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Credit Market in Brazil
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- 0** ou **0,0** figure smaller than half the value of the last digit to the right.
* preliminary data.

An hyphen (-) between years (1970-1975) indicates the total of years, including the first and the last. A slash (/) between years indicates the yearly average of such years, including the first and the last, or harvest-year or agreement-year, according to the text.

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Foreword

The institutionalization of the Banco Central do Brasil Technical Notes, conducted by the Department of Economics, promotes the dissemination of works featuring economic content, attracting both theoretical and methodological interest, giving a view of the short-term developments of the economy and reflecting the work of the Bank's employees in all areas of action. Besides, other works, though external to the Banco Central, may be included in this series provided the Bank has afforded institutional support to their preparation.

Credit Market in Brazil

GUILHERME LINS ARCOVERDE

Abstract: the long period of inflation suffered by Brazil inhibited development of the country's loan-market, since the large commercial banks preferred financing the country's domestic debt, which had more liquidity and was perceived as having lower credit risk, while still having substantially high interest-rates. The economic stability that resulted from the Real Plan has stimulated the adoption of more sophisticated credit-risk appraisal and management systems. Several large-scale retail banks have begun to organize databases containing time-series data of credit-bureau and behavior scores, as well as statistics of late-payments, losses, and recoveries. These databases allow greater refinement of the credit-appraisal process and risk-management techniques. More recently, by anticipating the demands of the local regulatory authority (specifically, the Brazilian Central Bank, BCB), and in an attempt to match the current international practices in credit-risk management, several Brazilian financial institutions have started to focus their attention on the development of sophisticated methodologies to measure a portfolio's credit-risk .

Summary

1. Introduction	9
2. The securitization-market	9
3. Credit derivatives	11
4. Some pricing considerations	13
5. Final remarks	14
References	15

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1. Introduction

The long period of inflation suffered by Brazil inhibited development of the country's loan-market, since the large commercial banks preferred financing the country's domestic debt, which had more liquidity and was perceived as having lower credit risk, while still having substantially high interest-rates.

The economic stability that resulted from the Real Plan has stimulated the adoption of more sophisticated credit-risk appraisal and management systems. Several large-scale retail banks have begun to organize databases containing time-series data of credit-bureau and behavior scores, as well as statistics of late-payments, losses, and recoveries.

These databases allow greater refinement of the credit-appraisal process and risk-management techniques. More recently, by anticipating the demands of the local regulatory authority (specifically, the Brazilian Central Bank, BCB), and in an attempt to match the current international practices in credit-risk management, several Brazilian financial institutions have started to focus their attention on the development of sophisticated methodologies to measure a portfolio's credit-risk¹.

2. The securitization-market

This market is only slightly developed, and the main reason is due to the defects in the bankruptcy law. In short, the current general bankruptcy law fails in two critical areas. It does not provide a good legal framework for neither creditors rights, nor corporate insolvency.

A project to reform the bankruptcy law is now under discussion in the Brazilian National Congress, and it is mobilizing broad sectors of Brazilian society. This project is part of a set of structural reforms that are being energetically conducted by the Brazilian Government.

The Brazilian real-estate market is now controlled by its own specific set of regulations, which includes a law called SFI (as it is known by its Portuguese initials) that takes precedence over the general bankruptcy law. This new set of industry-specific regulations, together with financial regulations under the

¹/ Market-Risk management systems are already in widespread use by most Brazilian banks. See DUARTE, A. M. et al. [s.d.] for details.

jurisdiction of CMN²/BCB, has created a blossoming of a promissory market in securitization. However, there are several factors impeding this market from fully exploiting its potential.

These factors are:

- a) Excessive uncertainty in projecting the yield-curve for long-term interest-rates – actually this has improved during the Real Plan, but uncertainty is still very high. The same improvement is true for the secondary market for public-bonds, but this secondary market still has little liquidity in Brazil. The basic interest-rate yield-curve is implicitly built from prices as practiced in the futures and swap markets for interest-rates negotiated in the BMF (the Brazilian futures and commodities exchange), which lets us daily construct a basic-interest yield-curve for 3 years with reasonable liquidity. Its volatility can then be estimated. The level of the yield’s volatility has been substantially smaller since the adoption of a floating-currency policy in January 1999.

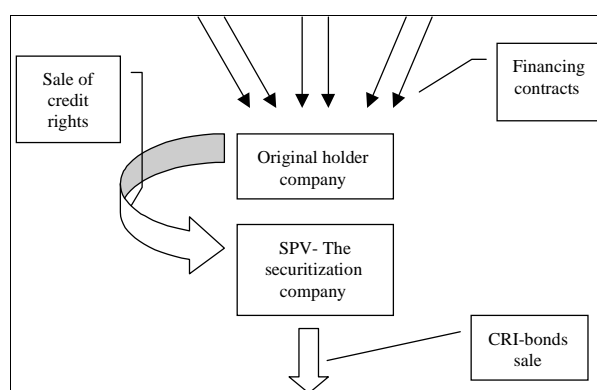
As a rule, securitization operations have longer time-periods and require market-players to combine the 3-year yield-curve information, that have reasonable liquidity, with information about public-bond prices that have longer maturity which have little liquidity. The uncertainty that still remains in the estimate of the whole yield curve and its volatility is definitely responsible for many “basis points” in the spread of the operation.

- b) The Problem with Multiple Instances of the Monetary-Transaction Tax – there is a ‘provisional’ tax on all monetary-transactions (the Provisional Monetary – Transaction Tax, otherwise known by its Portuguese initials, the CPMF).

An instance of this tax can occur up to 4 times in the operational cycle of a securitization, or even worse yet, up to 5 times in some cases. These instances can result in approximately 120 “basis points” in the spread of the operation.

The next picture illustrates a typical securitization operation and the following explains the various instances of the CPMF tax previously mentioned:

A typical securitization operation



²/ National Monetary Council.

1. Based on financing contracts, the securitization company pays a CPMF tax when acquiring credits from the original holder, based on the value paid for the purchase of the respective credits.
2. Next, when issuing the CRI³ credit-bonds, the amount of resources obtained is then subjected to another instance of the CPMF tax based on the amount used for financial-market applications. This constitutes the second instance of the CPMF tax.
3. The third instance of the CPMF tax occurs when a securitization company applies the resources coming from the monthly amortization of the borrower for each of the acquired contracts. This instance occurs by the application of resources that will be used afterwards for the amortization and interest-payments of the issued certificates. Note that this type of instance occurs various times during the lifetime of the issue.
4. The fourth instance of the CPMF tax occurs when the resources previously received are used for the payment of each of the installments of the issued CRI credit-bonds. Note that this instance of the CPMF tax, as well as the third instance, can occur various times during the lifetime of the certificate.
5. Finally, a fifth instance could possibly occur, if there is an advance payment to the securitization company, and it decides to acquire a bond to administer the operation's duration.

3. Credit derivatives

The credit-derivatives market does not formally exist yet, but Brazil is betting on the importance of developing it. The intention here is to provide Brazilian banks with the possibility of being intermediaries of credit-risk.

With currently-available financial instruments, the final holder of a credit-risk does not, as a rule, have alternatives, except to keep this risk in the portfolio until the maturity of the liability.

Credit-derivatives make it possible for banks to sell undesirable credits and buy assets with risks related to market-segments that the bank does not have access to.

The expectation is that these instruments can decisively contribute to the reduction of banking spreads. This will be accomplished by enlarging the investor base and thus increasing competition in the credit-risk market.

The creation of this market is not an isolated action. On the contrary, it is part of an overall policy to strengthen the foundations of a modern credit-based market economy.

^{3/} Bonds for Real-Estate Credit-Rights.

In a healthy partnership with the market, the Brazilian Central Bank discusses the aspects of Accounting, Taxes, and Capital Requirements as related to the creation of a credit-derivative market.

At this time, 2 regulations have been submitted for appraisal by the market⁴:

- a) One is a resolution by the National Monetary Council authorizing the establishment of credit-derivatives, and giving power to the Brazilian Central Bank to regulate its use.
- b) The other is a regulation by the Central Bank to normalize the use of two instruments: the credit-default swap and the total-return swap.

The main aspects of these regulations that are generating the most controversy are:

- a) Who exactly can participate in this market?
- b) Should Short-Sales be permitted?

In the proposed regulation, the list of participants in the market is a little restrictive, specifically only: Commercial Banks; Investment Banks; the National Federal Savings Bank (in Portuguese called the Caixa Econômica Federal); Societies for Credit, Financing, and Investment; Real-Estate Companies; and Leasing Companies. But there are arguments for more flexibility to allow at least Funds and Pension Funds to participate, since it is argued that they will give liquidity to the market.

In regard to Short-Sales, they are not permitted in the current proposal, but this could be relaxed.

There is an obvious trade-off between more conservative choices and more flexibility. With the choices previously mentioned, there is no systemic risk involved, but there could also be no market.

Imagine a specialized international bank that has good pricing-models and lots of capital, and it doesn't have a particular asset. But now, it wants to sell protection for the asset's credit-risk. This is a good thing, because it will give liquidity to the market, and contribute to spread reduction in the overall banking system, and consequently improve its efficiency.

On the other hand, some exposure limits need to be defined to combat go-for-broke behavior by reckless banks with little capital that could assume leveraged short positions. This could be done based on a netting criterion and some stress-scenario

⁴/ We are talking about the first proposal that was submitted for discussion until 11.16.2001 (see Edital de Audiência Pública 14/2001 at the Brazilian Central Bank Web site) . In 2.28.2002 the CMN has approved the resolution (Resolução 2.933) and the regulation by the Central Bank will come soon.

hypotheses. And then to control this type of undesirable behavior, intensive monitoring of reckless institutions needs to be implemented.

The optimum point for dealing with this trade-off will probably be determined after a period of discussion and practice.

There is a small difference between the current proposal and international practice regarding the definition of credit-events. In the proposed regulation, only objective situations will be permitted, and the reason for this limitation is again a lack of public rating history.

Significant efforts are being made to solve this problem by the Brazilian Central Bank in partnership with broad sectors of the financial system.

4. Some pricing considerations

CreditMetrics from JP Morgan and CreditRisk+ from CSFB are among the most popular models developed in the last few years to aggregate credit-risk under the new approach for credit-risk thinking as a commodity on a portfolio basis.

These models have a few shortcomings when applied to some bank products, especially in Emerging Markets. For example, CreditRisk+ makes the key assumption that the number of defaults can be approximated by a Poisson Distribution. This is a reasonable approximation when the probability of an individual default is small, say less than 5%. Banks in emerging markets have activities, such as Consumer Lending, Leasing, and Credit-Cards, with default rates that frequently exceed 10%, and sometimes reach 15%, when estimated using real data. In this situation, it is not reasonable to make this key assumption.

On the other hand, the model of CreditMetrics needs Monte Carlo Simulation whenever there is correlation between borrowers' default-risk. The credit-risks of the bank products previously-mentioned have a high correlation driven by macroeconomic factors, such as unemployment, aggregated demand, and others. Since the dimension of the Monte Carlo Simulation is the number of individual borrowers, it could be too high to be feasible. These facts indicate the need for substantial research work and new methodologies (Oliveira and Almeida, 1999; Studer, 1995).

Another point to highlight is that credit-derivative pricing-models, like HJM, that implicitly calculate default probabilities from bond-spread yield-curves and recovery-rate considerations will be useless on domestic emerging markets, because the curves needed as input cannot be obtained due to a lack of rating history.

However, these models are good for sovereign risk-markets, since the necessary data is easily available via private market-data providers.

5. Final remarks

As pointed out by Duffee and Zhou (2001) it is not possible to theoretically conclude something unambiguously about the benefit of introducing credit derivatives in the banking system. This is a particular case of Hart's (1975) seminal point that when markets are incomplete, the opening of a new market can make everyone worse off.

Duffee and Zhou's (2001) point was demonstrated by building a simple model of a bank that naturally has the opportunity to make loans. The risk of loan-default can expose the bank to its own financial distress. The bank can sell any fraction of the loan in order to reduce its expected costs of distress, but because it has superior information about loan quality, the loan-sale market is affected by an asymmetric-information problem.

They built a rule for credit-derivatives into their model by assuming that the magnitude of the asymmetric information varies during the life of the loan. A credit-derivative contract that transfers the loan's risk when the Lemon's⁵ Problem is smallest can be used by the bank to reduce its risk of financial distress.

If the asymmetric-information problem is sufficiently severe, the loan-sale market will only be of limited use to banks, and thus the opportunity to use credit-derivatives will be valuable to them.

However, when Duffee and Zhou (2001) used their model to consider the effects that a credit-derivative market has on other markets for sharing risks, the introduction of a credit-derivative market is not necessarily beneficial.

The reason is because if, prior to this introduction, the asymmetric-information problem was not severe enough to limit the use of the loan-sales market, introducing a new market for credit-derivatives can be harmful.

So, in general this is not a question to be solved by theory, but to be inferred by practice. However, in countries where the loan-sales market is immaterial, as it is in the Brazilian case, we have good reasons to think that, if feasible⁶, the introduction of a credit-derivative market would be beneficial.

5/ Refers to AKERLOF, G. A. (1970).

6/ Its feasibility is not obvious. Despite their greater flexibility, most of the environment that is needed to develop the loan-sales market is also needed to develop the credit-derivatives market.

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