important change was the introduction of a password, which is required by the system whenever the loading exceeds a certain amount. Smart cards are loaded on line; with money withdrawn from customers' current account. These operations can be carried out either through ATM terminals or the Internet. Customers without a current account follow a different procedure. They get their cards loaded through prepaid credit via ATM terminals.

Prepaid cards represent a very small portion of total payment volume. Most prepaid card mechanisms are used in telecommunication sector and subway.

3.2.7 Home and Telephone Banking

Several banks in Brazil offer home banking products such as personal computer banking and telephone banking services. The fact that generally banks do not charge extra costs to customers for these services is helping the number of subscribers to increase rapidly.

3.2.8 Postal Instruments

The mail service in Brazil is a state monopoly operated by ECT. As far as payment services are concerned, the post offices have traditionally had a limited role in providing payment instruments (see Table 13 below). Two services are available, the *vale postal*, a payment order, and collection of bills on behalf of third parties, especially public utilities.

Table 13: Payments with Postal Instruments

in R$ millions

	1997	1998	1999	2000
Issuance of payment orders ("Vale Postal")	380.7	322.6	302.7	306.2
Payment of bills	3,808.0	3,276.2	4,195.7	3,088.2

Source: ECT - Empresa Brasileira de Correios e Telégrafos

These instruments are not widely used in the country despite the capillarity of post offices' network. The *vale postal* is a very unsophisticated instrument. There are value caps for money transfers and not all post offices offer the service. Technological developments in the banking industry have made similar banking instruments much more attractive. In addition, the ECT, as an entity outside the financial sector, has not benefited from the economies of scale available for banks, like having sophisticated clearance and settlement mechanisms, interbank money markets, etc.

Both instruments reach a market niche of people who do not have access to banking services. In 2000, payment of bills through post offices represented merely 0.3% of what was done through the banking system.

In recent years, ECT has franchised post offices. In 2000, there were 1,500 of them. In 2002 ECT has agreed on a joint venture with the largest private commercial bank in Brazil, the Bradesco S.A., to launch the Banco Postal. Under the agreement, Bradesco S.A. will be able to use ECT's branches all over the country to extend banking services to municipalities that are not yet reached by commercial banks (see Section 4.5.1). Currently, there are 5,482 branches of Banco Postal .

3.3 NON-CASH GOVERNMENT PAYMENTS

3.3.1 National Treasury Collections and Disbursements

In Brazil, commercial banks are highly involved in the process of collecting and disbursing government payments to and from individuals and corporations. The current system is characterized by heavy use of automation and very low use of cash. The Treasury maintains a centralized account at the BCB (*Conta Única do Tesouro*), through which government payments and collections are settled.

In the past, Treasury payments and collections were not made directly from and to the BCB. Instead, they were generally handled by Banco do Brasil. With the adoption in 1987 of a new integrated system of financial administration of the funds of the federal government, known as the Integrated System for Financial Management (SIAFI), and the introduction of the centralized account in 1988, government payment and collection operations were significantly centralized and streamlined.

The accounting information flows through the SIAFI to more than 5,000 administrative units of the government linked to a computer network through which the budget allocations made by the Treasury to the ministries are made. When these units need to make payments they issue "special banking orders" through a branch of Banco do Brasil, where they keep their accounts. The consolidated information is passed by Banco do Brasil to the BCB. The BCB debits the *Conta Única do Tesouro* and credits the funds to Banco do Brasil. The latter remits the payments to the administrative units one day after it receives the funds. The one-day float represents Banco do Brasil's remuneration for the provision of this service.

On the collections side, taxpayers deposit their taxes along with a remittance form at the bank branch of their choice. The branches transfer, generally on-line, the information to the bank's main office. The bank may hold the funds for one day and keep the float, or it may hold the funds for two days and pay an interest, usually the interbank rate, to the Treasury before remitting the collected funds electronically to the BCB and forwarding the collection information to the Treasury's data processing subsidiary, SERPRO. Upon receipt of the funds on day T+2, the BCB notifies SERPRO for reconciliation purposes.

The payment system reform has provided the National Treasury with a new set of tools for the real- time monitoring and management of its account within the BCB. Tax collection lags have been shortened. On the other hand, payments on behalf of the Treasury are flowing faster to the beneficiary's account due to the elimination of unnecessary financial intermediation.

Table 14: Public Sector Collections via the Banking System

december 2003

Tax and Contributions	Volume (in millions)	Value (in R$ billions)
Federal Tax	73.1	256.4
State Tax [1]	148.7	128.6
City Tax [1]	138.2	19.6
INSS (Social Security)	90.5	80.2
FGTS (Time-in-Service Guarantee Funds	39.9	24.9
DPVAT (mandatory car insurance)	27.8	1.4
Union Contritution	4.2	4.1
Total	**522.4**	**515.2**

1 - estimated

Source: febraban

3.3.2 Social Security Collections and Disbursements

All companies are required to deposit their social security withholdings of month "M" at the bank of their choice by the fifth working day of month M+1. The collecting bank remits the deposited funds via the STR to the account of the Social Security Institute (INSS) at the Banco do Brasil. The collecting banks are remunerated for their services trough the float between the time they receive the funds and that of their remittance to Banco do Brasil. Funds collected are used to pay social security recipients on a one-by-one basis, and are generally not transferred into investment accounts, but rather are maintained in liquid accounts at Banco do Brasil. In order for a bank to serve as collector of social security funds, it must also provide the service of disbursing the funds to the beneficiaries.

Upon reaching eligibility, social security recipients sign up for benefits at one of the local social security branch offices and receive their payments at a bank branch near their home. DATAPREV, a state-owned computer processing company, processes the information on behalf of the INSS for all non-public servants and sends the information on individual payments in magnetic media to the banks. Public employees' benefits are processed separately. Based upon the instructions of the INSS, the Banco do Brasil electronically transfers the funds to each disbursing bank according to the expected amount of benefits that social security recipients assigned to that bank will withdraw on a particular day.

Each social security recipients is assigned a date of the month by which the funds they are entitled to will be available at the bank branch.[20] All recipients receive a plastic card authorizing them to withdraw social security funds deposited in their name at the assigned branch. Some banks allow recipients to make withdrawals at any branch. Some banks have issued a magnetic card to allow beneficiaries to withdraw funds gradually throughout the month.

Funds transferred to a branch but not collected are transferred back to Banco do Brasil.

[20] Payments are made during the first ten days of each month.

4 PAYMENTS: INTERBANK EXCHANGE AND SETTLEMENT CIRCUITS

The BCB has successfully implemented a comprehensive payment system reform through a new legal, institutional and technological framework was introduced.

Two elements of the Brazilian reform process have been notable, contributing to its breadth, scope and complexity. First, the BCB conducted a comprehensive diagnostic study before defining the reform. The purpose of this study was to identify all forms of risks present in the system, and in particular identify and quantify the risks being incurred by the BCB. The study showed that in an average day the potential losses for the BCB in the various payment systems it was involved were as follows:[21]

- SELIC: R$5,003 million
- CETIP: R$983 million
- COMPE: R$4,535 million
- PCAM (Foreign exchange): R$6,780 million.

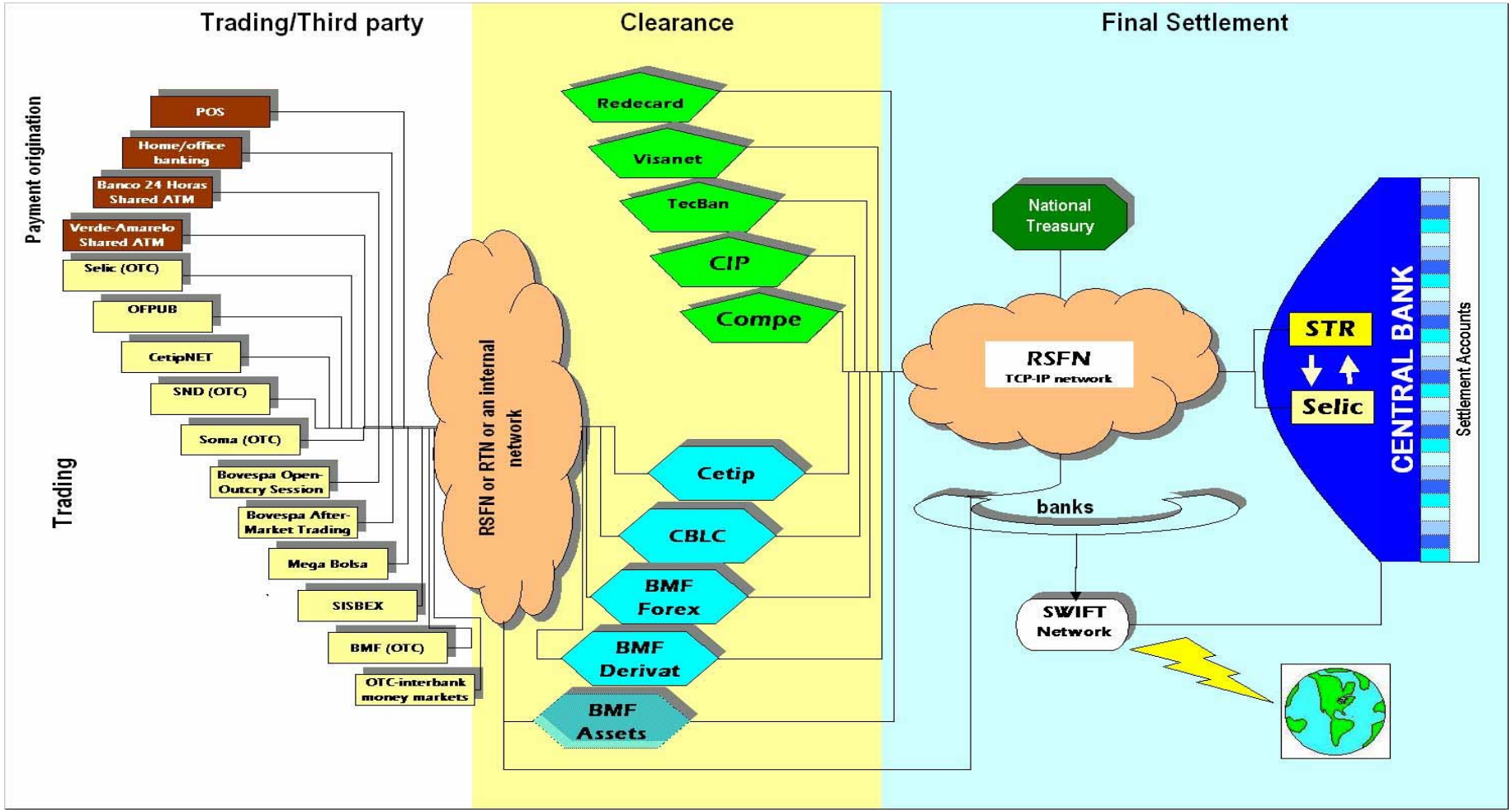
Second, the BCB consistently involved key stakeholders in the reform debate. The BCB's project team engaged in multiple meetings, workshops and seminars with almost all players in the Brazilian financial market, including banks, other financial institutions, clearinghouses and other regulators, among others. The BCB considers these efforts enabled widespread understanding and support for the new systems.

On April 22, 2002 the BCB launched the new Brazilian Payments System (*Sistema de Pagamentos Brasileiro*, SPB). The BCB now operates two real-time gross settlement systems, the STR for funds transfers and the SELIC for transfers of federal government securities.

The new SPB started with 150 banks and six private payments clearinghouses directly linked to the STR, although still clearing in deferred net settlement mode. COMPE, TecBan and BM&F foreign exchange clearing house started operating using the STR since the moment of its launch. *Câmara Interbancária de Pagamentos* (CIP) started its operations on December 6, 2002. At present, the CIP operates two settlement systems, SITRAF and SILOC, respectively for large and low value funds transfers. There are also VisaNet and RedeCard, which settle credit card transactions. Chart 5 depicts the new SPB.

[21] Figures are based on the debit daily balances in the reserve accounts at the BCB for year 1998.

Chart 5: The SPB



4.1 OVERVIEW OF THE NEW SYSTEM

4.1.1 Basic Principles of the new Brazilian Payments System

The Brazilian payment system operates under 9 basic principles applicable to all participants:

1. Deposit-taking institutions (*i.e.*, commercial banks, universal banks with commercial banks' capabilities and federal savings and loans) must hold reserve accounts, which are also settlement accounts, within the BCB. Investment banks also have the option to hold a reserve account provided they meet all technological requirements.
2. Entities operating systemically important payment and securities clearance and settlements system must hold settlement accounts within the BCB, act as central counterparties and guarantee the final settlement of the transactions they accept for clearance and settlement. In addition, settlement of net balances occurs in central bank money.
3. For settlement systems handling securities transactions or foreign exchange transactions, the principles of Delivery Versus Payment (DvP) or Payment versus Payment (PvP) is to be applied under all circumstances.
4. Nobody but the account owner is allowed to make debits to its settlement account. This is even forbidden to the BCB itself.
5. The STR is the backbone of the system. It is the only channel through which a participant, including clearinghouses, can reach either its own account or third parties' accounts within the BCB.
6. There are no settlement account overdrafts at any time during the day.
7. Cash reserve requirements at the BCB can be freely used during the day for liquidity purposes.
8. The BCB provides the banks with a free, unlimited intraday liquidity facility by means of repo transactions backed with federal government securities. A haircut is applied to the collateral posted. Should an intraday repo not be paid by the end of the day, it will be automatically converted into an overnight repo and a penalty rate applies in this case.
9. The basic general model for settlement in central bank money is for the clearinghouses to receive funds from participants with net debt position at some time during their operational cycle and then pay participants with a net credit position. To this end, each clearinghouse was given a settlement window during STR operating hours (see Chart 5 and Table 15).

The implementation of these principles along with the changes in the legal framework and the institutional architecture brought about the reduction of systemic risk, a more appropriate sharing of the associated risks between the central bank and private market players and the compliance of Brazil's systemically important payment systems with international standards and best practices.

4.1.2 National Financial System Network (*Rede do Sistema Financeiro Nacional,* RSFN)

In the past, the exchange of information related to payment systems between the BCB and other participants (including clearinghouses) were mostly made through file transfers (FTP – File Transfer Protocol). The financial transactions derived from reserve requirements management, rediscount operations, open market transactions and Treasury account entries were processed through the SISBACEN, the BCB's information system. Participants had to type in all the information required by these systems to a SISBACEN's remote terminal located at the banks' premises, though completely isolated from their own internal systems.

Some of the principles envisaged for the reform of the Brazilian payment systems, such as an RTGS fund transfer within the BCB and intraday liquidity management, were not consistent with the existing communications infrastructure. The BCB decided to create from scratch a communications network, the RSFN, to allow participants to safely exchange messages pertaining to all activities throughout the Brazilian payment system and allow participants' computer systems to interact and exchange information in real-time with minimum manual intervention.

To pursue this endeavor, the Network Working Group (*GT Rede SPB*) was created. This working group was chaired by the BCB and comprised representatives from the Treasury, the clearinghouses and banking associations and the Treasury. The Network Working Group had the following mandate:

- to specify the new network's architecture, topology and physical structure;
- to define rules and standards for IP connections between the networking service providers (NSP) and the participants;
- to propose the best network solution regarding technology, scalability, security, contingency and cost-benefit ratio;
- to specify the technical requirements to be used in the procurement process to choose the NSP;
- to negotiate prices and conditions with the NSP;
- to homologate the two NSPs selected in the procurement process to set up the network;
- to follow-up, audit and assess the implementation of the network.

The network architecture had to support the real-time feature of most of the financial transactions envisaged in the new Brazilian payment system. Thus, it had to achieve stringent requirements on availability, reliability, performance, security and contingency. Based on those requirements, the Network Working Group defined stringent specifications any NSP must comply with, including redundancy in all segments of the network, *i.e.*, the backbone, physical interconnections, equipments and last mile. In addition a service level agreement between the NSP and participants was enforced in a master contract (see Box 4).

Box 4: RSFN Service Level Agreement

- The IP network services must be available 24 hours a day, 7 days a week. The network service provider (NSP) must notify users 7 days in advance in case an interruption is necessary.
- The NSP should have redundant hardware and software in such a way to assure the service level stated below.
- Monthly availability:
  - 99.7% for the network backbone and links to the BCB. Individual failures not to exceed 30 minutes (*i.e.*, the minimum time to recover (MTTR)), including dislocation, diagnosis, solution and recover. The minimum time between failures (MTBF) should be 30 days.
  - 99.5% for financial institutions and other participants. MTTR = 180 minutes. MTBF = 30 days for each participant.
- Each NSP is allowed to make up to 6 programmed interruptions in the provision of the services. Each interruption will be used for maintenance purposes and should not overlap with that of the other NSP. These interruptions should not exceed 6 hours and will not be counted as time of unavailability.
- Round-trip time: less than 120 minutes.
- Daily average missing packet rate at the backbone: less than 1%.
- Call center's callback time: 95% of the calls should be called back in less than 10 minutes.
- Rings before picking up the phone at the call center: 95% of the calls should be picked up within 4 rings.
- Non-compliance with the service level agreement is subject to the penalties defined in the Operational Agreement Contract.

Security aspects of the network were assigned to another special working group, the Security Working Group. Member institutions of this group are the same of the Network Working Group. These two groups cooperated very closely for two years.

As far as information security is concerned, all contents of the network, except public information, are protected with asymmetric cryptography and their origination can be certified by using digital signature. The RSFN operates as an Intranet for the entire financial system; therefore, outside users have no logical or physical channels through which may gain non-authorized access.

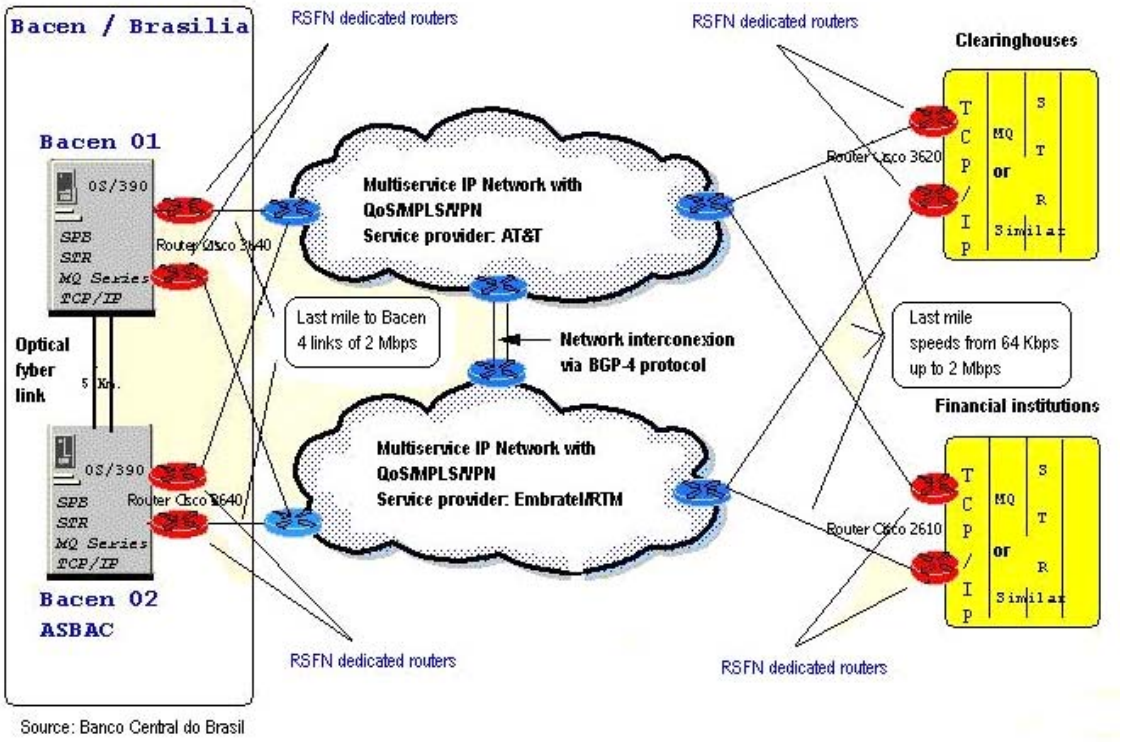
The messaging protocol was equally built from scratch. A third working group, the Messages Working Group was constituted with representatives from the financial sector to assess all information flows necessary to perform day-to-day operations throughout the payment system and subsidiary systems within the BCB (reserve requirements, rediscount, etc) and the Treasury. This Working Group also had the mandate to choose the messaging protocol to be implemented. The decision to depart from reliable, well established messaging protocols readily available in the market and, instead, create a proprietary protocol was taken on the grounds of providing the system with a set of messages to carry not only payment-related information but broader transaction-related information as well. For instance, a clearing member can use messages not only to pay for his net debt position within the clearinghouse but also to inquiry his current operational limit or to pledge additional collateral. Messages can also be used to handle various working relationships between the BCB and commercial banks, such as intraday credit and reserve requirement maintenance.

The outcome was a network based on the TCP-IP protocol, fully compatible with Internet concepts, tools and applications.[22] The network is also ready to convey new services in the future such as “voice over IP” (phone calls among participants using the network) and direct interconnection between financial institutions, among others.

Under the new framework all banks, clearinghouses, the National Treasury and the BCB are interlinked and operate STP[23] processes by means of a proprietary messaging protocol and the RSFN (see Chart 6).

[22] For example, client-server applications, web interfaces and electronic mail.
[23] Strait Through Process

Chart 6: RSFN Network Architecture



Source: Banco Central do Brasil

The three working groups established during the reform process eventually were formally recognized by the BCB as permanent consultative bodies for the Brazilian payment system in their respective areas. Further governance arrangements for the RSFN are still lacking.

4.2 MAIN LOW-VALUE PAYMENT TRANSFER SYSTEMS

4.2.1 Clearance of Cheques and other Documents (*Centralizadora da Compensação de Cheques e Outros Papéis,* COMPE)

The COMPE (*Centralizadora da Compensação de Cheques e Outros Papéis*) is a multilateral net settlement system for cheques and other payment documents. It provides cheque-clearing services all over the country. Since 1997, electronic clearance has accounted for practically 100% of the documents cleared. In 2001 through 15 local clearinghouses (known as "SIRC") and the national system, the COMPE cleared, on average, 13.4 million documents or R$17.2 billion every day. Settlement is made against banks' reserve accounts at the BCB on T+1.

The COMPE is regulated by the BCB. The rules are consolidated in the Manual of Norms and Instructions and eventual alterations are added through the issuance of directives by the BCB's Department of Banking Operations and Payments System (Deban). Banco do Brasil is the operator of the COMPE's regional and national clearinghouses. This latter institution is also responsible for elaborating operational rules and maintaining the system.

All Commercial banks, multiple banks with commercial operations and savings banks are participants in the COMPE. Banco do Brasil has powers to authorize participation and representation in the clearinghouse, to maintain registers and controls by the clearinghouse and to publish the necessary procedures and routines to carrying out its duties, as well as providing information to the BCB and the system's members.

The BCB has set up a Consultative Group for Clearing Matters (the "COMPE Group"), made up of representatives of the BCB/DEBAN (observer), the Banco do Brasil (coordinator); banking associations (Fenaban/Febraban, Asbace, ABBC and ABBI), market participants designated by these associations up to a total of seven representatives.[24] The COMPE Group's tasks include consulting on questions relating to the service when requested by the DEBAN or the executive body, forwarding to these entities its suggestions for improving the system, and drafting internal regulations.

4.2.1.1 Clearance and Settlement Process

Cheque formats; the basic features and processing are standardized across the country. All cheques contain magnetic ink character recognition (MICR) encoding. Check truncation has not yet been implemented in Brazil, although there is an ongoing project to develop this procedure and some bilateral truncation arrangements are already in place.

COMPE participants hold reserve accounts at the BCB, which are linked to another account (the "linked account") created for the financial settlement of interbank obligations arising from the COMPE. This account receives deposits through funds transfers ordered by the account holders through the STR, using a specific message in the SPB Message Catalog.

The COMPE holds two daily sessions for the exchange and return of documents:

- Daylight exchange: this session basically covers cheques up to a limit established by the BCB (currently R$299.99) that are accepted by the banking network during the previous business day. These cheques are settled by T+1 at the level of the participants.
- Night exchange: this session covers cheques for individual amounts above the R$299.99 limit and *bloquetos de cobrança* received in the banking network during the same business day (T). After the nightly clearing session and prior to the respective settlement of the multilateral balances (on T+1), a special adjustment session is held to correct errors, if any, discovered in the nightly session.

Financial settlement of the transactions is carried out with the exclusive use of funds deposited in the linked account and is irrevocable and unconditional when the central bank makes the corresponding transfer of funds from the linked account to the reserve accounts via the STR.

As there are no safeguards to guarantee settlement, if a participant does not have sufficient funds for settling its obligations, an unwinding of the multilateral positions is made and the relevant institution is excluded from the settlement process. The non-excluded participants must make new transfers to the reserve accounts as a result of the recalculation of balances within ten minutes of the previous time limit. The process of exclusion and recalculation is repeated at successive ten-minute intervals until the amount available in the linked account of all the account holders is sufficient to close the settlement cycle. The timetable for settlement may also be postponed.

[24] One is chosen from among small institutions, three from among medium-sized institutions and three from large institutions.

Finally, the BCB sets a maximum delay for the banks to make funds available to clients.

4.2.1.2 Risk Management Mechanisms

The COMPE is characterized by a high level of operational reliability and has tested contingency arrangements that guarantee business continuity. The Banco do Brasil maintains a main processing center in Sao Paulo, and a secondary site in Rio de Janeiro, both working in hot stand-by mode.

Additionally, as mentioned before, a measure to mitigate the systemic importance of the COMPE was the introduction of a pre-deposit for cheques[25] with an individual value of R$5,000 or more. This deposit, which does not earn interest, must be made in cash by 9:30 a.m. on each business day, through entries made by the participant through the STR to COMPE's account. Failure to make the deposit by the pre-established time makes the institution eligible for exclusion from COMPE's clearing sessions for the day at the discretion of the BCB, which will inform the participants in a specific message by 10:00 a.m. of the same day. In May 2003, with the pre-deposit mechanism in full force (see Box 3), total settlement throughput at the COMPE averaged R$7.8 billion per day. The same figure for March 2002 was R$16.8 billion.

4.2.2 Deferred Settlement System for Interbank Credit Orders (*Sistema de Liquidação Diferida de Ordens de Crédito Interbancárias,* SILOC)

The SILOC is a multilateral net settlement system, which settles interbanking obligations related to DOCs (see Section 3.2.3.1). The system is operated by the *Câmara Interbancária de Pagamentos* (CIP) and went live in February 2004. All deposit-taking institutions have access to the SILOC.

The CIP, which was created in July 2001 and effectively began its operations in December 6, 2002, with the SITRAF (see 4.3.2), constitutes an important component of the Brazilian payments system. The CIP is governed by its bylaws and the regulations applicable to clearinghouses.

4.2.2.1 Clearance and Settlement Process

Banks on behalf of their clients issue the DOCs, and the related electronic registers are sent to the CIP through the COMPE infrastructure. The SILOC holds two daily settlement sessions: the DOCs issued in the day before (T-1) are usually settled in the morning session, which settlement window ends at 8:20 a.m., while returned items are usually settled in the afternoon session, which ends at 4:10 p.m.

The multilateral balances are informed by the CIP to the participants through electronic means by 5:10 a.m. in case of the morning session, and by 1:05 p.m. in case of the second session. Funds transfers from participants with debt position to CIP, and from CIP to the participants with credit positions are carried out through the STR. For each session, final settlement occurs when the BCB posts the multilateral balances in the participants' reserves accounts.

4.2.2.2 Risk Management Mechanisms

[25] Pre deposit applied to DOC as well at the time this credit transfer was settled through the Compe (nowadays DOC is settled though the SILOC).

The SILOC is not regarded as systemically important, and credit transfers through DOC are limited to R$5,000 per order. Unwind is used if a participant is excluded before settlement completion.

4.3 LARGE VALUE PAYMENT TRANSFER SYSTEMS

4.3.1 Reserves Transfer System (*Sistema de Transferência de Reservas,* STR)

The STR (Sistema de Transferência de Reservas), which is owned and operated by the BCB and went on live in April 22, 2002, is a real time gross settlement system. Participants make transfers using standardized messages in the RSFN Network. Since all participants have to be connected to the network, they can send or receive messages in a real-time basis. The whole network system was developed in such a way as to foster STP among participants.

4.3.1.1 Rules and Procedures

The STR rules and procedures are intended to fully and clearly define the main rights and responsibilities of all involved parties, including the BCB, as well as to address all the details relative to the operation of the system.

Participants are able to monitor in real time whether or not expected transfers have occurred and, at their own discretion, can control with their counterparty the reasons for the eventual transfer failure. In addition, participants are warranted rights to issue and receive funds transfer orders, cancel issued orders which have not yet been settled, be informed about their reserves account balances during the day and about the status of an issued order. On the other hand, participants must keep, to the best of each one's actions, the safety and proper functioning of the STR and promptly inform the BCB about any misuse of the system they may be aware of.

Rules to remedy mistakes made by a sending bank, by the BCB and by the system itself have been envisaged in such a way as to assure finality in legal terms. Even in case of errors it is not possible to unwind transactions. STR participants are aware of this rule and in this case they can agree to perform a reverse transaction in order to balance the unduly transfer. There is no possibility of rejection of a payment by the receiving participant.

According to STR rules, payment to the receiving participant is final and irrevocable upon the crediting of the receiving participant's reserve account. Payment orders are processed immediately following the BCB's receipt of a transfer message. The STR system was designed to include a confirmation message, which is sent both to the receiving and to the sending bank as long as the correspondent procedures are executed.

Payment orders are accepted as long as security procedures are met, messages conform to the proper format and the reserve accounts have enough balances. Should a bank have a smaller balance in its reserve account than what is needed for a transfer to be made, the message enters a pending status and is queued. At the end of day, pending transactions are canceled.

STR participants receive information electronically about STR operational issues, including notification of operating hour extensions and operational outages experienced by participants. The STR rules and procedures also set out decision and notification procedures for handling abnormal situations. The staff dedicated to STR monitoring is trained to perform all related functions.

4.3.1.2 Operating Hours

The STR's operating hours extend from 6:30 a.m. to 6:30 p.m. Besides bank-to-bank payments processed directly on a real-time gross settlement basis, the STR also settles the final balances of several payments, securities, foreign exchange and derivatives clearinghouses.

The arrangement in this last regard is that clearinghouses are assigned a "settlement window", *i.e.*, a time frame during which their operational settlement cycle in central bank money should be concluded. Settlement windows are chosen by the BCB considering the STR timetable and aggregate liquidity concerns throughout the day. They are split into two successive time brackets. By the end of the first time bracket, all participants with net debt positions should have sent a credit order to the clearinghouse's account; otherwise default procedures are triggered. In ordinary days, however, once all deposits are done, the clearinghouse dispatches credit orders at a specified time to the STR in favor of all participants with net credit positions.

Clients' funds transfer has a 5:30 p.m. deadline.

Table 15: STR Settlement Windows

time	clearence and settlement system	event description
06:30	CIP - Sitraf	CIP informs banks their operational deposits for the day
07:00	CIP – Siloc	1st Settlement cycle: CIP – Siloc informs participants' net settlement positions for the day
07:30	CIP - Sitraf	Banks credit CIP's account at the Central Bank
08:00	BM&F Foreign Exchange	BMF-FE informs participants' net settlement positions for the day
08:00	Compe	Compe requests partipants an additional deposit to perform the night settlement cycle
08:00	CIP – Siloc	1st Settlement cycle - Deadline for participants with net debt results to transfer funds to CIP – Siloc account at the Central Bank
08:20	CIP – Siloc	1st Settlement cycle: CIP – Siloc transfers funds to participants with net credit results
08:30	Cetip	Begins RGTS operation
08:30	Cetip	Cetip reports participants' preliminary net results to the Central Bank
08:30	Compe	Deadline for participants with net debt results to transfer funds to the Compe night session
09:00	Tecban	1st Settlement cycle: reports participants' net results to the Central Bank
09:00	Compe	Final settlement of Compe night session
09:00	Compe's pre-funding	The Central Bank requests pre-funding from Compe's participants
09:30	Compe's pre-funding	Deadline for pre-funding from Compe participants
09:30	BM&F Derivatives	BMF-D reports participants' preliminary net results to the Central Bank
09:40	Tecban	1st Settlement cycle - Deadline for participants with net debt results to transfer funds to TecBan account at the Central Bank
10:10	Tecban	1st Settlement cycle - Tecban transfers funds to participants with net credit results
11:35	Cetip	Cetip reports participants' net results to the Central Bank
12:45	Cetip	Deadline for participants with net debt results to transfer funds to Cetip's account at the Central Bank
13:00	Cetip	Cetip transfers funds to participants with net credit results
13:05	BM&F Foreign Exchange	Deadline for participants with net debt results, either in reais or in foreign currency, to transfer funds to BMF-FE accounts
14:05	BM&F Foreign Exchange	BMF-FE transfers funds to participants with net credit results, either in reais or in foreign currency
14:15	BM&F Derivatives	BMF-D reports participants' net results to the Central Bank
14:30	CBLC	CBLC reports participants' net results to the Central Bank
14:50	BM&F Derivatives	Deadline for participants with net debt results to transfer funds to BMF-D account at the Central Bank
15:00	BM&F Securities	BM&F Securities reports participants' net results to the Central Bank
15:20	CIP – Siloc	2nd Settlement cycle: CIP – Siloc informs participants' net settlement positions for the day
15:25	BM&F Derivatives	BMF-D transfers funds to participants with net credit results
15:30	CBLC	Deadline for participants with net debt results to transfer funds to CBLC's account at the Central Bank
15:50	CIP – Siloc	2nd Settlement cycle - Deadline for participants with net debt results to transfer funds to CIP – Siloc account at the Central Bank
15:55	CBLC	CBLC transfers funds to participants with net credit results
16:00	BM&F Securities	Deadline for participants with net debt results to transfer funds to BM&F Securities' account at the Central Bank
16:10	Tecban	2nd Settlement cycle: CIP – Siloc reports participants' net results to the Central Bank
16:10	CIP – Siloc	2nd Settlement cycle: CIP – Siloc transfers funds to participants with net credit results
16:40	Tecban	2nd Settlement cycle - Deadline for participants with net debt results to transfer funds to TecBan account at the Central Bank
17:00	Compe	Compe request partipants an additional deposit to perform the morning settlement cycle.
17:00	BM&F Securities	BM&F Securities transfers funds to participants with net credit results
17:10	Tecban	2nd Settlement cycle - Tecban transfers funds to participants with net credit results
17:10	CIP - Sitraf	Complementary settlement cycle: CIP - Sitraf informs participants' net settlement positions for the day
17:20	CIP - Sitraf	Complementary settlement cycle: Banks credit CIP - Sitraf's account at the Central Bank
17:25	CIP - Sitraf	Complementary settlement cycle: CIP - Sitraf transfers funds to participants with net credit results
17:30	Cetip	Closing time for RTGS transactions registering
17:30	Compe	Deadline for participants with net debt results to transfer funds to Compe's account at the Central Bank - morning session
17:45	Cetip	Deadline for participants with pending RTGS transactions to transfer funds to Cetip's account at the Central Bank
18:00	Cetip	Closing time for RTGS transactions
18:00	Compe	Final settlement of Compe morning session

Source: Banco Central do Brasil

4.3.1.3 Risk Control Measures

As an RTGS where no lags occur between the acceptance and the finality of a payment order, in case of bankruptcy of one participant credit risk is isolated in those institutions that granted credit to the failed counterparty.

Liquidity shortages and, hence, liquidity risk are addressed in the STR with intraday credit lines granted by the BCB through intraday repo operations (also known as "rediscount-linked operations") collateralized with federal government bonds (FGB), through a real-time link with the SELIC, the settlement system for government securities. These repos are offered at no additional cost and are only limited in size by the amount of eligible assets banks are able to offer.

In addition, institutions subject to reserve requirements can use such reserves for intraday settlement purposes. At the end of the day, minimum daily reserve requirements have to be reconstituted otherwise financial penalties are charged. Given that the sum of FGB available to back these operations and reserve requirements amounts to USD 66 billion on July 2004, and BCB simulations found that intraday liquidity requirements are lower than that amount, at the moment the system seems sufficiently liquid.

The BCB bears no principal risks as all intraday credit is fully collateralized and intraday overdrafts are not permitted. The BCB may incur replacement cost risk should the agreed intraday repurchase not occur, for which purpose the BCB applies a haircut to the price of the repo transaction.

The pricing structure of the BCB credit lines is designed to discourage borrowers from failing to repay them by the end of the STR's operating day.[26] Intraday liquidity is granted at no financial cost while the rate charged on overnight overdrafts is a well-above market rate (i.e., the market rate plus 600 basis points). It is worth mentioning that all credit lines are granted at the discretion of the BCB, which does not have an explicit commitment to provide liquidity to the system or its participants, even in abnormal situations.

A real-time monitoring of the banks' reserve account balances by means of an "Account Balance Monitoring System" is in place. The BCB operates a monitoring center for intraday liquidity flows and settlements. Participants also have access to this real-time information on payments processed and their settlement account balances.

Centralized queuing arrangements are in place in the STR. System participants have access to their outgoing pending transactions on a real-time basis. Information about incoming pending transactions are not made available. The main queuing algorithm used is first in-first out (FIFO), allowing for priority, which ranges from A (highest) to D (lowest). An optimization routine is envisaged to prevent gridlock and will be started up at the BCB discretion.

4.3.1.4 Operational Reliability and Business Continuity

The BCB has implemented a formal business continuity plan that consists of two stages. The first one considers a failure that prevents participants' access to the STR's main computer center. In this situation the back-up site is immediately started up and the operation resumption is completed in no more than one hour. The second one considers the possibility of a complete STR outage. To cover this, the system counts on six Monitoring Centers, which are distributed into five different geographic areas. During that outage event, the

[26] Circular 3,153, of September 22, 2002 defines the rules for converting intra-day repo transactions not honored by the closing of the STR into overnight repo transactions.

Monitoring Centers are expected to make telephone connection with the participants to assure business continuity. The contingency plan targets business continuity in a secure way to avoid losses among participants. The contingency plan is to be tested and fully documented at least once a year.

Each institution participates as a sole user, digitally certified. There is a special Public Key Infrastructure supported by three certification authorities established in Brazil in order to certify each participant. At the application level, each message is digitally signed and subject to asymmetric-key cryptography. There is a common protocol for security on all messages that go throughout the MQ Queues. The computer-based systems and related data communication networks are secure and reliable, and are subject to independent audit by security specialists once a year. Moreover, the processing of individual transaction can be traced on an end-to-end-basis.

It has been considered the need for separation of functions in data processing. There are three separate environments: the first one for development and internal testing, with its own data bases and free access for programmers and analysts; the second one for quality assurance, with its own data bases, involves all participants and there is no access for programmers and analysts; the third one is the production environment using real data. On the development and quality assurance environments, it is possible to isolate the various software components, on behalf of capacity planning, software maintenance, legal compliance, and other validation issues.

Regarding system reliability, there are two independent and internally redundant Transmission Control Protocol/IP backbones (provided by Embratel and AT&T) using Multi-Protocol Label Switching (MPLS) technology and Border Gateway Protocol (BGP) routing policies, which provide 99.8 percent up time guarantee for the whole system, redundant last mile connections for all institutions connected and all service providers of the system[27] must have fault and disaster tolerant sites such as back-up sites and data replication. All irregular incidents are logged, reported and investigated on a regular basis. All necessary aspects of computer-based system are well documented. Business requirements are deeply discussed, and described in a common language, well understood by both information technology and banking personnel.

Regarding system architecture, software components are described in data dictionaries and flowcharts. Programs source codes are extensively documented in order to facilitate future maintenance and understanding. Infrastructure components are described in specific documentation such as the security and the network manuals.

Appropriate back-up facilities have been implemented as a result of the payment system reform. A back-up site Data Processing Center, which replicates all characteristics of the Main Center, has been built 7 km away from the Main Processing Center. Both sites have independent operational systems.

4.3.1.5 Pricing Policies

The STR pricing policy is publicly available to users and to the public. The policy aims at full cost recovery: fees should cover all operating costs, both fixed and variable. Imputed also considered.

The STR pricing policy is particularly relevant as there is another same day interbank funds transfer system, the SITRAF. Although not a perfect substitute for the STR, the SITRAF

[27] Central Bank, clearinghouses and connection providers.

offers similar services and is less demanding on liquidity. On the other hand, the risk mitigation benefits to the entire system of the STR should be taken into account.

The STR price schedule is R$0.62 per each immediate transfer sent and received. Early transfers (before 8.00 a.m.) are charged a lower fee (R$0.31 on either party). Off-line participants incur a costly surcharge to initiate a funds transfer. The surcharge reflects the total costs of handling off-line transfers and aims at promoting efficiency.

Participants access a monthly statement of messages, both ordered and received, and are charged in the first day of each month for the amount corresponding to the messages it entered (in either end) into over the previous month.

4.3.1.6 Access Criteria

According to the Law 4,595 of 1964, deposit-taking institutions are required to maintain a reserve account at the BCB. The National Treasury also has a settlement account at the BCB. Rules governing the reserve accounts cover the legal power of a contractual agreement and also cover the conditions for access to the STR.

Systemically important payment and settlement systems are also required to have a settlement account at the BCB. The purpose of these accounts is to transfer the net balances of institutions that clear and settle under the sponsorship of such clearinghouses and, thus, must end every day with a zero balance.

An institution holding a reserve or a settlement account at the BCB and the BCB itself must participate in the STR. Participation of the National Treasury is discretionary. Investment banks and non-systemically important clearinghouses have the option to open a settlement account at the BCB, and thus, become STR participants. Non-bank financial institutions are not allowed to have either reserve or settlement accounts.

Formal exclusion and exit rules do exist in the STR. An institution may ask the BCB to terminate its reserve account through a written request. On the occurrence of some events, especially related to a banking crisis and bankruptcy procedures, the BCB is obliged to close the corresponding reserve account. The BCB retains the right to, in extreme cases, prevent an institution from using the STR. Rules have been drafted in such a way as to facilitate a participant's exit from the STR in an orderly way. The BCB's unit responsible for payment system oversight has a sub-unit dedicated to control both the access to and termination of reserve accounts.

If an institution is not eligible to hold a reserve account at the BCB, it may have indirect access to STR. Participants have to pay a monthly fixed connection fee to use the RSFN directly. The RSFN network fee is supposed to be charged at a fair cost even to small participants. A direct participant may charge a fee to allow an indirect participant to use STR.

4.3.1.7 Governance Arrangements

The STR is owned and managed by the BCB. The operation and management of the STR are subject to the oversight of the BCB's Board of Directors, which is the main body governing the STR. Its day-to-day running is performed by the DEBAN (Department of Banking Operations and Payment Systems) through a special division created specifically for this purpose.

While the participants are not represented directly within the managing bodies, the BCB takes into account the views of all involved parties before taking a decision on any relevant

changes or measures. In fact, most of the decisions taken so far have been made on the basis of a consensus.

Even after the launching of the new system the BCB has been meting with top representatives from the financial sector on a regular basis to discuss relevant issues regarding the revolution of the payment systems. This discussion group might probably evolve into formal Payments System Council.

4.3.2 Funds Transfer System (*Sistema de Transferência de Fundos,* SITRAF)

The SITRAF (Sistema de Transferência de Fundos) is a hybrid settlement system, i.e., real time, deferred mode; net and gross procedures are all present in its scheme. The system is operated by the CIP, and started operations in December 6, 2002. Through the SITRAF, banks exchange electronic payment message, the so-called TED (see 3.2.3.2). The CIP has signed a contract with the CETIP, another clearinghouse for securities, to manage its operating system. The SITRAF was designed following the model of the new CHIPS system of the USA.

When participants send messages, using for this purpose the RSFN, they generate payment obligations that are cleared and settled in a multilateral and deferred manner directly in CIP's settlement account in the STR. However, the CIP also has mechanisms that enable payments to be processed in real-time. If sufficient balances are available on the account, the payment can be processed right away by the clearinghouse, and immediately affects the accounts of the involved institutions within the CIP.

4.3.2.1 Rules, Procedures and Operating Hours

Daily qualification to receive and send payment messages through the SITRAF depends on the participant's initial deposit corresponding to the minimum amount required by CIP, determined in accordance with the participant's payments profile and its category (e.g. wholesale or retail bank). The deposit should be made in the CIP-SITRAF's settlement account at the BCB no later than 30 minutes after SITRAF's opening (6:30 a.m.). Through the STR, the BCB informs the CIP of the amounts deposited by each bank. These amounts act as the initial credit in each bank's account with the CIP. In the course of the day, banks may make additional transfers to either make payments possible in the event of an insufficient balance, or to accelerate the processing of their payments.

The CIP-SITRAF's settlement account has a zero balance at the end of the day. Thus, there are two types of messages between banks and the CIP through the STR: the sending of deposits (compulsory or additional) from banks to the CIP-SITRAF's settlement account, or the return by the CIP of the remaining balance on each bank's account at the end of the settlement cycle.

The multilateral balances calculated cannot be negative, *i.e.*, messages that produce negative balances are queued. The account balance of an institution operating on SITRAF is also subject to an upper limit, whose objective is to optimize the use of liquidity. When a participant's balance reaches its maximum limit, credit messages for this participant are transferred to the queue instead of being executed in its favor. In this case, queuing takes place until the participant sends payment messages sufficient to reduce its balance to an amount below the maximum limit. The upper limit of the account balance is communicated each day to the participant and remains fixed until the end of the day. Payments in a queue may be cancelled or rejected.

The SITRAF's payment cycle is defined as the period between it's opening for business and the last settlement of all banks' net multilateral positions by the BCB and involves the Main

and Complementary Cycles. The Main Cycle is made up of three periods chronologically related to the compulsory initial deposit, sending of messages and financial settlement.

Payments sent are classified by amount: small, medium or large. When messages enter the system, a payment is processed gross when the issuing bank's balance so permits, or on a bilateral net basis if there is another payment instruction involving the same banks but in the opposite direction and with similar amounts. The gross method is used in the case of transactions involving small amounts, avoiding an accumulation of messages in the pending queue, thereby reducing execution time for multilateral clearing (see below). Bilateral clearing is used as a second attempt for the processing of small payments, or in the case of large or medium-sized amounts as soon as they enter the system in order to save funds deposited in the participant's account. Payment messages which have not processed through any of the methods described above enter the pending queue for multilateral clearing in which all possible payments are approved provided the balances of the banks involved remain positive. Payments that are not approved may return to the pending queue and wait for the multilateral clearing process to be triggered again.

It should be noted that, in order to process the greatest number of messages possible, processing of queued messages complies with criteria such as selection of processing method (gross, bilateral net or multilateral net), references chosen by remitting banks and the chronological order of messages' entry.[28] The CIP is also able to adapt the system to changes in the profile of bank payments, altering the parameters used in its operations, including the Initial Obligatory Deposit, the Bank Balance Limit and the classification of the payment by amount. Approved payment messages are final and therefore irrevocable.

Obligations are carried out through debits and credits in the payer and payee's current accounts with SITRAF. If some payment orders are still pending, a Complementary Cycle begins. A time limit is given for the banks to cancel the respective pending messages or to make immediate supplementary deposits corresponding to the gross amount pending. At the end of the time limit, multilateral clearing is again attempted for pending messages and the proceeds are transferred via the STR to the reserve accounts. The interval for CIP's complementary cycle consists of a period of 25 minutes from 5:00 p.m. (last time for receiving messages) to 5:25 p.m. (when the complementary cycle closes).

Once this process has been concluded, the balance on the CIP's settlement account with the BCB should always be zero. Banks which fail to make the deposit for the Complementary Cycle have their pending messages rejected by the CIP and may be excluded from the following operating day and subject to other penalties.

4.3.2.2 Operational Reliability and Business Continuity

The SITRAF's back-up site operates in hot stand-by, and can be put in full operation in less then two hours just in case (problems in the main site). As any other payment system regarded systemically important in Brazil, the SITRAF's availability to the participants in a period of a year should be at least 99.8%. The system contingency plan is tested at least once a year.

4.3.2.3 Pricing Policies

[28] Article 28 of SITRAF's regulation also states that remitting banks should program the sending of payment messages in such a way as to ensure that at least 70% of the volume expected for the whole Main Cycle will effectively be remitted during the first 2/3 of the period. Repeated failure to comply with this provision will make banks subject to penalties imposed by the clearinghouse.

Full cost recovery is the aim of the SITRAF's pricing policies. The fees are similar to those ones charged in the STR environment.

4.3.2.4 Access and Governance

SITRAF participants are the financial institutions holding reserves accounts at the BCB and that have been admitted to participate in the CIP. Prerequisites for system participation include connection to the RSFN Network and compliance with the conditions laid down in the SITRAF's Operational Regulations. CIP's capital subscription is required as well.

Thirteen bank representatives participate in the Board of Governors, the CIP's supreme body, which counts on four advisory committees (accountability and budget; services and products; risk: and technology).

4.3.3 The BM&F's Foreign Exchange Clearinghouse (*Clearing de Câmbio da BM&F*)

The *Bolsa de Mercadorias & Futuros* (BM&F) has established a clearinghouse for foreign exchange transactions. At present, the system handles foreign exchange transactions in Real vs. USD, and later it will also handle Real vs. Euro and Real vs. Yen. All Brazilian banks authorized to operate in the foreign exchange (FX) market are allowed to participate in the system.

The system comprises three sub-systems or tiers that, through a guarantee provided by the clearinghouse, protect participants from principal and replacement cost risks in varying degrees (e.g. principal risk only, principal risk plus replacement cost risk, etc.)

4.3.3.1 Legal and Regulatory Framework

According to Law 4,595, the BCB will establish and enforce provisions for the FX market supported by legislation and by CMN rules and regulations. Among several other duties, the BCB will: 1) be the depository of official reserves of gold and foreign currency; 2) authorize banks to carry out FX transactions; 3) act in order to ensure the regular functioning of the FX market. BCB's Circular 1,815 of September 17, 1990 addresses the procedures for carrying out interbank FX transactions.

The BM&F Foreign Exchange Clearinghouse was developed in accordance with the guidelines set out by the BCB and BM&F's own bylaws, which state that the "BM&F purposes are to register, clear and settle by physical delivery and cash settlement the trades executed on its trading floor and/or registered in any of its trading, registration, clearing and settlement systems by means of an in-house department or an organization constituted for that purpose".

4.3.3.2 Understanding and Managing Financial Risks

The rules and procedures of the system are comprehensive, detailed and readily available to participants and the general public. A manual presents clearly all aspects of the system. The Rulebook is divided in 13 chapters which cover the definitions, clearinghouse activities, participants, transaction registration, analysis and acceptance, transaction contracting, clearance, settlement, safeguards, fees and costs, penalties, general provisions. The document also includes an operational manual, a risk management manual and a manual for all aspects related to operational reliability and business continuity.

Participants can register in the system FX transactions to be traded directly between them, with the intermediation of brokers or through other FX trading systems authorized by the

BCB and by the clearinghouse. Pursuant to the rules and regulations issued by the BCB, after the trade the participants must register their transactions through the SISBACEN, the BCB's information system.

In the analysis stage, the clearinghouse revises the data, terms and conditions, and the characteristics of each transaction. Special attention is given to correspondent bank risk considerations. At this stage, the clearinghouse decides whether or not it will become a central counterparty. The system assesses the transaction by comparing it with the parameters predefined by the clearinghouse in accordance with the dynamics of the FX market and of its participants. The settlement date is established by the two parties in the transaction and can be of one or two business days after the trade.

The settlement process works as follows:

- The system determines the multilateral net settlement obligations.
- Net funds in Reais must be paid through the STR by crediting the settlement account of the clearinghouse no later than 1:05 p.m.
- Net USD funds must be credited by the sellers to the correspondent bank account the clearinghouse indicates.
- At 2:05 p.m., the clearinghouse issues all payment orders in Reais directly to the STR accounts of net sellers and in foreign currency to the accounts held at the correspondent banks by net buyers.
- The final phase, which ends at 3:30 p.m., is designed to settle all payments that, for whatever reason, were not processed during the normal clearing session.

Net USD balances are settled through correspondent accounts held by the clearinghouse with foreign banks in New York. If both the participant with a net credit position and the clearinghouse hold an account with the same correspondent bank abroad, balances in USD are settled through book entries. Otherwise, settlement is made through a Fedwire transfer.

To assure the cash settlement of the transactions carried out through its systems, the clearinghouse makes use of the following safeguards:

Protection against principal risk:

1. Every transaction for which the clearinghouse becomes the contracting party will be subject to the payment versus payment (PvP) principle. The clearing cycle is based on deferred net settlement, in both foreign and domestic currency, reducing the amounts of funds to be transferred and, hence, the liquidity risk. PVP is possible since transactions are bilateral agreements.
2. Operational limits are set for participants in order to restrict net balances in both currencies to the participants' real capacity. Operational limits are calculated by the clearinghouse using a rating analysis of participants and their past behavior in the FX market.

Protection against market risk:

1. Exchange rate fluctuation in a default situation: the clearinghouse has at its disposal the collateral requested through a margin call for each transaction. Margins are calculated according to a model developed by the system;
2. Exchange rates contracted out of market parameters: if the proposed FX transactions fall outside the parameters defined by the clearinghouse, they will be accepted by the system only after collateral has been posted;
3. Losses in FX transactions for same-day settlement: for each transaction registered with an opposite sign by one participant for same-day settlement, the clearinghouse

simulates the resulting balances in both currencies to verify if the participant is trading with a loss. In this case, the system requires a prior deposit of collateral equivalent to the loss.

The clearinghouse also has credit lines available provided by the correspondent banks for the purchase and sale of foreign currency. Furthermore, some settlement funds have been established within the system to face crisis situations:

1. The Participation Fund: the initial deposit from each participant, which is comprised of individual shares. This deposit varies from participant to participant.
2. The Operational Fund (R$50 million): designed to cover losses arising from operational, administrative or functional failures in the clearinghouse management process.
3. Segregated capital (R$10 million): a segregated portion of the BM&F's equity for the sole purpose of guaranteeing the fulfillment of the obligations under the responsibility of the FX clearinghouse.

Should a problem occur in the settlement cycle, the system has in place several procedures and safeguards. In case of a default of a FX buyer, the participant is temporarily excluded from the system. The transactions that were already registered for a settlement date after the default remain in the system and will be settled. The clearinghouse will use the foreign currency funds undelivered to the defaulting party to obtain the Reais needed to pay the other participant.

Should an adverse exchange rate fluctuation occur, the difference will be covered as follows:

1. By using the collateral previously deposited by the defaulting party for that particular transaction following the risk control procedures of the clearinghouse (i.e., the "defaulter pays" rule);
2. If the latter does not cover entirely the open position, then the collateral deposited by the defaulting party in the General Fund or any other collateral available at the clearinghouse is used;
3. If this is still not enough, the difference will have to be absorbed by the non-defaulting participant. Repos are made if the participant's default is considered temporary and of an operational nature.

A similar procedure is activated in case of a default of a FX selling party.

4.3.3.3 Operational Reliability and Business Continuity

The measures to ensure security and operational reliability of the BM&F systems are comprehensive and effective. The security structure is subdivided into three segments:

1. Physical, covering all measures to ensure equipment availability as well as all controls implemented to ensure that only authorized personnel has access to the facilities.
2. Administrative, *i.e.*, the set of resources needed by the security structure management, defining roles and responsibilities as well as processes aimed at business continuity.
3. Logical, *i.e.*, the strategy created to control network load, connections and authorized access. It also ensures information integrity and availability.

The technology centers are equipped with redundant contingency systems for power supply, with short power supply interruptions being fed by UPS units and long ones by a set of generators.

The IT structure is distributed into two technology centers (CT1 and CT2) in two different locations in Sao Paulo. They are sufficiently distant so that the likelihood of being both

affected by a catastrophic event is minimal. Applications are balanced or placed under contingency so that in the event of a complete unavailability of one system, the other is able to take over. Inside the same center, there is network equipment redundancy. Communication between the two centers is performed through a network structure provided by the telecommunications company at high speed, with contingency arrangements.

All procedures are documented in manuals. In particular, there is a security team in place that knows all the services and protocols that travel through the network. In addition to that, the BM&F promotes activities to heighten awareness of all employees on the issues related to operational reliability.

The system adopts the policy of centralizing logs in the security operational center, in order to ease data analysis and problem identification. Sophisticated anti-virus measures are in place, as well as state-of-the-art network device control systems. Secure and redundant communication links are in place, and all messages comply with the specifications provided by the BCB to ensure integrity, legality, confidentiality, availability and non-rejection.

The BM&F continuity plan is comprehensive and detailed. It covers recover strategies for storage, network, servers, infrastructure, etc. Monitoring and operational contingency plans and emergency plans are well documented. Regular training and maintenance procedures are in place and there is constant coordination with public authorities and the central bank on operational and security matters.

4.3.3.4 Access and Governance

Participation in the system is restricted to institutions that, by being authorized by the BCB to trade or to intermediate trades in the FX market, are duly registered and authorized to use the clearinghouse. Participants in the clearinghouse are grouped as: a) member participants, (institutions that hold BM&F equity), b) non-member participants. In particular, they are:

1. Banks authorized to trade foreign exchange;
2. Brokers authorized to intermediate FX transactions;
3. BM&F members authorized to intermediate FX transactions in electronic and outcry systems approved by the BCB.

The application process begins by filling out a specific form published in a BM&F Circular Letter, which is also made available by electronic means. The authorization process includes the definition of operational limits and the technical validation of the institution's systems. The institution must then deposit its share in the Participation Fund. At the end of the process, a "BM&F Foreign Exchange Clearinghouse Authorization Certificate" is issued and the institution's name is published in a BM&F Circular Letter as a participant authorized to use the system. The Rulebook regulates clearly the case of exclusion of a participant under the "Penalties" section.

The *clearing de câmbio* is integrated to BM&F's administrative structure. In practice, the *clearing de câmbio* consists of two specialized departments, one to monitor an resolve issues related to FX registration and contracting, and the other one to monitor and resolve issues related to FX payment and settlement. The Director of the FX Clearinghouse, who reports to the BM&F CEO, manages the system.

Formal and detailed governance arrangements do exist in case of crises of any nature. In addition, Chapter VI of the BM&F bylaws established Deliberative Committees and Advisory Committees as the Exchange's auxiliary administrative bodies. In particular, the Deliberative Committee for Foreign Exchange Matters is created to address issues concerning FX transactions registered in the system. The Committee comprises the BM&F CEO, two

members of the clearinghouse and ten banks and deliberates on any modifications to the Clearinghouse Rulebook and on the costs of the services to be rendered. Any change that could alter the risk exposure of the clearinghouse will have to be approved by the BM&F Board of Governors. Moreover, pursuant to BCB regulations for clearinghouses, any change in the rules and regulations must have the approval of the BCB prior to implementation.

In July 2000 the BM&F created the Advisory Committee for Foreign Exchange Matters, which at the beginning worked with the technical staff to develop the systems of the clearinghouse. After the launch of the system the Committee was restructured to assist the BM&F also in the daily operations of the system. The Committee comprises 13 bank representatives, and meets whenever necessary to discuss and analyze all relevant questions involving the FX transactions that are registered, cleared, and settled in the system. The proposals of the Committee are submitted to the BM&F Board of Governors.

4.4 CROSS-BORDER PAYMENT SETTLEMENT SYSTEMS

The BCB is a member country of the Latin American Association for Integration (*Asociación Latinoamericana de Integración, ALADI*), a system for the clearing and settlement of multilateral cross-border payments related to the intra-regional trade of 12 countries: Argentina, Brazil, Bolivia, Chile, Colombia, Dominican Republic, Ecuador, Mexico, Paraguay, Peru, Uruguay and Venezuela. In 1965, the central bank of these countries subscribed the "Reciprocal Payments and Credits Agreement" (*Convenio de Pagos y Créditos Recíprocos*) with de basic objective of reducing the cross-border transfer of foreign currencies among themselves. Through this agreement, members offer system participants the guarantees of convertibility, transferability and reimbursement.

Under the ALADI system, these central banks accept payment documents associated with the intra-regional trade, mainly those related to credit letters denominated in USD. The central bank of the country where the export was originated deposits funds, on behalf of the central bank of the importing country, in the commercial bank participating in the foreign trade transaction. Each country's central bank also authorizes its financial institutions to send commercial transactions directly through ALADI as authorized institutions.

These transactions result in net accrued positions in USD among central banks. Every four months the Operations Center, located in the central bank of Peru, makes a cut-off of multilateral balances among central banks through the Automated System Supporting the ALADI Reciprocal Payments and Credit Agreement (*Sistema Computarizado de Apoyo al Convenio de Pagos y Créditos Recíprocos ALADI*, SICAP/ALADI). Funds are settled in the Federal Reserve Bank of New York, the correspondent bank of all ALADI member central banks.

The SICAP/ALADI allows the automation of the information regarding ALADI transactions as well as others related to the reciprocal relationships among member central banks. It also provides members with information on debits, credits, balances, number and interest calculations, extraordinary settlements, multilateral use of risk margins and authorized institutions tables, both for the current period and historical information.

During the sixties, nearly a third of all intra-regional foreign trade payments was cleared and settled through ALADI. In these years only some of the member countries were export-oriented and the ALADI agreement contributed to a more efficient use of international reserves. At the end of the seventies this figure increased to nearly 75% of total payments and it reached its maximum during the eighties with approximately 90%. However, during the nineties the portion of international foreign trade payments channeled through the ALADI decreased significantly, reaching only 16.6% in 1997. This situation is due in part to the

availability of new and more convenient financing methods and to the increase in the stock of international reserves in many of the region's central banks.

Cross border funds transfers outside the scope of ALADI are usually made through correspondent banks, and Swift is generally used for this purpose. Some arrangements, involving mainly federal government-owned financial institutions, are being implemented in order to facilitate remittances from Brazilians residents in other countries, and to make these transfers less expensive to the senders.

4.5 MAJOR PROJECTS AND POLICIES BEING IMPLEMENTED

4.5.1 Banco Postal

The largest private commercial bank in Brazil, Bradesco S.A., won the concession to offer banking services in partnership with ECT, the postal service. The new entity has been denominated Banco Postal. The service was launched in March 2002, when there were some 1,750 municipalities without banking services in Brazil. At present, the Banco Postal already serves about 1,675 municipalities.

Banco Postal is likely to play a key role to expand the population's access to the banking and payments services.

4.5.2 Conta Eletrônica CAIXA AQUI

The Caixa Econômica Federal, the second largest public financial institution in Brazil, launched in December 2002 an electronic current account ("CAIXA AQUI account") designed to meet the needs of low-income people with no access to banking services. According to Caixa Econômica, there are 25 million households under this category. Two million accounts are already opened.

CAIXA AQUI accounts are tariff-free (subject to restrictions) and can only be accessed through electronic cards. In order to facilitate the process of opening new accounts, there is no minimum initial deposit required. Customers are able to make withdrawals not only from the 2,000 branches of CAIXA all over the country but can also use CAIXA's associated networks: 9,000 lottery houses (*casas lotéricas)* and 2,108 bank correspondents (*correspondentes bancários*).

4.5.3 CrediAmigo Microfinance Program

This is another initiative to make banking services available to less affluent portions Brazil's population. Banco do Nordeste, a regional stated-owned bank, has been developing a microfinance program, CrediAmigo, since 1997. Brazil has long been considered one of the world's great-untapped microfinance markets. Because of the country's large population, its relatively high poverty rates, and open economy, it has the largest concentration of micro enterprises in Latin America. Of more than 9 million micro enterprises estimated to exist in the country, at least 2 million of them are located in the Northeast Region.

CrediAmigo is already among the top microfinance institutions in Latin America in terms of geographical penetration, number of clients and depth of outreach. As of July 2004, the program had over 150,000 active clients in 358 municipalities throughout the northeastern region of Brazil. The average outstanding loan balance was R$591, less than 8% of Brazil's GDP per capita. Only 2.5% of its loans are past due, using a strict 30-day non-performing accounting method for loans.

5 SECURITIES, MARKET STRUCTURE AND TRADING INSTRUMENTS

5.1 FORMS OF SECURITIES

All securities traded in the financial markets are held in dematerialized form and all transfers are handled by electronic book entries.

5.2 TYPES OF SECURITIES

Securities can be divided in three groups: debt instruments, equities and securitization of receivables. Securities issued by the federal government are the most liquid instruments in the market. These securities include, among others, the *Letra Financeira do Tesouro* – LFT (Treasury Financial Letter), the *Letra do Tesouro Nacional* – LTN (National Treasury Letter) and the *Nota do Tesouro Nacional* – NTN (National Treasury Note), along with some Public Debt Certificates (CDP), Agrarian Reform Bond (TDA) and Privatization Certificates (CP).

Other relevant securities in the Brazilian financial markets are the following:

- Equities;
- BDRs – Brazilian Depositary Receipts, which are securities issued by foreign companies with a view to raising funds for proposed projects;
- Debenture Backed Securities;
- Mortgage-Backed Securities (*Letras Hipotecárias*);
- CDB – Bank Certificate of Deposit;
- RDB – Bank Deposit Receipt;
- DI – Interbank Certificate of Deposit;
- FIF and FIC – Investment Fund Quotas;
- FMIAs and FACs – Stock Mutual Fund Quotas;
- Export Notes;
- Debentures;
- Commercial Paper / Promissory Notes (*Nota Promissória*);
- Bill of Exchange (*Letra de Câmbio*)
- CRIs – Real State Certificate Receivables.

5.3 SECURITIES IDENTIFICATION CODE

The BOVESPA is the Brazilian numbering agency, the only institution authorized to assign International Securities Industry Numbering (ISIN) codes for securities in Brazil. All depositories are using ISIN codes and all securities have ISIN codes attached. Some of them, however, including government securities, use it as a secondary identification code as, by tradition, these securities used another more entrenched coding system in the past. In the medium term, though, ISIN code should prevail as the only identification system for securities in Brazil.

5.4 TRANSFER OF OWNERSHIP

Bearer securities were prohibited in Brazil in 1990. Since then, central securities depositories (CDSs) have developed fungible depository services for nominative securities. The service is

based on the fiduciary transfer of ownership to the CSD solely for depository purposes, without the securities being added to CSD's assets. Ownership is thus transferred by means of book entries at CSDs once a trade is considered irrevocable.

Issuers have access to updated information on which their creditors or shareholders are. In the case of equities, for instance, the fiduciary transfer of ownership allows a company listed in an organized exchange to maintain the complete list of its shareholders on its books under a single name (the depository's).

5.5 PLEDGE OF SECURITIES AS COLLATERAL

The general framework for collateral management is based on securities settlement systems (SSSs) holding "collateral correspondent accounts" within other CSDs. That is, every SSS holds a collateral account with a CSD for the securities the SSS chooses to accept as collateral. Requests for deposit, transfers and withdrawal of assets are made through a collateral control system. Depending on the nature of the asset to be pledge as collateral, any movement must be preceded by a transfer instruction to the appropriate custodian institution:

- Federal government securities: securities to be pledged must be transferred to the SSS's collateral account held at the SELIC.
- Private sector securities: securities to be pledged must be transferred to the SSS's collateral account held at the CETIP.
- Equities: the securities to be pledged must be transferred to the SSS's collateral account held at the CBLC.
- Gold: the certificates to be pledged must be transferred to the SSS's account with the BM&F.
- Securities traded on the international markets: the securities to be pledged must be transferred to the SSS's collateral accounts held at either the Depositary Trust Company & Clearing Corporation (DTCC), EUROCLEAR or CLEARSTREAM, depending on each case.

In practice, though, market participants collateralize their trades mainly with federal government securities. All securities pledged must be marked-to-market on an intraday basis, adjusted to liquidity conditions and subject to diversification criteria.

The Law 10,214 secures collateral pledged in securities settlement systems by isolating them from insolvency, intervention or bankruptcy regimes of the participant. Moreover, assets pledged as collateral by a participant as well as any other asset in the process of clearance and settlement will be used to redeem his settlement obligations under that particular clearinghouse.

5.5.1 Repurchase Agreements

Under the Brazilian law, the two legs of a repo transaction (*operações compromissadas*) are regarded as two separate transactions linked by a formal agreement between the two parties. Therefore, a repo transaction splits itself into a spot outright selling associated with a term outright repurchase. As Brazilian law prohibits financial institutions from borrowing from one another,[29] repos turned out to be the main instrument through which participants in the interbank money market can level their positions.

[29] Article 10 of Law 4,595.

The price of the underlying securities is generally lower than the market price to make up for price fluctuations, adding extra protection against market risk. Market participants generally take the benchmark price for securities from the so-called "*PU da 550"*[30]. The original owner of the securities traded in a repo remains as the beneficial owner up to maturity date, and, thus, remains eligible to receive interest payments on the securities. The counterparty retains the legal ownership of the security.

5.6 TREATMENT OF LOST, STOLEN OR DESTROYED SECURITIES

All securities in the Brazilian market are dematerialized.

5.7 LEGAL MATTERS CONCERNING CUSTODY

In Brazil all entities that provide custody services are regarded financial institutions and are under supervision of the BCB and/or CVM, depending on the entity. It includes, among others, commercial banks, universal banks, investment banks,and brokers.
In the environment of the CSDs, client assets can be registered in name of the custody institution, i.e., an omnibus account is used) or of the clients individually, depending on the CSD. . In any case, the clients' assets form a separate corpus of property not regarded as belonging to the custodian at all, even in case of bankruptcy of such institution.

MARKET STRUCTURE AND TRADING SYSTEMS

5.8 PRIMARY MARKET

Federal government securities are the main primary issuances in Brazil. BCB is responsible for government securities auctions. According to the CVM's 2003 Annual Report, registration of primary issues amounts had significantly dropped in 2003, compared with previous years. The report suggests that the movements in the exchange and public debt markets had contributed to that decrease. Also the reduction in the economic activity in the early months in 2003 is important to explain the strong reduction on primary issues. Debenture issues decreased 66% in 2003, after remaining stable from 2001 to 2002.

[30] The unitary price (PU) is the present value of Central Bank and Treasury-issued securities, obtained by discounting the value at maturity date by a market-based interest rate plus a haircut. The number 550 refers to the number of the BCB regulation that first set out the methodology for the calculation of that benchmark. "*PU da 550"* is the price used by the BCB when it engages in repurchase agreements.

Table 16: Securities Issuances 1999-2003

Values em R$ million

Securities	1999		2000		2001		2002		2003	
	Volume [1]	Value	Volume [1]	Value	Volume [1]	Value	Volume [1]	Value	Volume [1]	Value
Stocks	10	2,749	6	1,410	6	1,335	6	1,100	1	80
Bonds	3	0	1	0	0	0	0	0	0	0
BDR	1	2	3	0	0	0	0	0	0	0
CTEE	0	0	1	372	1	200	1	250	1	320
CAV	107	142	93	111	109	131	96	112	162	200
CRI	2	13	5	172	13	223	10	200	17	288
CIC	4	35	3	456	4	262	1	2	0	0
Debentures	38	6,676	42	8,748	41	15,162	27	15,400	17	5,282
DR Abroad	12	0	31	0	8	0	15	0	1	0
Promissory Notes	65	8,044	44	7,591	31	5,266	20	3,876	12	2,128
FIF Quotas	15	232	31	129	22	512	43	1,059	8	281
Warrants	1	5	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0
TOTAL	**258**	**17,899**	**260**	**42,814**	**235**	**23,109**	**219**	**21,998**	**219**	**9,552**

1 - Registration volume of primary issues of securities

Source : CVM

5.8.1 Federal Government Securities

The SELIC manages a process called “Formal Electronic Public Offer for Government Securities” (OFPUB), which is carried out through an electronic sealed-bid auction system. Only financial institutions are allowed to participate on a direct basis. Direct participants can place up to 5 proposals. In the bid evaluation, the BCB establishes the cut-off price, which shall be applied to all winning bids (those with prices equal or higher than the cut-off price).

The National Treasury, in order to enlarge the market for government securities, has implemented a program named “Direct Treasury” (*Tesouro Direto*), which aims at facilitating individuals to buy and sell government securities through the Internet.

5.8.2 Corporate and Other Government Securities

The Cetip provides electronic primary auctions for these securities. Several types of primary placements and auctions are supported, such as "Dutch", "Closed Envelope", etc. Electronic auctions have been held for the National Treasury Department and the Federal Savings and Loans Bank, involving, among others, Federal Public Debt Certificates, credits originating from anticipation of revenues (states and municipalities), Mortgage Notes and Real Estate Credit Bills.

5.8.3 Equities

Primary equities issuances are made through the BOVESPA. There are currently over 800 publicly held companies. Private and public sector corporations, governments or private companies which meet registration requirements at the CVM to sell an offer securities to the public become eligible to issue equity shares using the trading infrastructure of BOVESPA.

Corporations can count on the market expertise and financial leverage of underwriters to place their stocks on the market. In Brazil, underwriters may or may not assume the risks in

bringing the issue to market by guaranteeing the issuer will receive a certain price when the offering is sold. Guaranteed price underwriting in Brazil is called "*subscrição firme*".

5.9 SECONDARY MARKET

The secondary market for government securities is big and very liquid. This is however not the case for equities and debt securities issued by the private sector. In the latter case, market liquidity has been adversely affected by taxation, fragmentation, concentration, and continued migration of large issuers to the main international markets. Liquidity is also hampered by a high degree of fragmentation, a high concentration of corporate ownership and a low proportion of the total equity base traded in the market (the "free float").

5.10 STOCK EXCHANGE TRADING

5.10.1 BOVESPA

BOVESPA is the major stock exchange of Brazil, located in the city of São Paulo. Recently, the regional stock exchanges in Brazil merged their trading activities under the leadership of BOVESPA to create a single Brazilian stock market on a nationwide level, with a single, trading, custody and settlement system.

There are 3 trading channels in the BOVESPA Stock Exchange. Regardless of the channel used, equities trading are always intermediated by a broker.

Table 17: General Trading Summary of the BOVESPA

Markets	Nunber of trades	Volume (thousand)	Value (R$ thousand)
Round Lot	524,878	529,804,229	17,879,669
Stocks of Cos. Under Reorga	128	70,255	148
Others	79	4,380	134
Cash Market - Round Lot	**525,085**	**529,878,864**	**17,879,951**
Rights and Receipts	34	1,077	817
Imobiliary Funds	16	28	20
Investments Certific/ Other	2,734	4,983,500	58,626
Bonds (Private)	707	941	2,388
Call Options Index Exercise	81	26	498,100
Put Options Index Exercise	17	7	159,700
Call Options Exercise	2,293	16,454,306	624,717
Put Options Exercise	41	368,413	315,849
Auction	32	339,631	54
Finor Auction	27	72,115	5,396
Bovespa Fix	16	12	45,794
Odd-Lot Market	73,386	570,798	61,304
Cash Market - Total	604,469	552,669,724	19,652,721
Forward Market	10,652	33,690,862	673,363
Call Index Options	346	69	74,287
Put index options	104	15	7,564
Call Options	439,625	1,769,989,820	1,686,134
Put Options Exercise	61	104,766	31,366
Options Market	440,136	1,770,094,670	1,799,352
Total	**1,055,257**	**2,356,455,257**	**22,125,437**
Total - EL	**1,052,602**	**2,344,354,164**	**21,268,441**
Total - AF	**7,584**	**3,046,037**	**58,495**
Total - N1	**181,820**	**93,015,501**	**5,122,641**
Total - N2	**50,442**	**848,258**	**785,087**
Total - NM	**14,056**	**863,701**	**429,308**
Ibovespa Portfolio Participa	452,571	474,981,102	15,084,963
IEE Portfolio Participation	59,545	40,822,048	1,100,929
IVBX2 Portfolio Participatior	243,835	265,903,360	5,321,527
IBrX Portfolio Participation	502,405	511,450,208	16,559,371
ITEL Portfolio Participation	161,818	360,551,846	4,981,448
IBrX 50 Portfolio Participatic	443,046	432,084,967	15,513,876
IGC Portfolio Participation	192,334	90,345,362	5,814,911

Source: Bovespa

5.10.1.1 Mega Bolsa

It is an electronic trading system through which stocks from all listed companies on the cash, forward and options markets can be traded. It operates daily on a continuous session from 10:00 a.m. to 5:00 p.m. (Brasilia Time).

5.10.1.2 Open-Outcry Session

The investor gives buy/sell orders to his broker which, in turn, forwards that information to a trader on the trading floor, who outcries his bid/ask proposal. If it is met by counterparty on the trading floor, then the transaction is matched. Open-outcry sessions extend from 10:00 a.m. to 4:45 p.m. with a lunch recess from 1:00 p.m. to 2:00 p.m.

5.10.1.3 After Market Hours Trading Session

After market hours trading allows for the electronic trading of equities during the nightshift. Total daily orders are limited to R$100,000 per investor and prices should not exceed the closing price in more than ±2 percentage points. It operates from 5:30 p.m. to 7:00 p.m.

Table 18: Market Capitalization of the BOVESPA Index

Dec 2003

Index	R$ Billion	US$ Billion	Part.(%)
Bovespa Index	493,63	170,85	72,95
IBrX 50	493,53	170,82	72,93
IBrX Brasil	557,15	192,84	82,33
IVBX2 -Valor Bovespa Index - 2nd Tier	192,69	66,69	28,48
ITEL - Telecommunication Sector Index	91,18	31,56	13,47
IEE - Electric Power Index	51,66	17,88	7,63
IGC - Special Corporate Governance Stock Index	229,71	79,51	33,95
Total BOVESPA	**676,71**	**234,22**	

Source: Bovespa

5.10.2 BM&F

5.10.2.1 Trading Channels

Contracts are traded through an electronic platform (Global Trade System – GTS) and, in case of some products, on the floor as well. Few contracts are exclusively traded on the floor. Swaps and flexible option contracts, traded over-the-counter, can also be registered in the BM&F for clearing and settlement purposes (3.6% of the financial volume in 2003).

5.10.2.2 Main Contracts

The complex of contracts based on interest rate, which includes the interbank deposit (ID) and the local U.S. Dollar interest rate market, is the main segment and accounted for 69.2% of the trading volume during 2003. The U.S. Dollar futures market is the principal foreign currency instrument; totaling 16.8 million contracts in 2003, with a financial volume of US$846.6 billion.

Table 19: BM&F – Financial Volume in 2003

Market / Contract	US$ million	% of the segment	% of the total
Exchange traded contracts [1]	**3,886,437.1**	**100.0**	**96.4**
Interbank deposit futures	1,729,563.4	44.5	42.9
ID x U.S. Dollar spread futures	34,518.5	0.9	0.9
FRA ID x U.S. Dollar spread futures	1,122,316.2	28.9	27.8
Bovespa index futures	98,974.7	2.6	2.4
U.S. Dollar futures	846,640.8	21.8	21.0
Other exchange traded contracts	54,423.5	1.4	1.3
OTC traded contracts	**145,829.9**	**100.0**	**3.6**
Interest rate swap	15,150.4	10.4	0.4
Interest rate x exchange rate swap	57,679.2	39.6	1.4
Interest rate x price index swap	6,954.6	4.8	0.2
Flexible U.S.Dollar call options	25,407.7	17.4	0.6
Flexible U.S. Dollar put options	22,055.2	15.1	0.5
Flexible Bovespa index call options	16,393.8	11.2	0.4
Other OTC traded contracts	2,189.0	1.5	0.1
Grand total	**4,032,267.0**	**100.0**	**100.0**

Souce: BM&F

1 For a sample of contracts.

5.10.2.3 Trading Hours

Trading hours depend on the type of contract, as shown below:

Table 20: BM&F – Trading Hours[1]

Contract	Opening		Break	Closing	After market
	GTS	Floor			
Futures					
ID x U.S. Dollar spread	9:00	-	-	16:00	16:45/18:00
ID x IGPM spread	9:00	-	-	16:00	16:45/18:00
1-day interbank deposit	9:00	10:00	13:00/14:30	16:00	16:45/18:00
U.S. Dollar	9:00	10:00	13:00/14:30	16:00	16:45/18:00
Mini U.S. Dollar	9:00	-	-	16:00	16:45/18:00
Bovespa index	9:00	10:00	13:00/14:00	17:00	17:15/18:00
Anhydrous alcohol	9:00	14:00	-	14:45	15:45/18:00
Arabica coffee	9:00	9:45	-	15:30	16:00/18:00
Corn	9:00	11:00	-	11:45	12:45/18:00
Sugar	9:00	11:00	-	15:00	15:45/18:00
Options					
1-day interbank deposit volatility	-	10:15	-	16:00	-
U.S. Dollar	9:00	-	-	16:00	-
U.S. Dollar volatility	-	10:15	-	16:00	-
Gold (250 g)	9:00	-	-	16:45	-
Options on futures					
Sugar	9:00	-	-	15:00	-
Arabica coffee	9:00	-	-	17:00	-
1-day interank deposit	9:00	-	-	16:00	-
Forward					
Gold (250g)	-	10:30	13:00/14:30	16:45	-
Mini ID x U.S. Dollar swap with reset	9:00	-	-	16:00	-
Spot					
Arabica coffee	9:00	10:45	-	15:00	-
Gold (250g)	9:00	-	-	16:45	17:00/18:00

Souce: BM&F

[1] For a sample of contracts only.

5.11 OVER-THE-COUNTER MARKET (OTC)

5.11.1 SOMA

SOMA is a BOVESPA affiliate. It manages the alternative investments market in Brazil by means of an electronic trading system (Somatrader) directed to offers made by market makers and associated financial institutions.

5.11.2 CETIP

CETIPNET is the CETIP's Electronic Trading System. It is a screen based, user-friendly electronic portal for trading government and private securities. It also processes many types of auctions for fixed income securities. CETIPNET is a real time WEB Application based on an internationally tested trading platform, which was adapted to the peculiarities of the Brazilian market. Closed trades are automatically matched, checked for business rules, processed and sent for same day settlement without any further inputs (*i.e.*, STP).

The CETIP also registers OTC trades made directly by participants, usually through telephone. Trade registration requires double entry by buyer and seller. Registered transactions are matched and checked for compliance with business rules; they are only accepted if the assets involved are freely available in the custody account of the seller (no short sales).

5.11.3 SELIC

The SELIC registers OTC trades made by participants, who may use the messaging system to connect to SELIC's mainframe computer, or resort to a remote SELIC terminal.

5.12 RECENT TRENDS IN THE MARKET

5.12.1 Home Broker

The Home Broker is a system that allows the investor to safely automate his relationship with his brokerage firm by using a personal computer linked with the Internet, much like the Home Banking systems being offered by banks. In other words, Home Broker technology offers the stock market investor ways to substitute most of the need for telephone contact.

To this end, the BOVESPA has provided its members with the basic conditions to help them develop solutions for the implementation of their own Home Brokers on the Internet. These solutions, in turn, are interconnected with BOVESPA's systems.

Home Broker was created in March 1999 and has been increased since then. Its annual trading value exceeded R$10 billion in 2003, a 152% grow in comparison with 2002.

5.12.2 Novo Mercado

The *Novo Mercado* (the "New Market") is a listing segment designed for the trading of shares issued by companies that voluntarily undertake corporate governance practices and disclosure requirements even more stringent than those already requested by Brazilian laws.

Applicant companies to the *Novo Mercado* should comply with a series of corporate rules, known generically as "good practices of corporate governance", which are more rigid than those required by the current legislation in Brazil. These rules, consolidated in the Listing

Regulation, increase shareholders' rights and enhance the quality of information commonly provided by companies. Additionally, there is a Market Arbitration Panel, which is a safe, fast and specialized alternative for conflict resolution between investors and issuers.

The main innovation of the *Novo Mercado* is that non-voting shares may not be issued. However, there are other important differences:

- The holding of public share offerings through mechanisms that favor capital dispersion and broader retail access.
- Maintenance of a minimum free float equivalent to 25% of total equity.
- The same conditions provided to majority shareholders in the transfer of the controlling stake will have to be extended to all shareholders (*i.e.*, tag along rights).
- Establishment of a single one-year mandate for the entire Board of Directors.
- The annual balance sheet must be made available under US GAAP or IAS GAAP.
- Obligation to hold a tender offer by the economic value criteria should a decision be taken to de-list from the *Novo Mercado.*
- Adherence to disclosure rules on the negotiation of assets issued by the company in the name of the controlling shareholders or the company's management.
- A contract signed between BOVESPA and the company with the participation of the comptrollers and the management ensures the company's acceptance to the *Novo Mercado*, enabling its entrance in this segment.

6 SECURITIES CLEARANCE AND SETTLEMENT CIRCUITS

6.1 ORGANIZATIONS AND INSTITUTIONS

6.1.1 Brazilian Clearinghouse for Settlement and Custody (*Câmara Brasileira de Liquidação e Custódia* - CBLC)

The *Câmara Brasileira de Liquidação e Custódia* - CBLC, a subsidiary of the BOVESPA, is the CSD for equities and some equities derivatives and the clearinghouse for the transactions with securities made at the BOVESPA. Recently it incorporated CLC, the former clearinghouse of the Rio de Janeiro stock exchange.

6.1.2 Clearinghouse for Custody and Settlement (Câmara de Custódia e de Liquidação – CETIP)

The *Câmara de Custódia e de Liquidação* - CETIP is a non-for-profit private organization whose major owners are banks and brokers/dealers, either individually or through the ANDIMA, which holds a controlling stake. Its major participants are commercial and universal banks, savings and loans banks, investment banks, brokers/dealers, institutional and foreign investors, development banks, mortgage companies, leasing corporations, exchanges, insurance companies and commodity brokers.

The CETIP is the CSD and settlement system for some private debt securities, securities issued by state-owned companies, special purpose public securities and swaps. It provides same day settlement in central bank money for all trades it processes. The system also registers borrowing and lending of reserves between financial institutions through repurchase agreements with the borrower issuing certificates of deposit, as well as for State and Municipal Bonds.

Table 21: Main Securities in Custody at the CETIP

	June 30, 2003
	in US$ billions
Swaps	71.2
Investment Fund Quotas	38.4
CDB	30.6
DI	21.8
Debenture	15.9
Treasury Financial Certificate	6
Privatization Currency	5.3
Non Deliverable Forward	3.6

Source: Cetip

6.1.3 *Special System for Settlement and Custody (Sistema Especial de Liquidação e de Custódia* – Selic)

The BCB operates the *Sistema Especial de Liquidação e de Custódia* - Selic, which is the CSD and a DVP model 1 settlement system for the securities issued by the federal government. Its overall management is shared with ANDIMA.

6.1.4 Brazilian Mercantile & Futures Exchange (*Bolsa de Mercadorias e Futuros* – BM&F)

The BM&F operates the Derivatives Clearinghouse (*Câmara de Derivativos*) and the Securities Clearinghouse (*Câmara de Ativos*). The latter system has started its operations recently, and at present it clears and settles government securities only. The related activities are performed through BM&F departments.

6.2 SECURITIES CLEARANCE AND SETTLEMENT PROCESS

6.2.1 Securities Trades at the BOVESPA

In compliance with the new requisites for systemically important payment systems established by the BCB, the CBLC recently moved from a DvP model 2 to a DvP model 3 according to the BIS classification,[31] and settles both the securities and cash legs on a net basis. Settlement of cash leg is in central bank money.

The CBLC coordinates the DVP through a link between the settlement accounts in the STR and the CBLC depository. This link ensures that the delivery of the securities occurs if, and only if, the payment has occurred and vice versa. The transfers are simultaneous, with same day finality.

The CBLC acts as a central counterparty to its clearing members for all securities settled through its systems. The CBLC becomes the central counterparty basically at the time of execution. Trades are channeled into the settlement systems in real time and, once they have been tested against acceptance parameters, they are automatically reported to clearing members. As of trade reporting, CBLC becomes the central settlement agent. The time lag between trade execution and trade reporting is a few minutes.

The final net cash obligations of the clearing agents are calculated and informed at 2:30 p.m. In case a participant is acting as a buyer, it pays the CBLC through its settlement bank, although as the CBLC holds a settlement account at the BCB the funds transfer is made in central bank money. Payments to be the CBLC can be made until 3:30 p.m. Settlement occurs at 3:55 p.m., when the securities are irrevocably transferred from the CBLC's own account to the accounts of the buyers in the same depository.

In case a participant is acting as a seller, the securities must be delivered to the CBLC's securities account until 10:00 a.m. of the settlement date. At the moment of settlement, the CBLC transfer the funds from its settlement account at the BCB to the seller via the settlement bank of the latter.

[31] "Delivery-versus-Payment in Securities Settlement Systems", Committee on Payment and Settlement Systems of the Central Banks of the Group of Ten Countries, Bank for International Settlements, September 1992.

6.2.1.1 Risk Management Mechanisms and Guarantee Schemes

The CBLC's Board establishes operating limits for each market where there is future settlement, applicable to both the total positions outstanding and also those naked positions for each market, investor and intermediary. The objective of these limits is to avoid situations like an excessive concentration of contracts and positions by investors and intermediaries, which might jeopardize the regular, and orderly functioning of the markets managed by the CBLC. These procedures are in accordance with CVM Instruction Number 283 of July 10 1998.

The CBLC also stipulates operational limits for each clearing agent based on an analysis of the clearing agent's financial and economic standing and can be altered at CBLC's sole discretion. The limit set for each clearing agent must be allocated to its clients (brokerage houses and qualified clients). These sub-allocations must be reported to the CBLC.

For these purposes, the CBLC acquired the Risk Watch risk management software, which at present is operational and provides the clearing members with complete risk information.

On the other hand, the CBLC marks-to-market daily the necessary collateral[32] required to cover investor liabilities (*i.e.*, the operational limits) in markets with either future settlement or securities lending to ensure that settlement can take place within the given terms. For this latter purpose, the CBLC uses the "Clearing Members - Theoretical Intermarket Margin System" (CM-TIMS), a risk management system developed by the Chicago Options Clearing Corporation. Some changes have been made to the CM-TIMS to adapt its original model to the features of the Brazilian market.

The CM-TIMS establishes the amount of the margin to be provided by the CBLC's clearing agents in accordance with the risk they effectively incur on the positions held by investors under their responsibility. The assets that are accepted to cover margin calls are cash, government securities, gold certificates, equities listed and traded at the stock exchanges, private sector securities, securities traded on the international markets and bank letters of guarantee, among others. All assets accepted as collateral are also subject to diversification criteria, including limit per investor, limits per issuer and limits on total CBLC exposure

Once these margins are calculated, the CM-TIMS system sends this information to the guarantee system, which checks the availability of the investor's assets to meet the necessary margin. Should available assets be insufficient, additional margin is required. The guarantee system is fully automatic.

The CBLC also has a Settlement Fund based on survivors pay principle. The participants of the Fund are the clearing members and the CBLC itself. Contributions are calculated based on the risk exposure of their positions. The CBLC calculates the clearing members risk exposure stressing the full portfolio (positions in derivatives, operations to be settled and collateral deposited to cover the risk exposure) at a 99% confidence level. Clearing member contributions and the size of the Fund are revised every month. The minimum size is estimated to be R$100 million.

In case of a clearing member default, the assets available to meet losses incurred by the CBLC are applied in the following order:

1. margin collateral lodged by the defaulting clearing member;
2. defaulting clearing member's contribution to the Settlement Fund;

[32] With a 95 percent confidence level.

3. CBLC's contribution to the Settlement Fund;
4. other clearing members' contribution to the Settlement Fund; and
5. CBLC's own net worth.

Regarding auditing, CBLC is audited periodically using a three-tier system as follows: (i) auditing conducted by the system itself; (ii) internal auditing; (iii) external auditing conducted by an independent firm of international reputation substituted every four years.

Finally, the CBLC has a formalized and comprehensive contingency plan, approved by the BCB, which includes the availability of two processing sites. The back up site guarantees business continuity in any circumstances. Its main functionalities are the following: i) mainframes and servers duplication in both sites; ii) network linking each CBLC participant with both sites through different providers of communication services; iii) real time communication between the main site and the back-up site, through optical fiber (hot site back-up); iv) each site is powered by different energy stations; v) several levels of access and password control; vi) secrecy of information through data encryption; vii) full protection against intruders with IDS (Intruder Detection Systems) and firewalls. The time for recovery, is less than 1 hour. According to the BCB's requirements, this system has to be tested at least once a year.

Currently, the CBLC's system processes, daily, a peak of 40,000 settlement operations, but the full capacity of the system is 120,000 operations/day.

6.2.2 Securities Trades at the CETIP

The participants of the CETIP hold individual accounts with full segregation of assets.

The CETIP provides same-day settlement in central bank money for all trades it processes. Transactions at the CETIP may be settled under one of the following categories:

a. Real Time Gross settlement in the STR or by book transfers (*i.e.*, money transfers between participants accounts in a single settling bank) for all primary or secondary markets transactions;
b. Multilateral netting for primary market transactions that involve issuer risk (issuance of assets, redemptions and payment of events); and
c. Bilateral netting for OTC derivatives transactions (settlement at the STR or by book transfer).

The CETIP is not a central counterparty as the vast majority of the transactions are settled under RTGS mode.

6.2.3 Securities Trades at the SELIC

As a result of the launch of the new Central Bank payments system, SELIC is now able to settle all transactions in real time on a gross basis (i.e., according to 'model 1 of Delivery Versus Payment'). SELIC maintains a direct link with the STR, which processes the cash leg of the securities transaction.

Financial institutions that hold reserve accounts at the BCB participate in the SELIC as settlement agents. All other institutions, which are considered indirect participants for what the settlement process is concerned, have to indicate, for each operation, the settlement bank of their choice. Settlement banks set a bilateral operational limit to indirect participants.

The SELIC accepts transactions from 6:30 a.m. to 6:30 p.m. The closing time can be postponed at discretion of the BCB. At the moment of settlement, the system first verifies the existence of the underlying securities and blocks them in the custodian account of the seller until the settlement process is completed. After the blocking, the SELIC immediately orders the transfer of funds to the STR. When the buyer is an indirect participant, the SELIC verifies first whether the amount of the transaction falls within the bilateral limit assigned by the settlement bank.

If sufficient funds are held in the reserve account to be debited, the transaction is finalized at the two ends (securities in SELIC and funds in the STR). Otherwise, the STR rejects the transaction and informs the SELIC in order for the latter to cancel the operation.

To optimize the use of securities, some associations of operations are permitted. In these cases, although settlement is processed operation by operation, when checking for availability of securities and funds net balances are considered. For example, once a group of transactions has been identified, the SELIC first blocks the securities. Then, wherever applicable, it checks that the limit opened in favor of institutions which are not holders of bank reserves accounts involved in the group of transactions (considering the net financial proceeds) is being observed. With these conditions satisfied, the SELIC sends the transactions to the STR for settlement of the cash leg, transaction by transaction, with the indication that it is a group of transactions as well as the respective net financial proceeds to be entered in the reserve account of the settlement bank. If the balance on the bank reserves account of any settling bank is insufficient or there are pending entries in the STR of the same priority level, all the transactions in the group of transactions identified by the SELIC are rejected. If the balances on the reserve accounts are sufficient for the debits ordered, the transactions are settled in the STR one by one, simultaneously, and the SELIC makes the respective entries in the custody positions.

Also to deal with shortages of securities there is a queuing mechanism in place. In the general case, the system allows queuing of the transaction only in the case of insufficient securities. Apart from specific circumstances indicated by the central bank, operations are allowed to stay in the queue for a maximum time of 30 (thirty) minutes, with the time limit of 12:30 p.m. After this time, insufficiency of securities implies immediate rejection of the transaction from the SELIC system.

Each seller may have a (pending) queue for each security it trades. Exceptions to this rule are the public offerings and rediscount transactions, which may remain pending until 5:00 p.m. and 6.30 p.m., respectively. Optimization algorithms of pending items are in place.

6.2.4 Securities Trades at the BM&F Securities Clearinghouse

At present the BM&F Securities Clearinghouse (Clearing de Ativos) settles transactions with government bonds only (it intends to settle other securities in the future). As part of the BM&F, the clearinghouse is subject to the same governance arrangements and access is granted to those that fulfill the requirements stated in the Brazilian law, the rules and resolutions enacted by the CMN and the BCB, and by the BM&F's own bylaws.

The clearinghouse settles transactions made in its electronic trading platform, the SISBEX system. This system allows for anonymous trading as well as for the registration of transactions performed in the OTC market, providing greater transparency and improvement of the price formation process. Eligible transactions include spot transactions, forward transactions, repurchase agreements and securities lending transactions. Given the existence of a structured T+0 lending market, which considerably reduces the risk of settlement failure, short selling is allowed for some securities.

6.2.4.1 Risk Management Mechanisms and Guarantee Schemes

The Securities Clearinghouse operates within risk management mechanisms designed by BM&F's Risks Committee, which is responsible for decisions regarding risk management systems, stress scenarios for margin calculation purposes, concentration and leverage limits and other related subjects.
The settlement process is based on a DVP model where securities and funds are settled on a net basis and finality is achieved during the settlement window that occurs at the end of every trading day. Lending transactions are the only exception to this rule, being settled in real time.
Other tools to manage credit risk include leverage limits, credit scoring and admission criteria for clearing members and other direct settlement participants. The Internal Risk Committee also sets up a forum where participants' creditworthiness and overall leverage can be conveniently assessed.

The market risk of each participant is calculated on a real time basis by the clearinghouse's risk management system. This system calculates the market value of each participant's joint portfolio of transactions and collaterals under current market conditions (mark-to-market) and under a set of stress scenarios defined by the Risks Committee. A negative market value in any of the stress scenarios results in margin calls to make up for the additional market risk in the worst-case scenario.

The liquidity risk management also plays a key role in the clearinghouse's risk management process. Thus, concentration limits and previously committed liquidity facilities is set in order to avoid liquidity problems due to settlement failures.

Finally, operational risk management policies include a comprehensive set of controls and procedures aimed to minimize the probability of human error. All computer systems are replicated in a contingency site and updated in real time in order to avoid disruptions in the settlement process. Moreover, all vital systems, including the risk management system, were internally developed.

6.3 SECURITIES LENDING

The CBLC offers a Securities Lending Service (called "BTC"), which became available in 1997 for equities. At present the service is available both for equities and government bonds

Through this service, the CBLC participants can place their bids/offers for borrowing and lending securities, as well as register securities lending operations agreed bilaterally. Automated securities lending for all securities is mandatory and integrated in the settlement process. The CBLC acts as central counterparty for all securities lending contracts.

Assets eligible for a securities loan transaction must be deposited with the CBLC Fungible Custody Service and be free of liens or encumbrances that impede their circulation.

Access to the service is gained by way of an electronic system and the borrower pays a fee to the lender, along with emoluments for the CBLC. The fee is freely negotiable between the parties. All of the dividends or earnings associated to the security belong to the original owner.

Borrowers must deposit a margin with the CBLC through their respective clearing agent. The amount of the margin is equal to the updated value of the securities plus a percentage. The

amount of the margins is monitored daily and recomposed, if necessary, according to the form and timeframes established by the CBLC.

The securities are released only after the borrower has deposited the necessary margin and the transactions has been authorized by the BTC. Fees and costs are debited to the borrower and credited to the lender on the first day following the end of the loan operation.

Table 22: BTC Open Positions

Company	Type	Number of Securities (x1000)	Value in R$ thousand	Company	Type	Number of Securities (x1000)	7/23/2003 Value in R$ thousand
ACESITA	PN	797,300	1,124	ITAUSA	PN	4,838	11,611
AMBEV	PN	14,890	8,939	KLABIN S/A	PN	174	497
ARACRUZ	PNB	1,814	12,027	LIGHT	ON	4,310	112
BRASIL	ON	999,600	14,334	P.ACUCAR-	PN	594,200	29,454
BRADESCO	ON	1,013,301	9,262	PETROBRAS	ON	339	20,827
BRADESCO	PN	6,360,583	71,620	PETROBRAS	PN	893	51,352
BRADESPAR	ON	10,000	6	POLIALDEN	PN	3,020	1,178
BRADESPAR	PN	1,259,680	831	NET	PN	14,881	5,059
BRASKEM	PNA	9,760	4,202	MARCOPOLO	PN	205	708
BRASIL TELEC	PN	1,069,400	13,817	IPIRANGA	PN	29,702	323
BRASIL T PAR	ON	46,610	749	SABESP	ON	64,870	7,488
BRASIL T PAR	PN	2,520,512	53,662	SADIA S/A	PN	680	1,081
CESP	PN	15,000	111	SUZANO	PN	25	203
COMGAS	PNA	9,520	676	TRACTEBEL	ON	26,600	205
CELESC	PNB	894	420	TELE CTR	PN	144,700	812
CEMIG	ON	5,000	109	TELE CL SUL	ON	126,400	260
CEMIG	PN	121,386	3,324	TELE CL SUL	PN	734,400	1,704
CONFAB	PN	110	517	TELE LEST CL	PN	288,300	124
COPEL	ON	20,000	130	TELESP	ON	3,600	84
COPEL	PNB	1,465,600	12,516	TELESP	PN	21,422	670
CRT CELULAR	PNA	4,023	1,480	TELEMAR N L	PNA	281,150	11,614
SOUZA CRUZ	ON	174	3,886	TELEMIG	PN	1,049,500	3,232
SID NACIONAL	ON	186,949	14,023	TELE NORD	PN	2,813,200	6,555
SID TUBARAO	PN	139,312	7,821	TELEMAR	ON	307,932	7,778
COTEMINAS	PN	7,360	1,442	TELEMAR	PN	7,711,322	262,262
EMBRATEL PAR	ON	215,396	1,501	TRAN	PN	368,582	2,820
EMBRATEL PAR	PN	10,461,435	65,698	TELE	PN	23,010	131
ELETROBRAS	ON	175,500	3,894	TELESP CL	PN	16,092,425	74,508
ELETROBRAS	PNB	2,808,693	67,914	UNIBANCO	ON	19,700	1,588
ELETROPAULO	PN	29,754	754	UNIBANCO	PN	25,900	1,166
EMBRAER	ON	71	784	USIMINAS	PNA	455	7,312
EMBRAER	PN	503	6,961	VALE R DOCE	ON	114	10,413
GERDAU	PN	112	3,765	VALE R DOCE	PNA	599	50,876
GLOBEX	PN	5	44	V C P	PN	90,900	11,422
ITAUBANCO	PN	131,817	26,153	Total			999,924

Source: Bovespa

The BM&F Securities Clearinghouse should implement its securities lending program soon.

6.4 DERIVATIVES CLEARANCE AND SETTLEMENT

6.4.1 BM&F Derivatives Clearinghouse

The Brazilian financial derivatives market has an array of derivatives that have as its underlying instruments equities, equities indexes, interest rates, currency exchange rates and flexible rate sovereign debt. Most of Brazil's financial derivatives are futures. These financial futures trade primarily on the BM&F. However, options based on corporate securities are traded on the BOVESPA. Derivative contracts are cleared within the BM&F by an in-house department, the *Câmara de Derivativos da BM&F*.

The BM&F used to guarantee settlement for its participants prior to the launch of the Brazilian payments system reform and since April 22, 2002 has been settling its net balances on the STR. The BM&F Derivatives Clearinghouse is a central counterparty and becomes liable for the defaulter's positions to the clearing members that have honored their commitments. In this environment, the clearing members must maintain the minimum net working capital established by the Clearing Division of the BM&F. On the operational side they must post collateral into a Clearing Fund and comply with the limits imposed by the exchange to reduce leverage risk.

Table 23: Summary of a Typical Trading Day at the BM&F

Mercado/*Commodity*	Trading	Financial volume	
	volume	in (R$)	in (US$)
Floor trading - 10/07/2004			
Index	36,94	2,680,901,625	940,073,506
Interest Rates	351,48	40,077,987,405	14,053,575,778
Foreign Currency Rates	76,615	10,914,960,812	3,827,393,510
Agricultural	2,613	62,289,784	21,866,812
Floor trading subtotal	**467,648**	**53,736,139,626**	**18,842,909,606**
Electronic trading system (GTS) - 10/07/2004			
Gold	82	780,835	273,804
Index	2,35	168,928,800	59,235,851
Interest Rates	105,077	10,398,955,611	3,646,453,332
Foreign Currency Rates	38,54	2,418,057,825	847,905,823
Sovereign Debt Instruments	531	103,597,267	36,326,975
Agricultural	683	12,654,267	4,439,450
GTS subtotal	**147,263**	**13,102,974,605**	**4,594,635,235**
OTC market - 10/07/2004			
Swaps	8,302	415,062,847	145,544,165
Flexible options	5,179	627,532,951	220,048,022
OTC subtotal	**13,481**	**1,042,595,798**	**365,592,187**
Mini contracts - 10/07/2004			
Index	13,702	98,814,316	34,649,806
Foreign Currency Rates	2,217	31,857,085	11,170,869
Mini contracts subtotal	**15,919**	**130,671,401**	**45,820,675**
GRAND TOTAL WITH MINI CONTRACTS	**644,311**	**68,012,381,430**	**23,848,957,703**
GRAND TOTAL WITHOUT MINI CONTRACTS	**628,392**	**67,881,710,029**	**23,803,137,028**

Source: BM&F websites

Trades are electronically matched on a locked-in basis. In particular, after the trade has been registered - carried out in the trading sessions (either open outcry or electronic) or OTC - the system for managing risk limits checks that the clearing member is within its limit. After the transactions' has been registered and accepted, clearing begins at the level of the constituents: commodity brokers and clearing members (night processing on T+0). Reports are issued on the trade stating the amounts that will form part of the pre-netting. On receipt of these reports, the clearinghouse starts the process of financial settlement (on D+0).

6.4.1.1 Risk Management Mechanisms

The Risk Coverage System is a system of limits and guarantee margins that the BM&F uses to manage settlement risks at the derivatives clearinghouse. This system is divided into two phases.

The first phase (T+0) is that of monitoring, in almost real-time and on a net basis, the consolidated portfolios of the Clearing Members (CMs), which are subject to intraday limits calculated on the assumption that all the risk being undertaken, including new positions opened during the day, will be previously collateralized. In practice, the consolidated portfolios of the CMs will be divided into sub-accounts, each of which will group together the positions of the same commodities broker registered by the same CM. The monitoring of the limits, however, is made in relation to the consolidated portfolios of each one of the sub accounts, taking into account the collateral deposited in their favor. The CMs, on the other hand, distribute the "mutuallized" risk limit and the additional guarantees among the commodity brokers for them to settle.

In the first phase the CMs' risk is covered by a combination of individual collateral postings (defaulters pay) and joint postings, partly based on its guarantor funds (survivors pay), using a stress test model on the portfolio's present value and another one on the portfolio's cash flow if the assets, mainly swaps and flexible options, are to be carried until maturity.

In the second phase (T+1), the risk of the portfolios is calculated on a gross basis depending on each constituent's individual portfolios, and the BM&F notifies the brokers of the amounts of the guarantee margins that their clients must deposit. The margins relating to T+0 transactions are only deposited on the morning of T+1 as the brokers specify their clients' only after the market has closed. The clearinghouse is entitled to alter the scenarios used in calculating guarantee margins at any time. In addition, it may make calls for additional margins from a limited group of participants.

On the other hand, the clearinghouse controls and manages its own exposure to market risks and the credit risk of the deposited collateral. The clearinghouse has a full system to monitor market risk based on a statistical Value at Risk (VaR) model applicable at various levels (e.g., CM, broker, client, group of clients acting together and class of contracts). The system produces back-testing graphs based on comparisons of derivative portfolios' gains and losses with the VaR calculated on the previous day. Collateral postings, on the other hand, are marked-to-market every day, a system of haircuts is applied and there are maximum limits on the issuance of private guarantees.

In addition to the mechanisms mentioned above, there is also a DVP System for the physical delivery of a commodity.

In the event of a default on the obligations assumed to the clearing, the guarantees will be executed in the following order:

1. Those of the debtor;

2. Those provided by third parties;
3. Those provided by intermediaries (brokers);
4. Those provided by Clearing Members acting as registrars.

In the event that such guarantees are insufficient, the BM&F will use the funds and other safeguard mechanisms it has created.

6.5 INTERNATIONAL LINKS AMONG CLEARANCE AND SETTLEMENT INSTITUTIONS

The CBLC has a pledge account at DTCC and accounts in CLEARSTREAM and EUROCLEAR. These are used mainly by foreign investors, which can choose from these alternatives to collateralize their positions in the derivatives market and in the securities lending program. The CBLC is quite conservative in accepting foreign securities as collateral and eligible securities are basically government bonds and bills issued by the government of the USA.

The linkage between the CBLC and the SCLV, a Spanish CSD, is related to custody infrastructure to support the *Mercado de Valores Latino Americano* (Latibex), a system for the trading of Brazilian and other Latin American equities in Spain. Foreign institutions are permitted to keep their securities at the CBLC through local custodians acting as participants. Local custodians, as direct participants of CBLC Depository Service, are fully responsible for all movements instructed in the custody.

7 THE ROLE OF THE CENTRAL BANK IN CLEARANCE AND SETTLEMENT SYSTEMS

7.1 SETTLEMENT

The reserve accounts and the settlement accounts at the BCB are the principal means through which the large value payment transactions are channeled among financial intermediaries and other account holders at the BCB.

Deposit-taking institutions hold reserve accounts for reserve requirement purposes and these accounts are used for settlement purposes as well. Other institutions like the National Treasury and eight clearinghouses hold a settlement account. The latter accounts are usually funded during the day and by the end of the day go back to a zero balance.

7.1.1 Use of Reserve Requirements for Payments Purposes

Reserve requirements and other compulsory deposits can be used during the operating day for payment purposes. Besides reserve requirements on demand deposits, there are four other compulsory deposits in cash imposed on deposit-taking institutions (see Table 22). These funds can be easily transferred to the reserve account where they can be used intraday for payment purposes. As of July 2004, the average amount of the aggregate of all these deposits was approximately R$90 billion.

Table 24: Deposits of Financial Institutions at the BCB

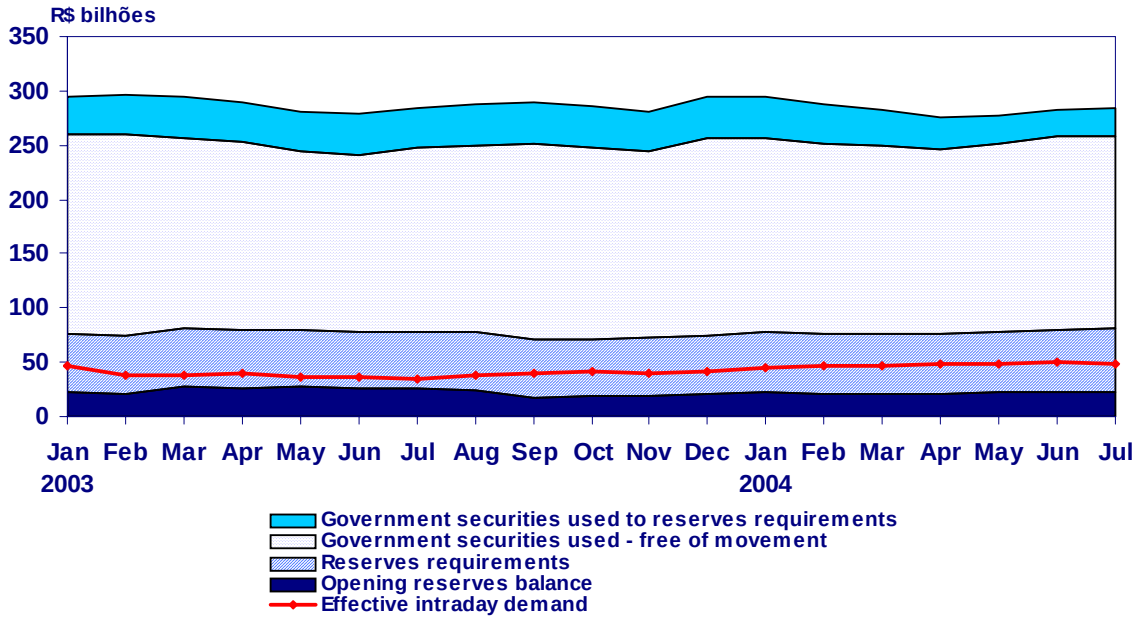
	Jul 2004
	in R$ Billion
Banking reserves - Demand Deposits	30,6
Banking quasi-reserves - Savings Deposits	29,7
Banking quasi-reserves - Time Deposits	25,6
Banking quasi-reserves - Additional Requirements	29,1
Earmarked deposits - SBPE funds (housing finance)	0,4
Sundry Accounts	0,2
(Collection in Federal Public Securities)	-25,6
Total	**90,0**

Source: Banco Central do Brasil

There is a second-level source of liquidity that can be used even overnight. High reserve requirements on demand deposits (45%) together with a 20 percentage points difference between the average balance during the maintenance period and the daily minimum balance provides an aggregate overnight liquidity cushion of about R$6 billion.

A third-level source of liquidity derives from the use of reserve requirements that are invested in securities. Securities can be easily rediscounted intraday with the BCB at no cost, provided they return to the latter by the end of the day. This provides an extra intraday liquidity of R$25 billion.

Chart 7: Source of Intraday Liquidity



Thus, the total liquidity available intraday is estimated in more than R$250 billion. According to the BCB's assessments in this regard, in aggregate terms the system has sufficient liquidity to effect its payments.

7.2 THE OVERSIGHT FUNCTION OF THE BCB

The BCB is currently restructuring its payment system oversight activity. Law 10,214 and CMN regulations have significantly improved the oversight authority of the BCB, providing it with sufficient legal empowerment to carry out effectively its oversight function.

Specifically, by design the BCB role as a provider of payment services will be confined to the management of the STR, the RTGS system, and the SELIC, the CSD for government securities. On the other hand, the BCB oversees a multiplicity of organized payment arrangements such as clearinghouses and its role as overseer of other retail systems has expanded.

7.2.1 Objectives and Policies

The Payment System Law clearly defines the BCB major payment system objectives. The BCB's role, objectives, and policies with respect to the payment system have been publicly disclosed through policy statements. In fact, during the major reform process the BCB was very transparent and held public hearings for each document it intended to issue.

In this regard, the BCB has issued general regulations setting minimum requirements for clearinghouses' risk control mechanisms. The CMN's Resolution 2,882 strictly follows the Core Principles for Systemically Important Payment Systems, except for Principle VI that is

placed in Circular 3,057. The Resolution includes also the DvP principle for securities settlement and expands on the objectives of payments system oversight.

Circular 3,060 empower the BCB to offer funds transfer mechanism operating under a RTGS mode and rule the functioning of banks' reserves account. Publicly disclosed policy statements and technical notes were made available at the BCB website long before they were enforced through regulations. Policy statements covered issues such as operational characteristics of banks' reserve accounts, the STR system, intraday and overnight repo transactions and rediscount operations and the SELIC, among others. Technical notes also contained key-policy decisions like the real-time monitoring of banks' reserve account, no overdraft at the reserve account allowed, interest-free intraday credit, financial institutions must authorize all debits on their reserve account, etc.

As far as technological and operational infrastructure is concerned, a set of documents related to the messaging framework, operational issues and security was elaborated and is also available at the BCB website. It includes message manuals, message catalogues, message models, technical reports on security and networks, as well as presentations on the operational, security and network models, and the SELIC model.

7.2.2 Cooperation with Other Authorities

Law 10,214 frames the cooperation between the BCB and the CVM in payment system matters. A Memorandum of Understanding signed on July 5, 2002 sets forth the framework for the exchange of information and previous consultations between the BCB and the CVM concerning issues related to entities involved in the settlement of financial assets. This Memorandum of Understanding is available at the BCB's website.

The BCB also aims at cooperating with other central banks, other foreign authorities and international organizations.

7.3 MONETARY POLICY AND PAYMENT SYSTEMS

An inflation-targeting regime was introduced in 1999 as a guide for monetary policy. Under this framework, the overnight interest rate (*i.e.*, the SELIC rate) is the operating target of monetary policy, defined by the COPOM, while the target for annual inflation measured by the IPCA, a consumer price index, is set by the CMN. The BCB is responsible for meeting the inflation targets.

Financial transactions performed throughout the financial system converge to the market of bank reserves. The BCB uses its instruments to influence the market of reserves and, by this means, the level of the basic short-term interest rate. More specifically, the operational objective of the BCB is to keep the trajectory of the SELIC rate, an overnight market-based interest rate, as close as possible to the target established by the COPOM. In order to modify the liquidity in the market of bank reserves, the BCB uses three instruments: rediscounts and open market operations, which affect the supply of bank reserves, and reserve requirements, which stabilize the demand for reserves in the short term and, thus, its predictability.

7.3.1 Demand for Reserves

The relevant component of the demand for reserves is the level of reserve requirements defined by the BCB. The reserve requirement on demand deposits is currently set at 45%.[33]

[33] This percentage came into force in early August 2003 after the BCB announced a reduction from the previous level of 60 percent.

As mentioned before, besides the reserve requirements on demand deposits there are other five compulsory deposits over banks' liabilities and even over some banks' assets.

Considering that deposits at the BCB are not remunerated, banks tend to keep them as low as possible. However, the management of bank reserves also considers the liquidity risk arising from the maintenance of a less-then-optimum level of reserves. During the maintenance period, banks must pursue a two-week average balance not less than the reserve requirement and a daily minimum balance (80% of the reserve requirement).

As overdrafts in reserve accounts are prohibited in Brazil, the financing of cash flow deficiencies is made either through the market or with the BCB. Both charge penalty rates, except for intraday rediscount operations with the BCB.

7.3.2 Supply of Reserves

In Brazil, as in any other country, the central bank generally does not have total control over the supply of bank reserves. This so-called autonomous or exogenous variation is generated by changes in the supply of the following elements:

- Net foreign assets: as exchange policy maker and manager of international reserves, the BCB buys and sells foreign currencies in the domestic market, affecting the reserve accounts of its counterparties;
- National Treasury deposits/withdrawals: the daily movement of the account the National Treasury holds with the BCB, its financial agent, provokes oscillations in the level of bank reserves[34];
- Money in Circulation: the predisposition of the population to hold cash reduces the supply of available bank reserves in the system.

Regarding the endogenous variations of the level of bank reserves (e.g. central bank loans to financial intermediaries), the recent changes in the legal framework and the establishment of risk protection mechanisms at all levels of the payment chain have largely insulated the BCB and the implementation of the monetary policy from disturbances originated in the payment system. The scope of Central Bank intervention has returned to the classical definition of "lender of last resort".

An unlimited, cost-free intraday liquidity facility through repurchase agreements with federal securities was nevertheless introduced to meet the higher intraday demand for reserves associated with real-time gross settlement. On the other hand, penalty rates are charged in overnight or longer maturities liquidity facilities to isolate the implementation of monetary policy from spillover effects. Other BCB liquidity facilities of longer maturities are also based on repurchase agreements with haircuts, which virtually eliminates credit risks for the central bank (see Box 5).

[34] Regarding government borrowing from the BCB, the Brazilian Constitution prohibits direct or indirect financing.

Box 5: BCB's Liquidity Facilities: Operational Types, Maturities and Costs

Operational Types

- *Repurchase agreements*: securities eligible for repurchase agreements in the context of a liquidity facility are federal government securities and other credits or credit rights. The purchase price is defined according to BCB criteria, considering, *inter alia*, the present and market values, the credit risk, the maturity date, the liquidity and nominal volatility of the security. Only federal securities are accepted for intraday and overnight repos.
    - *Rediscounts*: eligible assets are securities and credit rights that have been discounted at the financial institution.

Maturities and Costs

- Intraday at no cost.
- Overnight at SELIC rate plus 600 basis points.
- Up to 15 working days, extendable up to 45 working days, at SELIC rate plus 400 basis points.
- Up to 90 days, extendable up to 180 days, at SELIC rate plus 200 basis points.

The framework for open market operations has also been changed. First, the SELIC was turned into a RTGS securities settlement system and monetary policy transactions are now settled instantaneously. In addition, starting February 2003 the BCB can also interfere in the money market by discretionarily performing the so-called "*Operações de Nivelamento*",[35] whereby the BCB's open market operations desk announces to all market participants that is ready to take or offer unrestricted amounts of reserves through overnight repurchase/reverse repurchase agreements at specified penalty rates. These operations target those banks that have not been able to level their reserve positions in the market during the day and, when made available by the BCB, are often performed at the end of the day when the secondary market of reserves is about to close.

7.4 The Role of the Central Bank in Cross-Border Payments

The BCB is a member country of the Latin American Association for Integration (*Asociación Latinoamericana de Integración*, ALADI), a system for the clearing and settlement of multilateral cross-border payments which involves 12 countries of the Latin America (see Section 4.4).

7.5 Pricing Policies

The BCB's pricing policy towards the STR is based on full cost recovery. Basically speaking, the amount of the fee is the value that equals the present value of costs already incurred and expected costs and revenues.

[35] The "*Operações de Nivelamento*" are not be confused with the informal auctions ("go-arounds") the BCB's open market operations desk performs as part of the BCB's overall monetary policy management to offset liquidity fluctuations generated by the central bank cash flow.

Pricing is also used as a mechanism to facilitate the accomplishment of other policy objectives. For example, in credit transfer orders the payer and the beneficiary pay the same fee. Also, in order to stimulate the early input of payment messages and smoothen the flow of payments throughout the day, payment orders issued from 6:30 a.m. and up to 8:00 a.m. are eligible for a 50 percent discount over the basic tariff which is R$0.62.

There are also special tariffs for payment messages sent through contingency procedures. In case a participant is facing technical difficulties that prevent it from sending payment messages, the BCB may activate the contingency mechanisms after receiving a formal request from the participant. The contingency mechanism can be activated totally or partially. Under partial contingency procedures (PCP), participant request the central bank to issue payment messages on their behalf. This facility is available only for a restricted set of messages. Under full contingency procedure (FCP), participants are enabled by the BCB to use the Internet as a contingent network.

The tariffs under contingency procedures are very expensive so as to create an incentive for participants to develop reliable systems. Under PCP each message costs R$3,000, while under FCP the participants are charged the regular price for individual messages but there is a minimum daily fee of R$6,000.

The Central Bank has opted so far not to interfere in the pricing policies of private payment services providers, except by curbing price discrimination between participants or the use of tariffs as a restriction of access.

The RSFN network-pricing policy is based on the data throughput (from 64 Kbps to 2Mbps) contracted by each participant, regardless of the effective use of the network. In other words, participants pay for a fixed capacity, even if they do not use it.

8 SUPERVISION OF SECURITIES CLEARANCE AND SETTLEMENT SYSTEMS

8.1 SECURITIES REGULATOR SUPERVISORY AND STATUTORY RESPONSIBILITIES

There are three regulators of the Brazilian securities market: the CVM, the BCB and the *Conselho Monetário Nacional* (CMN).

The BCB is responsible for granting licenses to market intermediaries and for prudential regulation and supervision of these activities. Also, as part of its payment system duties the BCB is responsible for overseeing clearing and settlement arrangements that can be considered systemically important, such as the operations of the CBLC, CETIP, SELIC and BM&F Securities Clearinghouse. By law and by regulation the BCB is strongly committed to apply the international standards to the systems it operates as well as to those it does not operate

Currently, the BCB has powers to request from any system participant all information deemed relevant to its oversight activities and to collect data from payment and settlement systems through on-site inspections. Application of sanctions has been deeply discussed and probably will be introduced an enforcement regime of fines and other penalties. Nevertheless, moral suasion is regarded as the most effective tool for the BCB.

By contrast, the CVM is responsible for the regulation and supervision of trading practices and trading systems, regulation of broker dealer firms and it has been responsible for examining SROs such as exchanges (e.g. BOVESPA) and securities clearinghouses. Effective March 1, 2002 the CVM was also granted responsibility for the authorization and supervision of all types of pooled investment vehicles.

In practice, the CVM supervises SROs via limited inspections under their law.

8.2 SELF-REGULATORY ORGANIZATIONS SUPERVISORY AND STATUTORY RESPONSIBILITY

The Brazilian stock and future exchanges, OTC stock market association and clearinghouses have a mutual status, and, for this reason, they are considered as self-regulatory organizations (SROs) under Brazilian law.

8.2.1 Stock Exchanges

The stock exchanges are empowered to issue operational and disciplinary regulations and to establish the requirements for market players to become a member of the exchange. The stock exchanges must ensure that the market functions smoothly, and that conditions of equality, security, and fair play exist. In this respect, the stock exchanges must create codes of conduct that stock exchange officials and firms must comply with, as well as control procedures to verify the fulfillment of all laws and regulations dispositions by brokers.

8.2.2 Central Securities Depository

The Central Securities Depositories (CSDs) must oversee that their depositors comply with their operating rules and market regulations. CSDs should assess the fulfillment by direct

depositors of the operational and other rules approved by them. Likewise, the CSDs must adopt measures and establish adequate mechanisms to avoid that the transactions made through the CSD may be a vehicle for any kind of criminal offence or fraud.

APPENDIX: STATISTICAL TABLES

The first series (A) are payment and securities clearance and settlement statistics in Brazil. These tables have been prepared following the Standard Methodology for Country Tables developed by the WHF's Core Team. This Methodology is available at the WHF's web site: www.whpaymentsforum.org. The second series (B) are more general statistics of the financial system.

Starting 2002, the Working Group on Payment System Issues of Latin America and the Caribbean (WGPS-LAC), has been working on a document on Comparative Statistical Tables on Payments and Securities Clearance and Settlement Systems for the Region's countries. For this document, the statistical tables of individual countries are being updated periodically and may be reviewed at the WHF's web site.

Series A

Payments and securities clearance and settlement statistics

Series B

General Financial System Statistics

Table A1: Basic Statistical Data*

	1999	*2000*	*2001*	*2002*	*2003*
Population (in thousands)	167,910	170,143	172,386	174,633	176,871
GDP (in USD million)	536,554	602,207	509,797	459,379	493,348
GDP per capita (in USD)	3,195	3, 539	2,957	2,631	2,789
Interbank Exchange Rate vs. USD					
Year end	1.7890	1.9554	2.3204	3.5333	2.8892
Year average	1.8158	1.8295	2.3522	2.9309	3.0715

Source: Banco Central do Brasil and IBGE.

Table A2: Settlement Media Used by Non-banks

(in USD million, year-end)

	1999	*2000*	*2001*	*2002*	*2003*
Total Notes and Coins issued	16,679	16,689	16,234	14,132	17,778
held by the public	14,506	14,647	14,061	11,986	14,905
Transferable deposits in local currency	20,567	23,377	22,013	18,536	23,046
Households	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Business sector	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Others	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Narrow money supply M1	35,072	38,024	36,074	30,523	37,951
Transferable deposits in foreign currency	…	…	…	…	…
Broad Monetary Aggregate (M4)	308,045	333,483	325,884	228,546	332,293

Source: Banco Central do Brasil.

* The following conventions for notation are used throughout the Statistical Appendix: "n.a." indicates data that are not available; "…" stands for data that are not applicable; "neg" indicates where data are very small relative to other relevant data in the table concerned.

Table A3: Settlement Media Used by Credit/Deposit Taking Institutions

(in USD million, year-end)

	1999	*2000*	*2001*	*2002*	*2003*
Required reserves at the Central Bank [1/]					
In domestic currency	25,346	22,361	27,852	33,768	43,465
In foreign currency	...	...	...	...	...
Of which, usable for settlement: [2/]					
In domestic currency	22,476	18,912	18,099	23,789	26,872
In foreign currency	...	...	...	...	...
Excess reserves at the Central Bank					
In domestic currency	neg	neg	neg	neg	neg
In foreign currency	...	...	...	...	...
Institutions' borrowing from Central Bank	20,006	20,444	10,300	1,130	288
Transferable deposits at other entities.	...	...	...	...	...

[1/] Cash and public bonds.
[2/] Correspond to reserves account balances. Subject to previous procedures, other balances can be used as well.
Source: Banco Central do Brasil.

Table A4: Institutional Framework

(year-end 2003)

	Number of institutions	*Number of branches*	*Number of current accounts*	*Value of accounts (USD million)*
Central Bank	1	9	145	7,565 [3/]
Commercial banks [1/]	164	16.8 [2/]	86,983,508	25,075 [3/]
of which:				
Public banks	14	6.8 [2/]	36,498,912	11,858 [3/]
Private banks	150	10 [2/]	35,072,212	8,884 [3/]
Foreign banks	62	3.3 [2/]	15,412,384	4,333 [3/]
Non-banking financial institutions [4/]	1,987	n.a	n.a	n.a
Postal Office	1	12 [2/]	...	...

[1/] *Includes commercial banks, universal banks with commercial activities and Caixa Econômica Federal.*
[2/] *In thousands.*
[3]/ *US$ Million.*
[4/] *Following International Monetary Fund (IMF)'s definition*.
Source: Banco Central do Brasil.

Table A5: Bank Notes and Coins

(in USD million, year-end)

	1999	*2000*	*2001*	*2002*	*2003*
Total currency issued	16, 678.6	16,688.7	16,233.8	14,131.6	17,777.9
Total notes issued	16, 204.7	16,237.4	15,830.4	13,831.6	17,355.7
of which:					
BRL 100	624.1	629.7	592.1	586.6	631.4
BRL 50	11,288.5	11,420.1	11,353.6	9,816.7	12,282.7
BRL 20 [1/]				476,2	1.007,8
BRL 10	3,371.6	3,294.2	3,089.5	2,292.4	2,664.0
BRL 5	563.8	518.1	455.8	332.3	388.1
BRL 2 [2/]			14.2	79.8	136.5
BRL 1	356.7	375.2	325.2	247.5	245.1
Total coins issued	473.9	451.3	403.4	300.0	422.2
Notes and coins held by banks	2,172.8	2,041.6	2,172.5	2,145.2	2,872.6
Notes and coins circulating outside banks	14,505.8	14,647.1	14,061.3	11,986.4	14905.3

[1/] These banknotes were first issued in 2002.
[2/] These banknotes were first issued in 2001.
Source: Banco Central do Brasil.

Table A6: Cash Dispensers, ATMs and EFTPOS Terminals

(year-end)

	1999	*2000*	*2001*	*2002*	*2003*
Cash dispensers and ATMs					
Number of networks	29	29	29	30	29
National [(1)]	14	14	17	18	16
Regional	15	15	12	12	13
Number of terminals (in thousands)	85.8	97.1	110.7	129.9	137.4
Volume of transactions (in millions)	1,379.3	2,708.6	3,817.1	4,546.3	5,672.4
Value of transactions (in USD million)	62,515.5	114,464.6	182,611.6	211,557.6	230,998.8
EFTPOS:					
Number of networks	7	7	7	6	6
Debit cards	3	3	3	3	3
Credit cards	4	4	4	3	3
Number of terminals (in thousands) [2/]	278.3	349.8	480.7	628.3	874.9

[1/] Considers as "national" those networks that operate in at least 2/3 of the Brazilian States.
2 Data are estimated and preliminary.
Sources: Commercial banks, debit and credit card operators.

Table A7: Number of Payment Cards in Circulation

(in millions, year-end)

	1999	*2000*	*2001*	*2002*	*2003*
Cards with a cash function (in thousands)	73,268.6	92,322.7	107,879.9	121,128.7	149,150
Cards with a debit/credit function (in thousands)					
of which:					
Debit cards (in thousands)	74,374.9	81,151.1	91,665.6	106,060.6	162,784.8
Credit cards (in thousands)	23,432.1	29,400.1	35,376.6	40,761.2	44,035.7
Cards with a cheque-guarantee function	n.a	n.a	n.a	n.a	n.a
Retailer and fidelity cards	n.a	n.a	n.a	n.a	n.a
Stored-value cards (in thousands)	0.1	1.0	1.6	9.1	70.7

Sources: Commercial banks, debit and credit card operators.

Table A8: Indicators of Use of Various Cashless Payment Instruments

(volume of transactions, in millions)

	1999	*2000*	*2001*	*2002*	*2003*
Cheques issued [1/]					
in local currency	2,612.1	2,637.5	2,600.3	2,397.3	2,246.4
in foreign currency	...	...	...	...	...
Payment cards					
debit	106.9	205.8	326.2	451.3	661.6
credit	553.2	705.9	825.0	969.6	1,083.5
stored-value (in thousands)	n.a	n.a	n.a	n.a	n.a
Paper-based credit transfers					
customer initiated	...	...	...	...	...
interbank / large value	...	...	...	...	...
Paperless credit transfers					
customer initiated [2/]	624.2	694.5	763.7	844.7	904.9
interbank / large value [3/]	...	...	...	1.2	13.5
Direct Debits	219.5	322.5	385.8	438.2	627.8
E-money	n.a	n.a	n.a	n.a	n.a

[1/] Excludes "on us" cheques.
[2/] Correspond to DOCs, "bloquetos de cobrança" and TED issued by customers.
[3/] Correspond to STR and CIP payments (2002), excluded TED issued by customers.
Sources: Banco Central do Brasil, commercial banks, debit and credit card operators and ABECS.

Table A9: Indicators of Use of Various Cashless Payment Instruments

(value of transactions, in USD billion)

	1999	*2000*	*2001*	*2002*	*2003*
Cheques issued [1/]					
in local currency	958.8	987.0	801.4	571.6	355.7
in foreign currency	...	...	...	...	…
Payment cards					
debit	2.8	5.0	6.0	6.7	9,6
credit	18.6	24.0	23.5	22.1	25.1
stored-value	n.a	n.a	n.a	n.a	n.a
Paper-based credit transfers					
customer initiated	...	...	...	...	
interbank / large value	...	...	...	...	
Paperless credit transfers					
customer initiated [2/]	1,255.8	1,041.3	1,039.5	1,000.3	1,200.2
interbank / large value [3/]	...	...	...	11,245.0	12,708.0
Direct Debits (in USD million)	24.0	29.8	30.5	26.3	31.7
E-money	n.a	n.a	n.a	n.a	n.a

[1/] Excludes "on us" cheques.
[2/] Correspond to DOCs, " bloquetos de cobrança" and TED issued by customers.
[3/] Correspond to STR and CIP payments (2002), excluded TED issued by customers.
Sources: Banco Central do Brasil, commercial banks, debit and credit card operators and ABECS.

Table A10: Payment Instructions Handled by Selected Interbank Transfer Systems

(volume of transactions, in millions)

	1999	*2000*	*2001*	*2002*	*2003*
STR					
In domestic currency	...	...	...	5.3	13.2
In foreign currency	...	...	...	...	...
COMPE					
In domestic currency	3,236.3	3,332.0	3,364.1	3,238.0	3,129.3
In foreign currency	...	...	...	...	...
CIP - Sitraf					
In domestic currency	...	...	...	neg	11.3
In foreign currency	...	...	...	...	...

Source: Banco Central do Brasil.

Table A11: Payment Instructions Handled by Selected Interbank Transfer Systems

(value of transactions, in USD billion)

	1999	*2000*	*2001*	*2002*	*2003*
STR					
In domestic currency	...	...	...	11,555.1	13,334.4
In foreign currency	...	...	...	...	...
COMPE					
In domestic currency	2,215.6	2,029.2	1,842.6	1,252.9	678.0
In foreign currency	...	...	...	...	...
CIP - Sitraf					
In domestic currency	...	...	...	0.2	265.7
In foreign currency	...	...	...	...	...

Source: Banco Central do Brasil.

Table A12: Securities and Accounts Registered in Central Securities Depositories

	1999	*2000*	*2001*	*2002*	*2003*
SELIC					
Number of securities registered (in millions)	12,163	11,688	9,475	7,087	5,477
Number of participants	2,481	3,058	3,789	4,510	4,961
Number of accounts [1/]	11,552	11,640	15,376	21,122	22,101
Number of foreign investors	n.a	n.a	n.a	n.a	188
CETIP					
Number of securities registered	175,969	170,819	192,492	250,114	286,390
Number of participants	2,545	3,145	3,703	4,524	4,682
Number of accounts [1/]	n.a	n.a	n.a	6,805	7,182
Number of foreign investors	...	8	7	19	20
CBLC					
Number of securities registered (in billions)	6,674	12,534	12,689	10,209	10,131
Number of participants	257	331	315	278	251
Number of accounts [2/]	56,968	89,225	92,946	101,352	106,600
Number of foreign investors	1,925	1,883	1,852	2,246	2,470

[1/] Each participant has its own account and some participants have more than one account (free movement and special movement accounts).

[2/] CBLC maintains accounts at customer level.

Source: Banco Central do Brasil and settlement service providers.

Table A13: Securities Holdings in Central Securities Depositories
(in USD million)

	1999	*2000*	*2001*	*2002*	*2003*
SELIC					
Government Securities	325,580.0	399,395.2	458,501.2	234,120.7	338,646.8
CETIP [1/]	**114,896**	**126,617**	**120,031**	**96,762**	**178,260**
Corporate Bonds	87,968	103,660	102,831	84,860	163,809
Government Securities	26,928	22,957	17,200	11,902	14,451
CBLC [1/]	**74,215**	**105,926**	**84,466**	**59,735**	**112,272**
Stocks	74,215	105,926	84,210	59,196	111,509
Corporate Bonds	n.a	n.a	256	539	764

[1/] Does not include derivatives contracts.
Source: Banco Central do Brasil.

Table A14: Transfer Instructions Handled by Securities Settlement Systems
(volume of transactions, in millions)

	1999	*2000*	*2001*	*2002*	*2003*
SELIC					
Government Securities	1,250.16	1,700.54	1,901.41	2,146.56	2,209.01
CETIP [1/]	**1.24**	**1.15**	**1.27**	**1.39**	**2.21**
Corporate Bonds	1.18	1.10	1.24	1.34	1.47
Government Securities	0.06	0.05	0.04	0.05	0.74
CBLC [1/]	**3.91**	**5.56**	**6.58**	**6.98**	**6.98**
Stocks	3.91	5.56	6.58	6.98	6.98
Corporate Bonds	...	...	...	neg	neg

[1/] Does not include derivatives contracts.
Source: Banco Central do Brasil and settlement service providers.

Table A15: Transfer Instructions Handled by Securities Settlement Systems

(value of transactions, in USD billion)

	1999	*2000*	*2001*	*2002*	*2003*
SELIC					
Government Securities	27,604.4	29,331.2	37,579.9	38,335.4	41,986.1
CETIP [1/]	**7,293**	**3,708**	**2,966**	**2,487**	**1,256**
Corporate Bonds	5,551	3,336	2,937	2,467	826
Government Securities	1,742	373	28	20	431
CBLC [1/]	**73**	**140**	**171**	**79**	**67**
Stocks	73	101	64	47	67
Corporate Bonds	…	…	neg	neg	neg
Government Securities	n.a	38	107	32	n.a

[1/] Does not include derivatives contracts.
Source: Banco Central do Brasil and settlement service providers.

Table A16: Participation in SWIFT by Domestic Institutions

		1999	*2000*	*2001*	*2002*	*2003*
Domestic SWIFT users		n.a.	85	88	87	85
Of which:						
	Members	34	33	32	28	28
	Sub members	n.a.	27	28	27	25
	Participants	n.a.	25	28	32	32
Memo:						
SWIFT users worldwide		6,991	7,294	7,457	7,600	7,644
Of which:						
	Members	2,230	2,307	2,265	2,217	2,322
	Sub members	2,825	3,038	3,143	3,129	3,094
	Participants	1,936	1,949	2,049	2,254	2,228

Source: SWIFT.

Table A17: SWIFT Message Flows To / From Domestic Users

	1999	*2000*	*2001*	*2002*	*2003*
Total messages sent	2,981,718	3,312,411	3,289,574	3,504,009	3,659,652
Of which:					
Category I	1,132,022	1,278,714	1299,259	1,221,737	1,308,198
Category II	549,802	552,483	520,351	469,927	438,979
Total messages received	3,572,838	3,731,859	3,857,542	4,059,573	4,435,866
Of which:					
Category I	1,134,846	1,137,342	1,220,090	1,296,307	1,443,178
Category II	154,561	147,455	155,907	184,799	227,009
Memo: Global SWIFT traffic	1,015,105,357	1,298,668,103	1,533,906,047	1,817,443,994	2,047,564,360

Source: SWIFT.

Table B1: Number of Financial Institutions

	1999	*2000*	*2001*	*2002*	*2003*
Deposit-taking institutions, from which:					
Multiple or universal banks with commercial bank capabilities	150	145	132	121	116
Commercial Banks [3]	25	28	28	23	23
Savings banks	1	1	1	1	1
Credit cooperatives	1,183	1,235	1,333	1,374	1,399
Non-bank financial institutions, from which:					
Multiple or universal banks without commercial banks' capabilities	18	18	21	22	24
Investment banks	21	19	20	23	21
Development Banks	5	5	4	4	4
Consumer finance companies	41	42	39	46	45
Mortgage companies [1]	19	18	18	18	18
Other financial intermediaries, from which:					
Brokers/dealers [2]	416	398	374	351	334
Mutual investment funds	1,578	1,994	2,222	2,586	2,598
Leasing companies	79	77	71	65	57

1/ Includes *Associações de Poupança e Empréstimo e Sociedades de Crédito Imobiliário.*
2/ Includes *Sociedades Corretoras de Títulos e Valores Mobiliários, Sociedades Distribuidoras de Títulos e Valores Mobiliários e Corretoras de Câmbio.*
3/ Includes branches of foreign banks.
Source: Banco Central do Brasil

Table B2: Number of Checking, Savings and Time Deposit Accounts

(year-end, in millions)

	1999	*2000*	*2001*	*2002*	*2003*
Checking accounts	48.9	55.8	63.2	45.6	45.9
Savings accounts	41.6	45.8	51.2	58.2	62.4
Time Deposits	n.a	n.a	n.a	n.a	n.a

Source: Banco Central do Brasil.

Table B3: Assets

(year end, in R$ million)

	1999	*2000*	*2001*	*2002*	*2003*
Deposit money banks - Total assets	527,015	588,465	704,830	845,404	921,828
Deposit money banks - Foreign assets	29,960	31,035	38,331	44,851	55,563
Other banking institutions - Total assets	105,261	125,105	138,082	182,743	195,323
Other banking institutions - Foreign assets	117	404	353	812	1,237
Non-banking financial institutions - Total assets	24,022	24,228	23,698	20,637	20,858
Non-banking financial institutions - Foreign assets	104	118	18	37	30

Source: Banco Central do Brasil.

Table B4: Deposits

(year end, in R$ million)

	1999	*2000*	*2001*	*2002*	*2003*
Demand deposits	36,794	45,712	51,079	65,495	66,584
Time deposits	94,722	89,936	107,609	137,559	144,242
Savings deposits	110,732	111,744	118,701	139,642	143,057

Source: Banco Central do Brasil.

Table B5: Equity
(year-end, in R$ million)

	1999	*2000*	*2001*	*2002*	*2003*
Deposit money banks	132,225	133,957	163,177	192,426	227,773
Other banking institutions	20,936	22,515	65,269	81,988	89,044
Non-banking financial institutions	16,465	16,750	20,005	22,588	23,038

Source: Banco Central do Brasil.

Table B6: Loans
(year-end, in R$ million)

	1999	*2000*	*2001*	*2002*	*2003*
Total credit to businesse	70,107	102,622	124,165	136,261	136,126
Capital financing	15,123	16,542	22,110	29,501	32,920
Current account overdraft financing	10,264	15,008	19,860	20,247	21,926
Stock finance	1,159	2,201	3,594	4,277	4,695
Vendor	4,548	6,470	6,802	7,852	7,877
Hot money	689	583	462	609	535
Discount operations	3,998	6,137	6,659	6,520	7,714
Mortgage	-	2,676	786	678	551
ACC (anticipation on exports receivables)	14,429	17,305	20,648	25,007	25,764
Export notes	215	204	75	243	186
Others	19,682	24,564	29,148	29,384	25,811
Total credit individuals	17,127	51,336	69,941	76,165	88,099
Current account overdraft financing	5,067	6,517	8,141	8,545	8,919
Personal credit	9,534	16,381	23,233	24,553	30,494
Credit card financing	-	2,802	3,391	4,839	6,475
Mortgage	-	3,103	1,903	1,780	1,381
Consumer finance	5,294	18,919	28,495	31,512	35,331
Others	2,526	3,614	4,777	4,937	5,498
Total credit	87,234	153,958	194,106	212,426	224,225

Source: Banco Central do Brasil.

Table B7: Issuances in International Markets

(in USD thousand)

	1999	*2000*	*2001*	*2002*	*2003*
Euro Bonds					
Euro Bond 2001	606,000	565,123	0	0	0
Euro Bond 2002	808,000	753,497	711,475	0	0
Euro Bond 2003	505,000	470,936	444,672	497,999	0
Euro Bond 2004	505,000	470,936	444,672	513,285	619,130
Euro Bond 2005	-	706,403	1,111,680	1,296,830	1,564,250
Euro Bond 2006	707,000	659,310	622,541	720,694	869,309
Euro Bond 2007	-	706,403	667,008	785,640	947,648
Euro Bond 2009	-	-	-	523,760	631,765
Euro Bond 2010		706,403	667,008	785,640	947,648
Euro Bond 2011	-	-	889,344	1,047,520	1,263,530
Eurolira 2017	390,442	364,050	343,725	405,730	489,395
DM 2007	515,384	480,580	453,749	535,588	646,033
DM 2008	386,538	360,435	340,312	401,691	484,524
Global Bonds					
Global 2001	750,000	750,000	0	0	0
Global 2004	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Global 2005	-	-	1,000,000	1,000,000	1,000,000
Global 2006	-	-	1,500,000	1,500,000	1,500,000
Global 2007	-	1,000,000	1,500,000	1,500,000	1,500,000
Global 2008	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Global 2008-A	-	-	-	1,250,000	1,250,000
Global 2009	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Global 2010	-	-	-	1,000,000	1,000,000
Global 2010-B	-	-	-	-	1,500,000
Global 2011	-	-	-	-	1,250,000
Global 2012	-	-	-	1.250.000	1,250,000
Global 2013	-	-	-	-	1,250,000
Global 2020	-	1,000,000	1,000,000	1,000,000	1,000,000
Global 2024	-	-	2,150,000	2,150,000	2,150,000
Global 2024-B	-	-	-	-	824.702
Global 2027	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000
Global 2030	-	1,600,000	1,600,000	1,600,000	1,600,000
Global 2040	-	5,157,311	5,157,311	5,157,311	5,157,311
Samurai Bonds					
Samurai 2001	292,195	261,579	0	0	0
Samurai 2003	-	523,158	457,050	504,756	0
Samurai 2003-A	-	-	1,523,500	1,682,520	0
Samurai 2006	-	523,158	457,050	504,756	559,836
Samurai 2007	-	-	609,400	673,008	746,448
Outros					

	1999	*2000*	*2001*	*2002*	*2003*
Eurolibra 2007	242,612	224,348	218,090	241,727	269,055
Paralelo Florim 2002	182,964	170,609	161,084	0	0
Paralelo Franco 2002	153,669	143,292	135,292	0	0
Paralelo Xelim 2002	146,509	136,615	128,988	0	0
Total	**15,941,313**	**27,486,146**	**34,045,952**	**38,280,457**	**42,022,586**

Note: Maturity date is indicated in the name of the security.

Source: Ministério da Fazenda.

LIST OF ABBREVIATIONS

ABBC	Associação Brasileira dos Bancos Comerciais
ABBI	Associação Brasileira de Bancos Internacionais
ANDIMA	Associação Nacional das Instituições do Mercado Financeiro
ASBACE	Associação Brasileira de Bancos Estaduais
BB	Banco do Brasil S.A.
BCB	Banco Central do Brasil
BM&F	Bolsa de Mercadorias e Futuros
CBLC	Companhia Brasileira de Liquidação e Custódia
CETIP	Central de Custódia e Liquidação
CMN	Conselho Monetário Nacional
COPOM	Comitê de Política Monetária
CVM	Comissão de Valores Mobiliários
Febraban	Federação Brasileira de Bancos
RSFN	Rede do Sistema Financeiro Nacional
SELIC	Sistema Especial de Liquidação e de Custódia
SILOC	Sistema de Liquidação Diferida de Ordens de Crédito Interbancárias
SISBACEN	Sistema de Informações Banco Central
SITRAF	Sistema de Transferência de Fundos
SPB	Sistema de Pagamentos Brasileiro
STR	Sistema de Transferência de Reservas

GLOSSARY

In January 2001, the Committee on Payment and Settlement Systems (CPSS) of the Bank for International Settlements (BIS) published a combined glossary for payments and securities clearance and settlement terms. The Glossary can be found on the BIS web site: www.bis.org. The Western Hemisphere Payments and Securities Clearance and Settlement Forum (WHF), on the basis of the glossary produced by the CPSS, also produced a uniform glossary of terms in Spanish and in Portuguese in order to avoid unnecessary proliferation of terminology and definitions. The latter can be found at the WHF's web site: www.whpaymentsforum.org.

Below are some terms not mentioned in that Glossary and/or that are peculiar to the Brazilian context:

Bloquetos de cobrança: documents used to pay bills in Brazil. A customer receiving a bloqueto de cobrança takes it to a bank and pays in cash or writes a check to authorize payment through his account. Alternatively, the customer can input the bar-coded numbers at a home-banking station. Banks charge the payee an interbank fee to use them. They are cleared and settled electronically and when it is the case the physical item is truncated at the collecting bank.

Correspondentes bancários: according to CMN Resolutions 1764 and 1865, banks can extend the provision of banking services such as tax collection or payment of public utilities through a wider network by celebrating service agreements with small businesses such as pharmacies and grocery stores.

Medida Provisória: piece of law that can be issued by the President of the Republic. It used to be considered applicable by default, i.e., even in the absence of a specific Congressional vote of acceptance. In several instances such pieces of law were rolled over for several successive years before being approved by Congress and converted into law. In 2002, the Congress restrained presidential legislative powers by making Provisional Acts really provisional. Although it continues to be enforceable immediately after issuance, it is now automatically revoked if not approved by the Congress in 60 days from the date of issuance.

SELIC Rate: basic interest rate reflecting transactions in the secondary market for government securities. It is the target rate in the current monetary policy framework. It is the weighed average of overnight inter-bank operations with reserves. The calculation comprises go-arounds, repurchase and reverse repurchase agreements. It reflects the cost of reserves in the interbank market.