

Part III

THE PUBLIC DEBT MARKET IN BRAZIL

Part III

Chapter 1

Recent evolution of the Federal Public Debt market

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1 Introduction

In recent years, the subject of public debt markets has been widely discussed: Government bond markets that function well enhance the effectiveness of public sector policies, promote broad financial sector reforms, and support sustainable economic growth.

Indeed, the development of a government's security market yields a host of benefits for both macroeconomic and microeconomic policies.¹ With respect to the former, a developed debt market can support governments in achieving the following: (a) a stable, transparent and efficient venue for deficit financing under varying fiscal regimes (b) reduced government exposure to foreign currency movements and floating-rate debts; (c) a strong monetary policy that meets inflation targets; (d) enabling conditions for the implementation of sound counter-cyclical policies that can respond to economic shocks; and (e) reduced debt service costs in the medium and long term through a more liquid market.

With respect to microeconomic policies, a securities market can help: (a) increase financial stability and improve financial intermediation through expanded competition between banks and the development of related infrastructure, products and services; (b) reorient a financial system that primarily involves banks into one that is more diversified - where the capital market can complement bank financing; (c) introduce new financial products as the country's yield curve develops, including repos, derivatives and other products that can improve risk management and financial stability; and (d) create laws and institutions that benefit the financial system as a whole.

In this context, Brazil began to explicitly include the development of its debt market as a debt management objective since 2001, as noted in its Annual Borrowing Plans (ABP).² This has been a dynamic process in which macroeconomic and financial stability are essential if the market is to function efficiently.

To develop the market, certain prerequisites were crucial.³ These included a stable and credible government, sound fiscal and monetary policies, an efficient legal, regulatory and tax framework, safe settlement

¹ See *Developing Government Bond Markets: A Handbook*. WB-IMF, 2001.

² Since 2001, the National Treasury's ABP has stated that the objective of Federal Public Debt (FPD) management is to "minimize long-term borrowing costs, with maintenance of prudent risk levels, and, at the same time, seek to contribute to the smooth operation of the public bond market" (ABP, 2008). In this regard, the main debt management guidelines include the following: (a) reducing the refinancing risk by lengthening average maturities and reducing the percentage of FPD maturing within 12 months; (b) reducing market risks by gradually replacing floating rate securities by fixed rate or inflation-linked securities; and (c) encouraging the development of the yield curve for federal public securities in domestic and external markets.

³ The main prerequisites are listed in the World Bank and IMF's Handbook (2001).

and custody arrangements, and a financial system with competing intermediaries - all of which helped reduce government financing costs in the medium and long term, as the risk premiums required for government securities fell, due to greater investor confidence.

In this regard, Brazil adopted macroeconomic policies that contributed significantly to developing both domestic and external debt markets, and the financial system. This occurred mainly due to Brazil's improved economic foundations, which involved a combination of low inflation, fiscal responsibility, and advances in public debt management (PDM).

This chapter provides an overview of Brazil's debt market and highlights its recent advances against the backdrop of best practices reported by international organizations.⁴ Because the domestic market is relatively more important, the chapter emphasizes its development. It also serves as an introduction to the other chapters in Part III, which describe the dimensions of the country's debt market.

This introduction is followed by Section 2, which examines Brazil's public debt, and Section 3, which describes the measures taken to develop the market, as well as its achievements, in light of best international practices.

2 The Brazilian debt market: an overview

PDM, against a background of more favorable macroeconomic conditions, has brought remarkable changes to the structure of Brazil's public debt, compared to previous periods. These changes can be seen through the evolution of its domestic and external markets with advances in the fixed-rate, inflation-linked bond markets and reduced exposure to foreign currencies, as well as through improved liquidity and price transparency.

2.1 Domestic and external markets

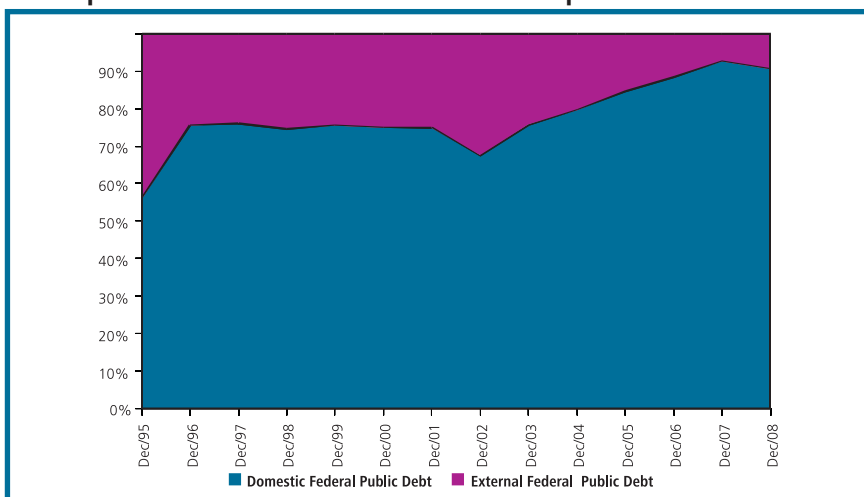
In December 2008, Federal Public Debt (FPD) represented R\$1.4 trillion (\$602.3 billion), with 91% in domestic debt and the rest in external debt. As noted above, this prevalence of domestic debt results from active debt management and a favorable macroeconomic policy that reduced external exposure as well as the risks associated with the debt profile. Graph 1 shows the increased share of domestic debt in FPD, mainly as of 2003.

Brazil's domestic bond market is one of the largest in the world.⁵ Graph 2 shows the size of the bond market in several countries, including the most developed and a few emerging ones. Data from the Bank for International Settlements (BIS) show that Brazil ranks eighth among public bond markets in the world.

⁴ In addition to the 2001 Handbook, see *Developing the Domestic Government Debt Market: From Diagnostics to Reform Implementation*, which describes the World Bank's pilot project in 12 countries to develop domestic public bond markets.

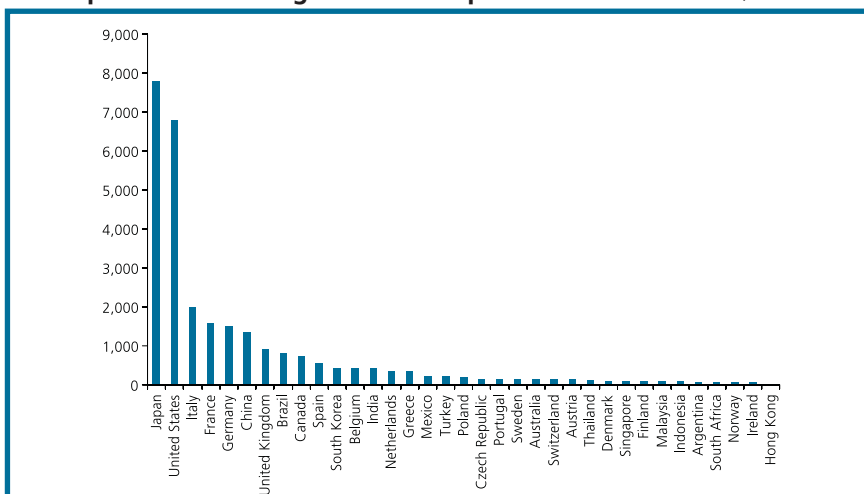
⁵ The Brazilian domestic bond market is among the largest in the world, even when based on different countries' GDP. According to this criterion, Brazil ranks as ninth.

Graph 1. Shares of domestic and external public debt in the FPD



Source: National Treasury

Graph 2. Size of the government's public bond market – \$ billion



Source: BIS Quarterly Review, December 2008

Market size is important because, as experts agree, there is a close relationship between the development of a market and its size: "International evidence indicates that developed bond markets are large. The large scale is important to support liquidity and market depth. It is also a key to attracting a broad base of sophisticated investors with the potential for building large positions".⁶ Further, a government bond market may currently be more necessary in emerging markets, since they have few highly rated private firms that could issue bonds and serve as alternative yield curve benchmarks."⁷

The domestic market for Brazilian public bonds has become one of the most liquid among all emerging economies.⁸ To this end, the government adopted a series of measures to develop the yield curve, improve market liquidity, and expand the investor base.

⁶ Itau Corretora (2007).

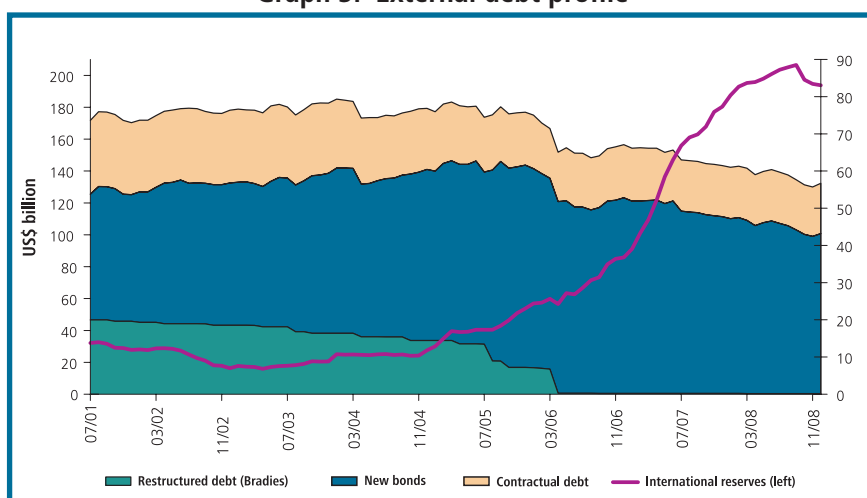
⁷ See McCauley and Remlona (2000).

⁸ See Chapter 6, Part 3, for details and statistics on the secondary market.

With respect to the external market, rather than focusing on raising large amounts of funds, the strategy has been to selectively issue securities denominated in foreign currencies at specific maturities in order to consolidate the yield curve. Despite its reduced share in outstanding FPD, Brazil's external securities debt is also one of the most liquid among all emerging economies.

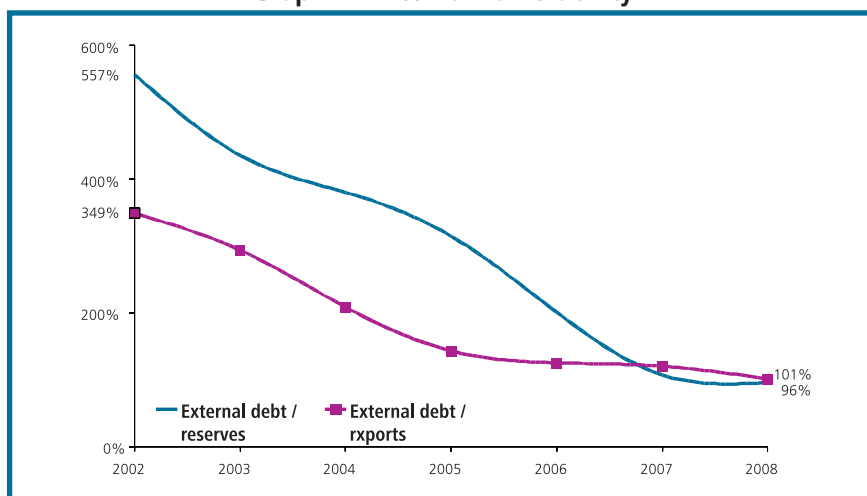
Along with improvements in the domestic FPD market, several measures adopted with respect to External Federal Public Debt (EFPD) management have reduced debt service costs, increased external debt predictability and provided a more favorable assessment of risk by investors. Some of these measures include the early redemption of debts with the IMF and Paris Club, creation of a permanent buyback program of EFPD securities, early redemption of Brady bonds (restructured debt) and the issuing of sovereign bonds in Brazilian *reais*. These operations improved the external debt profile and the country's vulnerability indicators - quite significantly - as seen in the graphs below.

Graph 3. External debt profile



Source: National Treasury

Graph 4. External vulnerability



Source: Central Bank

2.2 Market development and lengthening public debt maturities

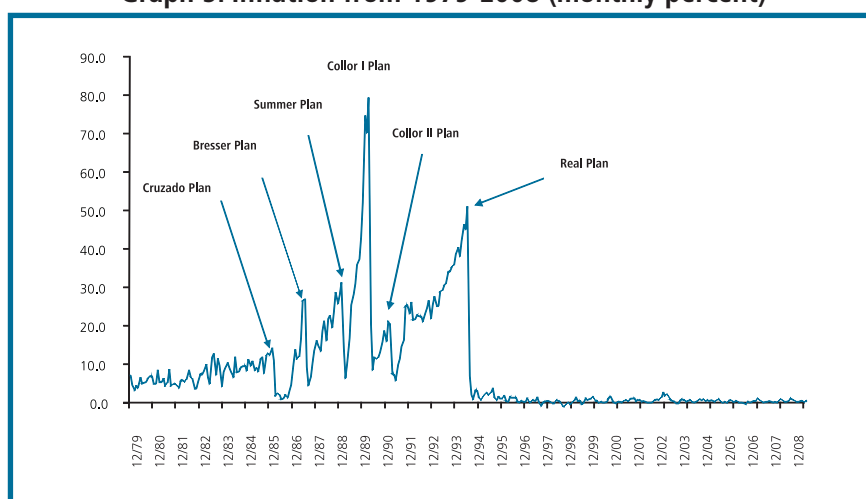
Until 1995, most of the domestic public debt was linked to floating rate securities - 79.1% in July 1995 - while fixed-rate securities, which had a very reduced issuance maturity of up to two months, accounted for just 8.5%. This structure was the result of high inflation that caused the government to issue securities in different denominations, maturities and indexations, mainly linked to inflation and interest rates: This was necessary because in uncertain times, there is great demand for floating-rate securities like the *Letras Financeiras do Tesouro* (LFTs),⁹ which do not incur losses when interest rates fluctuate.¹⁰

However, a high volume of floating-rate securities has a negative effect on both debt management and the economy. First, they increase debt vulnerability and therefore the refinancing risk. Also, monetary policy is less effective since a larger volume of these securities partly obstructs the distribution channel through the "wealth effect".¹¹

In order to reduce the share of floating-rate debt (and increase the share of fixed rate debt), both sound economic policies and efficient debt management are needed. Such a shift reduces the impact on the government's budget of exogenous shocks in interest rates and improves the efficacy of monetary policy.

In 1995, supported by increased economic stability, the Treasury began to de-index its public debt (see Graph 5), issuing a greater share of fixed-rate securities.

Graph 5. Inflation from 1979-2008 (monthly percent)



Source: Consumer Price Index – Institute of Economic Research Foundation (Fipe)

Better economic fundamentals, especially since 2000, such as significant fiscal performance, have positively affected PDM: The debt composition improved through the (a) growth of the fixed-rate and inflation-linked government securities markets, (b) reduced exposure to exchange-rate volatility, and (c) lengthening of public debt maturity.

⁹ Securities linked to interest rates calculated from one-day repo operations, with federal public securities as guarantees.

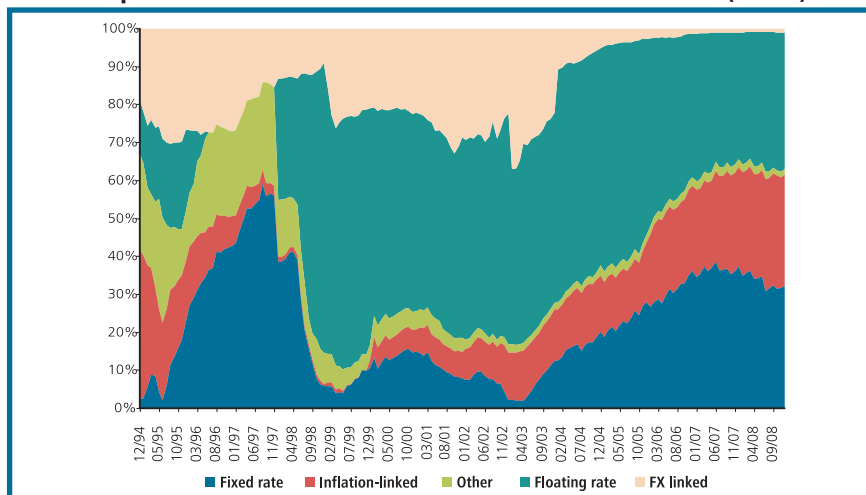
¹⁰ Interest rate-linked debt reached nearly 100% of the overall securities debt around 1989. This process was characterized by a decline in average maturity and a consequent increase in refinancing risk. This complete indexation of the economy contributed to monetary expansion and high inflation rates.

¹¹ The "wealth effect" represents changes in aggregate demand caused by change in the value of assets such as stocks, bonds, gold

2.2.1 Advances in the fixed-rate bond market

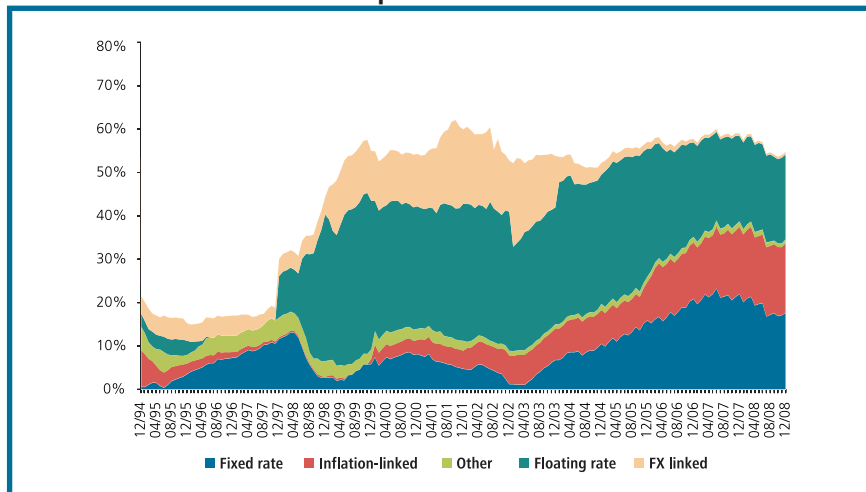
Against a background of greater economic stability, the de-indexation process allowed the share of fixed-rate bonds in domestic debt to climb to 58.95%¹² (in August 1997), while floating rate bonds were eliminated. This change in the debt profile continued for more than two years, from July 1995 to October 1997 (see Graph 6).

Graph 6. Profile of the Domestic Federal Public Debt (DFPD)



Source: National Treasury

Graph 7. Profile of the Domestic Federal Public Debt (DFPD), as a percent of GDP



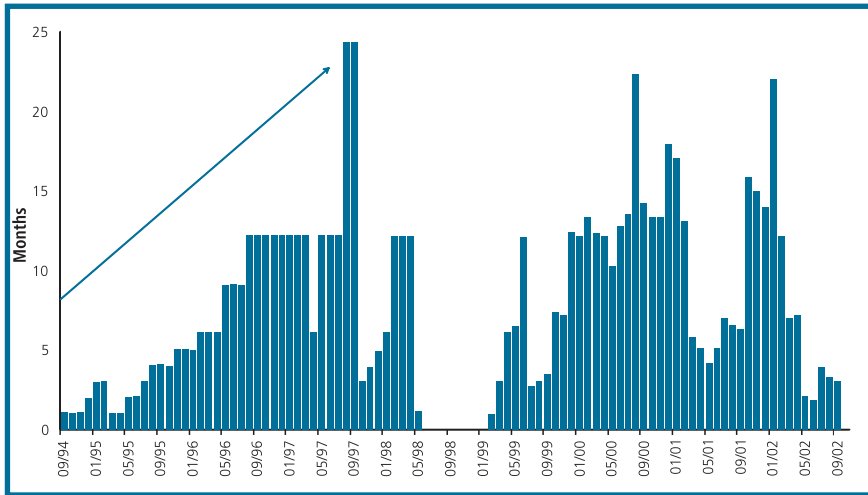
Source: National Treasury

and property (see www.businessdictionary.com). The value of floating-rate instruments is less sensitive to changes in interest rates, such as the base (monetary policy) rate, reducing the effectiveness of monetary policy.

¹² Although the average maturity of the debt was still reduced – to around 3.3 months – the Treasury was able to issue fixed-rate securities that would mature in 12 and 24 months.

In addition to de-indexation, the issuance term to maturity lengthened, mainly for fixed-rate securities, which rose from just two months in 1995 to 12 months in September 1996 and to 24 months in September 1997 (see Graph 8).

Graph 8. Maximum issuance term to maturity of fixed-rate securities

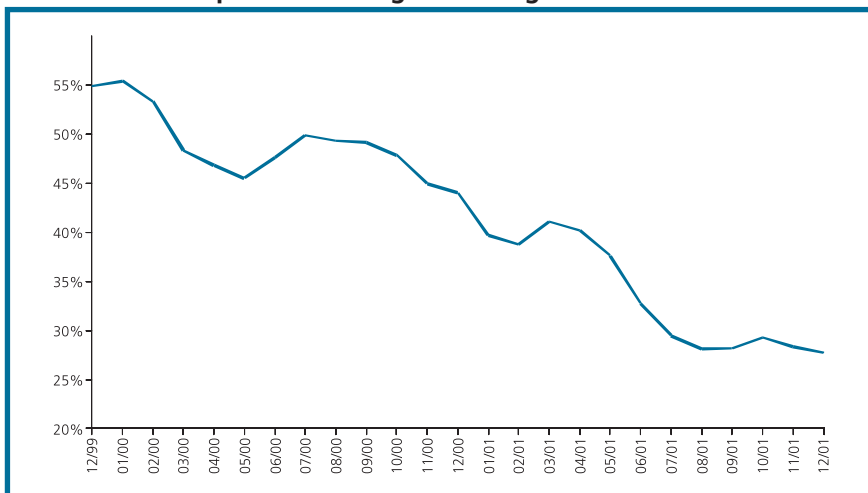


Source: National Treasury

Nevertheless, the crises that affected emerging markets - in Asian countries (October 1997), Russia (1998) and Brazil (1999) - along with the change in the exchange rate regime¹³ negatively affected the PDM, slowing its structural re-configuration, as seen in the previous graphs. Because the Treasury faced (a) a much tougher market in which to sell fixed-rate securities and (b) a growing concentration of short-term debt, it again focused on reducing the refinancing risk by issuing longer-term floating-rate debt, which led to greater exposure to fluctuations in interest rates.

However, some indicators - especially those related to the refinancing risk - significantly improved over the next two years: For example, the percentage of debt maturing in 12 months fell from 54.9% in December 1999 to 27.7% in December 2001.¹⁴

Graph 9. Percentage maturing in 12 months



Source: National Treasury

The fiscal adjustment process that began in 1999, based on a consistent stabilization program, inflation targets and structural changes, such as the Fiscal Responsibility Law (LRF), resulted in consecutive primary surpluses that had a positive effect on fiscal accounts.

Since then, the measures applied to meet the main objectives of public debt - minimizing long-term costs and maintaining prudent risk levels - together with sound macroeconomic conditions, allowed the debt structure to achieve a qualitative profile that far exceeded any of the past and improved the debt market.

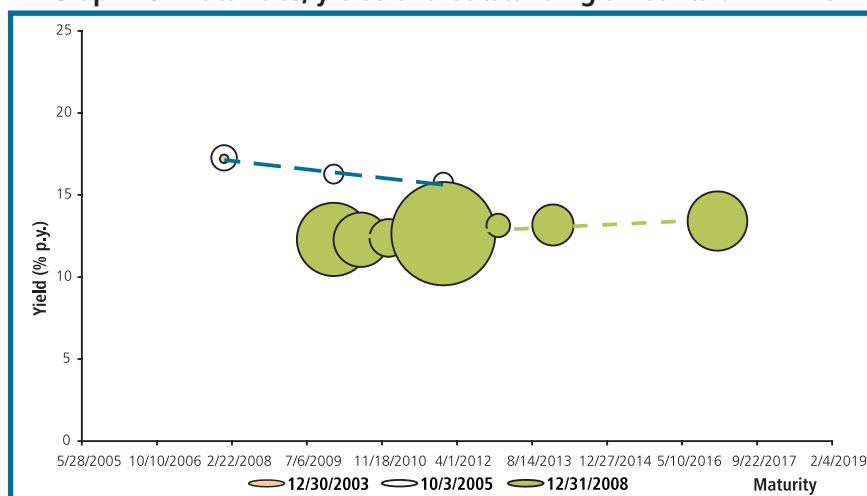
Several measures,¹⁵ particularly after 2003, significantly improved this market. In this respect, a medium- and long-term fixed-rate yield curve was created after coupon bonds, *Notas do Tesouro Nacional*, F series (NTN-Fs), which matured in 2008, were issued: These securities had much longer maturities than other fixed-rate instruments. Immediately after, the maximum maturity for these securities was increased to 10 years, consolidating their position as a benchmark security in the medium section of the curve.

In 2007, maturities of fixed-rate bond issues were standardized to consolidate specific benchmarks, according to international practices. As a result, *Letras do Tesouro Nacional* (LTNs) issuances were set at 6, 12 and 24 months and NTN-Fs were set at 3, 5 and 10 years. Also, the Treasury adopted a buyback program for shorter fixed-rate securities (LTNs), so as to smooth the maturity profile and reduce the refinancing risk.

In addition, Brazilian *real* securities have been issued in international markets since 2005. By providing liquid benchmarks of long-term interest rates in *reals*, these issuances have helped shape the yield curve in the domestic market, diversify the investor base and reduce the share of dollar-linked public debt.

As illustrated in Graph 10, the country has succeeded in consolidating the fixed-rate yield curve with well-defined benchmarks and growing demand. The graph shows the curve at three different moments: December 2003, October 2005 - when securities in *reals* were launched in the international market - and December 2008. The size of the circles reflects the outstanding volume at each point of the curve. Besides lengthening the fixed-rate (NTN-Fs) curve, the yield curve is more developed, with higher concentrations and lower interest rates.

Graph 10. Maturities, yields and outstanding amounts of NTN-Fs



Source: National Treasury

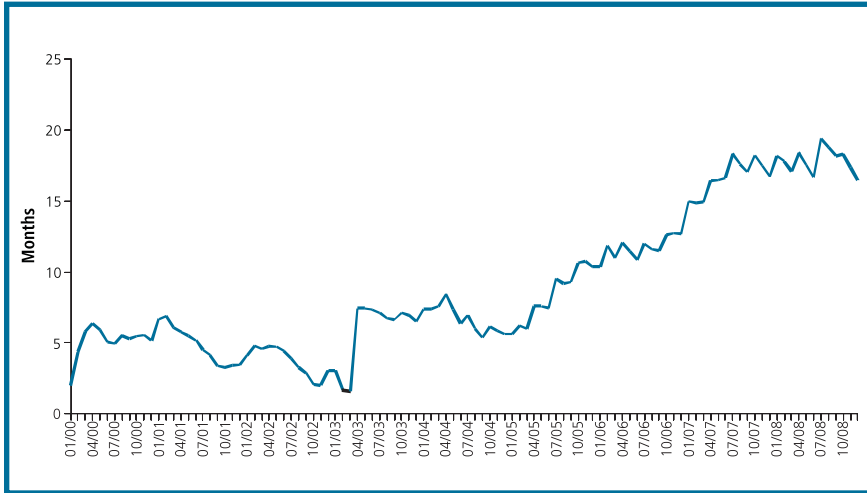
¹³ In January 1999, given the speculative attack on Brazil's international reserves, the country had to switch from fixed to floating rates. Soon after, this generated a perception of high risk, in relation to the country's capacity to re-establish macroeconomic stability.

¹⁴ This strategy proved to be important for the turbulent period that followed in 2002.

¹⁵ These measures are detailed in Section 3 of this chapter.

As a result of the advance in the fixed rate bond market, the share of these bonds in the domestic debt increased significantly, having reached 32.2% in 2008. Besides, this trend has been followed by the lengthening of their average maturity, which on the same date stood at 16.5 months.

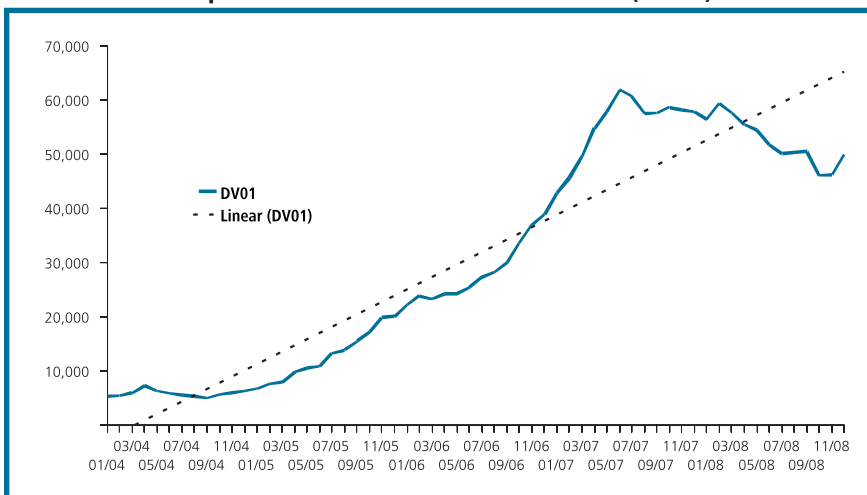
Graph 11. Average maturity of outstanding fixed-rate securities – DFPD



Source: National Treasury

The greater share of fixed-rate securities in outstanding DFPD also helped improve the risk indicators, such as the DV01 (Dollar Value of a Basis Point).¹⁶ This indicator reached historically high levels, mainly due to their larger share (of the fixed-rate bonds) and their longer average maturity, which point to the transfer of a growing part of interest rate risk from the public sector to investors, as is seen in countries with more developed capital markets.

Graph 12. Dollar Value of a Basis Point (DV01)

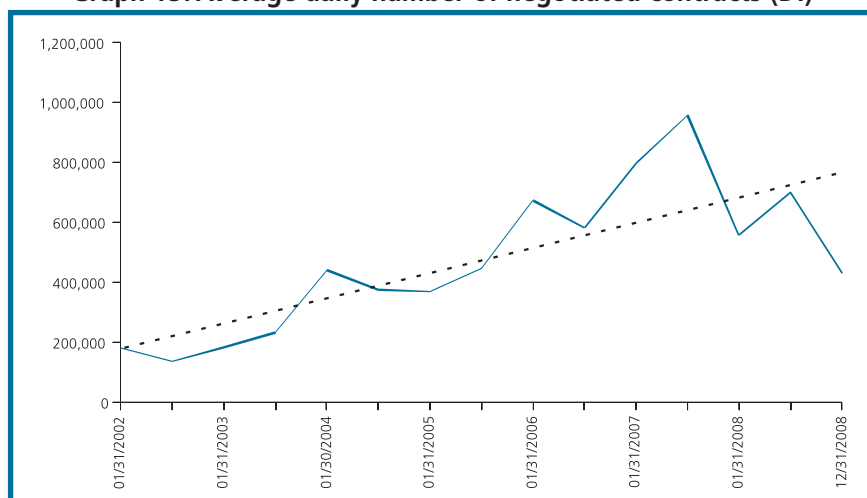


Source: National Treasury

¹⁶ DV01 measures the loss that can occur in the value of fixed rate security portfolio in the market, as a result of the increase of one basis point in the discount rate of those securities.

The increased capacity to issue fixed-rate securities is linked to the development of the derivatives market, which allows investors to better manage their exposure to interest-rate risk. The number of interest-rate futures (DI) contracts negotiated has been growing; and, to guarantee a perfect match between the maturities of these contracts and of government fixed-rate securities, the latter were issued to mature on the same dates as those of futures contracts (the first working day of January, April, July and October)¹⁷.

Graph 13. Average daily number of negotiated contracts (DI)



Source: BM&F

2.2.2 Advances in the inflation-linked security market

A growing number of developed and developing countries are launching strategies to expand their inflation-linked securities; these bonds used to be issued by a few countries, but are now promoted by all G7 nations, as well as others. This is largely due to institutional investors' demand for assets that provide protection against inflation and the importance of these securities for the optimal debt profile.

Studies conducted by the Treasury¹⁸ and confirmed by the literature indicate the growing importance of inflation-linked securities in outstanding public debt for an optimal public debt profile. According to Missale and Giavazzi:¹⁹

[...] Price indexing provides a natural hedge against the impact of inflation both on primary surplus and in the net debt-to-GDP ratio. From the standpoint of the National Treasury's management of assets and liabilities, inflation-linked securities match not only future revenues but also the risks of inflation-linked assets in the government's portfolio. Since inflation-linked securities have a longer maturity, they also help reduce the government's risk of refinancing, thus representing an important factor of stability for public debt dynamics.

¹⁷ Due to increased investors' confidence, the capital market as a whole has also experienced advances. Despite the slight setback in the second semester of 2008, due to the crisis that affected the global capital market, CVM data show that increasing volumes of stock issuances have been recorded in recent years and the number of Bovespa-listed companies, which accounted for 35.66% of GDP in 2000, reached 90.53% in 2007 and 80.99% in 2008.

¹⁸ These involved the public debt optimal profile, as described in Part II, Chapters 2 and 3.

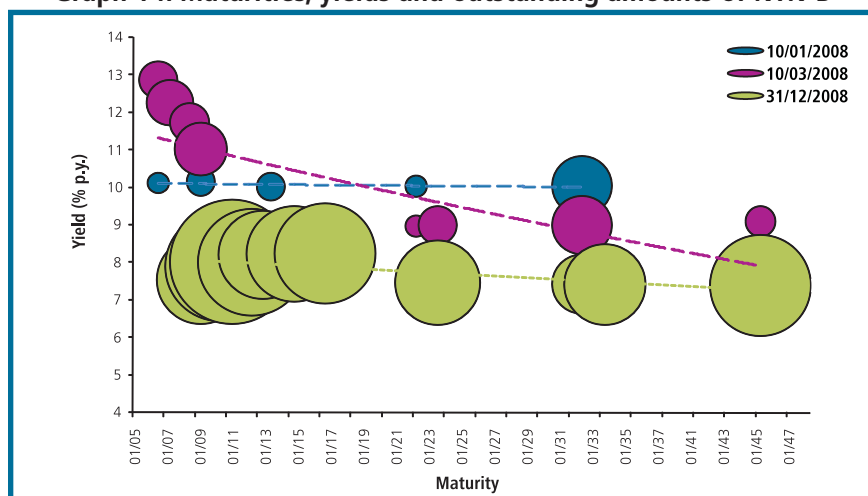
¹⁹ Public debt management in Brazil. June 3, 2003.

As with its fixed-rate securities, Brazil has also made gains in the inflation-linked security market, focusing on IPCA-linked bonds.²⁰ In this regard, the Treasury has increased the share of securities linked to that indicator - the *Notas do Tesouro Nacional* - B series (NTN-Bs) - and gradually reduced the share of securities linked to the General Price Index - Market (IGP-M) - the *Notas do Tesouro Nacional* - C series (NTN-Cs).

The Treasury has also sought to establish benchmarks that form a longer-term yield curve in this indicator, with the longest NTN-Bs maturing in 2045. Following this strategy, the Treasury issued NTN-Bs in 2007 for which it maintained existing maturities (of 3, 5, 10, 20, 30 and 40 years). Further, it adopted a regular buyback program of a limited share of these securities to provide liquidity to investors that need to adjust their cash requirements - since these instruments typically serve to back the liabilities of defined-benefit pension funds, which are generally inflation-linked.

Progress in this market ensured growing liquidity and demand, which are reflected in the volume sold and the increased share of these securities in the overall FPD. Graph 14 shows the yields of securities issued in different years (2003, 2005 and 2008) for NTN-B maturities, along with the volume of benchmark securities, represented by the circles. As the graph illustrates, the path is similar to that of fixed-rate securities; besides the lengthening of maturities, yields fell and the volume issued for benchmark maturities increased.

Graph 14. Maturities, yields and outstanding amounts of NTN-B

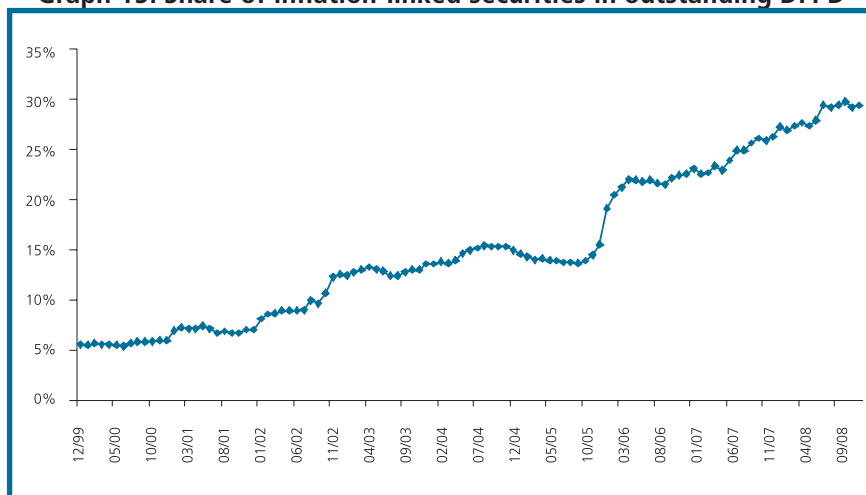


Source: National Treasury

Once the inflation-linked securities' curve developed, the share of these securities in outstanding domestic debt increased. Now, this market represents the fifth largest for such instruments in the world (see Graphs 15 and 16).

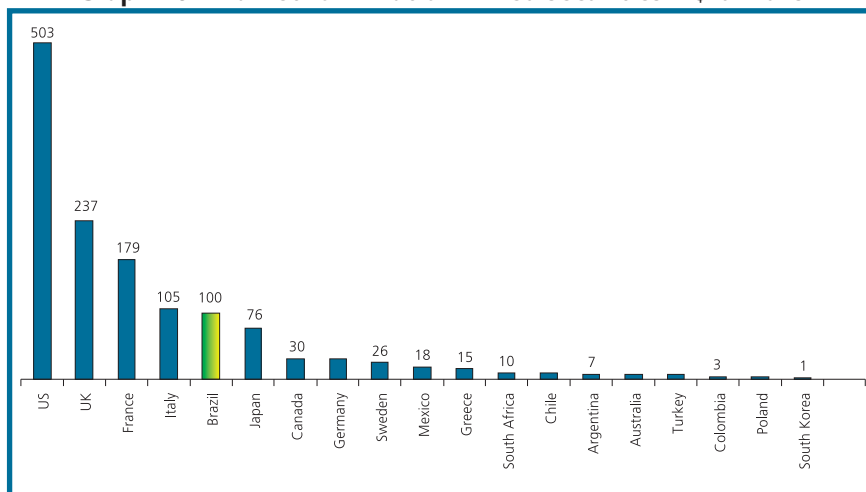
²⁰ The broad consumer price index is the federal government's official indicator to estimate and monitor inflation targets.

Graph 15. Share of inflation-linked securities in outstanding DFPD



Source: National Treasury

Graph 16. Market for inflation-linked securities – \$ billions



Source: Barclays World GILB index, March 2009

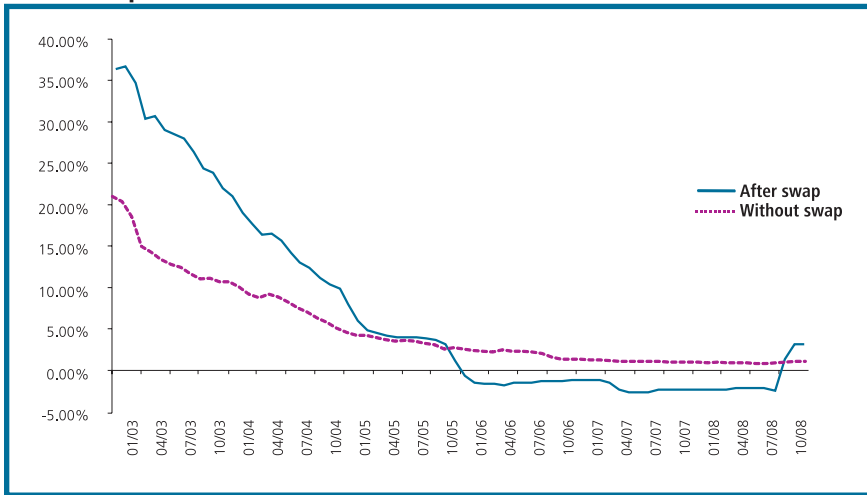
2.2.3 FX-linked and floating-rate bond market

Due to the Treasury's effort to significantly reduce the share of dollar-denominated and floating-rate (SELIC) domestic debt, the market for these instruments has been losing ground. The country stopped issuing FX-linked securities (NTN-D) in May 2002, eliminating the market for them, and has since focused on gradually replacing the floating-rate with fixed-rate securities.

The Treasury's and Central Bank's sharp reduction in FX exposure (which, besides the share of FX debt in FPD, includes FX swaps under Central Bank responsibility), led to a considerable decline in fiscal risk indicators. The improved FPD profile, associated with a greater accumulation of international reserves - whose stock far exceeded the overall External Federal Public Debt (EFPD) - caused the negative effect of an FX devaluation

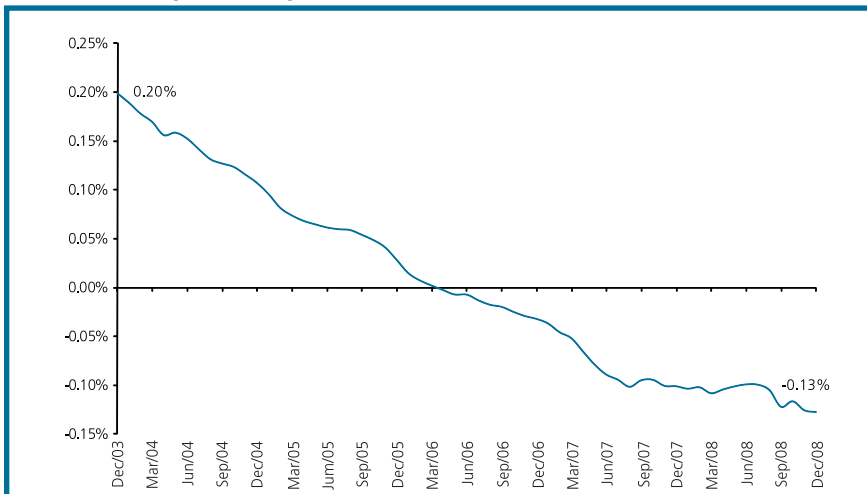
on the debt to drop substantially compared with 2002, to the extent of having its signal inverted (that is, to have a positive effect) from 2006 onwards (see Graph 18).

Graph 17. Dollar-denominated domestic debt - in DFPD %



Source: National Treasury and Central Bank

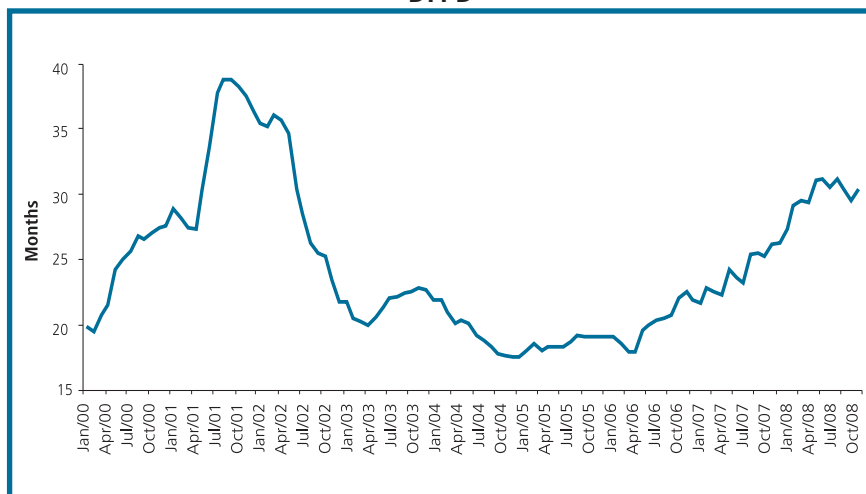
Graph 18. Impact on PSND of a 1% FX devaluation



Source: Central Bank and National Treasury

In the floating-rate bond market (where LFTs still accounted for 32.4% of FPD in December 2008), the strategy has been to establish benchmarks, with issues concentrated in longer maturities: The average was 30.5 months against 16.5 months for fixed-rate securities. Even if the Treasury's goal is to gradually reduce the share of these instruments, they still play an important role in terms of lengthening debt maturity.

Graph 19. Average maturity of outstanding floating rate securities – DFPD



Source: Central Bank and National Treasury

2.2.4 Diversification of the investor base

One of the Brazilian market's main strengths is its investor base.²¹ Measures to expand and diversify it have been priorities, given its important role in mitigating funding-related risks, along with ensuring greater stability and liquidity to the bond market. Many observers have emphasized the role of a diversified investor base in promoting market liquidity because of its positive effect on market competition, innovation and sophistication.²²

In this regard, the increased share of inflation-linked and fixed-rate securities in FPD resulted from the greater participation of private pension funds, foreigners and commercial banks in domestic debt security auctions.²³ However, as is true in most Latin American countries as well as other EMEs²⁴, banks in Brazil have a strong presence in financial intermediation.

The various banks' own-portfolios and investment funds hold 29% and 40% of DFPD,²⁵ respectively - from the perspective of registration (custody) criteria. In an attempt to identify the end holders of these bank-managed securities, an exercise presented in Part III, Chapter 5 produces the following profile.

This profile shows that the joint participation of institutional investors (complementary pension funds, insurance companies and open pension funds, among others) and non-residents reaches about 36%. Since these investors traditionally purchase longer-term securities and represent a solid investor base with characteristics that are consistent with PDM guidelines, the Treasury has encouraged their increased participation.

²¹ This occurred despite the strong pattern of indexation to short-term interest rates (see Part III, Chapter 6 - The Secondary Market of Federal Public Debt).

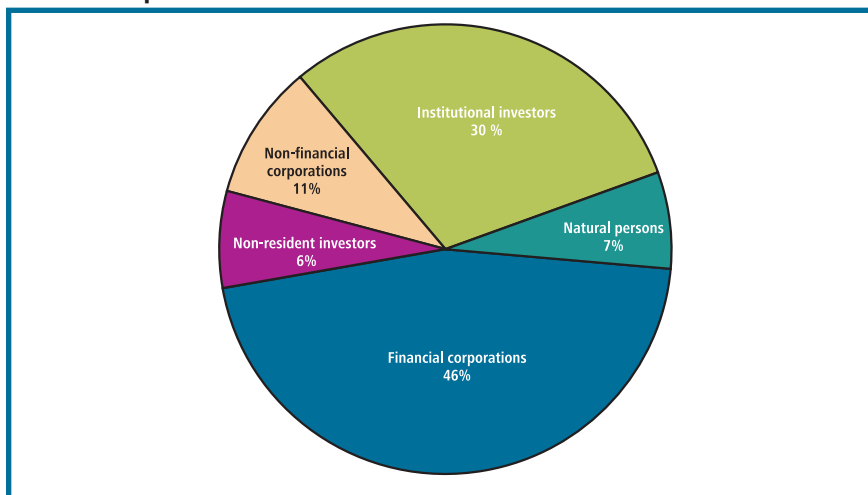
²² *Financial Stability and Local Currency Bond Markets*, CGFS Papers, no 28, June 2007.

²³ For further details see Part III, Chapter 5 (FPD Investor Base in Brazil).

²⁴ According to the BIS (2007), "As regards domestic ownership, a major difference is that the share held by banks is much larger, and that of other financial institutions is much smaller in the EMEs than in the industrial countries [...]"

²⁵ *Federal Public Debt Monthly Report*, National Treasury, December 2008.

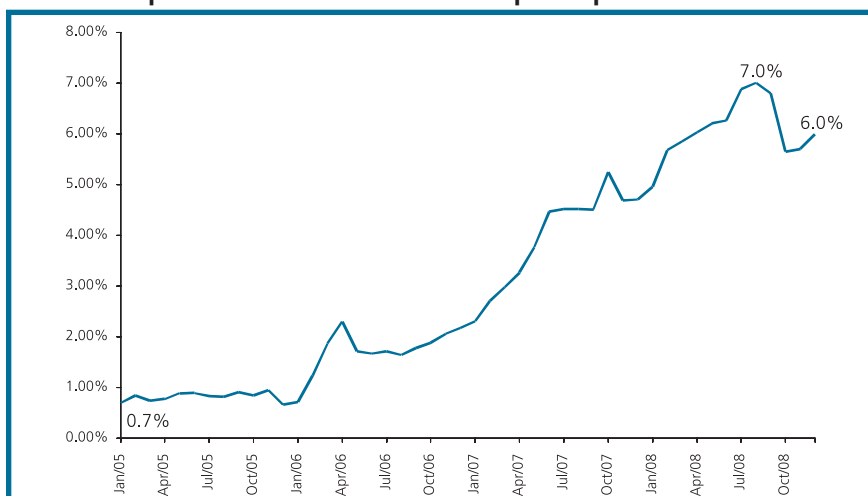
Graph 20. Profile of end DFPD holders– December 2008



Source: Central Bank and CVM

Among the actions designed to attract a more diversified investor base - besides frequent contacts at meetings and seminars - Brazil passed a law in 2006 (Law No 11,312) that exempted non-residents from paying income tax on gains from investments in domestic debt bonds. By this action, non-resident investors now enjoyed the same tax regimens as are offered in most emerging economies; the aim was to increase their participation since it was clear they prefer investing in longer-term instruments, notably fixed or inflation-linked securities.²⁶ The law had a substantial impact²⁷ although non-resident investors still participate less in the overall domestic debt than others.

Graph 21. Non-resident investor participation in DFPD



Source: National Treasury (based on information from the Central Bank)

²⁶ This was in keeping with the guidelines of the Annual Borrowing Plan (ABP) regarding both the increased participation of these securities and the lengthening of the FPD average maturity.

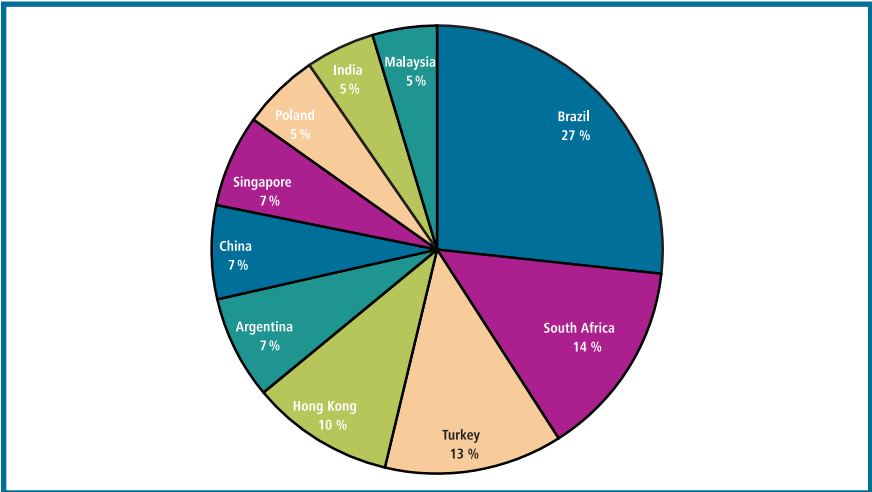
²⁷ Part III, Chapter 5 provides statistics on the contribution of non-resident investors.

2.3 Liquidity and pricing

As was noted in *Developing a Government Bond Market: A Handbook* (2001), “in assessing the choice of market structure with the goals of liquidity and efficiency, authorities should consider frequency of trading, transparency, and competition, all of which have an impact on liquidity and efficiency.”

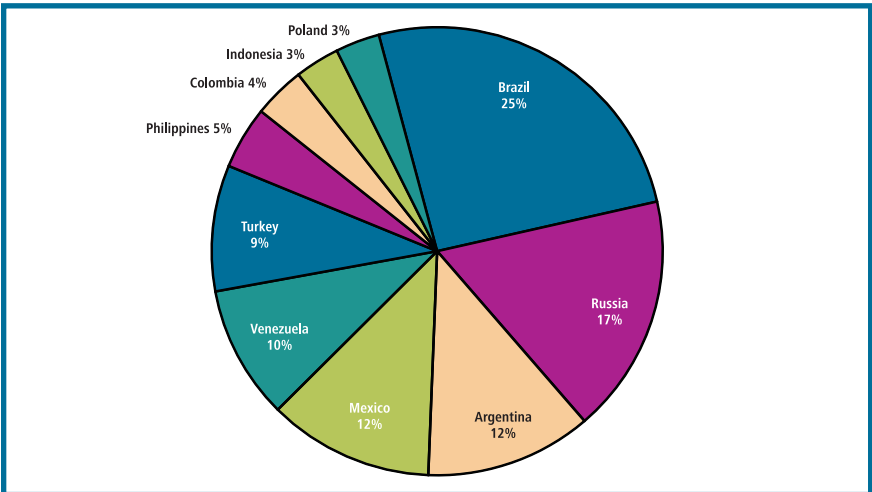
Improved liquidity ensures greater price transparency, which leads investors to demand a lower premium to purchase securities, and thus reduces the issuer’s financing costs. In this regard, Brazil has developed its market, increasing the liquidity and transparency of federal public securities through both government measures and financial sector initiatives.

Graph 22. Participation of emerging countries in the volume of domestic instruments negotiated in 2008 (Top 10)



Source: EMTA, December 2008

Graph 23. Participation of emerging countries in the volume of external instruments negotiated in 2008 (Top 10)



Source: EMTA, December 2008

Based on data from the Trade Association for the Emerging Markets (EMTA), in 2008, Brazil was the first in terms of volumes negotiated of emerging countries' debt in both domestic and international markets; also, domestic instruments accounted for 68% of the overall volume negotiated of EM debt.

Although the total volume of securities negotiated is high when compared to other emerging countries, there is still room for improvement in terms of daily average turnover. In the US market, which is the most liquid in the world, turnover reaches 14% of the overall outstanding debt; in Mexico, it is 4%, while in Brazil, it is below 2% of total FPD.²⁸

Brazil adopted a series of measures to increase the liquidity²⁹ of its securities since 1999, when a study group was established, with the cooperation of the Central Bank, to identify which types would boost the public debt market. Since then, the measures have significantly improved the liquidity of public securities. Also, those adopted to foster transparency in public debt markets have improved the pricing of government securities.

As is noted in the chapter on secondary markets,³⁰ the measures can be divided into two sets: Those that foster conditions that will improve negotiations among market participants and others that allow for greater transparency, such as the regular publication of a public bond issuance strategy that promotes better planning and reduces uncertainty. These measures created the necessary conditions for greater liquidity, given the increase in the investor base, as well as greater predictability in the pricing of negotiated assets and the lengthening of maturities.

In recent years, Brazil has also tried to increase the liquidity of several instruments in the external market by reopening 10-year and 30-year benchmark securities: Since 2005, the former were issued in February, June and November of that year, in November 2006 and April 2007, and 30-year securities were issued in January and March of 2006 and in January 2007.

With respect to pricing, besides the Treasury, other institutions such as the Central Bank and the National Association of Open Market Institutions (Andima), have promoted transparency through the (a) daily publication of indicative public security prices (76 maturities), (b) Electronic Federal Public Security Calculator (Confere), (c) development of some benchmark indices to encourage diversification of investors' portfolios (Imas), (d) publication of a system that compares rates (Compare), and (e) intra-day publication of public security prices before and after negotiations. These initiatives have produced results, as are described in Part III, Chapter 6.

3 Measures to develop the public debt market

The previous section described the representative nature of the Brazilian public security market and its steady development. Besides enabling macroeconomic conditions, this development is the result of a series of measures that will be reviewed in later chapters.

This section highlights some of the measures designed to develop the market and describes their connection to the themes addressed in the following chapters. One key feature is their simultaneous effect on different aspects of the security market: For example, measures that aim to improve clearing and settlement systems develop the market infrastructure; also, they help expand the investor base and primary market demand, and increase the volume of secondary market negotiations.

²⁸ Amante, Araujo & Jeanneau (2007)

²⁹ For details about these measures, see Part III, Chapter 6.

³⁰ Part III, Chapter 6.

Launching a coordinated action plan to develop the domestic security market is a complex task that requires simultaneous actions - given their interdependence - and the involvement of different market players (issuers, regulators, financial intermediaries, investors, and class associations). Further, as the World Bank concluded in its 2007 pilot project on the design of action plans to develop domestic public security markets in 12 countries, "one-size does not fit all," i.e., no single recipe applies to all countries. Thus, countries should seek solutions based on their unique conditions, solid principles and good practices.

Table 1 presents a set of measures taken in Brazil to improve one or more aspects of the security market. The columns represent the aspects affected and cite the chapters where they will be detailed. The table also illustrates how an action plan to develop the market involves measures which, in turn, affect several other facets simultaneously and depends on many participants. Such an overview is considered essential.

The first three measures are key to developing more efficient primary and secondary markets, since they offer rules that are easily understood and based on models (generated by the market itself) that tend to attract a larger number of participants. Thus, they serve to expand the investor base and the volume of security negotiations. The measures also promote a more competitive primary market, a more liquid secondary market and, ultimately, create the conditions to reduce the cost of public debt. These principles are consistent with international best practices and their relevance in Brazil will be addressed in the following chapters (see Table 1).

Brazil's experience proves it is essential to standardize the instruments so as to reduce debt fragmentation and build more liquid benchmarks in several sections of the yield curve. This worked well in both the fixed-rate (LTN and NTN-F) and inflation-linked (NTN-B) security markets, as described earlier in this chapter. Likewise, clear pricing rules coupled with careful analyses and monitoring of the most suitable financing mechanisms (as discussed in Part III, Chapter 4, on primary markets) have created competition and help set government security prices. Together, they have positively affected the secondary market.

Besides the first three measures, a second group can be identified that also helped widen the investor base and made the primary and secondary markets more competitive and liquid. This group also has positive effects on the security market as a whole, and includes efficient settlement and custody systems, electronic negotiation systems and dealer systems.

Table 1. Evaluating the measures to develop the public debt market

Measure \ Impact	Pricing and instruments (Part 3, Chap. 2)	Financial market organization (Part 3, Chap. 3)	Primary market (Part 3, Chap. 4)	Investor base (Part 3, Chap. 5)	Secondary market (Part 3, Chap. 6)
Standardization of instruments	x		x	x	x
Clear pricing rules	x		x	x	x
Financing through non-coercive auctions and with market rules			x	x	x
Efficient custody and settlement systems		x	x	x	x
Electronic negotiation system		x	x	x	x
Adequate dealer systems		x	x	x	x
Clear definition of the entity responsible for issuing securities		x	x	x	x
Regular publication of plans for issuances and market data			x	x	x

Measure \ Impact	Pricing and instruments (Part 3, Chap. 2)	Financial market organization (Part 3, Chap. 3)	Primary market (Part 3, Chap. 4)	Investor base (Part 3, Chap. 5)	Secondary market (Part 3, Chap. 6)
Establishment of benchmark securities			x	x	x
Incentives for the participation of institutional, non-resident and retail investors			x	x	x
Incentives for the derivatives market			x	x	x

A key condition for developing a fixed-income market is the existence of sound and safe systems for the custody, clearing and settlement of security transactions. To this end, the Central Bank introduced a new payment system in 2002 that improves the flexibility and safety in the processing of information on settlements involving fixed-income securities. Also, it minimizes financial risks by settling operations in real time, meeting delivery versus payment requirements (DVP).

Another innovation was the creation of the clearing house for public securities. This was integrated into an electronic trading environment, created by the Brazilian Mercantile and Futures Exchange (BM&F) in 2004, with government support. BM&F's *Câmara de Ativos* (Clearing House), which is integrated into Sisbex (the electronic negotiation system), allows transactions to be performed with counterparty risk mitigation, since the clearing house centralizes the process. Although the local market is mainly dominated by over-the-counter transactions, the electronic market tends to grow, as it is encouraged by government authorities who seek greater price transparency and consequently greater participation of agents who may have less information (see Part III, Chapter 6, on the secondary market).

The Treasury and Central Bank created a dealers' system in 2003 which specifies rights and duties, and thus contributed to a more competitive primary market, a more liquid secondary market and an environment where the flow of market information is more uniform. This system also improved the structure of the public security market and promoted other innovations: For example, in 2007, new requirements were devised that encouraged electronic negotiation and should contribute to its growth, relative to the traditional over-the-counter market.

Finally, a third group of measures was introduced that positively affected both the primary and secondary markets, and investor base. They (a) assign clear agency responsibility for issuing securities; (b) provide for regular dissemination of issuance plans and market data; (c) create benchmark securities and incentives to institutional, non-resident and retail investors to participate and (d) offer incentives to the derivatives market.

International best practices stress the importance of formally designating the agencies authorized to issue public securities as well as publishing issuance plans, auction calendars and market data,³¹ since these activities increase debt management transparency and predictability - important requirements for developing a public securities market. If they are lacking, this generates uncertainties that invariably mean higher financing costs for the government. Brazil has a solid framework with regard to these functions: The Treasury was named the primary issuer of federal debt securities (as mandated by the Fiscal Responsibility Law - LRF); the Annual Borrowing Plan and Monthly Issuance Calendars project issuance targets; and the Debt Annual Report and Monthly Reports³² regularly publish debt management statistics and analyses.

³¹ As detailed in Part II, Chapter 1, Section 2.5 (Institutional Structure and Recent Developments in Federal Public Debt Management).

³² For a detailed description of these reports, see Part I, Chapter 4 (Public Debt Concepts and Statistics).

Measures aimed at creating and sustaining benchmark securities also bear strong empirical and conceptual support. Benchmarks, which are usually represented by securities with significant volumes in different maturities, support their liquidity and contribute to the price formation of other public and private instruments. The previous section described Brazil's recent experience in this area, relative to the yield curves of fixed-rate securities (NTN-Fs), and inflation-linked securities (NTN-Bs).

With regard to investors, experience shows that a diversified base is vital to market development. Indeed, the gradual expansion and diversification of investors - particularly institutions other than commercial banks, which tend to invest in shorter-term securities to meet their liquidity needs - are needed to shift the composition of the debt and build a more liquid bond market.³³ In this respect, institutional investors such as pension funds, play a fundamental role in changing the debt profile to longer-term securities.

It is also recommended that retail clients participate: This involvement is promoted by the Treasury Direct program,³⁴ which sells securities over the Internet and through which the Treasury offers retail investors a set of securities identical to those offered to the market.³⁵

Further, in the Brazilian case, fostering the participation of non-resident investors are an important niche for the domestic market development. Despite the legitimate concerns about the volatility that these investors can bring to the market, they played an important role in the demand for longer-term securities and the consolidation of the yield curve.

The last measure in Table 1 involves incentives to derivatives markets. The interest rate derivatives market at BM&F in Brazil is extremely liquid, and the Treasury's decision to match the maturity date of its fixed-rate instruments to the maturity dates of future contracts enhanced such liquidity. Investors in Brazil use these two markets to manage their exposure to interest rates. Also, the role of the derivatives market (in the development of the public securities market and vice-versa) is a theme of international focus. Several countries are interested in developing both markets, for which the Brazilian experience offers useful lessons. IPCA-linked derivatives' contracts were also launched in 2004, which allowed NTN-B holders to hedge their portfolios and eventually negotiate these instruments.

4 Conclusions

Supported by improved macroeconomic conditions, an active debt management program helped develop the federal government securities market. Although the process is ongoing and many challenges remain, the improved debt profile and the growth of the market have reduced the risks and exposures to adverse shocks that used to affect the country, such as those faced during the recent international crisis.

This chapter has shown that the path to the present was difficult, with setbacks caused mainly by the absence of prerequisites that could sustain the market development. As these prerequisites were met, the development process became more robust in face of occasional market turmoil. The maturity and volumes of fixed-rate and inflation-linked security issuances increased in the domestic market, and the country launched local-currency public securities in international markets.

³³ For further details, see World Bank, 2007.

³⁴ See Part III, Chapter 7 (Treasury Direct).

³⁵ The exception is a long-term inflation-linked (IPCA) security, similar to the NTN-B, but with no half-yearly coupon payments, called Principal NTN-B. This security is ideal, for example, to establish individual retirement reserves, since it creates no problems related to the re-investment of coupons.

Although good economic fundamentals are critical to develop a sound securities market, the chapter also described another dimension - the relevance of a comprehensive action plan to reach well-functioning operations. The market development process is complex and involves different areas and actors. Fortunately, the high qualifications of debt managers both internationally and in Brazil, have improved their capacity to overcome the challenges.

Several measures linked to international best practices introduced in recent years contributed to making Brazil's public security market more liquid, safer and more sophisticated and, to some extent (as with its infrastructure), similar to those in more developed countries. Undoubtedly, there is still significant room for improvement and the government bond market will evolve further over time, particularly in the area of consolidating more liquid long-term benchmarks in the yield curve. These price references are critical for broader capital market development and economic growth.

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