Santiago, Chile

November 2011

TESOURO NACIONAL

Assets and Liabilities Management: The Brazilian Experience

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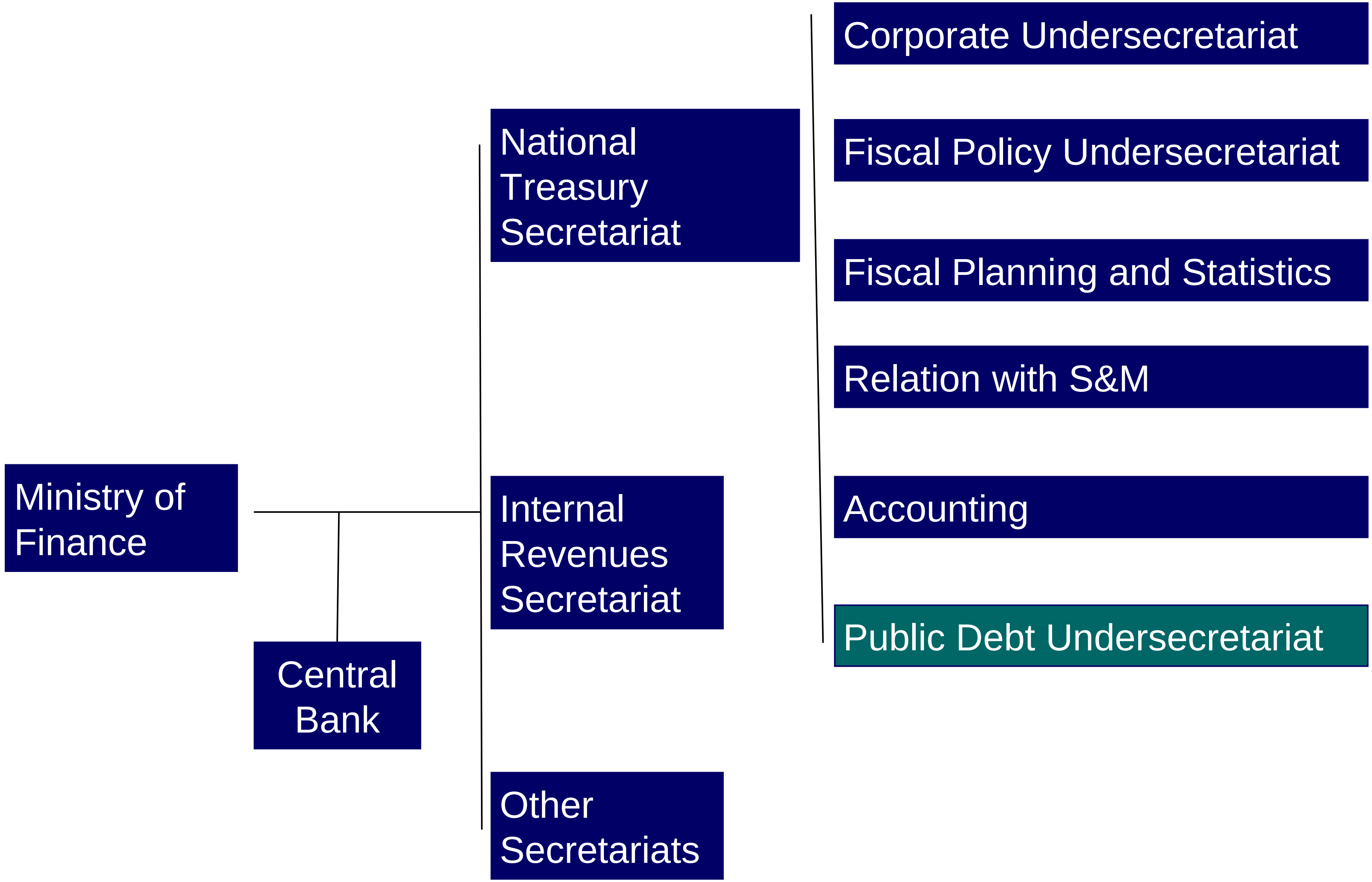
National Treasury of Brazil

Brazilian Public Debt Institutional Structure

ALM Evolution: the Brazilian Experience

Brazilian National Treasury Institutional Structure



Brazilian National Treasury Institutional Structure

- Public Debt Undersecretariat (DMO)
  - Strategic Planning Dept
    - Risk Management
    - Economic Scenarios
    - Investor Relations
    - Research and Development
  - Operations Department
  - Control Department

Brazilian National Treasury Institutional Structure

Public Debt Undersecretariat

Operations Department

Development of short term strategies related to securities issuances in the domestic and external markets; domestic market auctions and external issuances; structured operations.

Strategic Planning Department

Development of medium and long term strategies, risk management, macroeconomic scenario, and investor relations.

Control Department

Registering, controlling, payment and monitoring domestic and external debt budget. Public debt official statistics.

Brazilian Public Debt Institutional Structure

ALM Evolution: the Brazilian Experience

1st Phase - Central Government Asset and Liability Management - ALM

- basic ALM objective: change the debt composition to immunize the government balance sheet, through the balance between the characteristics of assets and liabilities, reducing its sensitivity to shocks in the economic and financial variables

- Annual Borrowing Plan 2002: guidelines based on an Asset and Liability Management model, a tool to map and manage risks of the public debt portfolio

- Focus on refinancing and market risks (risk mitigation policies)

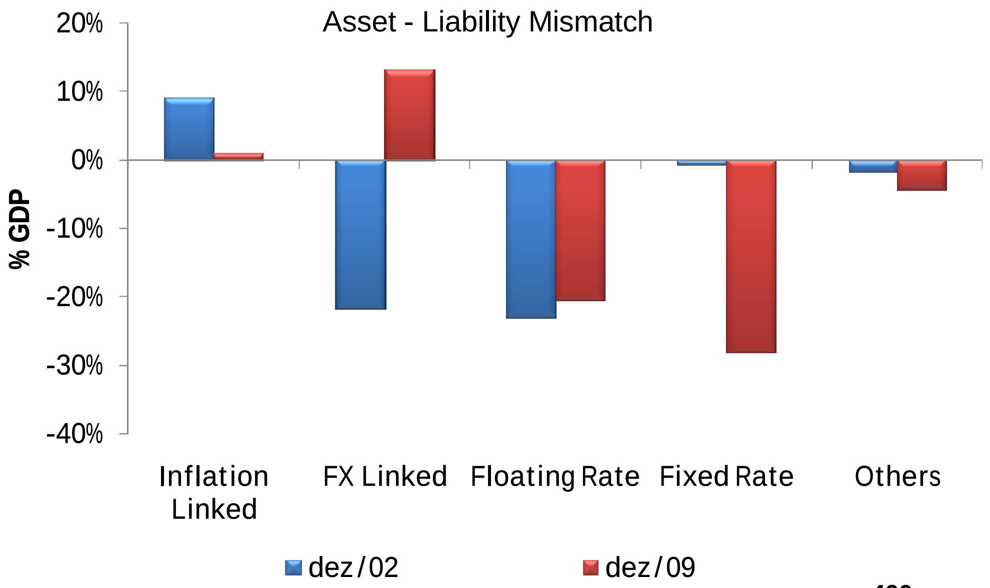
- Regular reports, identifying the mismatches between assets and liabilities, in terms of indexes (risk categories), average time to maturities, cash flows and percentage of debt outstanding on the short term, including the simulation on the future evolution of these mismatches.

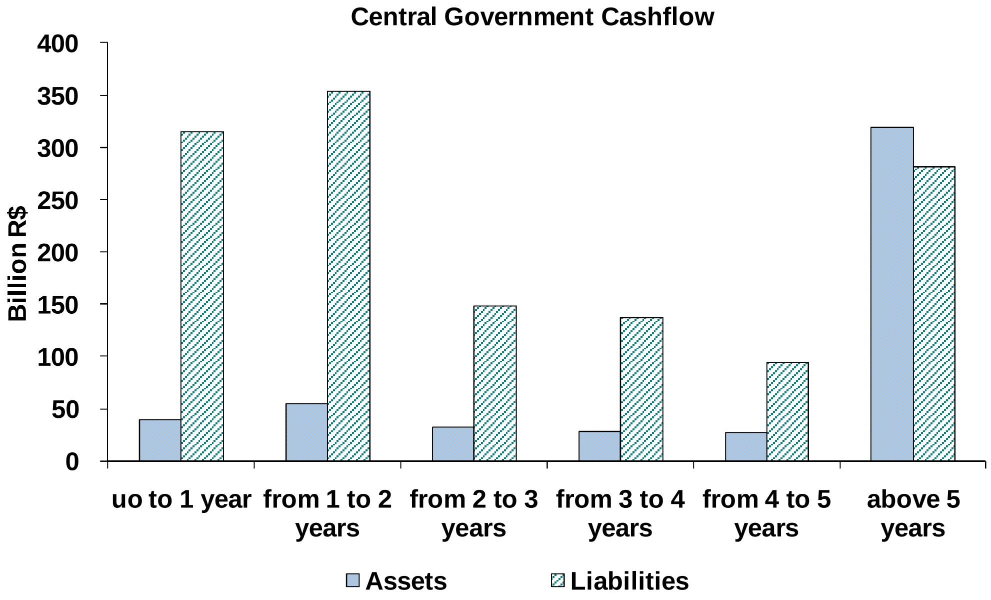
Central Government Assets and Liabitiies – Main itens by index (risk factor)

INDEX	TN/BC	ATIVOS	R$ bi	INDEX	TN/BC	PASSIVOS	R$ bi	Desc.	% PIB
TOTAL			1.081,22				2.241,29	(1.160,07)	-39,3%
Índice de preços			**450,48**	**Índice de preços**			**407,55**	**42,93**	**1,5%**
IGP				**IGP**					
	TN	LEI Nº 9.496/97	315,22		TN	NTN-C	**58,73**		
	TN	MP 2.185	50,01		TN	Outros IGP	16,20		
	TN	EMPRÉSTIMO BACEN / BANERJ - MP 2.179	10,90						
	TN	ROYALTIES - ESTADOS	8,96	**IPCA**	TN	NTN-B	**332,62**		
	TN	Outros IGP	65,38						
Câmbio			**448,99**	**Câmbio**			**103,00**	**345,98**	**11,7%**
	TN	DMLP - RESOLUÇÃO Nº 98/92 DO SENADO FEDERAL	6,32	**Dívida denominada**			**92,70**		
	TN	LEI Nº 7.976/89 - MF 030	0,27	Dólar	TN	Bradies	0,22		
	TN	Outros	43,72		TN	Globais	59,93		
					TN	Contratual	22,78		
	BC	Operações de SWAP (Câmbio)	0,00						
	BC	Reservas Internacionais Líquidas	398,67						
				Euro	TN	Euro Bonds	9,78		
				Dívida Referenciada			**10,30**		
					TN	Fixa	10,30		
					TN	Flutuante	0,00		
Juros			**150,15**	**Juros**			**748,76**	**(-598,61)**	**-20,29%**
	TN	SELIC	20,92			Total SELIC	**573,38**		
	TN	TR	35,09		TN	LFT's	507,66		
	TN	TJLP	94,14		TN	Outros	3,72		
					BC	Operações de mercado Aberto (até 1 mês)	60,18		
					BC	Operações de SWAP (SELIC)	0,00		
					BC	Outros Depósitos (SELIC)	1,82		
					TN	Total TR	**174,11**		
					TN	Dív. Em proc de securitização (TR)	81,15		
					TN	Outros TR	33,83		
					BC	Outros Depósitos (TR)	59,13		
					TN	TJLP	**1,27**		
Pré	TN	Programas diversos	**18,28**	**Pré**			**836,85**	**(-818,57)**	**-27,74%**
					TN	LTN	246,35		
					TN	NTN-F	210,66		
					TN	BRL	10,34		
					BC	Operações de mercado Aberto (+ de 1 mês)	369,50		
Demais	TN	Programas diversos	**13,33**	**Demais**	BC	Base Monetária	**145,14**	**(-131,81)**	**-4,47%**
				PIB			**2.950,78**		

* Não foi considerado no balanço de ALM o valor presente do superávit primário do Governo Central.

Integrating assets in the analysis helped identifying opportunities…



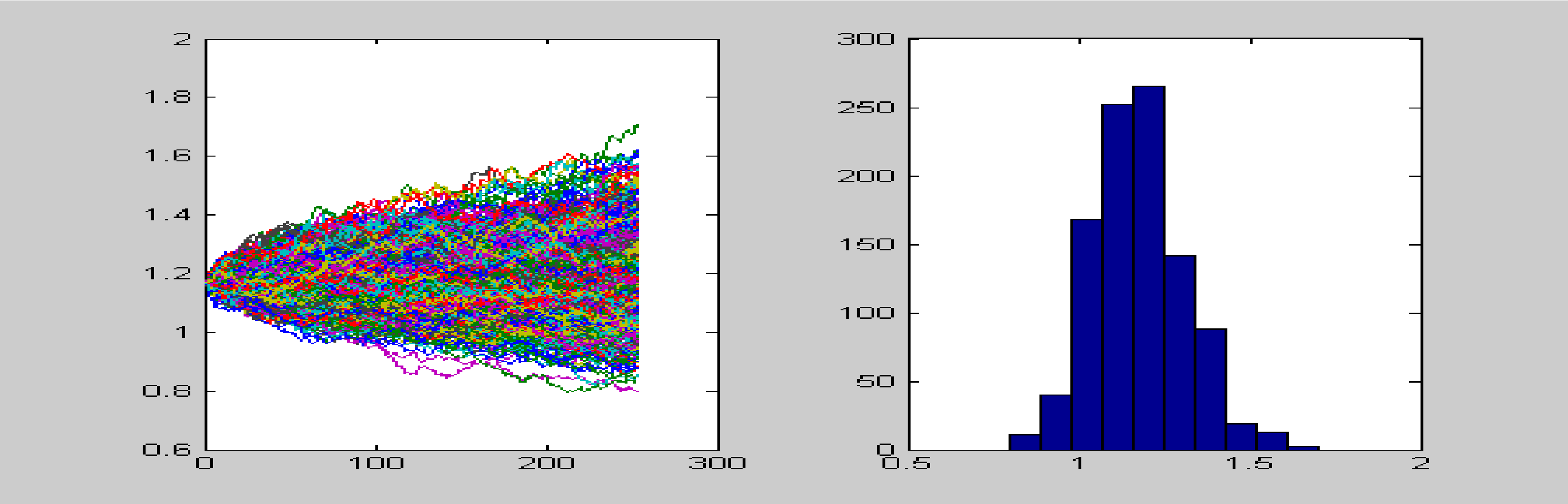


2nd Phase – A More Robust Risk Management Framework and Stochastic analysis

- Establishment of a robust risk management framework
  - Two-year project: World Bank assistance, domestic consultants (academy and market), seminar with developed DMOs
  - Establishment of a set or risk indicators (market risk, refinancing risk, demand-side risk, etc)
- Effort to build a risk management culture
- Investments in capacity building of the team

2nd Phase – A More Robust Risk Management Framework and Stochastic analysis

- Introduction of some stochastic indicators (complementary to the analysis)
- General Methodology
  - ✓ Generation of stochastic correlated scenarios
  - ✓ Simulations of debt response in each nature state
  - ✓ Calculation of uncertainty of specific indicators



… and developed a risk management and strategic planning system- GERIR

Objectives

- Analyzing the strategy and its results:
  - Enabling an integrated analysis of assets and liabilities
  - Improving the elaboration and assessment of borrowing strategies
  - Estimating financial and risk indicators for the National Treasury’s assets and liabilities
  - Calculating stochastic indicators for the Federal Public Debt

Scope and Flexibility

- Main inputs of the system:
  - Assets and Liabilities Portfolio Selection
  - Strategies
  - Scenarios
  - Stochastic Model Parameters

Results

- Main outputs:
  - Reports with the main risk and debt indicators (e.g duration, composition, average maturity, % maturing in 12-months)
  - Stochastic indicators (Cost-at-Risk - CaR and Cash-flow-at-risk - CFaR)

3rd Phase: The debt planning in Brazil reaches a more sophisticated stage….

Objective of Federal Public Debt Management

↓

Benchmark

Definition of Desired Long-Term FPD Structure

↓

Transition Strategy

Medium-Term FPD Planning

↓

Annual Borrowing Plan

Short-Term FPD Planning

↓

Debt Management Committee

Definition of targets, Tactical Planning and Monitoring

… but, it is a result of a long process of institutional advances and of a simultaneous development of the technical framework

Benchmark model: Searching the optimal composition of the public debt

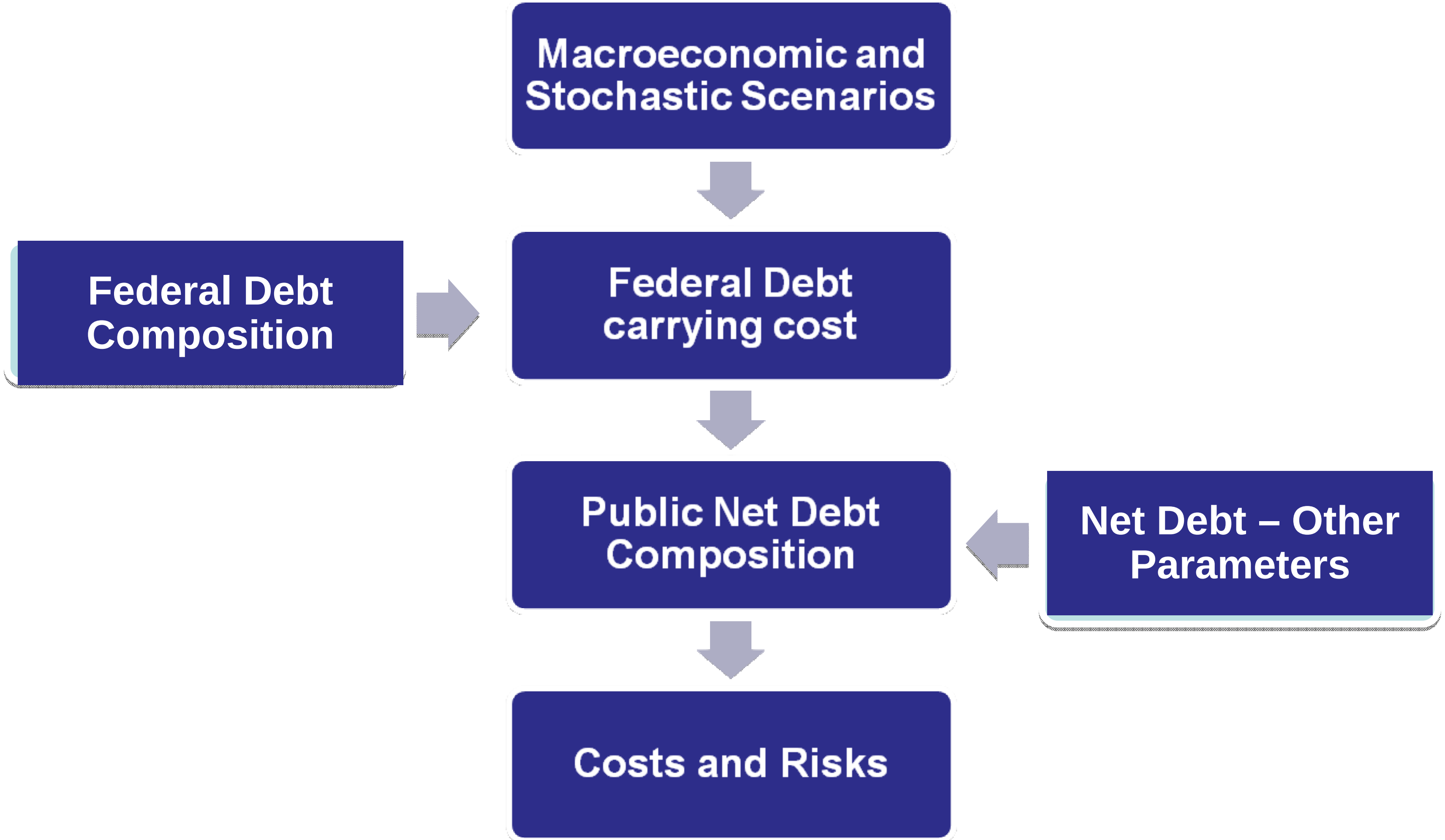
Motivation

- Public Debt Management: where we want to go ?
- Benchmark (optimal composition): instrument for risk management and for strategic planning
- How to measure the debt manager performance ?

Guidelines (World Bank and IMF)

- According to the Guidelines, the benchmark could work as a powerful management instrument as it represents the debt structure that the government would like to have, based on its expected risk and cost preferences. Thus, the benchmark could guide the debt administrator in his decisions regarding issuance and risk management.

Benchmark model: Searching the optimal composition of the public debt



Benchmark: some methodological issues

- Looking for the best indicator: gross or net debt? Nominal or real debt?

  - The Brazilian Government considers the Public Sector Net Debt (PSND) to GDP the relevant indicator to be monitored to define the optimum debt composition.

  - This indicator includes all assets and liabilities of the Federal Government, Central Bank, States and Municipalities, having the private sector as counterpart.

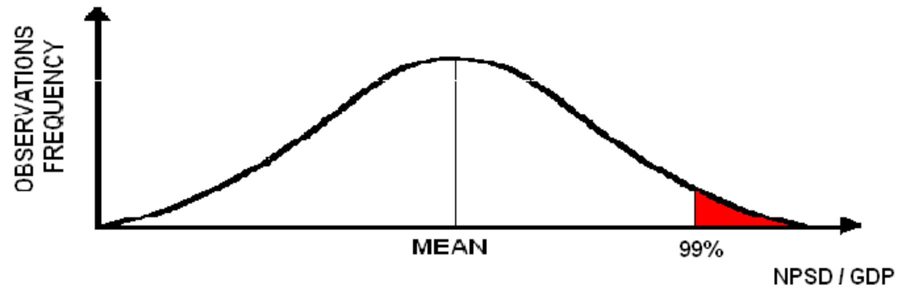
Benchmark: some methodological issues

- Why was this indicator chosen?
  - Importance to fiscal policy decisions (tax burden, primary balance)
  - International organisms and financing analysts define the PSND to GDP as the Brazilian main fiscal sustainability indicator;
  - Dynamic of PSND/GDP is seen as much more relevant that that of FPD (investors, analysts, rating agencies etc)
  - To minimize Federal Public Debt to GDP risks do not necessarily mean minimizing PSND/GDP risks. However, the results have not presented relevant differences, given the strong influence of the GDP on both.

Benchmark model: Cost and Risk Evaluation

- For each Federal Public Debt composition, we obtain a distribution of NPSD/GDP ratios
  - Cost:
    - ✓ Average of NPSD/GDP at the end of the period of analysis(10 years)
  - Risk:
    - ✓ Percentile 99 of the NPSD/GDP distribution at the end of the period of analysis (10 years)
- For each FPD composition, we also obtain the corresponding:
  - FPD Average Maturity
  - Percentage maturing in 12 months

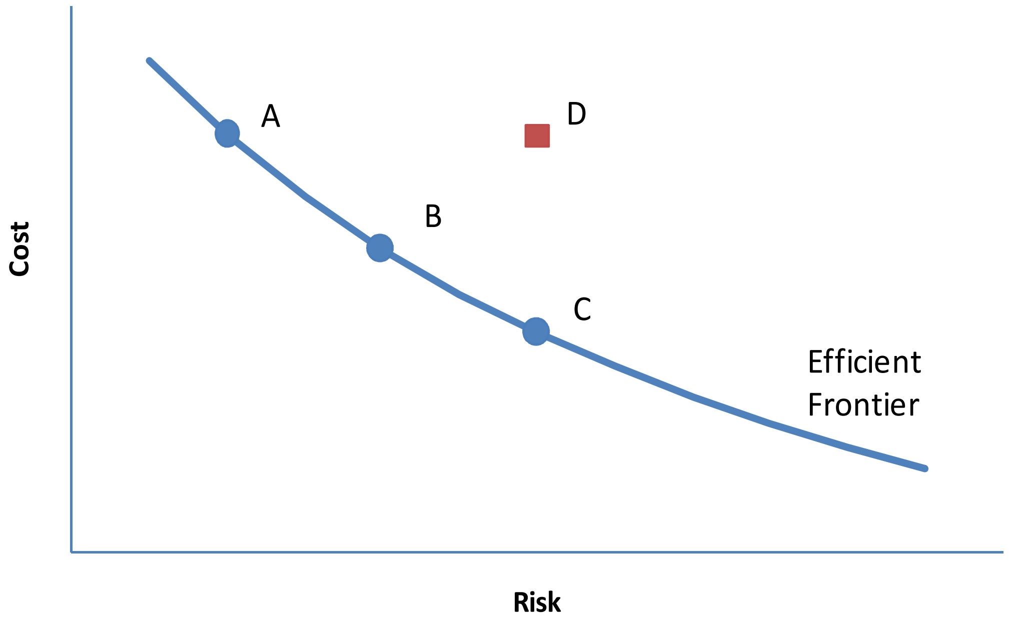
Density probability function of NPSD / GDP



Benchmark model: Cost-Risk Tradeoff

- Optimal portfolio selection
  - Financing efficient frontier
  - Trade-offs performed by the model
- To determine the optimal portfolio (benchmark) it is necessary to choose the risk appetite of the government (in last instance, the taxpayers aversion to risk)
- Application of the model to measure performance: criterion based on the efficient frontier

Efficient Frontier:
Cost-Risk Tradeoff



Some other aspects to be considered…

➢ The focus on trade-off between cost and risk could lead to the use of traditional financing analysis instruments.

➢ However there are government peculiar factors that challenges the indiscriminate use of the ordinary financing theory for the public debt analysis:

- The government could have more complex objectives than simply reduce costs conditioned to prudent levels of financial risk;

- The size and the nature of the bonds issuance and the composition of the public debt allow government to have a great influence on the prices and, though, on the cost and risk of its financing strategy.

Current Benchmark: desired composition for the long term

	Lower Limit	Upper Limit
Fixed Rate	45%	50%
Inflation Linked	30%	35%
Floating Rate	10%	15%
Exchange Rate	5%	10%

Importance of ALM approach – evolution of NPSD/GDP

A few warnings about models…

- No model is a panacea, an answer to all questions.
- It is a simplified representation of reality, that help make important trade-offs explicit and guide the decision making process.
- Although modeling can add several benefits to decision-making, the model cannot replace the knowledge and the judgment of the debt manager
- As any model, results depend largely on the parameters and assumptions that serve as inputs.
- There seems to be no consensus regarding the methodology for the benchmark determination among countries that developed it.
- Messages need to be easily understood.

… and some other general lessons

- Essential elements to an effective strategic planning and risk management
  - Well defined (long term) goals and guidelines
  - An appropriated institutional arrangement
  - A good data record
  - **These elements are more important than having sophisticated models**
- Developing a Risk Management framework
  - Start simple and add complexity along the way
  - Invest in IT systems and build capacity of technical staff
- The ability of the government to implement a debt strategy depends on the degree of development of the debt market, as well as the size of the investor base
- So, changes in the debt profile often occur in a gradual fashion, according to the market conditions

Thank you!

For additional information access the National Treasury website:

www.tesouro.fazenda.gov.br

Or contact our Institutional Relations Unit:

brazildebt@fazenda.gov.br

ANEX

Brazilian Public Debt Institutional Structure

ALM Evolution: the Brazilian Experience

Contingent Risks to be monitored

Brazilian Annual Borrowing Plan

Contingent Risk to be monitored: The Brazilian experience

- Contingent liabilities related to public enterprises and government programs were assumed by the federal government in the early 90's.
- The sub-national's (states and municipalities) debts were refinanced and sub-national's banks closed or privatized in the late 90's.
- According to the Fiscal Responsibility Law, approved in 2000, credit operations between entities of the federation are prohibited.
- Additionally, new contractual debt guaranteed by the federal government requires counter guarantees (government constitutional transfers).
- A state or municipality is not authorized to issue bonds while its ratio debt to revenues is above one.

Contingent Risk to be monitored: The Brazilian experience

- The System of Payments is modern and the banking system is robust and sophisticated , as the recent international banking crisis has shown;
- According to Brazilian Central Bank rules, a financial institution minimum capital ratio is 11%, above Basel limit (8%);
- The Credit Guaranteed Fund (FGC) supports up to R$ 70 thousand (USD 44 thousand) per client, if a bank fails;
- According to the Fiscal Responsibility Law, all government contingent liabilities for the following 3 years need to be included in the annual Budgetary Guidelines Law.

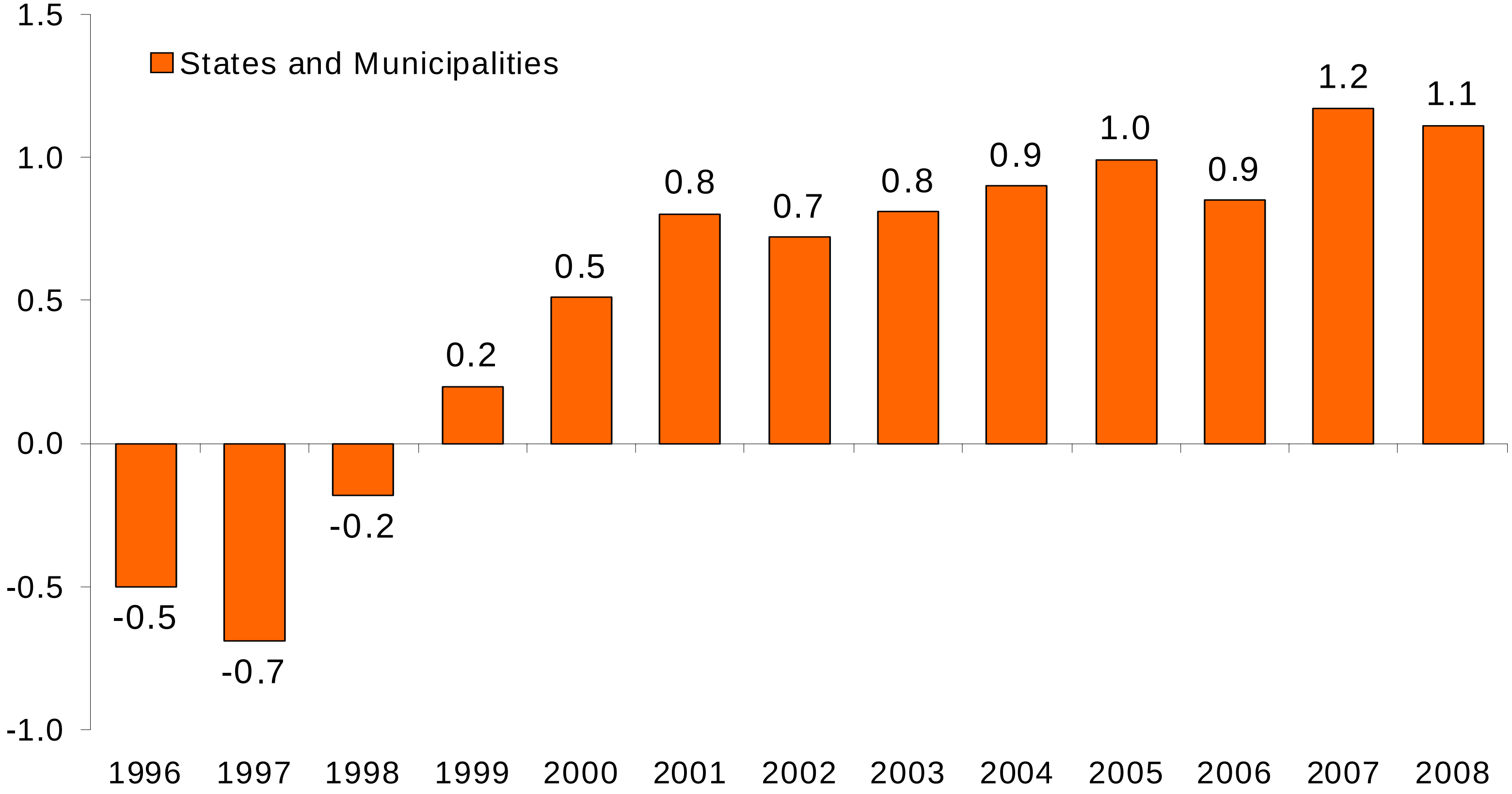
Restructuring the Sub national Debts: The Brazilian experience

- 80's and early 90's: number of different renegotiation operations by the federal government
- 1993: renegotiation of states and municipalities' debt with federal enterprises
  - Federal government assumes the risk against creditors
  - Innovation: mechanism to retain government transfers in case of default
- 1997: last renegotiation with states and municipalities
  - Innovations: design of incentives, program of fiscal adjustment, guarantees
- 2000: Fiscal Responsibility Lay
  - Consolidation of legal framework
  - Limits and conditions for debt stock, debt service, credit operations, current expenditures, expenditures near elections etc.
  - Increase in transparency, release of information, accounting
  - Prohibition of credit operations between entities of the federation

Restructuring the Sub national Debts: The Brazilian experience

- Design of incentives
  - Amount of short term amortization changes the interest rate charged
  - Failure in achieving fiscal targets => increases the interest rate and increases annual limit of revenues commitment
  - If the sub-national is out of the estimated debt trajectory => it cannot sign new credit operations
  - While she sub-national still has debt under the renegotiation program => it cannot issue bonds
  - Incentives to clean-up and privatize state banks (23 banks => 4 left, that were federalized)

Outcomes – primary surplus



Source: Central Bank

- 1996: 21 states with primary deficits and 6 with primary surpluses
- 2007: 2 states with primary deficits and 25 with primary surpluses

Brazilian Public Debt Institutional Structure

ALM Evolution: the Brazilian Experience

Contingent Risks to be monitored

Brazilian Annual Borrowing Plan

Key Publications

Debt Management Strategy: **predictability, transparency and simplicity**

- **Annual Borrowing Plan**:
  - National Treasury publication that shows the goals, guidelines, issuances planning for the fiscal year and targets to be reached regarding the Federal Public Debt (domestic and external), beyond risk analysis associated to the strategy.
- **Annual Public Debt Report**:
  - Shows the main indicators related to Federal Public Debt (domestic and external) and presents a retrospective analysis of the FPD management, in line with the Annual Borrowing Plan's forecasts. Additionally, presents procedures done to development of bonds' market and the National Treasury institutional improvements of human and technology resources.
- **Federal Public Debt Monthly Report**:
  - Shows the main indicators related to Federal Public Debt (domestic and external), as issuances, redemptions, cost and average maturity of the outstanding, percentage due to 12 months and public debt composition by indexes, beyond statistics about public bonds' holders.

Annual Borrowing Plan

The objective of the Federal Public Debt Management is that of efficiently meeting the National Treasury Borrowing Requirements, at the lowest possible long-term financing costs, while ensuring the maintenance of prudent risk levels. Additionally, the aim is to contribute to the smooth operation of the Brazilian government securities market.

To achieve this objective, the guidelines underlying FPD management are as follows:

- Increase the average maturity of the outstanding debt
- Smooth the maturity profile, with special attention given to short-term maturities
- Gradual replacement of floating-rate securities by fixed-rate and inflation-linked instruments
- Improvement of the External Federal Public Debt (EFPD) profile through issuance of benchmark securities, buyback program and structured operations
- Development of the yield curve on both domestic and external markets and growth in the liquidity of federal government securities on the secondary market
- Broadening of the investor base

Federal Public Debt (FPD) Indicators*

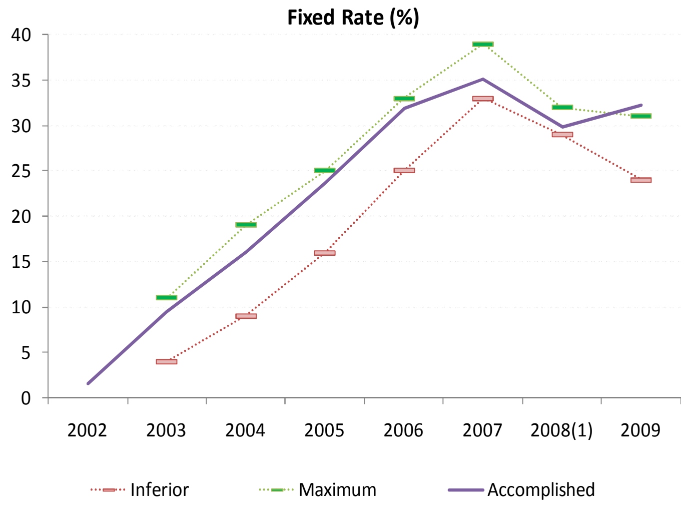
Indicators	2004	2005	2006	2007	2008	2009	2010	2011 **	Limits for 2011	
									Minimum	Maximum
Stock of FPD* held by the public (R$ Billion)										
	1.013,9	1.157,1	1.237,0	1.333,8	1.397,0	1.497,4	1.694,0	**1.805,4**	1.800,0	1.930,0
FPD Profile (%)										
Fixed Rate	16,1%	23,6%	31,9%	35,1%	29,9%	32,2%	36,6%	**38,1%**	36,0%	40,0%
Inflation Linked	11,9%	16,1%	19,9%	24,1%	26,6%	26,7%	26,6%	**27,0%**	26,0%	29,0%
Floating Rate	45,7%	43,9%	33,4%	30,7%	32,4%	34,5%	31,6%	**30,9%**	28,0%	33,0%
Exchange Rate	24,2%	17,6%	12,7%	8,2%	9,7%	6,6%	5,1%	**4,0%**	4,0%	6,0%
FPD Maturity Structure										
Average Maturity (years)	2,9	2,8	3,0	3,3	3,5	3,5	3,5	**3,6**	3,5	3,7
Percentage Maturing in 12 Months	39,3%	36,3%	32,4%	28,2%	25,4%	23,6%	23,9%	**21,0%**	21,0%	25,0%

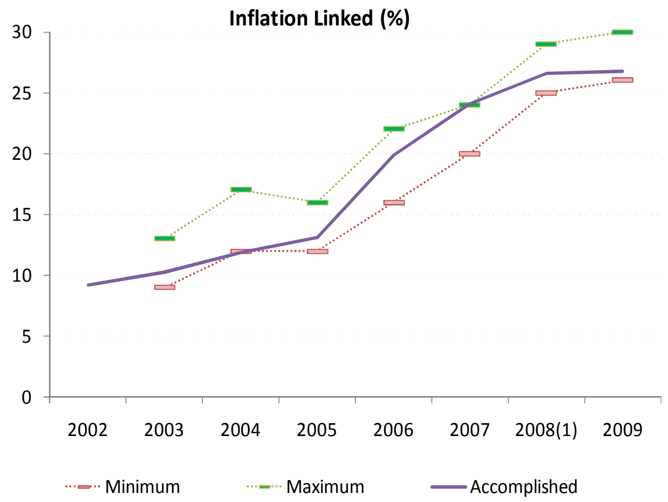
* Includes domestic debt (R$ 1,729.46 billion - Jun/11) and external debt (R$ 75.97 billion - Jun/11) managed by National Treasury.

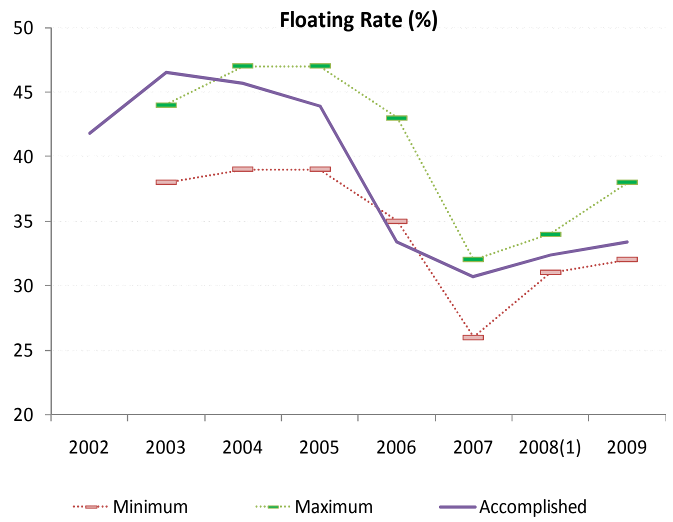
** until June

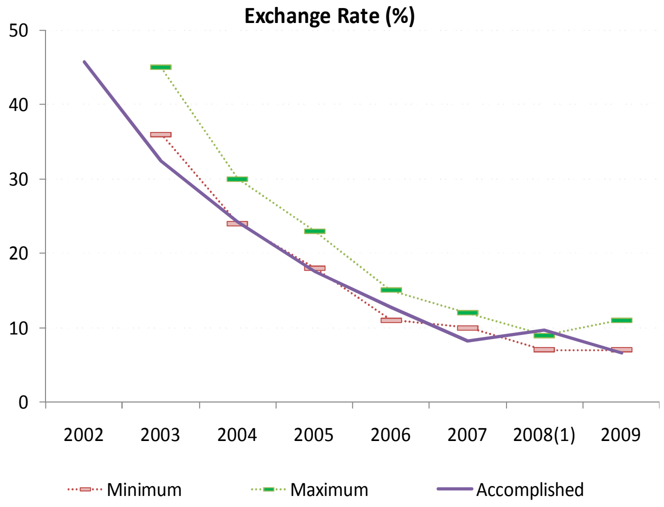
Note: FPD statistics and its components DFPD and EFPD are monitored in the Federal Public Debt Monthly Report, which can be accessed at http://www.tesouro.fazenda.gov.br/english/hp/public_debt_report.asp.

Federal Debt (FPD) Indicators Evolution and ABP's targets









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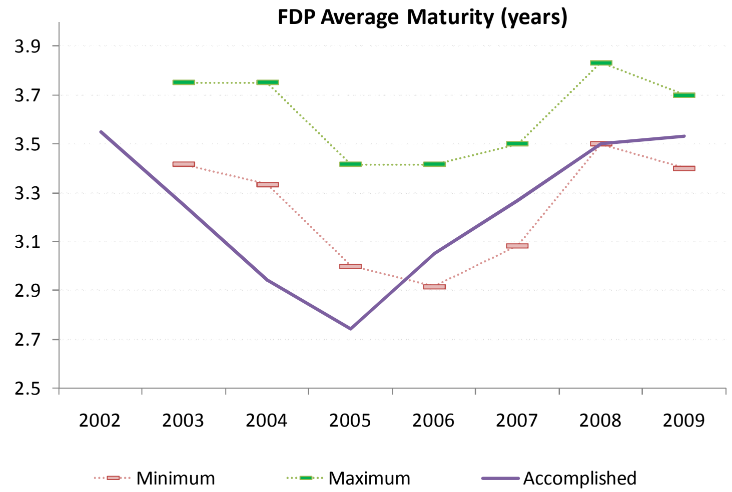

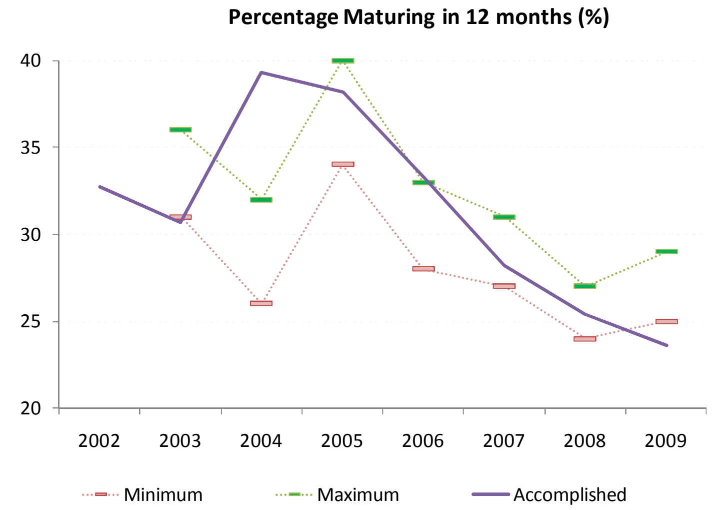

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