

Overview of Brazilian Payments System

José Antonio Marciano

Annual Payments Week – 2007

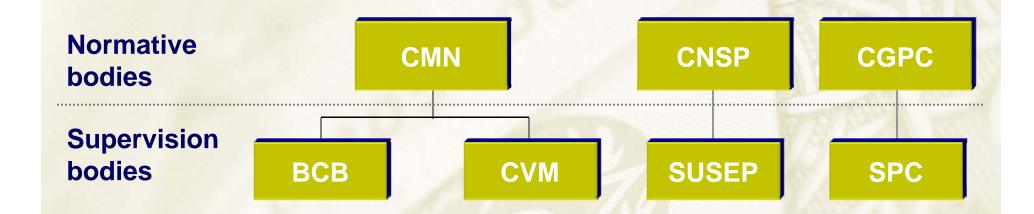
Bahia, Brasil

November 27-30, 2007

Agenda

- The Brazilian Payments System Main Features
 José Antonio Marciano
- RSFN (National Financial System Network)
 Carlos Magno Teixeira Freitas
- STR Brazilian RTGS System Operational Core Guidelines Rodrigo Collares Arantes
- Monitoring of Bank Liquidity
 Flávio Túlio Vilela

The Brazilian Financial System – Main Government Bodies



- CMN Conselho Monetário Nacional (National Monetary Council)
- CNSP Conselho Nacional de Seguros Privados (National Private Insurance Council)
- CGPC Conselho de Gestão da Previdência Complementar (Management Council of Complementary Pension)
- BCB Banco Central do Brasil (Brazilian Central Bank)
- CVM Comissão de Valores Mobiliários (Brazilian Securities and Exchange Commission)
- SUSEP Superintendência de Seguros Privados (Private Insurance Superintendency)
- SPC Secretaria de Previdência Complementar (Complementary Pension Secretariat)

The Brazilian Financial System - Composition

Institutions	Supervision
• banks (commercial, universal, investment, development, savings)	ВСВ
• credit cooperatives	ВСВ
consumer finance companies	ВСВ
• savings and loan associations	ВСВ
• brokers/dealers	BCB/CVM
mortgage companies	ВСВ
leasing companies	ВСВ
• stock exchanges	CVM
commodities and futures exchanges	CVM
• insurance companies	SUSEP
• payment systems	ВСВ
securities clearing and settlement systems	BCB/CVM
• mutual investment funds	BCB/CVM
private closed pension funds	SPC
• private open pension funds	SUSEP

The Banco Central do Brasil (BCB) - Mission

To Maintain Stability of Currency

- Inflation target regime → Copom (Monetary Policy Committee)
- BCB operates traditional monetary policy instruments
 - Open market operations
 - Reserve requirements
 - Discount window (rediscount)

To Maintain Stability of Financial System

- Authorization of financial institutions → minimum capital requirements
- Regulation → prudential rules
- Supervision
- Intervention and extrajudicial liquidation
- Lender of last resort → standing facilities
- Oversight of the payment system



The BCB – Institutional Arrangement



Deban – Department of Banking Operations and Payments System

Conep – Division of Research and Studies

Diati – Division of Securities Settlement Systems

Cotec - Division of Technical Advisory

Diban – Division of Banking Operations

Disip – Division of Payment Systems

Gemon – Division of Monitoring



The BCB – The Role in National Payments System

- BCB oversees the payments system as a whole
 - Funds transfer systems
 - Securities clearing and settlement systems
 - Derivatives clearing and settlement systems
 - FX transactions clearing and settlement systems
- As catalyst, BCB participates in some banking industry committees
 - "Grupo Compe" (Compe's Committee) → focus on issues related mainly to cheque
 - "Comitê Gestor" (Payment System Management Committee)

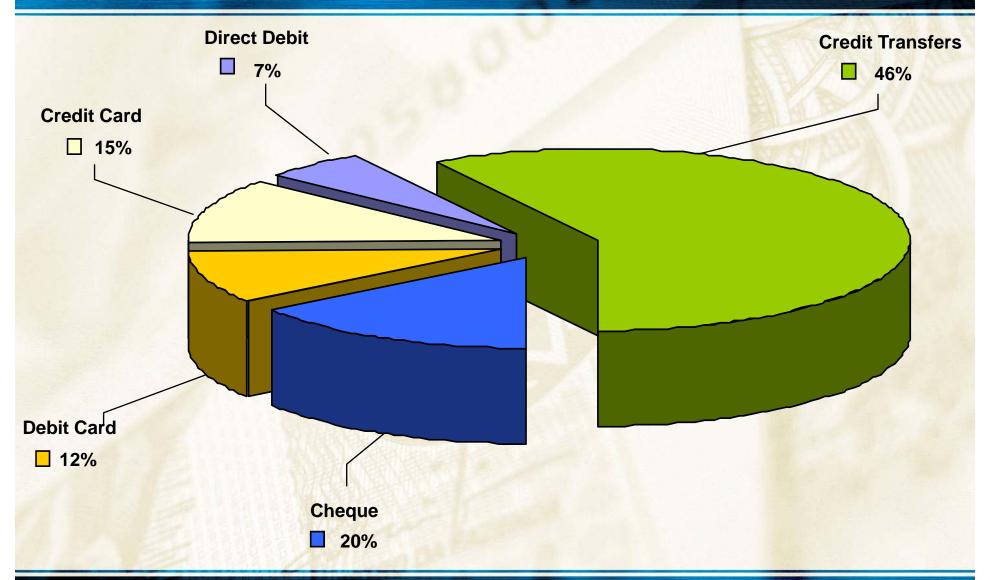
The BCB – Recent Initiatives in National Payment System

- Strengthening of the payments system legal basis (2001)
- Implementation/operation of a RTGS system (2002)
- BCB has been acting in order to increase efficiency in retail payment systems
 - It carried out a comprehensive report on the Brazilian retail payment system (2005)
 - It published a directive regarding the payment card industry (2006)
 - It established an agreement with two competition authorities (2006) aimed at carrying out some studies on the payment card industry

The Brazilian Payment System – Numbers

- 136 banks
 - 18.5 thousand banking branches
 - 73.0 thousand banking correspondents (includes some 6,000 branches of the "Banco Postal", which act as Bradesco's banking correspondents)
- 146.9 thousand ATM
- 1,944.9 thousand POS
- 85.2 million credit cards
- 174.5 million debit card
- 5 funds transfer systems
- 4 securities settlement systems
- 1 settlement system dedicated to derivatives transactions
- 1 settlement system dedicated to FX transactions
- 2 central counterparties (CBLC and BM&F)

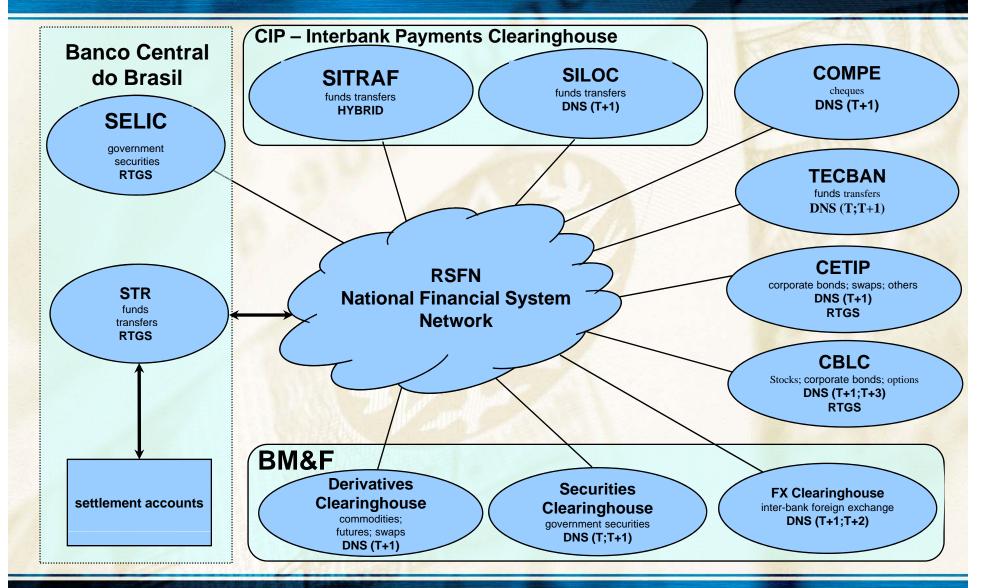
Non-cash Payment Instruments – Relative Use Volume (2006)



Clearing and settlement infrastructure Main features

- All clearing and settlement systems settle in central bank money
- Two funds transfer systems offering intraday finality (STR and SITRAF)
- High level of automation (STP is used in all systems)
- DVP is observed in all securities settlement systems
- Clearing and settlement arrangements are mainly based on cooperation

Settlement Infrastructure



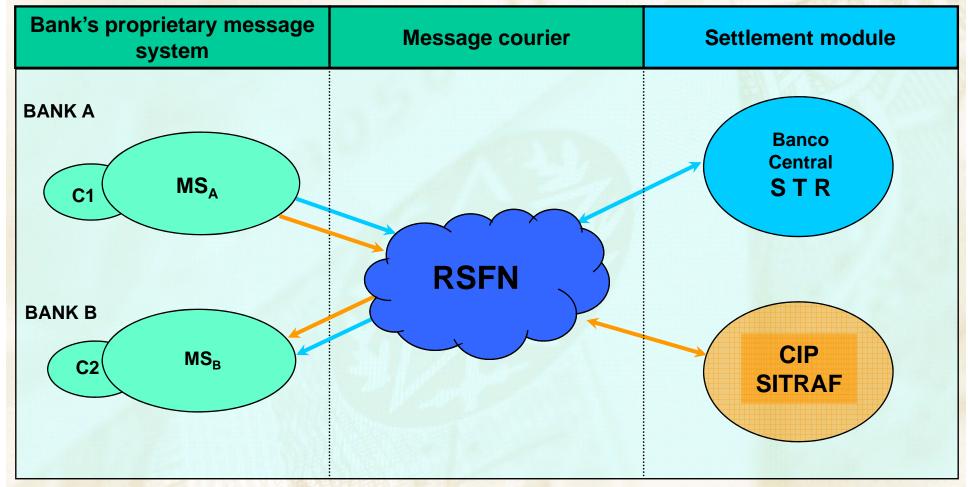
STR – The Central System

- Focus on monetary market transactions and other interbanking transfers carried out by banks on their own
- No overdraft is allowed
- Queuing facility (4 priority levels)
- Intraday credit facility
 - Repo transactions (government securities)
 - Unlimited value and free of charge
- Optimization routines -> only to avoid gridlock situations

SITRAF – A RTGS-like System

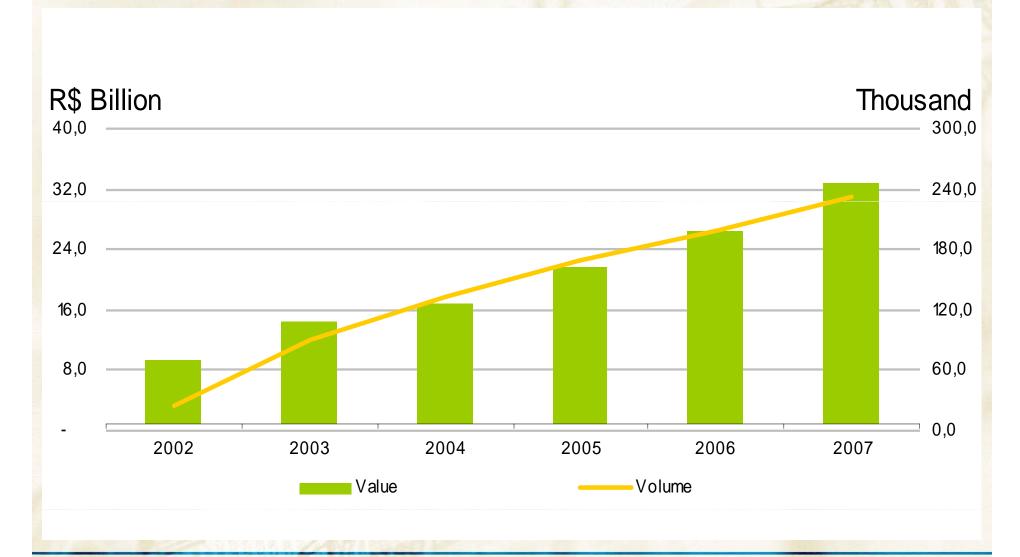
- Operated by the private sector
- Focus on client funds transfers
- No overdraft is allowed
- Queuing facility
- Use of liquidity saving mechanisms in continuous basis
- Approach is similar to the one used by New Chips

STR – SITRAF – Single Technical Platform



Banks can route client funds transfer either to STR or SITRAF using the same technological platform (bank message system and message courier)

STR – SITRAF – Client Credit Transfer Settled in Real Time Daily Average Turnover



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RSFN – National Financial System Network

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Agenda

- Main Features
- Technology and Communications Infrastructure
- Management and Maintenance
- Messaging

RSFN – Main Features

- The National Financial System Network RSFN is a private multiservice network based on the TCP/IP protocol
- It supports the message flow between its participants, to the extent of the Brazilian Payment System – SPB
- It admits other services besides the exchange of financial messages
- High availability, performance, security and reliability
- Contingency arrangements



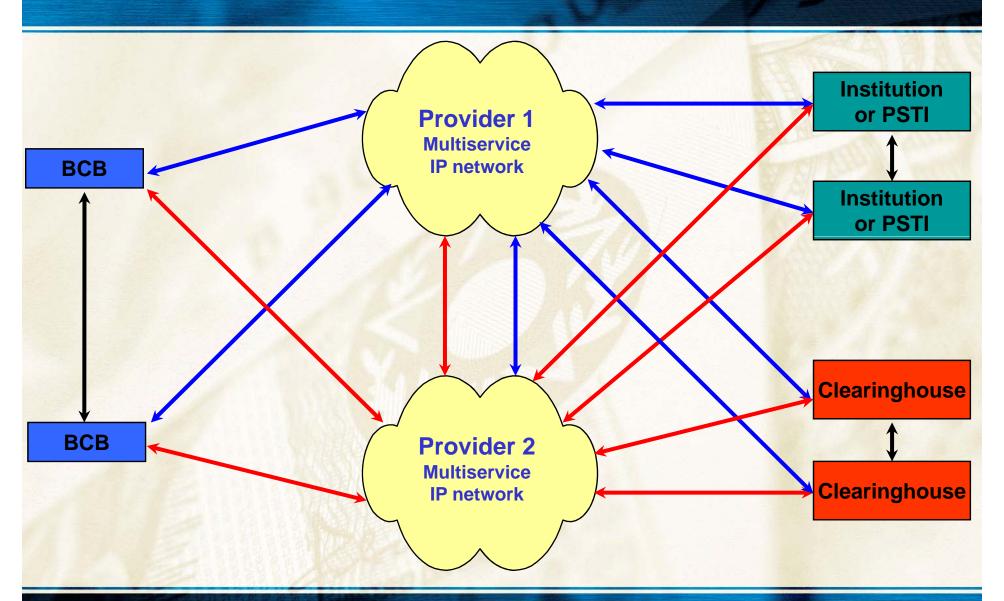
Technology and Communications Infrastructure – I

- Two independent telecommunication networks (providers)
- Network architecture with fully redundant components
- Redundancy of data processing centers is required for every participant
- Possibility of participation through an IT Service Provider PSTI
 - Institutions of financial conglomerates
 - Independent institutions
- Quality of Service QoS
- Second-level integrated network management

Technology and Communications Infrastructure – II

- Queue management software (MQ Series)
- Independent queues for each participant
- Cryptography is used
- Digital identity certificate issued by a Certificate Authority that is part of the Brazilian Public Keys Infrastructure – ICP-Brasil
 - BCB is not a Certificate Authority
- Messages with a single identifier
- Two distinct environments (production x test)
- Contingency plans

Technology and Communications Infrastructure



Management and Maintenance – Technical Groups

- Related Themes
 - Network
 - Security
 - Messaging
- Composition
 - BCB Coordinator
 - Banks' Associations
 - Clearinghouses
 - National Treasury Secretariat
- Functioning
 - Two ordinary meetings per year
- Documents
 - RSFN Technical Manual
 - SPB Message Security Manual
 - SPB Message Catalogue

Management and Maintenance – Access and Costs

- Access
 - Controlled by the BCB
 - Only institutions and entities holding settlement accounts at the BCB are admitted in the network
 - All participants must meet the technical and infrastructure requirements
 - New participants are only admitted after succeeding testing period supervised by the BCB
- Maintenance costs
 - Shared amongst financial institutions and clearinghouses

Messaging – Characteristics

- eXtensible Markup Language XML syntax
- Message catalogue
 - Messages are organized in groups according to the related business
 - Individual XML Schema Definition files for each event
- Complimentary documents reference codes lists
- STP Straight Through Processing

Messaging - STP - Main Uses - I

- Funds transfers
 - Operations involving clients
 - Operations involving only financial institutions
- Coins and banknotes
 - Maintenance (withdrawals and deposits)
 - Custody control
- Intraday credit and overnight credit
 - Contracting and settlement
 - Conversion of intraday credit into overnight credit

Messaging - STP - Main Uses - II

- Monetary policy operations
 - Open market transactions
 - Outright purchase and sell
 - Repurchase e reverse repurchase agreements
 - Association with intraday credit operations
 - Reserve requirements
 - Collection of information
 - Deposits
 - Withdrawals
 - Control and tracking of deposits



Messaging - STP - Main Uses - III

- National Treasury operations
 - Tax collection
 - Funds transfers from the tax-collecting agents (financial institutions) to the National Treasury
 - Funds transfers from the National Treasury financial institutions, and occassionally to clients
- Relationship between the BCB and market institutions
 - Charge of fees
 - Settlement of BCB operations in the monetary and foreign exchange markets

Messaging - STP - Main Uses - IV

- Operations of central depositories, clearinghouses and settlement service providers
 - Securities registration
 - Transactions registration
 - Sending of gross and net results to the participants and to the BCB
 - Settlement of clearinghouses' results
 - Tracking of financial settlement by the BCB
- Other operations
 - Connectivity tests
 - Activation of digital certificates
 - Sending of files

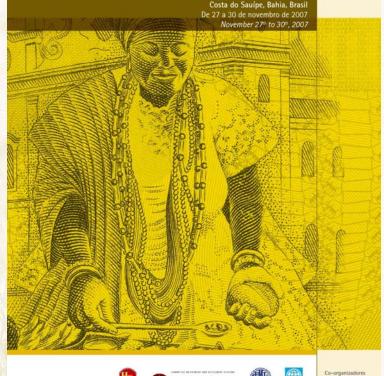




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The Brazilian RTGS System - STR Operational Core Guidelines

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- Accounts at the Banco Central do Brasil (BCB)
- STR Brazilian RTGS-system
- Oversight Tools

Accounts at the BCB

- Mandatory holders: commercial banks, universal banks with a commercial portfolio, savings banks, and systemically important clearing and settlement systems
- Non-mandatory holders: investment banks, universal banks without a commercial portfolio and other clearing and settlement systems
- No overdraft allowed

Accounts at the BCB – Access Criteria

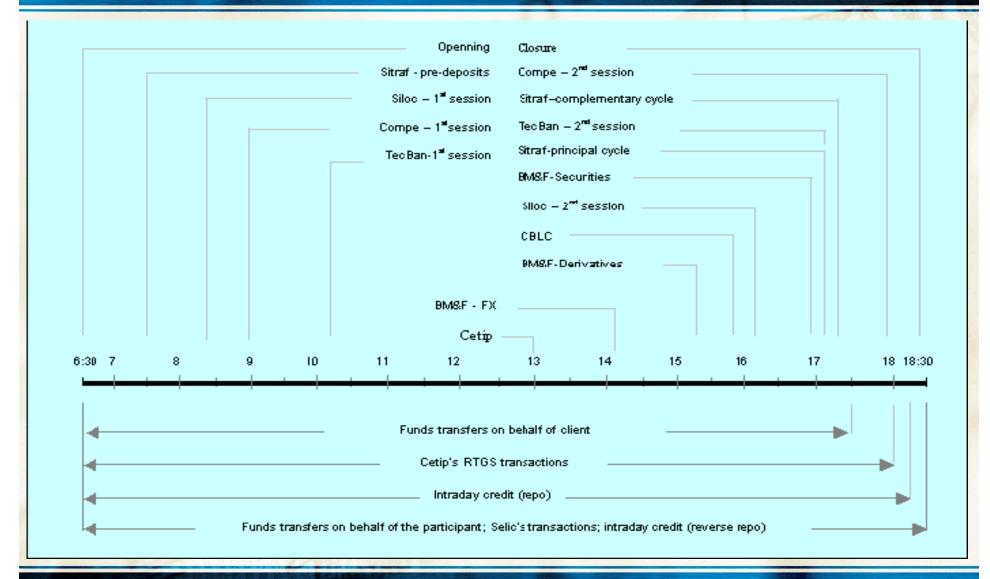
- Legal/regulatory
- Operational/technological
 - Link to RSFN National Financial System Network
 - Acquirement of digital certificate
 - Infrastructure tests
 - System tests
 - Daily operation simulation tests
 - Capacity tests
 - Contingency tests

STR – Participants

- BCB
- 130 banks (commercial, universal and investment)
- 5 clearinghouses
- National Treasury Secretariat STN



STR - Daily Schedule



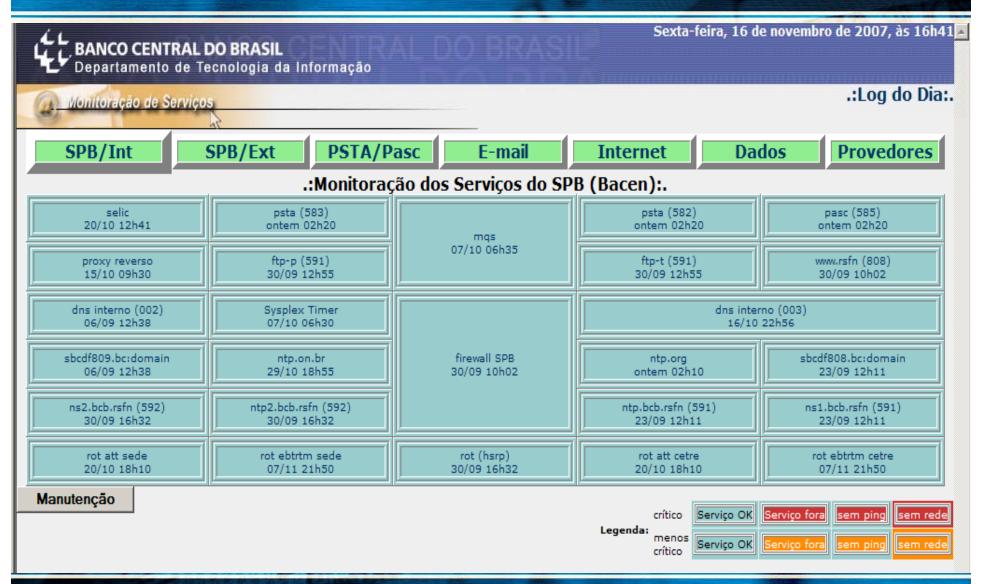
STR - Contingent Access - By Internet

- No restriction to the type of payment
- Possibility of verifying payment by account statement
- Payments are charged per transaction according to a fee model depending on processing schedule
- Periodic tests in "real-time processing" are not charged
- Single fee R\$6.000,00 / US\$3.450,00

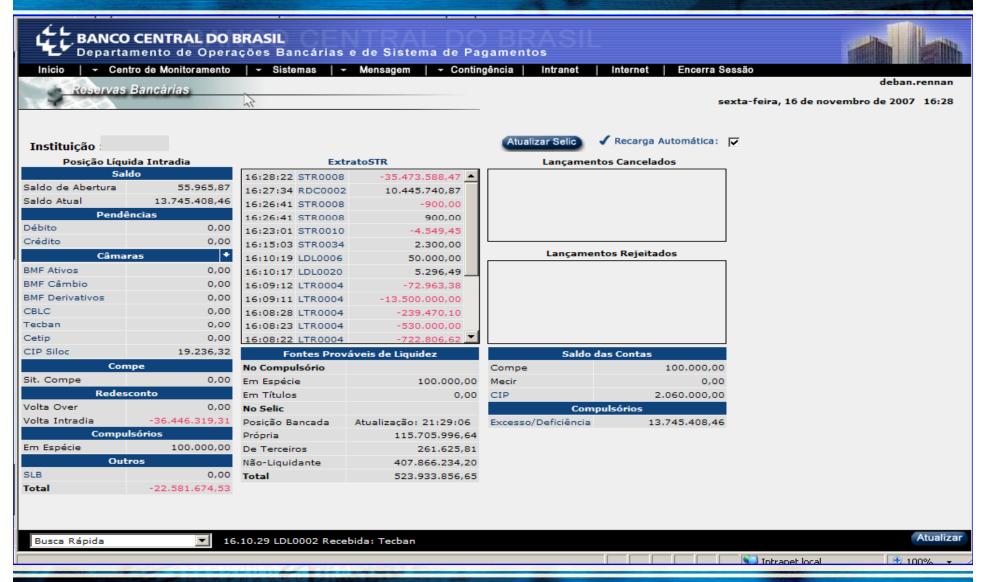
STR - Contingent Access - By Telephone

- Available for critical payments (debit net positions stemming from clearinghouses) only
- BCB makes the payment using information received from the participant by telephone
- BCB replaces any clearinghouse to conclude the settlement cycle (one click)
- Fee per payment R\$3.000,00 / US\$1.700,00

Oversight Tools - Monitoring Systems' Connections



Oversight Tools – Monitoring of Participant Positions



Oversight Tools – Monitoring of Queued Messages Simulated



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Deban - Avi_

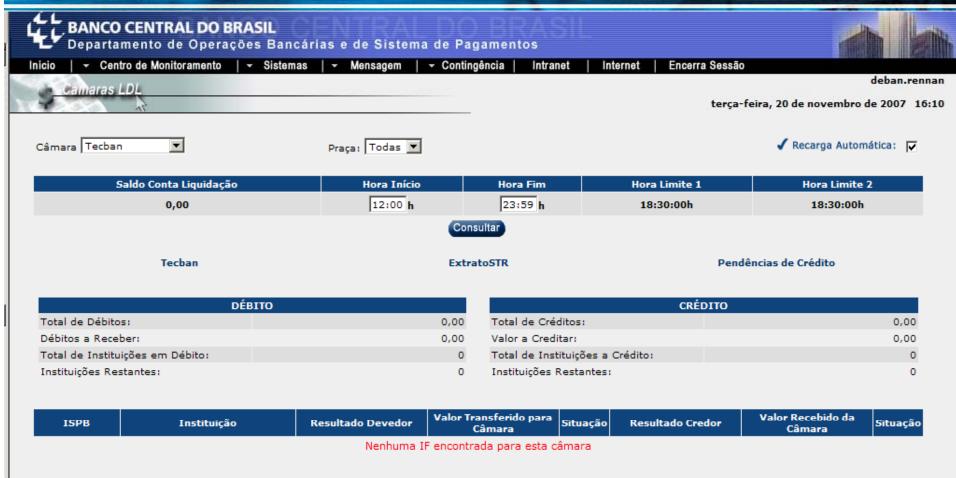
Busca Rápida

Atualizar

100%

Intranet local

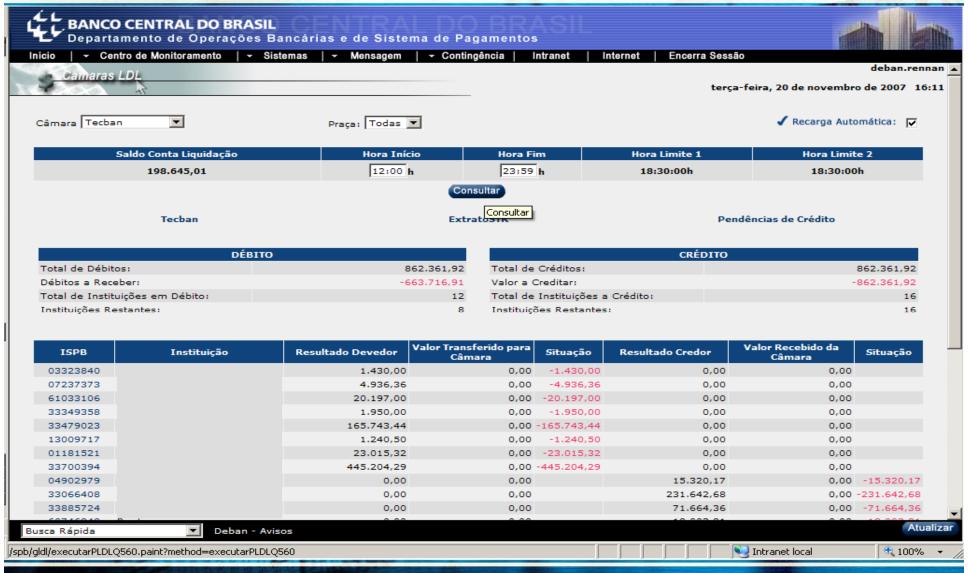
Oversight Tools – Monitoring of Clearinghouse Settlement Cycle – I



Oversight Tools – Monitoring of Clearinghouse Settlement Cycle – II



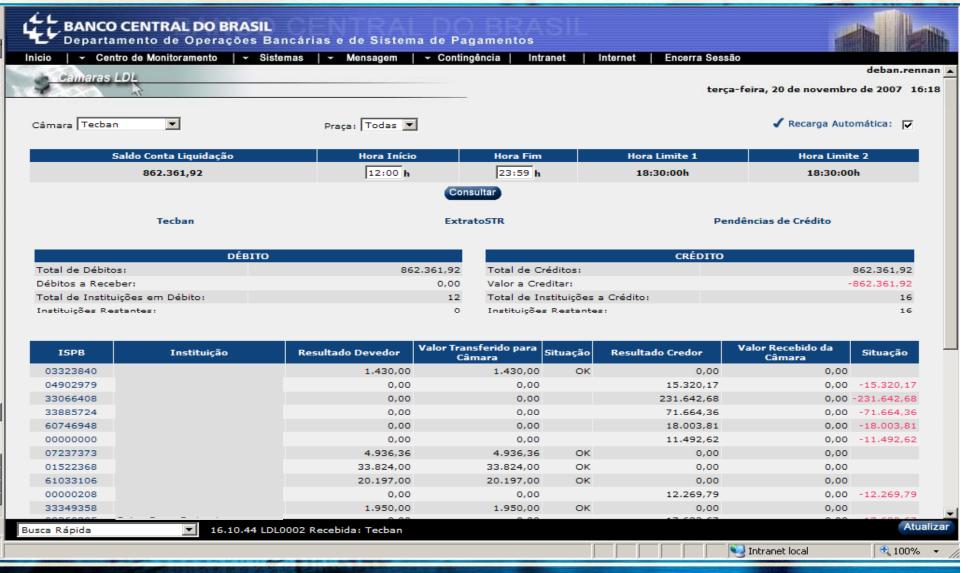
Oversight Tools – Monitoring of Clearinghouse Settlement Cycle – III



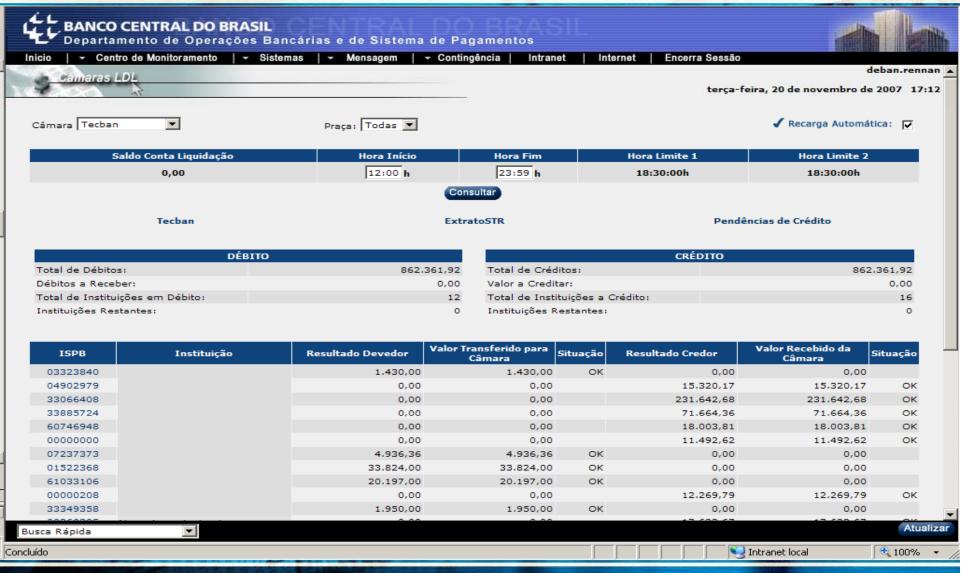
Oversight Tools – Monitoring of Clearinghouse Settlement Cycle – IV



Oversight Tools – Monitoring of Clearinghouse Settlement Cycle – V



Oversight Tools – Monitoring of Clearinghouse Settlement Cycle – VI



STR - Project of Modernization - Goals

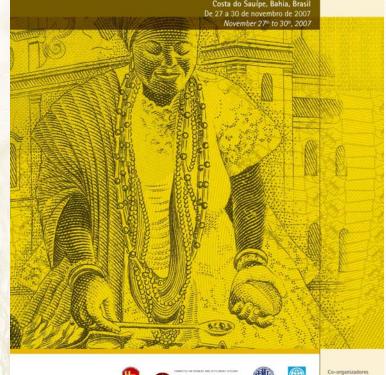
- to extend the direct access to other institutions
- to reduce concentration of critical payments in a few number of banks
- to increase oversight on STR participants
- to increase competitiveness and efficiency in the payment services market
- to offer new functions to STR participants



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Monitoring of Bank Liquidity

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Division of Banking Operations – Main Activities

- Monitoring of Banks' Intraday Liquidity
- Monitoring of Reserve Requirements

Intraday Liquidity – Main Sources

- Free federal public securities (bank's portfolio), which can be converted to cash in the monetary market or through BCB standing facilities
- Bank's federal public securities held at BCB, which are used to meet reserve requirements related to time deposits (they can be released during the day and converted to cash just in case)
- Funds held at BCB, which are used to meet reserve requirements
 - Reserve account
 - Other accounts

Main Sources of Intraday Liquidity for Banks - Aggregate **Amounts**



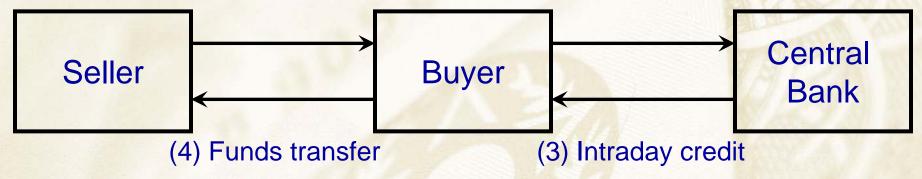
- federal public securities held at BCB to meet reserve requirements
- free federal public securities (bank's portfolio) funds held at BCB other than those held in the reserve account
- funds held in the reserve account

Intraday Liquidity – BCB's Standing Facilities Repurchase Agreements (repo)

- Maturity
 - Intraday
 - Overnight
- Types
 - Non-associated: real time gross settlement of funds and securities
 - Associated: liquidity-saving facilities whereby a bank negotiates securities with a third party and the BCB. The banks' purchase and sell operations are processed according to their net result, but are settled in a gross basis.
- Processing
 - Fully automatic (bank requests the transaction through an electronic message)
 - Automatic conversion of intraday repo into overnight repo just in case

Intraday Liquidity – Associated Operations

- a) Securities purchase associated with intraday Repo
 - (1) DVP securities transfer
- (2) Cash-driven Intraday Repo



- b) Settlement of intraday repo associated with securities sale
 - (4) DVP securities transfer

(3) Repurchase



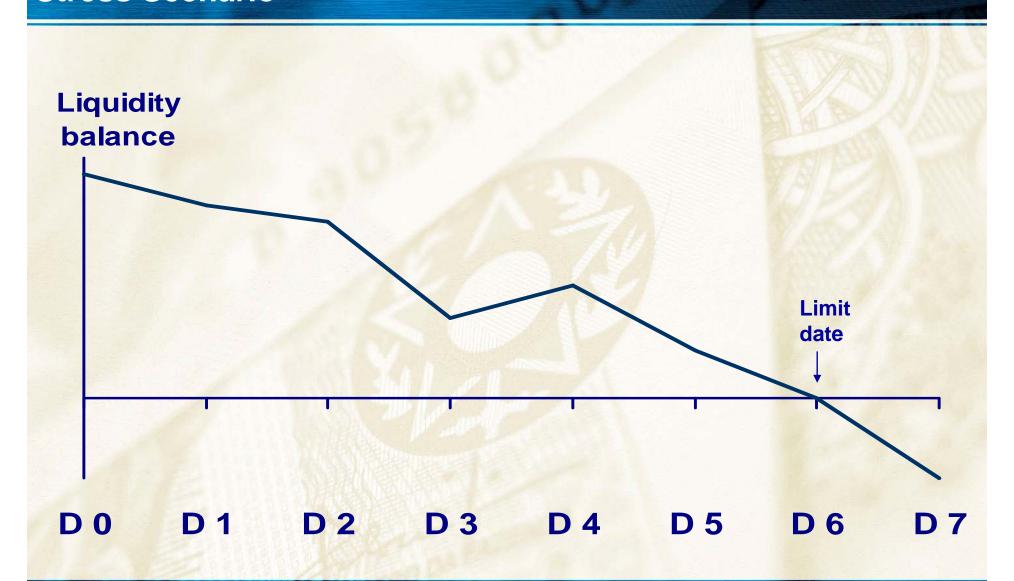
Intraday Liquidity – Use of Funds Held at BCB

- Funds held in the reserve account can be freely used throughout the day to settle obligations
- Funds held in other accounts can be transferred to the reserve account by request of the holder (request is made through electronic message and processing is fully automatic)
 - The recomposition of the required reserves is mandatory and the banks must command it by the end of the STR operating period.

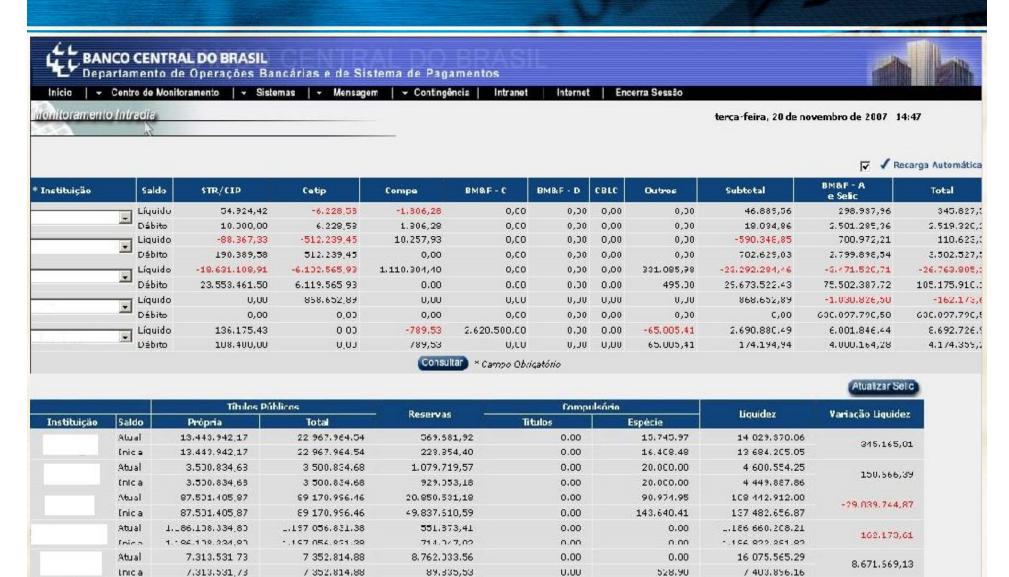
Intraday Liquidity - Banks' Liquidity Monitoring

- Identification of the most liquid assets
 - Balance in the reserve account
 - Funds held in other accounts
 - Federal public securities deposited in the Special System of Settlement and Custody (Selic)
- Identification of the liabilities presenting the shortest maturity
 - Securities issued by banks in the interbank market
 - Customers' time deposits

Intraday Liquidity – Monitoring of Banks Short Term Liquidity Stress Scenario



Intraday Liquidity - Online Monitoring of Banks

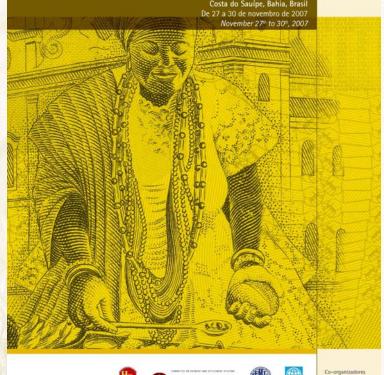




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