Financial contracting under extreme uncertainty: an analysis of Brazilian corporate debentures

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Abstract

Economic volatility, high transaction costs, and fragile institutions hinder financial contracting in emerging markets. These conditions characterize the economy of Brazil, yet a nascent corporate bond market thrives. I analyze 50 Brazilian indenture agreements and find that sample debentures are characterized by (i) features that mitigate inflation risk for investors, (ii) contingent-maturity mechanisms that provide periodic opportunities for exit or renegotiation, (iii) a paucity of covenants that restrict the debtor’s investment, financing, and dividend decisions, and (iv) self-enforcement mechanisms that avoid reliance on inefficient institutions. Analysis of these features enhances our understanding of contracting in emerging economies. © 1999 Elsevier Science S.A. All rights reserved.

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1. Introduction

Empirical research on capital structure has expanded beyond the choice of debt or equity and increasingly examines the architecture of corporate liabilities. In a seminal article, Smith and Warner (1979) analyze characteristic features of U.S. corporate bond contracts. The evidence from Smith and Warner and subsequent investigators (e.g., Malitz, 1986; Begley, 1991; Lehn and Poulsen, 1991; Barclay and Smith, 1995a,b) suggests that careful design of financial contracts mitigates agency conflicts among claimants and reduces financing costs. However, extant research on financial contracting relies on data from the United States and other developed countries. For example, Smith and Warner assume U.S.-style institutions and enforcement costs but acknowledge that ‘the types of contracts we observe depend on the level of these institutionally-related costs’ (p. 147).

Firms and investors in emerging markets confront volatile economies, high transaction costs, and the absence or fragility of societal institutions that reduce such costs in developed economies. High inflation, volatile real-sector activity, underdeveloped institutions, and an interventionist state characterize the economy of Brazil, for instance. Although this environment exacerbates the hazards of raising external capital and increases transaction costs, a nascent corporate bond market has existed in Brazil since the late 1980s. The vitality of this market suggests that Brazilian firms imaginatively design financial contracts to address difficulties in the economic environment.

This study investigates the financial contracts of Brazilian firms. Specifically, I analyze 50 indenture agreements that govern Brazilian corporate debentures issued from 1989 to 1993. Economic volatility, high transaction costs, and weak institutions profoundly influence these debt contracts. For example, sample indentures employ elaborate inflation-indexation features that ensure a real return. More importantly, agency costs of debt due to potential conflicts between shareholders and creditors are likely to be high in Brazil. However, covenants that restrict a debtor’s dividend, investment, and financing policies are also costly. Such constraints are seldom observed in the sample indentures. Instead, contingent-maturity mechanisms such as periodic renegotiation of contract terms, an issuer’s right to call, an investor’s right to put, and an investor’s right of conversion to equity are common. An absence of restrictive covenants and the prevalence of contingent-maturity mechanisms suggest that the latter more efficiently address agency costs in Brazil. Contingent maturity also makes Brazilian bonds largely self-executing, i.e., less dependent on costly and unreliable institutional enforcement. In sum, Brazilian firms address myriad hazards to debt financing via resourceful contracting. Inferences drawn from analysis of Brazilian financial contracts enhance our understanding of debt contracting in particular and institutional frameworks for contracting in emerging markets in general.
The following section describes my data and methods. Section 3 characterizes the environment for financial contracting in Brazil. Section 4 describes and analyzes features of the sample contracts. Section 5 reviews the study’s findings and provides a brief conclusion.

2. Data and methods

The raw material for this study is a sample of 50 Brazilian indenture agreements that govern debentures for corporations in the manufacturing, public utility, and nonfinancial service sectors. These debtors filed the indentures with the Brazilian Securities Commission (CVM – Comissão de Valores Mobiliários) between 1989 and 1993. Appendix A displays the debtors, issue dates, proceeds from each issue, and other data. Analysis of these debentures and their underlying contracts seems particularly relevant since Santos (1995, p. 253) notes that in Brazil a debenture ‘is the financial claim that permits the most creativity in financial management. It is the debenture, via its flexibility, that provides the freedom required to address the needs of those that must raise capital as well as the desires of those who wish to invest’ (translation by author; hereafter, all such translations appear in italics within quotation marks). Appendix B provides a full-text translation of the indenture of Trafo-Equipamentos Elétricos S.A. (10/1/93).

The 50 sample indentures govern bonds with average (median) issue size of $72 million ($47 million). The sample spans 40 issuers, with eight firms responsible for multiple issues. A Brazilian indenture can govern several component series with slightly different terms, and the 50 sample indentures govern 147 series. Because most indenture terms are identical across series but differ across issues of the same firm, the unit of analysis is the indenture, not the component series or issuing firms. Table 1 shows the distribution of sample bonds by issue date. There are five bonds from 1989, 13 from 1990, six from 1991, six from 1992, and 20 from 1993. The 50 debentures represent 24.4% of registrations and 38.7% ($3.6 billion) of the dollar-equivalent volume of all debentures issued in Brazil over the sample period. Volume by industry sector is not available for the sample period, but nonfinancial-sector volume accounted for 44% of registered issues and 37% of volume between January 1994 and August 1996 (ANDIMA, 1996b). Consequently, the sample appears representative of debentures issued by nonfinancial firms in the sample period.

My investigation is styled after Smith and Warner (1979). Smith and Warner analyze the American Bar Association’s Commentaries on Indentures and 87 public debt issues registered with the SEC from 1974 to 1975. They posit that features of U.S. debt contracts have ‘not arisen merely by chance; rather, they take their current form and have survived because they represent a contractual solution which is efficient from the standpoint of the firm’ (p. 123). Smith and
Table 1
Distribution of Brazilian corporate debentures sample by year of issuance

This table sketches the temporal distribution of 50 sample Brazilian corporate debentures issued between 1989 and 1993. Date of issue refers to the date specified in the indenture agreement; the actual subscription date may differ. The number and dollar-equivalent value of all Brazilian debentures are supplied by ANDIMA. ANDIMA’s figures for ‘all debentures’ include debentures from financial companies and leasing debentures, whereas sample debentures are exclusively industrial, utility, and nonfinancial-sector service firms. The dollar-equivalent value of sample debentures is obtained by taking the Brazilian currency face value and dividing by the exchange rate for date of issue as specified in the Wall Street Journal.

<table>
<thead>
<tr>
<th>Date of issue</th>
<th>All registered Brazilian debenture issues per year</th>
<th>Number of sample debentures</th>
<th>Value of sample debentures (millions)</th>
<th>Number of sample debentures as a % of all registered issues</th>
<th>Value of sample as a % of all registered debenture issues</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Value (millions)</td>
<td>Number</td>
<td>Value (millions)</td>
<td>Straight</td>
</tr>
<tr>
<td>1989</td>
<td>17</td>
<td>$1,298</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>1990</td>
<td>64</td>
<td>$2,051</td>
<td>12</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>1991</td>
<td>54</td>
<td>$1,408</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>1992</td>
<td>26</td>
<td>$792</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>1993</td>
<td>44</td>
<td>$3,765</td>
<td>9</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td>1989–1993</td>
<td>205</td>
<td>$9,314</td>
<td>32</td>
<td>18</td>
<td>50</td>
</tr>
</tbody>
</table>
Warner emphasize that qualitative analysis of financial contracts stimulates useful inferences and that ‘what separates good empirical evidence from bad is not whether it can be reduced to numbers, but whether it increases our knowledge of how the world functions’ (p. 122). My inferences are also largely qualitative and subject to alternative interpretations. For example, some contract features could result from institutional factors whose origins or persistence might be economically arbitrary [e.g., path dependent as discussed by North (1990)]. I have explored many alternative explanations in interviews with Brazilian firms, a fiduciary agent, and other institutions and incorporate the resulting insights when relevant.

Like Smith and Warner, I examine two competing hypotheses on the structure of debt contracts. Under the costly contracting hypothesis, careful design of financial contracts can mitigate shareholder-bondholder conflict and enhance firm value. The alternative irrelevance hypothesis does not imply that shareholder-bondholder conflicts are insignificant, but rather that it is immaterial to firm value whether the potential for such conflicts is priced out ex ante, i.e., via higher interest rates, or addressed by costly contract design features. Smith and Warner conclude that contractual features observed in U.S. corporate debt reduce total agency costs, consistent with the costly contracting hypothesis. Subsequent research on U.S. corporate debt also rejects the irrelevance hypothesis. Such research focuses on restrictive covenants (Malitz, 1986; Begley, 1991; Lehn and Poulsen, 1991; Goyal, 1994), call provisions (Thatcher, 1985; Kish and Livingston, 1992; Crabbe and Helwege, 1994), and maturity and priority structure (Mitchell, 1991; Barclay and Smith, 1995a,b; Guedes and Opler, 1996). The costly contracting hypothesis is not universally accepted, however. Bratton (1989), for example, claims that agency theory assumptions ignore the legal context of financial contracting in the U.S., and Riger (1991) argues that indentures are collections of boilerplate terms imposed upon unsophisticated investors.

3. Brazil’s economic environment and its impact on financial contracting

The environment in Brazil appears inimical to financial contracting. Table 2 reports that various indicators of country risk consistently rate Brazil as a high or moderate risk. While these ratings reflect various economic and institutional factors, four characteristics of the Brazilian economy are particularly relevant to financial contracting: high inflation, volatile real-sector activity, weak institutions, and an interventionist state. These characteristics exacerbate the hazards

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2 Studies such as this are consistent with Coase’s (1992) suggestion that economists exert more effort in analyzing actual business contracts and less in abstract theorizing.
Table 2
Performance of Brazil in various country-risk ratings


<table>
<thead>
<tr>
<th>Country risk measure (source)</th>
<th>Brazil’s rating</th>
<th>Brazil’s ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country Credit Risk (Institutional Investor) (average rating, 1989–1993)</td>
<td>27.4 out of 100</td>
<td>Never better than 60th out of rated countries (US rated 88.7 on average, never worse than 6th best)</td>
</tr>
<tr>
<td>International Country Risk Guide (Political Risk Services) (average rating, 1989–1993)</td>
<td>61.3 out of 100</td>
<td>Never better than 53rd out of nearly 130 rated countries (US rated 83.3 on average, never worse than 16th best)</td>
</tr>
<tr>
<td>Corruption Perception Index (Transparency International) (inaugural index, 1995)</td>
<td>2.70 out of 10.00</td>
<td>37th of 41 rated countries (US rated 7.79, ranked 15th best)</td>
</tr>
<tr>
<td>The Index of Economic Freedom (Johnson and Sheehy, 1995) (inaugural index, 1995)</td>
<td>3.30 out of 5.00 (1 best, 5 worst)</td>
<td>63rd of 101 rated countries (US rated 1.95, ranked 4th best)</td>
</tr>
</tbody>
</table>
of financial contracting and increase the costs of mechanisms that address such problems.

3.1. Chronic inflation

Fig. 1 shows that Brazilian inflation is high and volatile prior to and during the sample period. Annual inflation is never less than 50% and arithmetic (geometric) average annual inflation is 656% (363%) during the 1979–1993 period. Brazilian inflation reaches extremely high levels during the period when the sample debentures are issued (1287% in 1989, 2987% in 1990, 441% in 1991, 1009% in 1992, and 2148% in 1993).

Investors rationally incorporate expectations of future inflation in pricing nominal fixed-income contracts. Huberman and Schwert (1985), for example, report that the market for Israeli government bonds quickly aggregates expectations about future inflation. Unexpectedly high (low) inflation erodes (enhances) the real value of an outstanding nominal contract to the investor. Conversely, unexpectedly high (low) inflation enhances (erodes) the value of a nominal contract to a debtor. This nominal contracting hypothesis predicts that unexpected inflation affects equity values of leveraged firms, but empirical support for this hypothesis is mixed (French et al., 1983; Bernard, 1986).

![Fig. 1. Annual Brazilian inflation, 1979–1993 (Wilkie et al., 1995).](image-url)
Volatile inflation raises contracting costs if mechanisms for hedging unexpected inflation are costly. Inflation indexation of debt obligations is a mechanism that hedges inflation risk, but indexation costs are not trivial. Dispersion in relative price levels due to equilibrium factors or distortions from government price controls creates indexation imperfections. Specifically, relative price dispersion induces a potential incongruence between the contractual index and prices relevant for an investor’s desired consumption profile (Roe, 1979). Consequently, even returns on indexed debt must compensate investors for risks related to inflation. Dispersion in relative prices also increases the probability of financial distress if the debtor’s cash flows suffer deflation relative to the contractual index. Indexation costs due to price dispersion are especially relevant for Brazil during the sample period because indexation imperfections increase with the level of inflation. In addition, reliance on indexes that are subject to manipulation by the government introduces political risk (Roe, 1979). Political risk is particularly salient in Brazil since the government periodically fights inflation with wage and price controls and tampers with indexes (Baer, 1995).

3.2. Volatility of real economic activity

High volatility of real activity, reflected in corporate cash flows and stock prices, also poses difficulties for financial contracting in Brazil. Fig. 2 tracks the evolution of the BOVESPA (Bolsa de Valores de São Paulo) stock index, converted to U.S. dollar returns, against the S&P 500 from 1984 to 1993. Over this ten-year period, the compound annual dollar return on the BOVESPA index is 16.9% compared to 11.0% on the S&P 500. However, the standard deviation of monthly returns is 25.3% for the BOVESPA index, considerably higher than the 4.5% monthly standard deviation of the S&P 500. Brazil’s economic uncertainty is also reflected in measures of country risk, such as Institutional Investor’s Country Credit Risk index, in which Brazil is never ranked better than 60th out of all rated countries between 1989 and 1993.

Uncertainty such as that evidenced by volatile equity values has several implications for financial contracting. Foremost, shareholders may disagree with creditors regarding future investment decisions in such a high-growth, high-risk environment. These conflicts over investment policy, such as Jensen and Meckling’s (1976) ‘asset-substitution problem’ and Myers’ (1977) ‘under-investment problem’, elevate agency costs of external debt. Relatedly, the probability of breach of a performance-contingent debt contract is high in such a volatile setting. High probability of contract breach increases distress-related agency costs of debt, costs that are borne by the issuer in the form of higher interest rates or reliance on costly mechanisms that constrain opportunism. Finally, high volatility results in significant information asymmetries since accounting and stock market measures of firm value are less informative than
for firms in more stable environments. These information asymmetries between debtors and investors raise costs of external debt due to adverse selection (Myers and Majluf, 1984).

3.3. Underdeveloped institutional framework

Institutions reduce the costs of defining property rights, measuring attributes of exchange, and enforcing contracts (North, 1990). Institutions that facilitate financial contracting include (i) judicial or quasi-judicial enforcement, (ii) accounting and disclosure practices, (iii) auditors, appraisers, and credit rating agencies, (iv) markets that translate information into prices via security trading, and (v) regulatory bodies that promote market integrity. Because of relatively weak institutions, ‘there is an immense difference in the degree to which we can rely upon contract enforcement between developed countries and Third World countries’ (North, 1990, p. 59).

Brazil’s institutions are far from primitive, but they appear insufficiently developed to substantially assist parties to financial contracts. First, Brazil has a civil-law legal tradition, characterized by La Porta et al. (1997) as an impediment to external financing in general. The Brazilian legal system, in particular,
does not employ the principle of stare decisis and the judiciary is regarded as inefficient and sometimes even corrupt (D’Almeida Pires Filho, 1991). Second, the quality of disclosure by Brazilian firms is perceived to be low. South American accounting practices are dominated by the legal and administrative systems inherited from the Iberian colonizers and the ‘highly political environment that results from such systems’ (Ball, 1995, p. 23). Brazilian annual reports, for example, are ‘used with little effectiveness by corporations that usually comply merely with their legal obligations’ (Teixeira da Costa, 1993, p. 13). Indeed, ‘for the vast majority of firms, financial statements do not correspond to the reality of their operations’ and ‘the manipulation of financial statements is not restricted to small firms’ (Pereira da Silva, 1990, pp. 30–31). Third, ancillary disclosure institutions are weak. For example, auditors’ reports are ‘of little prominence in the relationship between a corporation and its shareholders’ (Teixeira da Costa, 1993, p. 31) and no credit rating agencies operated in Brazil during the sample period. Fourth, thin trading and volatile pricing characterize Brazilian financial markets (Sudweeks, 1989). Finally, Brazilian regulators do not provide the same guarantee of financial-system soundness as that enjoyed in developed countries. Reflecting Brazil’s weak institutional environment, Transparency International’s inaugural Corruption Perception Index ranked Brazil 37th out of 41 rated countries.

3.4. An interventionist state

Brazil’s interventionist state exacerbates the contracting hazards discussed above. First, via regulation and control of enterprise, the Brazilian government plays a substantial role in several sectors of the economy (e.g., petroleum, mining, telecommunications, power generation, banking, and transportation). Distortions due to intervention in these sectors ripple throughout the Brazilian economy and significantly affect private firms. Second, the government frequently responds to high inflation, volatile growth, and capital flight with sweeping heterodox policies characterized by reliance on wage and price controls. These economic plans (Cruzado Plan, 1986; Bresser Plan, 1987; Summer Plan, 1989; Collor I, 1990; Collor II, 1991; Real Plan, 1994) substantially revise the fundamental rules of the game for transactions among private parties. In particular, these plans often unilaterally amend contract terms, particularly inflation indexation. These plans affect a financial contract directly when its terms are altered by government fiat and indirectly when other contracts are manipulated. For example, freezing wages or other fixed obligations of a firm at an artificially low (high) level enhances (erodes) the value of debt. Based on these effects, Roe (1979, p. 3) suggests that Brazil’s interventionist state “could ‘demoralize’ economic transactions by making them appear so risky that agreements for future performance would be avoided”.

3.5. Implications of Brazil’s environment for financial contracting

Brazil’s high contracting costs have several implications for firm behavior. For example, Brazilian firms rely less on external financing than do firms in developed nations. La Porta et al. (1997) and Demirgüç-Kunt and Maksimovic (1996) indicate that ownership concentration and low reliance on external financing are the general tendencies for developing countries. Data on blue-chip Brazilian firms, provided in Table 3, confirm these tendencies. As shown in Panel A of Table 3, the top shareholder owns, on average, 54.9% of common shares and 33.2% of all shares. The top three shareholders hold an average of 74.0% of common shares and 49.0% of all shares. Panel B indicates that net worth averages 70.4% of total assets, debt 11.9%, and ‘other’ liabilities 17.7%. Mean (median) long-term debt to assets is only 5.1% (2.9%).

Nevertheless, since 1987 the Brazilian debenture market has thrived following elimination of discriminatory taxation of bond income, development of a national trading system, and regulatory authorization of indenture features that address inflation risk. Notably, 205 issues with a total face value of $9.3 billion were registered with the National Debenture System (SND – Sistema Nacional de Debêntures) from 1989 to 1993. Thus, Brazilian investors routinely exchange capital for promises for future repayment by debtor firms. Since these transactions are voluntary, the exchange must be mutually beneficial in spite of the hazards to both parties. Under the costly contracting hypothesis, the mechanisms observed in financial contracts between Brazilian firms and their investors reveal how they address hazards of contracting under extreme uncertainty. The following section describes and analyzes features of the sample indenture agreements.

Table 3
Ownership and financial structure of Brazilian firms

This table reports mean (median) measures of ownership and financial structure for the 68 nonfinancial firms listed in the 1992 edition of the Brazil Company Handbook. The data in Panel B are based on 1991 fiscal year financial statements.

<table>
<thead>
<tr>
<th>A. Equity structure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% of common shares held by top shareholder</td>
<td>54.9% (51.7%)</td>
</tr>
<tr>
<td>% of all shares held by top shareholder</td>
<td>33.2% (29.7%)</td>
</tr>
<tr>
<td>% common shares held by top three shareholders</td>
<td>74.0% (80.2%)</td>
</tr>
<tr>
<td>% of all shares held by top three shareholders</td>
<td>49.0% (48.9%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Financial structure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Net worth + deferred income)/assets</td>
<td>70.4% (70.7%)</td>
</tr>
<tr>
<td>Debt/assets</td>
<td>11.9% (9.3%)</td>
</tr>
<tr>
<td>Long-term debt/assets</td>
<td>5.1% (2.9%)</td>
</tr>
<tr>
<td>Other liabilities/assets</td>
<td>17.7% (14.0%)</td>
</tr>
<tr>
<td>Permanent assets/assets</td>
<td>70.3% (73.0%)</td>
</tr>
</tbody>
</table>
4. Description and analysis of Brazilian corporate debentures

4.1. Mechanisms that ensure real returns

All sample debentures insulate the relationship between investor and debtor from inflation. The two principal mechanisms are indexation and contingent or so-called premium remuneration. Indexation protects investors (debtors) from real losses due to higher (lower) inflation than expected at the time of contracting. Forty-four (88%) of the sample indentures index face value to a domestic price index and pay real interest on the indexed par value. Six (12%) sample debentures are indexed to the exchange rate.\(^3\) Specification of contingent indexes in the event of original index extinction is common. Sample bonds also precisely define the calculation of indexed cash flows, which is critical in an inflationary environment where distinctions such as simple versus compound interest are significant (Brazilian bond traders report instances of arbitrage trading arising from misunderstandings about whether an indenture specified a 360- or 365-day year for calculating pro rata adjustments).

As noted above, however, relative price dispersion and political risk create indexation imperfections. Sample indentures typically specify alternative indexes to be applied if the original index is disqualified, somewhat addressing political risk. The indentures respond to exhaustion of all alternative indexes by resort to an unspecified index to be approved by the debenture holders or their fiduciary agent. If the government manipulates or invalidates all possible indexes, such measures only partially address the political risk.

In addition to real interest paid on indexed par value, investors frequently earn contingent remuneration based on alternative interest rates or inflation indexes. These so-called premium payments are triggered only when beneficial to investors. Panel B of Table 4 shows the types of premiums observed in sample indentures. Eight (16%) of the 50 indentures do not provide for any kind of premium, while 12 (24%) of the indentures permit future premium remuneration but award none initially. The other 30 (60%) debentures pay premiums based on an additional fixed-rate spread (9 debentures or 18% of the sample), an alternative floating-interest rate (7 debentures or 14%), or a combination of floating interest and an alternative inflation index (14 debentures or 28%). Appendix C illustrates the coupon calculation on Sharp’s 7/1/90 debenture. Sharp’s investors receive at least a 12% real coupon plus a premium if the contractual index fails

\(^3\) The issuance of foreign exchange bonds is regulated by Brazil’s Central Bank, and issuers tend to be export firms that generate sufficient foreign exchange to offset any dollar-linked debenture obligations. Furthermore, the Central Bank of Brazil sometimes requires that foreign exchange bonds be sold to investors residing outside of Brazil, presumably to impede dollarization of the domestic financial markets.
Table 4
Inflation adjustment and premium remuneration for sample of Brazilian debentures

This table reports the prevalence of features that preserve real rates of return for a sample of 50 Brazilian corporate debentures issued between 1989 and 1993. Panel A reports the type of inflation indexation used and Panel B provides the nature of premium remuneration. Premium remuneration refers to additional return generated as a function of an additional fixed interest spread, alternative inflation indexation, alternative floating rate interest, or a combination of such factors. The categories presented in Panel B are mutually exclusive.

<table>
<thead>
<tr>
<th>Indenture feature of sample bond</th>
<th>Sample frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>A. Type of inflation indexation in sample debentures</td>
<td></td>
</tr>
<tr>
<td>Indexation to domestic Brazilian inflation</td>
<td>44</td>
</tr>
<tr>
<td>Indexation to U.S. dollar exchange rate</td>
<td>6</td>
</tr>
<tr>
<td>B. Type of premium remuneration in sample debentures</td>
<td></td>
</tr>
<tr>
<td>No premium remuneration clause</td>
<td>8</td>
</tr>
<tr>
<td>Premium permitted, but not specified for first recontracting period</td>
<td>12</td>
</tr>
<tr>
<td>Additional fixed interest premium</td>
<td>9</td>
</tr>
<tr>
<td>Alternative floating interest premium</td>
<td>7</td>
</tr>
<tr>
<td>Alternative floating interest or alternative inflation index premium</td>
<td>14</td>
</tr>
</tbody>
</table>

*Includes HSBX Bauru Empreendimentos (5/1/92), which provides for bondholders to share in net profits.

*Includes Bahia Sul Celulose (11/1/93) and Jari Celulose (12/1/93), which both provide for floating interest rates based on international pulp prices.

Includes Compugraf Tecnologia e Sistemas, which provides for profit sharing with bondholders.

Premium payments to holders of Brazilian debentures serve two functions. First, the Brazilian Constitution specifies that ‘real rates of interest, including commissions and any other remuneration directly or indirectly related to the concession of credit, may not exceed twelve-percent per year; charges above this limit will be considered criminal usury, punishable in all of its forms at terms that the law will determine’. Statutory provisions for premium payments provide a usury loophole. Consistent with this, no sample indenture refers to a premium as interest per se.

Second, premiums compensate investors if their basic return lags other relevant market indicators. Indeed, many premium clauses are justified as ‘adjusting the return on the bonds to prevailing market conditions’ (Celbrás Química e Têxtil, 9/2/91). First, a premium payment based on alternative inflation measures protects investors if the contractual inflation index fails to track these measures. Similarly, a premium payment based on market interest to match an alternative inflation measure or if any of a variety of market interest rates exceeds 12%.
rates protects investors from a drop in a debenture’s price due to an increase in interest rates. Thus, premium remuneration shifts residual inflation risk and interest-rate risk to the issuing firm. Brazilian firms may be able to hedge these risks either through operations, i.e., via their commercial pricing and contracting structures, or through the financial markets. The ability of many Brazilian firms to generate profits from treasury operations during periods of high inflation serves as indirect evidence of their financial acuity in this regard.

Protection of real returns also discourages inopportune exercise of contingent-maturity options observed in many indentures. These options can mitigate potential conflicts between debtors and creditors, so insulating them from volatile inflation or interest rates is beneficial when their inopportune exercise entails costs. For example, when an investor has the right to put the bonds the issuer’s ability to declare premium payments provides an incentive to remain invested if basic terms become misaligned with market conditions. Without premium remuneration, investors might exercise their puts and force a firm to incur refinancing costs. Indeed, many indentures justify premiums as consistent with ‘lengthening the life of the debentures’ (CVRD, 7/1/91).

4.2. Contingent-maturity features

The sample bonds range in maturity from 1–20 years (with four perpetual issues), but either the investors or the issuer can often accelerate maturity. Specifically, the investors enjoy rights to renegotiate, retire, convert the debentures to other securities, or otherwise exit from the original financial contract. Similarly, the debtors often can renegotiate or call the debentures.

4.2.1. Recontracting mechanisms

Many sample indentures require periodic recontracting, as illustrated in Fig. 3. Specifically, terms are specified for an initial period after which the debtor proposes revisions for a subsequent period. After notification of the revised conditions, each debenture holder can accept the new terms or put his bonds for the inflation-adjusted par value and accrued remuneration. This recontracting repeats at the expiration of the subsequent period. Thus, the terms of a ten-year debenture with annual recontracting will be reset nine times if it remains outstanding until maturity.

Table 5 reports that 33 (66%) of the sample debentures are subject to recontracting. Twenty-seven (84.4%) of the 32 straight bonds recontract compared to six (33.3%) of the 18 convertibles. Recontracting occurs from as few as three months following issue (Confab Industrial, 11/1/90) to as many as 84 months after issue (HSBX Bauru Empreendimentos, 5/1/92). The mean (median) number of months to recontracting is 18.5 (12.3). The Brazilian Central Bank mandated minimum spans of three years between recontracting for exchange-rate-indexed bonds in 1991 and one year for inflation-indexed bonds in 1992.
Sample debentures with more frequent recontracting were issued prior to these regulations. Thirty of the 33 debentures that recontract do so within a year or as soon as legally permissible. Finally, the average maturity for debentures that recontract exceeds maturity for other bonds. Specifically, each of the four perpetual debentures recontracts, and the average maturity of the other 29 debentures subject to recontracting is 8.0 yr versus 4.1 yr for the other 17 debentures.
Table 5
Contingent maturity features in sample of Brazilian debentures

This table provides the frequency of assorted contingent maturity provisions for a sample of 50 Brazilian corporate debentures issued between 1989 and 1993. Scheduled recontracting refers to the process illustrated in Fig. 3. Scheduled recontracting and call provisions are not mutually exclusive features.

<table>
<thead>
<tr>
<th>Contingent maturity features</th>
<th>Straight bonds (n = 32)</th>
<th>Convertible bonds (n = 18)</th>
<th>Total sample (n = 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>No contingent maturity</td>
<td>2</td>
<td>6.3</td>
<td>7</td>
</tr>
<tr>
<td>Scheduled recontracting</td>
<td>27</td>
<td>84.4</td>
<td>6</td>
</tr>
<tr>
<td>Call provision</td>
<td>22</td>
<td>68.8</td>
<td>8</td>
</tr>
<tr>
<td>Call provision or scheduled recontracting</td>
<td>30</td>
<td>93.8</td>
<td>11</td>
</tr>
</tbody>
</table>

The recontracting mechanism serves several related functions. First, long-term bonds are periodically marked to market according to prevailing conditions and firm-specific risk. Consequently, the interest-rate risk of a long-term bond that recontracts is lower than for a fixed-rate issue. Recontracting is less costly than sequentially issuing short-term notes. Estimated underwriting costs on a Brazilian issue with dollar equivalent volume of $100 million are 2.8% to 4.5% (ANDIMA, 1996b). Additional costs increase the total costs to 3.2% to 4.9% of proceeds. A long-term bond with periodic recontracting avoids new issuance costs at the expense of recontracting costs that Brazilian issuers describe as significantly smaller.

Interest-rate risk is a zero-sum game between the issuer and its investors, and either party can hedge undesired interest-rate risk if markets are complete. The notion that a call provision is motivated by interest rate risk can be similarly disputed (Kraus, 1973; Myers, 1977; Bodie and Taggart, 1978; Barnea et al., 1980, 1985). One could argue that the Brazilian financial markets are somehow inefficient or less than complete and that differential transaction costs or

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4 Datta et al. (1997) report that underwriter compensation averages 2.31% and total expenses average 2.96% for 50 US initial offerings of straight debt between 1976 and 1992. Their mean (median) offering size of $115 million ($60 million) compares to that of my sample and the premises for the estimates supplied by ANDIMA. Mikkelson and Partch (1986) report that underwriting costs averaged 1.3% for 147 seasoned US debt issues between 1972 and 1982. Investment banks perform both distribution and certification functions (Smith, 1986), so if Brazilian underwriters do not provide certification comparable to that of US underwriters this comparison may overstate underwriting costs in the U.S.
Kish and Livingston (1992) report that 83% of corporate bonds issued in the U.S. from 1977 to 1986 are callable. 88% of all nonconvertible, coupon-paying bonds issued by industrial and utility firms over this period are callable. 59.2% of bonds with maturity of less than ten years are callable, compared with 94.2% of longer-term bonds. In contrast, 11 of 13 (84.6%) nonconvertible sample Brazilian issues with maturity less than ten years are either callable or subject to recontracting, as are all of the 17 longer-term issues.

I hypothesize that recontracting reduces agency costs of debt. Foremost, periodic recontracting gives investors a put option that can be exercised if revised terms are not attractive. Revised terms must reflect changes in firm value or risk to dissuade an investor put. The investor’s periodic right to demand repayment also limits the time span in which a borrowing firm could make investment and financing decisions that would transfer wealth from creditors to shareholders. This right to periodic redemption is especially valuable when financial markets are thin and selling a security in the market as a response to changing conditions is difficult.

In addition to giving investors a put option, recontracting provides the debtor an opportunity for an implicit call. First, debtors can disingenuously propose inadequate revision of terms and thus force investors to put. Second, a successful recontracting is analogous to a call followed by a refunding by the original investors without additional flotation costs. I discuss agency-cost motivations for these implicit call options below in conjunction with explicit call options.

4.2.2. Call provisions

Many sample debentures also contain an explicit call provision in addition to the implicit opportunity to call via recontracting. The sample frequency of call provisions is provided in the third row of Table 5. Thirty (60%) of the sample debentures provide for such a call. Of the 32 straight debt issues, 22 (68.8%) have a call provision, while eight (44.4%) of the 18 convertible issues are callable. Three of the five straight issues that do not have a recontracting clause are callable, as are five of the 12 convertible issues. In sum, 41 (82.0%) of the sample debentures have either scheduled recontracting, a call provision, or both, a prevalence of combined explicit and implicit call provisions comparable to that observed in U.S. corporate debt.3 Thirty of the 32 straight issues (93.8%) are either explicitly or implicitly callable, and one of the two other issues matures in one year. Eleven of the 18 convertible issues (61.1%) either recontract

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3 Kish and Livingston (1992) report that 83% of corporate bonds issued in the U.S. from 1977 to 1986 are callable. 88% of all nonconvertible, coupon-paying bonds issued by industrial and utility firms over this period are callable. 59.2% of bonds with maturity of less than ten years are callable, compared with 94.2% of longer-term bonds. In contrast, 11 of 13 (84.6%) nonconvertible sample Brazilian issues with maturity less than ten years are either callable or subject to recontracting, as are all of the 17 longer-term issues.
or are callable. Only three issues are callable at a premium, and these call premiums are small (1% in two instances and 3% in the third). Of the 30 callable debentures, ten bonds can be called at any time, five bonds three months after issue, seven bonds six months after issue, five bonds within the first year, and three bonds coincidental with their scheduled recontracting at 18, 24, and 30 months, respectively. No refunding restrictions apply to any of the call provisions.

Both call provisions and recontracting provide the debtor opportunities for premature payment of its obligations. However, these two mechanisms are not perfect substitutes. First, while the issuer can force redemption either by a call or by offering inadequate remuneration during recontracting, a forgone call opportunity is not identical to successful recontracting because the latter demands satisfactory revision of terms. Additionally, the issuer can subsequently resell debentures redeemed by dissenting investors during recontracting, but a call terminates the debentures and refunding requires a new debt issue at additional expense. Refunding a call, consequently, is inherently more costly than the implicit call and refunding effected via recontracting. The second feature that distinguishes the call provision from recontracting opportunities is that the timing of a call is at the discretion of the issuer. Notably, all call provisions are exercisable at or before the first scheduled recontracting, if there is one. The right to call a bond at almost any time gives the issuer more flexibility at the expense of greater transaction costs incurred in refinancing. If the value of a call does not exceed the transaction costs of refunding, an issuer will forgo a call and await the relatively inexpensive call-and-refunding opportunity implicit in the next recontracting. A firm will call a bond rather than wait to recontract only if the value of a call is sufficiently high and refunding costs are sufficiently low.

Call provisions and the call opportunities implicit in recontracting reduce the agency costs of debt associated with future investment opportunities and the incentives of stockholders to transfer wealth from bondholders. First, callable debt mitigates shareholder-bondholder conflict over investment policy. If creditors benefit disproportionately, shareholders may not fully exploit all value-enhancing investment opportunities throughout the maturity of risky debt (Myers, 1977). Shareholders can also enhance the value of their equity by choosing investments of higher risk but lower value than they would without risky debt in the capital structure (Jensen and Meckling, 1976). Unprotected creditors recognize these ‘underinvestment’ and ‘asset-substitution’ problems and demand a higher return than if shareholders could commit to all value-enhancing investment. The option to accelerate debt retirement to coincide with an investment that might otherwise be forgone allows shareholders to refund at terms that reflect the enhanced value of the firm and precludes bondholders from sharing in this value enhancement (Bodie and Taggart, 1978; Barnea et al., 1980, 1985). A call provision facilitates recapitalization at almost any time; recontracting allows recapitalization at prescheduled time periods at lower
refunding costs. Thus, explicitly or implicitly callable debt mitigates Myers’ underinvestment problem. A call provision also addresses the asset-substitution problem of Jensen and Meckling. Barnea, Haugen, and Senbet (1980, 1985) show that the value of a call provision to shareholders increases with total firm value. Consequently, increased equity value due to shifting to risky but inefficient investments is offset by a decline in the value of the call provision to the shareholders. Empirical evidence based on US debt suggests that firms with high growth potential and higher default risks, presumably more susceptible to these agency costs of debt, are more likely to include call provisions in their indentures (Thatcher, 1985; Kish and Livingston, 1992). The prevalence of call mechanisms in the debt of Brazilian firms, which are typically risky firms with high growth potential, is also consistent with agency cost reduction.

Second, information asymmetries increase debt costs when investors underestimate the intrinsic value of a firm and demand excessive interest on risky debt (Barnea et al., 1980, 1985). Including a call provision reduces the costs of the debt because if bondholders underestimate firm value they will also underestimate the likelihood of a call and demand a low interest-rate premium over noncallable debt. If the true value of the firm is revealed prior to debt maturity, the firm will call the debt and refund at a lower interest rate that reflects the revised perception of firm value. Following this reasoning, Barnea et al. (1980, p. 1226) hypothesize that ‘there exists a definite preference for callable debt in an environment characterized by informational asymmetry’. Mitchell (1991) presents evidence that US firms susceptible to information asymmetries are more likely to use call provisions. As discussed in Section 3, Brazil’s economic environment is extremely volatile, perhaps best evidenced by the wild swings in the market value of traded equity. Given this volatility and the likelihood of valuation errors, Brazilian firms seem particularly vulnerable to asymmetric information costs.

4.2.3. Convertibility

Eighteen (36%) of the 50 sample debentures are convertible into shares of stock in the issuer (17 issues) or a related company (Nordeste Quimica Participações, 11/01/93). Brazilian firms divide their equity capital into ordinary shares and preferential shares distinguished by diminished voting rights and a privileged residual claim. The sample convertible debentures are exchangeable for preferential shares (eight issues), a proportionate basket of both ordinary and preferential shares (five issues), or are offered in series with each distinct series convertible into a different share class (five issues). Conversion occurs either for a fixed number of shares (seven of the 18 convertibles or 38.9%), for a number of shares that declines over time (four debentures or 22.2%), or for a number of shares determined by dividing indexed par value by diluted net worth per share (seven debentures or 38.9%). The indentures require the number of shares to be corrected for dilution after events such as stock splits. Privileged subscription
rights for additional equity offerings or exchange rights for new issues of convertibles also protect against dilution.

The 18 sample convertibles differ from the 32 straight bonds in other features. Only two convertible bonds pay a premium based on alternative interest rate or inflation measures. Only six (33.3%) of the 18 convertibles recontract, and only eight (44.4%) are callable. Three convertible debentures are callable but not subject to recontracting, and three recontract but are not callable. Seven convertible debentures are neither callable nor subject to recontracting.

Convertible bondholders are protected from wealth transfers due to alterations in the firm’s risk profile because their conversion rights dilute any enhancement in equity value due to increased risk (Jensen and Meckling, 1976). A convertible bond’s price is also less sensitive to information asymmetries about firm risk. If bondholders overestimate (underestimate) the firm’s risk, the debt portion of the convertible will be underpriced (overpriced) but the conversion option will be correspondingly overpriced (underpriced) (Brennan and Schwartz, 1988). Because of these characteristics, Brennan and Schwartz (1988, p. 59) suggest that ‘convertibles are most likely to be used by companies that the market perceives as risky, whose risk is hard to assess, and whose investment policy is hard to predict’. Brazilian firms, in general, fit this profile.

As noted above, sample convertibles differ in several aspects from sample straight debentures. First, sample convertibles are less likely to pay premiums based on alternative inflation or interest-rate measures (two of 18 convertible debentures or 11.1%, versus 59.4% of the straight bonds). Second, sample convertibles are less likely to recontract (six of 18 or 33.3%, versus 84.4% of the straight bonds) or to be either explicitly or implicitly callable (11 of 18 debentures or 61.1%, versus 93.8% of the straight bonds). These differences suggest that a conversion feature roughly substitutes for floating-interest rates, interest-rate adjustments effected through recontracting, and call options. Additional data are necessary to investigate this conjecture, however.

Stein (1992) suggests that the relative insensitivity of a convertible’s price to uncertainty about the firm’s underlying assets allows the firm to issue so-called ‘backdoor equity financing’ that is less likely to be mispriced due to asymmetric information. However, using convertibles as backdoor equity requires that such bonds be callable so that the issuer can force conversion as soon as possible. Only eight (44.4%) of the 18 convertible debentures are explicitly callable, while an additional three can be implicitly called via a disingenuous recontracting proposal. The remaining seven convertible issues (38.9%) are not callable.

4.2.4. Other contingent-maturity provisions

The maturity of Brazilian debentures can be abbreviated in three additional ways. First, almost all issuers retain the right to purchase debentures in the open market at a price not to exceed adjusted par value plus accrued remuneration. Investors must willingly sell their bonds to the issuer, however, and debentures
acquired by the firm can remain in treasury or be resold. Second, the maturity of a debenture issue is automatically accelerated during events typical of financial distress such as lack of payment, breach of other debt contracts, and declaration of bankruptcy. Finally, in addition to the standard distress-related events specified above, five indentures have an event-risk covenant that triggers maturity in the event of a change in control. For example, Bahia Sul Celulose’s 7/1/93 issue will immediately mature ‘if any governmental authority condemns, nationalizes, confiscates, or in any other manner expropriates in whole or in substantial part the property or assets of the ISSUER or its corporate capital’. Similarly, CPC’s 2/1/90 indenture accelerates maturity ‘if corporate control of the issuer is transferred, in total or partially, or if the current ownership structure of its capital is altered without prior approval of the fiduciary agent’.

4.3. Restrictive covenants

Restrictive covenants more directly protect bondholders from actions that shift wealth to other claimants. Covenants guard against wealth transfers by constraining dividend, investment, and financing policies. Table 6 reports the sample frequency of various restrictive covenants for the sample. Description and analysis of these covenants is provided below.

4.3.1. Dividend constraints

Dividends siphon assets away from the firm to its shareholders, decreasing the expected value of the firm at debt maturity and increasing default risk. In the extreme, a liquidating dividend would leave bondholders a claim to a worthless corporate shell. Dividend constraints limit a firm’s ability to make distributions to shareholders and are one of the most frequently observed restrictions in US. corporate bonds. Malitz (1986) and Begley (1991), for example, report sample frequencies of dividend constraints of 55% and 45%, respectively.

As detailed in Panel A of Table 6,16 (32%) of the sample debentures have no dividend restrictions in the indenture agreement. Thirty-four (68%) of the sample Brazilian indentures contain a boilerplate prohibition on dividends when the debtor is in arrears on payments to debenture holders. For example, Agroceres (12/1/89) must ‘not pay dividends, except those required by law, if more than 15 days in arrears on the payment of any interest, principal, and/or premium, if any, on the debentures governed by this indenture’. Such constraints do not restrict the debtor’s ability to pay dividends on dates that sufficiently precede the payment dates of bond obligations. Furthermore, as illustrated above, minimum dividends as required by corporate law, usually a percentage of adjusted net income, are technically permissible even if the issuer is in arrears to bondholders. Only four (8%) convertible bonds constrain dividends based on the current ratio or the ratio of long-term liabilities to net worth, and one of these further restricts cash flows to related parties.
Table 6
Dividend, investment, and financing covenants in Brazilian debentures

This table reports the sample frequencies of assorted restrictive covenants for a sample of 50 Brazilian corporate debentures issued between 1989 and 1993. Dividend constraints are reported in Panel A, investment restrictions in Panel B, and financing covenants in Panel C.

<table>
<thead>
<tr>
<th>Type of covenant</th>
<th>Sample frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td><strong>A. Dividend covenants</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>16</td>
</tr>
<tr>
<td>No dividends permitted when in arrears on payments to debenture holders</td>
<td>34</td>
</tr>
<tr>
<td>Restrictions on dividends as a function of financial statement variables</td>
<td>4</td>
</tr>
<tr>
<td>Other restrictions on cash flows to related parties</td>
<td>1</td>
</tr>
<tr>
<td><strong>B. Investment covenants</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>26</td>
</tr>
<tr>
<td>Maintain insurance on properties</td>
<td>16</td>
</tr>
<tr>
<td>Prohibition of operations beyond corporate objective</td>
<td>14</td>
</tr>
<tr>
<td>Constrained or targeted investment</td>
<td>4</td>
</tr>
<tr>
<td>Accelerated maturity in event of change in ownership and/or control</td>
<td>5</td>
</tr>
<tr>
<td>Secured debt</td>
<td>6</td>
</tr>
<tr>
<td>Prohibition on alienation of capital assets</td>
<td>2</td>
</tr>
<tr>
<td>Conduct affairs in diligent manner and/or observe regulations or standards</td>
<td>4</td>
</tr>
<tr>
<td><strong>C. Financing covenants</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>40</td>
</tr>
<tr>
<td>Restrictions on additional debt</td>
<td>2</td>
</tr>
<tr>
<td>Third-party guarantees on debt</td>
<td>8</td>
</tr>
<tr>
<td>Secured or privileged seniority debt</td>
<td>7</td>
</tr>
<tr>
<td>Right of exchange for new debt issues</td>
<td>2</td>
</tr>
</tbody>
</table>

The infrequent use of dividend constraints reflects, in part, the nature of investment opportunities for Brazilian firms. Brazilian firms are likely to have attractive investment opportunities but face constraints on their ability to raise external funds. Mechanisms that constrain dividends are not needed if shareholders already have powerful incentives to retain funds for expansion. The absence of meaningful dividend constraints in most Brazilian indentures can also be attributed to the contingent-maturity features discussed above in Section 4.2. Smith and Warner (p. 135) suggest that short-maturity debts are less likely to contain explicit dividend restrictions because ‘if liquidation of the firm’s assets within a short period of time is sufficiently costly to the shareholders, they are better off not selling the firm’s assets for cash in order to pay themselves a dividend’. The maturity of a sample debenture might be long-term, but put options enjoyed by debenture holders effectively abbreviate maturity and impose an implicit dividend constraint. Similarly, convertible bonds give creditors
an opportunity to switch debt for equity, effectively diluting shareholders’ ability to transfer wealth via dividends. Finally, the value that investors place on accounting-based dividend constraints may be low because Brazilian accounting standards allow for more discretion (Brazil Company Handbook, 1989–1995/6).

Notably, complicated corporate structures involving related upstream or downstream firms characterize the four issuers whose debentures (all convertible) restrict dividends. These firms (Bahia Sul Celulose, Eucatex Indústria e Comércio, Indústrias Romi, and Casa Anglo Brasileira) can shift corporate cash and other assets from the legal issuer to related corporate shells. Consequently, the dividend constraints observed in these indentures primarily protect against distributions to inside shareholders or related corporations, not to outside shareholders.

4.3.2. Constraints on investment policy

Investment covenants comprise constraints on capital investment, restrictions on disposition of assets, protection of assets used to secure debt, restrictions on mergers, and required maintenance of assets. Panel B of Table 6 lists investment covenants for the sample. Twenty-six (52%) of the sample indentures have no investment constraints. The only constraints observed with any meaningful frequency are requirements of insurance (16 debentures or 32%) and a boiler-plate pledge in 14 debentures (28%) ‘to not realize operations outside the corporate objective, observing prevailing statutory, legal, and regulatory guidelines’ (BBM Participações, 7/1/91). Only four (8%) indentures directly limit investment or demand minimum investment and only two (4%) prohibit alienation of assets. Five indentures (10%) have an ‘event-risk’ covenant that accelerates maturity in the event of a change in ownership or control. Four debentures (8%) require the issuer to conduct its affairs in a diligent manner or to conform to certain regulatory or environmental standards. Finally, the priority status of most of the sample debentures (28 or 56%) is that of a so-called ‘floating’ claim on the firm’s assets, i.e., they are backed by the ‘underlying assets of the firm without any accompanying impediments on the use or sale of assets’ (Oliveira Bastos Distribuidora, 1994, p. 12). Fifteen debentures rank lower in priority.

Most sample debentures contain no binding investment constraints, although the boilerplate ‘stick-to-the-knitting’ covenant observed in 14 indentures loosely guards against asset substitution. The six secured debentures inherently restrict the issuer’s control over pledged assets, but only four debentures constrain or target investment and only two restrict asset sales. Restrictions on investment policy are unlikely to be efficient in a volatile economic environment such as Brazil’s. Specification of future investment would result in significant ex post inefficiencies, so firms prefer investment-policy flexibility. Investors are unlikely to highly value constraints due to enforcement costs. Instead of direct investment constraints, the contingent-maturity features previously discussed provide a less costly, although indirect, way of mitigating agency conflicts. Nash et al.
(1996) infer from U.S. data that high-growth firms preserve flexibility by avoiding investment covenants. The evidence on Brazilian firms reinforces this inference.

4.3.3. Constraints on financing policy

Creditors suffer claim dilution when a debtor contracts new debt of equal or higher priority. Constraints on new debt issues protect against such dilution. Opportunities for asset substitution can also be constrained by linking new debt financing to increases in tangible assets (Malitz, 1986). Limitations on additional financing are common in U.S. debt contracts. In Begley’s (1991) sample of U.S. corporate bonds, 70% restrict new secured debt and 38% restrict other new debt. Malitz (1986) reports a frequency of 51% of financing restrictions based on tangible net assets.

All sample debentures enjoy accelerated maturity if the firm technically defaults on other debt, but specific assets secure only six bonds. Consequently, 44 sample debentures (88%) face some risk of claim dilution via the issuance of additional debt. Of these 44, one debenture enjoys a privileged claim, 28 debentures a general or ‘floating’ claim on undelineated assets, two debentures a general and lower priority claim, and 13 debentures are classified as subordinated. However, Panel C of Table 6 shows that 40 (80%) of the sample indentures contain no financing restrictions. Only two debentures restrict additional debt or prohibit accelerated payment of subordinated claims. Eight issues enjoy repayment guarantees by third parties. Two convertible issues enjoy rights to exchange for new convertible debt, but these seem to guard against dilution of the equity portion of the claim.

While there are few explicit financing constraints, there are many implicit constraints. First, debentures that recontract are subject to an implicit financing constraint: the investors’ right to put the bonds during recontracting if the firm attempts dilution via a new debt issue. Furthermore, if the recontracting, call, or convertibility provisions frequently observed in the sample address the asset-substitution problem, then restricting new debt to incremental investments in tangible assets offers little marginal benefit. Finally, Brazilian law offers some protection against dilution by restricting unsubordinated debt to certain statutory limits; unsecured, unsubordinated debt cannot exceed the firm’s stock and paid-in capital, floating-claim debt is limited to 70% of unpledged assets, and collateralized debt is limited to 80% of the value of the pledged assets (Oliveira Bastos Distribuidora, 1994). These statutory limits on debt of various priorities could reduce the marginal benefit of customized financial constraints. However, these statutory limits are not expressed directly in terms of tangible book assets, which Malitz (1986) suggests would address the asset-substitution problem.

Since Brazilian firms have more latitude to restate asset values than do U.S. firms, asset-based financing constraints are not likely to be highly valued (Brazil Company Handbook).
4.4. Enforcement mechanisms

4.4.1. Bonding activities by the issuer

Debtors have incentives to engage in bonding activities that lower the monitoring costs of creditors (Smith and Warner, 1979). Bonding activities include producing reports on the firm’s financial status, hiring auditors and credit rating agencies to assess and interpret these disclosures, purchasing insurance, and hiring a trustee to represent creditors’ interests. Since all expected monitoring costs are borne by the debtor, it benefits the debtor to contract auditors, credit agencies, insurers, and trustees when the resultant monitoring costs are less than if the creditors were left to their own devices. Brazilian issuers routinely assume the obligation to provide audited financial statements prepared according to standards that apply to all publicly owned firms. Change of auditor usually requires the approval of the debenture holders or their fiduciary agent. As noted above, 16 indentures require the issuer to maintain insurance on its properties. The trustee function, performed by a so-called fiduciary agent, is described in detail below.

With the exception of the 16 indentures that require insurance, the sample debtors assume no bonding responsibilities beyond those required by law. Notably, ‘non-GAAP’ financial reporting is not required by any indenture, nor are there contingency provisions for changes in disclosure regulations. There were no credit rating agencies in Brazil during the sample period and none of the sample debentures are rated. As noted earlier, financial statements are required by law to be audited, but auditors’ reports are not generally relied upon (Teixeira da Costa, 1993). Brazilian managers also have more reporting discretion than their U.S. counterparts regarding consolidation of statements, revaluation of assets, deferral of investment charges, allocation of pension costs, and disclosure of off-balance sheet liabilities (Brazil Company Handbook). Brazil’s volatile economy and high inflation leverage the impact of this discretion on the accuracy of financial statements. However, issuers take few actions to rectify the lack of perceived credibility of their financial disclosures, consistent with the infrequent observation of accounting-based covenants; when a firm has greater flexibility to manipulate or misrepresent its financial status, accounting-based covenants will be less valued by investors. For example, an accounting-based covenant can be evaded if accounting discretion is sufficiently high. In contrast, an investor’s right to put during recontracting is unequivocal and exercisable at his own discretion.

4.4.2. Responsibilities of the fiduciary agent

Each indenture specifies a fiduciary agent to represent the interests of debenture holders. By law, a fiduciary agent must ‘employ in the exercise of his function the care and diligence that all active and serious men [sic] are accustomed to employ in the management of their own affairs’ (ANDIMA, 1994). The fiduciary (i) protects investors’ rights, (ii) monitors debtor compliance with the
indenture, (iii) periodically reports to investors, and (iv) declares default, executes rights to collateral, and represents investors in bankruptcy (Oliveira Bastos Distribuidora, 1994). Fiduciary agents can also handle administrative tasks such as investor registration and payment processing. Forty-four (88%) indentures contract brokerages or security dealers as fiduciaries; six contract individuals. Conflict-of-interest statutes effectively exclude commercial banks as fiduciary agents. Fiduciary compensation is $10,000 to $14,000 per year plus expenses (ANDIMA, 1996b).

Smith and Warner discuss whether a trustee, compensated by the issuer and susceptible to bribes for overlooking indenture violations, will act in the interests of investors. They suggest that reputational considerations restrain such opportunism. The Brazilian financial community perceives the sample’s most frequently named fiduciary agents as specialists and market leaders.6 Brazilian law demands, however, that a debtor contract a separate fiduciary for each separate debt issue, so firms with multiple issues employ several fiduciaries. Notably, six individuals each serve as a fiduciary agent for a single debenture, but five of these issues date from mid-1990 or earlier. It appears that institutions have (i) increasingly sought and received regulatory authorization to provide fiduciary services, (ii) gained reputations as specialists in this role, and (iii) garnered market share as a result. However, the fiduciary market is nascent in Brazil and securities dealing and brokerage firms may not have as much actual and reputational capital at stake as do commercial banks that typically serve as fiduciaries in the U.S.

4.4.3. Additional enforcement mechanisms

The U.S. enjoys rich common-law and statutory traditions that ground parties’ expectations about legal enforcement of bond contracts. Furthermore, the judiciary is regarded as relatively impartial and efficient in dispute resolution, so much so that a vein in U.S. legal scholarship argues that judges should assume responsibility beyond interpreting debt contracts ‘within the four corners’ of the written document (Bratton, 1989; Riger, 1991; Eastman and Viswanath, 1995).

In contrast, Brazil enjoys no formal notion of stare decisis, and reliance on judicial precedence is perilous (D’Almeida Pires Filho, 1991). Consequently, judicial enforcement is perceived as costly and unreliable. Under Brazilian law, a debtor merely confers to investors ‘the right of credit against it as per the conditions contained in the indenture agreement and bond certificate’ (ANDIMA, 1994, 1996a). Indeed, several issues explicitly define the indenture as a self-enforcing agreement. Casa Anglo’s 8/1/92 issue, for example, states that ‘the

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6 Oliveira Bastos is fiduciary for 14 issues, SLW for eight, Sanvest for seven, Aporte for four, Núcleo and Ruy Lage for two issues each, and seven firms are fiduciaries for a single sample debenture.
debentures of the current issue are extra-judicial, self-executing securities'. Most potential conflicts, short of formal default, are addressed by mechanisms that bypass arguably inefficient public remedies. For example, sample contracts typically avoid restrictive covenants that could require third-party enforcement. Instead, the debtor's obligation is to pay all fixed and contingent obligations to investors without additional constraints. Additionally, when debenture holders contemplate proposed changes in indenture provisions, a simple majority or at most two-thirds approval is usually required with no special rights for dissenters. Finally, anecdotes concerning distressed debtors suggest that investors typically vote to accept informal workouts rather than to press their claims via the judicial process. Although a thorough discussion of bankruptcy procedures is beyond the scope of this study, the Brazilian bankruptcy law is available at the U.S. House of Representatives' Internet Law Library.

5. Conclusions

Four features characterize the indenture agreements of 50 Brazilian corporate debentures issued between 1989 and 1993. First, these contracts largely insulate returns from the ravages of inflation. Second, sample indentures contain a variety of contingent-maturity mechanisms that provide opportunities for exit, adaptation, and renegotiation. Third, the indentures typically do not materially restrict the debtor's dividend, investment, and financing policies. Finally, the sample debentures tend to bypass arguably inefficient institutions by reliance on self-enforcement mechanisms. Inferences based on analysis of these contractual mechanisms have implications for our understanding of financial contracting and institutional frameworks in emerging economies.

Financial contracts observed in the U.S. represent only a narrow range of feasible contract forms, so examination of contracts from other environments broadens evidence on the costly contracting hypothesis of Smith and Warner. For example, restrictive covenants reduce agency costs of risky debt, and extant research on U.S. corporate debt investigates whether such covenants are more common for firms with more growth opportunities or higher risk (e.g., Malitz, 1986; Begley, 1991; Lehn and Poulsen, 1991; Nash et al., 1996). Given Brazil's volatile economy and its weak institutional environment, direct constraints on debtor behavior are difficult to enforce and likely to be inefficient ex post. Consequently, firms are likely to desire flexibility while potential investors are unlikely to value protective covenants. Consistent with this reasoning, I observe relatively few restrictive covenants in my sample of Brazilian indentures. Rather, the contracts rely on contingent-maturity mechanisms, i.e., recontracting, call provisions, and convertibility, that indirectly address agency costs of risky debt (Barnea et al., 1980, 1985). These indirect mechanisms seem less costly than restrictive covenants in the Brazilian environment.
The study also contributes to our understanding of institutions in emerging markets. North (1990), for example, suggests that inchoate contract-enforcing institutions characteristic of the developing world both reflect and contribute to economic underdevelopment. La Porta et al. (1997) and Demirgüç-Kunt and Maksimovic (1996) suggest that investors do not enjoy sufficient protection in countries with civil-law traditions and weak legal systems, exacerbating hazards of external financing. A highly evolved institutional environment is not a prerequisite for complex financial contracts, however. In general, weak institutions hinder financial contracting but also affect the nature of contracts that are actually observed. Brazil’s institutional environment is inefficient and unreliable. This institutional fragility is exacerbated by economic volatility that could exogenously induce breach of restrictive contract terms such as covenants on a firm’s investment, financing, and dividend policies. Because resort to institutions such as the judiciary in the likely event of such breaches raises the costs of performance-specific covenants, I hypothesize that the costs of using enforcement institutions influence the extent of self-enforcement mechanisms in financial contracts. Indeed, Klein (1992, p. 158) observes, ‘Rather than thinking about transactors using contract terms to create optimal incentives on some court enforceable characteristic or proxy for performance, it is generally more instructive to think of contract terms as economizing on the amount of private enforcement capital necessary to make the transacting party’s relationship self-enforcing’. Consistent with this perspective, Brazilian financial contracts are largely self-enforcing via contingent-maturity mechanisms, do not directly restrict debtor behavior, and hence rely very little on institutions such as the judiciary to fill ex post gaps in enforcement.

In conclusion, the Brazilian environment presents many obstacles for firms seeking debt financing. Chronic inflation, volatile real-sector activity, underdeveloped institutions, and an interventionist state combine to elevate contracting costs. Inefficiently designed financial contracts are likely to be heavily penalized in such an environment. Nevertheless, Brazilian firms display imagination in overcoming economic and institutional hazards to efficient financial contracting with their investors. Study of the debt contracts that represent the fruits of their creativity enhances our knowledge of financial contracting under uncertainty. Finally, since 1994 Brazil has implemented a new economic plan, reduced inflation, and taken steps toward liberalization. How these reforms and other institutional changes in emerging markets affect financial contracting is an intriguing topic for additional research.
## Appendix A. Sample of Brazilian corporate debentures

<table>
<thead>
<tr>
<th>Brazilian debenture issuer</th>
<th>Date of issue</th>
<th>No. of series issued/authorized</th>
<th>Years to original maturity</th>
<th>Months to first recontracting&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Straight or convertible</th>
<th>Local value of issue&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Dollar value of issue&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acesita</td>
<td>01/01/93</td>
<td>1/1</td>
<td>3</td>
<td>n.a.</td>
<td>Convertible</td>
<td>1,253,863,200,000 Cr</td>
<td>$106,183,105</td>
</tr>
<tr>
<td>Agroceres SA (Sementes Agroceres)</td>
<td>12/01/89</td>
<td>1/1</td>
<td>5</td>
<td>18</td>
<td>Straight</td>
<td>221,104,400 NCz</td>
<td>$30,234,018</td>
</tr>
<tr>
<td>Bahia Sul Celulose</td>
<td>07/01/93</td>
<td>2/2</td>
<td>3/8&lt;sup&gt;d&lt;/sup&gt;</td>
<td>n.a.</td>
<td>Convertible</td>
<td>2,366,259,750 CR</td>
<td>$44,896,935</td>
</tr>
<tr>
<td>Bahia Sul Celulose</td>
<td>11/01/93</td>
<td>2/2</td>
<td>6</td>
<td>36</td>
<td>Convertible</td>
<td>21,750,000,000 CR</td>
<td>$128,904,166</td>
</tr>
<tr>
<td>BBM Participações</td>
<td>07/01/91</td>
<td>1/1</td>
<td>10</td>
<td>12</td>
<td>Straight</td>
<td>10,000,000,000 Cr</td>
<td>$32,969,569</td>
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<tr>
<td>Casa Anglo Brasileira</td>
<td>08/01/92</td>
<td>2/2</td>
<td>3</td>
<td>n.a.</td>
<td>Convertible</td>
<td>148,900,000,000 Cr</td>
<td>$36,665,846</td>
</tr>
<tr>
<td>Celbras Quimica e Têxtil</td>
<td>09/01/90</td>
<td>1/1</td>
<td>10</td>
<td>6</td>
<td>Straight</td>
<td>2,126,073,600 Cr</td>
<td>$30,455,144</td>
</tr>
<tr>
<td>Celbras Quimica e Têxtil</td>
<td>09/02/91</td>
<td>3/3</td>
<td>3/4/5</td>
<td>12</td>
<td>Convertible</td>
<td>6,060,000,000 Cr</td>
<td>$15,816,260</td>
</tr>
<tr>
<td>CESP (Cia. Energetica de Sao Paulo)</td>
<td>07/01/93</td>
<td>12/12</td>
<td>19-30 mos.</td>
<td>n.a.</td>
<td>Straight</td>
<td>8,040,000,000 CR</td>
<td>$152,549,339</td>
</tr>
<tr>
<td>Ciquine Cia. Petroquimica</td>
<td>08/01/90</td>
<td>1/2</td>
<td>10</td>
<td>11</td>
<td>Straight</td>
<td>1,762,434,300 Cr</td>
<td>$25,755,287</td>
</tr>
<tr>
<td>Compugraf Tecnologia e Sistemas</td>
<td>09/01/93</td>
<td>3/5</td>
<td>5</td>
<td>12</td>
<td>Straight</td>
<td>6,000,000,000 CR</td>
<td>$65,352,358</td>
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<tr>
<td>Confab Industral</td>
<td>11/01/90</td>
<td>1/1</td>
<td>8</td>
<td>3</td>
<td>Straight</td>
<td>3,789,185,000 Cr</td>
<td>$36,677,814</td>
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<td>Confab Industriel</td>
<td>09/01/93</td>
<td>1/1</td>
<td>10</td>
<td>24</td>
<td>Straight</td>
<td>10,879,000,000 CR</td>
<td>$118,494,717</td>
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<tr>
<td>CPC (Cia. Petroquimica Camaçari)</td>
<td>02/01/90</td>
<td>2/2</td>
<td>5</td>
<td>6</td>
<td>Straight</td>
<td>1,265,163,200 NCz</td>
<td>$69,975,841</td>
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<tr>
<td>CTM Citrus</td>
<td>07/01/93</td>
<td>1/2</td>
<td>20</td>
<td>36</td>
<td>Convertible</td>
<td>271,680,000 CR</td>
<td>$5,000,000</td>
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<tr>
<td>CVRD (Cia. Vale do Rio Doce)</td>
<td>07/01/91</td>
<td>1/1</td>
<td>15</td>
<td>36</td>
<td>Straight</td>
<td>31,222,000,000 Cr</td>
<td>$102,937,589</td>
</tr>
<tr>
<td>Eletrobras</td>
<td>06/01/89</td>
<td>1/1</td>
<td>5f</td>
<td>n.a.</td>
<td>Convertible</td>
<td>440,001,210 NCz</td>
<td>$385,965,974</td>
</tr>
<tr>
<td>Eletropaulo</td>
<td>07/01/93</td>
<td>1/1</td>
<td>5</td>
<td>13</td>
<td>Straight</td>
<td>2,700,000,000,000 Cr</td>
<td>$51,229,255</td>
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<tr>
<td>Enersul</td>
<td>09/01/93</td>
<td>1/1</td>
<td>5</td>
<td>n.a.</td>
<td>Convertible</td>
<td>5,270,650,000 Cr</td>
<td>$57,408,234</td>
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### Appendix A. Continued.

<table>
<thead>
<tr>
<th>Brazilian debenture issuer (alphabetical order)</th>
<th>Date of issue</th>
<th>No. of series issued/authorized</th>
<th>Years to original maturity</th>
<th>Months to first retracting</th>
<th>Straight or convertible</th>
<th>Local value of issue</th>
<th>Dollar value of issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eucatex</td>
<td>10/01/93</td>
<td>3/3</td>
<td>8</td>
<td>n.a.</td>
<td>Convertible</td>
<td>7,795,800,000 CR</td>
<td>$62,752,958</td>
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<td>Força e Luz Cataguazes-Leopoldina</td>
<td>07/01/90</td>
<td>1/2</td>
<td>10</td>
<td>12</td>
<td>Straight</td>
<td>1,446,171,000 Cr</td>
<td>$24,102,850</td>
</tr>
<tr>
<td>HSBX Bauru Empreendimentos</td>
<td>05/01/92</td>
<td>7/7</td>
<td>perpetual</td>
<td>84</td>
<td>Straight</td>
<td>241,700,000,000 Cr</td>
<td>$105,004,323</td>
</tr>
<tr>
<td>Indústria e Comércio Chapecó</td>
<td>06/01/90</td>
<td>1/1</td>
<td>10</td>
<td>8</td>
<td>Straight</td>
<td>879,586,000 Cr</td>
<td>$16,091,950</td>
</tr>
<tr>
<td>Indústrias Romi</td>
<td>05/01/92</td>
<td>3/3</td>
<td>3/3/8</td>
<td>n.a.</td>
<td>Convertible</td>
<td>31,400,000,000 Cr</td>
<td>$13,641,439</td>
</tr>
<tr>
<td>Indústrias Villares</td>
<td>06/20/89</td>
<td>1/1</td>
<td>6</td>
<td>unspecified*</td>
<td>Convertible</td>
<td>14,523,000 NCz</td>
<td>$10,760,966</td>
</tr>
<tr>
<td>Indústrias Villares</td>
<td>06/01/90</td>
<td>1/2</td>
<td>6</td>
<td>12</td>
<td>Straight</td>
<td>1,539,275,500 Cr</td>
<td>$28,160,913</td>
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<tr>
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<td>03/01/93</td>
<td>1/1</td>
<td>3</td>
<td>n.a.</td>
<td>Straight</td>
<td>165,000,000,000 Cr</td>
<td>$8,567,423</td>
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<tr>
<td>Iochpe-Macion</td>
<td>09/01/92</td>
<td>2/2</td>
<td>5</td>
<td>n.a.</td>
<td>Convertible</td>
<td>260,000,000,000 Cr</td>
<td>$51,211,345</td>
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<td>Jari Celulose</td>
<td>12/01/93</td>
<td>1/1</td>
<td>10</td>
<td>36</td>
<td>Convertible</td>
<td>14,065,159,500 Cr</td>
<td>$61,449,428</td>
</tr>
<tr>
<td>Melhoramentos de São Paulo</td>
<td>11/01/91</td>
<td>2/2</td>
<td>10</td>
<td>12/13</td>
<td>Straight</td>
<td>6,000,000,000 Cr</td>
<td>$9,551,555</td>
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<tr>
<td>Mendes Júnior-Construtora</td>
<td>10/01/89</td>
<td>1/1</td>
<td>5</td>
<td>n.a.</td>
<td>Straight</td>
<td>450,758,100 NCz</td>
<td>$119,564,483</td>
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<tr>
<td>Mendes Júnior</td>
<td>08/01/93</td>
<td>55/55</td>
<td>5–6†</td>
<td>n.a.</td>
<td>Straight</td>
<td>16,191,000,000 Cr</td>
<td>$236,090,874</td>
</tr>
<tr>
<td>Mesbla</td>
<td>01/01/90</td>
<td>1/1</td>
<td>Perpetual</td>
<td>6</td>
<td>Straight</td>
<td>547,590,000 NCz</td>
<td>$62,408,042</td>
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<td>Mesbla Trust</td>
<td>10/01/93</td>
<td>2/2</td>
<td>3</td>
<td>n.a.</td>
<td>Convertible</td>
<td>6,500,000,000 Cr</td>
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<td>Mesbla Trust</td>
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<td>2/2</td>
<td>1</td>
<td>n.a.</td>
<td>Straight</td>
<td>50,000,000,000 Cr</td>
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<td>Nordeste Química Participações</td>
<td>11/01/93</td>
<td>1/1</td>
<td>3</td>
<td>n.a.</td>
<td>Convertible</td>
<td>1,766,900,000 Cr</td>
<td>$10,471,760</td>
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<tr>
<td>Perdigo Agroindustrial</td>
<td>10/01/91</td>
<td>1/1</td>
<td>12</td>
<td>36</td>
<td>Straight</td>
<td>8,068,000,069 Cr</td>
<td>$16,308,874</td>
</tr>
<tr>
<td>Pisa-Papel de Imprensa</td>
<td>07/01/90</td>
<td>3/3</td>
<td>10</td>
<td>9/12/15</td>
<td>Straight</td>
<td>917,354,471 Cr</td>
<td>$15,119,940</td>
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<tr>
<td>Rhodia</td>
<td>01/02/90</td>
<td>1/1</td>
<td>Perpetual</td>
<td>18†</td>
<td>Straight</td>
<td>2,316,400,000 NCz</td>
<td>$128,119,469</td>
</tr>
<tr>
<td>Ripasa</td>
<td>02/01/93</td>
<td>1/1</td>
<td>5</td>
<td>n.a.</td>
<td>Convertible</td>
<td>761,513,750,000 Cr</td>
<td>$47,800,000</td>
</tr>
<tr>
<td>Sharp</td>
<td>07/01/90</td>
<td>2/2</td>
<td>5</td>
<td>6</td>
<td>Convertible</td>
<td>2,227,103,340 Cr</td>
<td>$37,118,389</td>
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<tr>
<td>Sharp</td>
<td>10/01/93</td>
<td>4/4</td>
<td>4/4/5/5</td>
<td>n.a.</td>
<td>Convertible</td>
<td>14,914,573,062 Cr</td>
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<td>Sifco</td>
<td>04/02/90</td>
<td>1/1</td>
<td>5</td>
<td>7</td>
<td>Straight</td>
<td>888,934,200 Cr</td>
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<tr>
<td>Supergasbrás Indústria e Comércio</td>
<td>08/01/91</td>
<td>2/2</td>
<td>5</td>
<td>24</td>
<td>Straight</td>
<td>10,606,500,000 Cr</td>
<td>$31,489,179</td>
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<tr>
<td>--------------------------------------------</td>
<td>--------------</td>
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<td>--------------</td>
<td>---------------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Telebrás</td>
<td>09/01/92</td>
<td>1/1</td>
<td>12</td>
<td>12</td>
<td>Straight</td>
<td>518,460,000,000 Cr</td>
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<td>Telebrás</td>
<td>07/01/93</td>
<td>1/1</td>
<td>12</td>
<td>13</td>
<td>Straight</td>
<td>16,710,000,000 CR</td>
<td>$317,052,170</td>
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<tr>
<td>Telebrás</td>
<td>12/01/93</td>
<td>1/3</td>
<td>12</td>
<td>13</td>
<td>Straight</td>
<td>47,876,000,000 CR</td>
<td>$209,165,975</td>
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<tr>
<td>Trafo Equipamentos Eletrônicos</td>
<td>10/01/93</td>
<td>1/1</td>
<td>10</td>
<td>24</td>
<td>Straight</td>
<td>3,902,000,000 CR</td>
<td>$31,409,482</td>
</tr>
<tr>
<td>Varig</td>
<td>10/1/90</td>
<td>2/2</td>
<td>5/5½</td>
<td>8/7</td>
<td>Straight</td>
<td>8,664,045,000 Cr</td>
<td>$103,143,393</td>
</tr>
<tr>
<td>White Martins</td>
<td>09/15/89</td>
<td>3/3</td>
<td>Perpetual</td>
<td>24</td>
<td>Straight</td>
<td>140,000,000 NCz</td>
<td>$46,397,561</td>
</tr>
</tbody>
</table>

a”n.a.” = not applicable, i.e., no scheduled recontracting.
bNCz = Cruzados Novos; Cr = Cruzeiros; CR = Cruzeiros Reais
cConverted from local currency at exchange rate quotation from the Wall Street Journal on day of issue or average of bracketing business days.
dBahia Sul’s first series has a maturity of three years. The second series has a maturity of eight years with a 10% per semester sinking fund starting 3.5 yr from issue.
eBahia Sul’s second issue is convertible via detachable warrants.
fEletrobrás’ issue has an amortization of 10% after two years, an additional 20% after three years, and an additional 30% after four years, making average maturity four years.
gHSBX Bauru Empreendimentos’s first two series, which compose 78% of the proceeds, are perpetual without recontracting. The remaining five series are to be recontracted starting five years after completion of the development financed by the issue—seven years after issue.
hIndústrias Villares’ 6/20/89 issue does not contain a standard recontracting clause in its indenture. However, it specifies a ‘repurchase date’, to be specified in the subscription notice, at which holders can put their bonds or retain them and receive a ‘to-be-specified’ continuation premium.
iMendes Junior’s issue has 36 series with a five-year maturity and 19 series with maturities staggered quarterly from 18 months to six years after issue.
jThe Mendes Junior is also novel in that the bonds may be cashed in by the purchasers to satisfy invoices billed by Mendes Junior or Siderúrgica Mendes Junior, an affiliate that co-guarantees the 37th through 55th series.
kThe Nordeste Química Participações debentures can be converted into preferential stock owned by Nordeste in another firm, COPENE, and pledged for conversion purposes.
lRhodia’s indenture originally specified a recontracting period of six months, but prior to subscription the period was lengthened to 18 months after the issue date.
mVarig authorized a first series issued on 10/1/90 and a second series that was authorized but unspecified until 12/3/90. The first series was to be recontracted in June 1991, and the second series in July 1991.
Appendix B. An English language translation of a Brazilian indenture

The following is a full-text translation of a relatively simple and straightforward Brazilian indenture contract for corporate debentures. The issuing firm is Trafo-Equipamentos Elétricos S.A., an electrical machinery manufacturing firm with headquarters in Porto Alegre. The issue date is 1 October 1993, and the dollar equivalent value of the debentures upon issue is US$ 31.4 million. The indenture is from pages 49-54 of the original filing with the Rio de Janeiro office of the Comissão de Valores Mobiliários. All translation is by the author for purposes of illustration and should not be relied upon as an authoritative representation of the issuer’s obligations or holders’ rights under the indenture or Brazilian Law.

PRIVATE INSTRUMENT OF INDENTURE FOR THE ISSUE OF SIMPLE DEBENTURES OF TRAFO-EQUIPAMENTOS ELÉTRICOS

By means of this Private Instrument of Indenture for Issue of Debentures, TRAFO EQUIPAMENTOS ELÉTRICOS S.A., headquartered in the city of Porto Alegre, at Rua 25 de Fevereiro, 47, State of Rio Grande do Sul, CGF/MF No. 90.286.105/0001-41, identified as such by its Charter and henceforth referred to as the ISSUER, and OLIVEIRA BASTOS D.T.V.M. LTDA., headquartered in the City of Rio de Janeiro at Av. Rio Branco, 1561 - suite 901, State of Rio de Janeiro, CGC/MF No. 36.113.876/0001-91, identified as such by its Social Contract, as FIDUCIARY AGENT, representing the communion of holders of the debentures which are the object of this Indenture, and in compliance with article 61, paragraph 1 of Law 6.404/76, regulate the conditions of the subject issue of debentures in accordance with the following clauses:

I. PERTAINING TO ISSUANCE REQUIREMENTS

The issuance of debentures will be conducted in observance of the following requirements:

1. Registry with the Comissão de Valores Mobiliários

The issue will be registered with the Comissão de Valores Mobiliários – CVM as per Laws No. 6.385 of 12/7/76, 6.404 of 12/15/76, and other relevant legal instructions.

2. Registry of Issue Indenture

The Indenture, as Private Instrument, will be registered at the File of Registry of Securities in the City of Porto Alegre, State of Rio Grande do Sul.

II. PERTAINING TO THE ISSUE

1. At the Special General Meeting of 10/18/93, whose minutes will be published and archived at the Junta Comercial of the State of Rio Grande do Sul, the shareholders of the ISSUER approved the current issue of debentures with the following general characteristics:

1.1. Total Value

The value of the issue is CRS 3,902,000,000.00 (three billion, nine hundred and two million cruzeiros reais) divided into 3,902 (three thousand, nine hundred and two) debentures of par value CRS 1,000,000.00 (one million cruzeiros reais).

1.2. Form/Type

The debentures are nominal, subordinated, and not convertible into shares.

1.3. Issuance Date

For all legal purposes the issuance date is 10/1/93.

1.4. Maturity Date

The debentures mature on 10/1/2003.
1.5. Monetary Correction
The debentures will have their par value corrected according to the cumulative variation of the IGP-M - General Index of Market Prices, calculated by the IBRE/FGV, Instituto Brasileiro de Economia of the Fundação Getúlio Vargas of Rio de Janeiro. In case of the extinction of the IGP-M, or if it cannot be utilized as an adjustment index in debenture issues due to law or regulation, or even if the criteria for its application to such issues is altered, new indices of monetary adjustment or the alluded to alterations in the criteria of the IGP-M will be promptly and automatically applicable to this issue.

1.5.1. The precise determination of updated par value for the purpose of obligations or events, including subscription, for intermediate dates that do not correspond to the first day of each month, observing the notice in item 1.13 below, will be effectuated by means of the pro rata variation of the prior month’s variation in the IGP-M.

1.6. Remunerative Interest
Interest payments will vary in each recontracting period.

1.6.1. In the period preceding the first recontracting the debentures will pay interest at a rate of 12% p.a. (twelve percent per year), calculated exponentially for the number of days since the issuance date and on the basis of a par value updated in the manner specified in item 1.5, paid on the recontracting date.

1.6.2. Prior to the other recontracting periods, the Board will meet to determine the interest that will prevail for the remaining periods and the payment dates.

1.7. Premium Interest
The ISSUER may pay premiums to holders designed to maintain the return on the bonds at rates prevailing in the financial markets, observing their interests, and obligating the Board of Directors of the ISSUER to determine the date of any premium payments, as well as formula for the calculation and payment conditions.

1.7.1. It has been established that no premium payment will accrue for the period preceding the first recontracting for this issue.

1.8. Recontracting
The Board of Directors of the ISSUER will meet to fix the duration of each recontracting period and to determine interest and premiums, including those of permanence if judged necessary, their respective criteria, and payment dates. The decisions of the Board of Directors pertaining to each recontracting will be published by the ISSUER for two consecutive days, with the last publication on the 10th (tenth) business day immediately prior to the beginning of the respective recontracting period.

1.8.1. It has been established that the first recontracting will occur on 10/1/95.

1.8.2. Obligatory Acquisition
The ISSUER commits itself to repurchase all the debentures in circulation at the close of the respective recontracting periods (recontracting dates), at the option of debenture holders that do not accept the conditions proposed by the Board of Directors of the ISSUER. The repurchase will be for the par value plus interest and premia, if any. If a debenture holder opts for the sale of debentures to the ISSUER, he must do so in the period between the 10th (tenth) and the 5th (fifth) business day immediately prior to the day of recontracting by means of formal and documented registry at the servicing Institution of the holder or directly with the ISSUER. The debentures subject to such a procedure may be canceled, remain in the treasury of the ISSUER, or be placed again in the market.

1.9. Subscription Price
The debentures will be sold at subscription for their corrected par value, as per item 1.5, with accrued interest, calculated pro-rata exponentially, as per item 1.6, for the days...
between issue and subscription in accordance with the following formula:

\[ PS = VN \times (1 + IGP-M) \left( \frac{(ds-1)}{(dm)} \times \frac{(1+i)}{(360)} \right) \]

- **PS** = Subscription price
- **VN** = par value adjusted to the first of the present month
- **IGP-M** = Index of variation of the IGP-M in the prior month
- **i** = the first capitalization period’s interest rate of 12%
- **ds** = subscription day
- **dm** = number of days in month of subscription
- **dd** = number of days between issuance and subscription.

### 1.10. Penalty Interest

If the **ISSUER** delays in the payment of any sum owed to the debenture holders it will be subject to penalty interest of 1% (one percent) per month on the balance owed.

### 1.11. Payment Local

Payments of interest, premium, and principal due on the debentures of this issue will be effected utilizing the procedures adopted by CETIP or at the headquarters of the **ISSUER** for debenture holders not linked into this system.

### 1.12. Accelerated Maturity

The obligations of this issue and subject to this instrument may be declared due and payable by the **FIDUCIARY AGENT** following a vote in favor of such in the Assembly of Debenture Holders by at least one half of the debentures in circulation, obligating payment by the firm, in current currency, of the corrected par value, interest, and premiums (if any), in the event of the following: (a) a legitimate and formalized protest by the holders against the firm; (b) decree of failure of the **ISSUER**; (c) request for preventive bankruptcy restructuring by the firm; (d) failure by the firm to cover any obligation that become 40 (forty) days overdue; and (e) accelerated maturity of any debt of the firm due to contractual breach whose sum, in any way, may diminish the coverage of the obligations of the firm associated with the present issue.

### 1.13. Extension of Deadlines

Payment deadlines will be considered extended, without any increase in amount to be paid, until the following business day if the payment date coincides with a bank or commercial holiday.

### 1.14. Trading

The issue will be registered in the SND – National Debenture System, administered by ANDIMA – the National Association of Open Market Institutions and operationalized via CETIP – Center for Custody and Clearing of Bonds.

### 1.15. Accelerated Retirement

The **ISSUER** reserves the right to call the debentures in circulation at any time, observing a minimum period of 180 days (one hundred and eighty days) from the date of announcement, by means of payment of the respective par value plus accrued interest at the call date, plus any premia, if any. The retirement may be total or partial by lottery.

### 2. Assembly of Debenture Holders

The registered holders of the debentures, at any time, may meet in assembly in order to discuss any subject of common interest among the holders. The Assembly may be convened by the **ISSUER**, by holders that represent at least 10% (ten percent) of debentures in circulation, by the **FIDUCIARY AGENT**, or by the **Comissão de Valores Mobiliários**. The Presidency of the Assembly will fall to a holder elected by registered holders of debentures in circulation. The Assembly will convene for its initial meeting with the presence of holders of at least half the debentures in circulation and subsequently with any number. In the Assembly's deliberations, each debenture will be given one vote. Any modifications of the terms of the debentures subject to this Indenture will depend on the approval of holders of at
least 50% (fifty percent) of the debentures in circulation, excluding, for the purposes of this quorum, the debentures held by the **ISSUER**. The **FIDUCIARY AGENT** will attend the Assemblies of Debenture Holders.

3. **Pertaining to the Fiduciary Agent**

3.1. **OLIVEIRA BASTOS D.T.V.M. LTDA.**, headquartered in the City of Rio de Janeiro at Av. Rio Branco 151-Suite 902, State of Rio de Janeiro, registered in the CGF/MF under the No. 36.113.876/0001-91, is named as **FIDUCIARY AGENT** of the present issue, in accordance with article 66 of Law 6.404, and declares that it accepts its nomination and that it is able to perform this function.

3.1.1. The Assembly of Debenture Holders as well as the **Comissão de Valores Mobiliários - CVM** have authority to replace the **FIDUCIARY AGENT** in the event of vacancy or if it fails to perform its obligations.

3.1.2. As remuneration for services performed the **ISSUER** will pay the **FIDUCIARY AGENT CRS** 520,160.00 (five hundred and twenty thousand, one hundred and sixty cruzeiros reais) per year, with the first payment on 11/01/93 and the last on 11/1 of the year of maturity of the issue, observing the following conditions:

a) The payments will be monetarily corrected by means of the IGP-M (General Index of Market Prices) or in its absence by the same index used for the issue of debentures, starting on 10/1/93 until each payment date, calculated on a daily pro-rata basis, if necessary, using the index from the previous month; necessary,

b) The remuneration does not include expenses for publications, travel, or lodging necessary for the function of the **FIDUCIARY AGENT** to be covered by the **ISSUER**;

c) All the expenses, including administrative, for legal procedures which the **FIDUCIARY AGENT** incurs to safeguard the interests of the debenture holders must be pre-approved and provided for by the holders and subsequently, as specified by Law, reimbursed by the **ISSUER**:

d) In the event of delay in payment of any sum owed under this Clause, the debt in arrears will be subject to penalty interest in the manner defined for obligations subject to this indenture.

e) The payments will be inflated in compensation for the following taxes: ISS (taxes on services of any nature), PIS (Contribution to the Program for Social Integration), and any other taxes that come to be levied on the remuneration of the **FIDUCIARY AGENT**, excepting Income Tax.

3.2. It falls on the **FIDUCIARY AGENT** to:

a) protect the rights and interests of the debenture holders, employing in the exercise of this function the care and diligence that all active and serious men [sic] are accustomed to employ in the management of their own affairs;

b) renounce this function in the event of conflict of interest or any other form of incapability;

c) securely archive all indenture documents, correspondence, and other papers related to the exercise of its functions;

d) monitor the observe of deadlines for the disclosure of obligatory information, informing the holders about any omissions or untruths contained in such disclosures;

e) issue legal verification about the sufficiency of disclosure contained in proposals for the modification of debenture terms;

f) solicit, when judged necessary for the faithful execution of its duties, updated copies of any legal procedures or filings in the local of the **ISSUER**'s headquarters or principal place of business;

g) solicit, when considered necessary, a special audit of the firm;
h) convene, when necessary, the Assembly of Debenture Holders by means of public announcement at least three times in the organs of the press where the ISSUER must place its announcements;

i) attend the Assembly of Debenture Holders in order to supply information requested of it;

j) make a report to the debenture holders, as per article 68, paragraph 1-b of Law 6.404/76, which must contain at least the following information:

   j.1 any omission or untruth, that may become known, contained in the disclosures of the company or even any insufficiency or delay in any obligatory disclosure;

   j.2 statutory alterations occurring in the period;

   j.3 commentary on the financial statements of the company, focusing on economic, financial, and capital structure ratios of the company;

   j.4 status of the distribution or placement of debentures in the market;

   j.5 call, amortization, recomtracting, or interest payments made in the period, as well as purchases or sales of debentures effected by the ISSUER;

   j.6 monitoring of the destination of funds raised by the issuance of debentures, in accordance with the data obtained from the management of the ISSUER;

   j.7 fulfillment of other obligations assumed by the company in the indenture;

   j.8 a declaration of its ability to continue exercising the function of FIDUCIARY AGENT.

k) make the report discussed above available to debenture holders within four months of the close of the company’s fiscal year at the following locations:

   • at the headquarters of the company;
   • at its headquarters;
   • at the CVM;
   • at the Institution that led in the underwriting of the debentures.

l) publish, in the organs of the press where the ISSUER effects its publications, an announcement to the debenture holders that the report is available at the locations indicated above under k;

m) remain current regarding the debenture holders and their addresses, including by means of gestures taken in conjunction with the ISSUER;

n) monitor compliance with the clauses composing the Indenture of this issue, especially those imperatives of negative and affirmative action;

o) notify the debenture holders, individually if possible, within a maximum period of 90 days, of any breach by the company of the obligations assumed in the indenture, indicating the location in which it will furnish greater clarifications to those interested. Communication of an equal nature must be sent to the Comissão de Valores Mobiliários-CVM;

p) verify, at the moment of accepting the function, the accuracy of the information contained in the Indenture, diligently noting the sense in which omissions, shortcomings, or known defects could be rectified;

q) if the ISSUER does not do so, promote the registration of the Indenture and any appendices at the appropriate office, correcting any gaps or irregularities that may exist, and have the registry official notify the management of the ISSUER to furnish any necessary documents.

3.3. In the event of the financial distress of the ISSUER, the FIDUCIARY AGENT must use any and all action in order to protect the rights and defend the interests of the debenture holders, and above all:

a) declare observed the conditions of the Indenture, prematurely mature the debentures, and demand their principal and accessory payments;

b) request the declaration of failure of the ISSUER.
c) take whatever safeguard necessary in order that the debenture holders may realize sums due; and

d) represent the debenture holders in the ISSUER’s bankruptcy procedures.

3.3.1. The FIDUCIARY AGENT may only escape responsibility for the non-adoption of the measures contemplated in a) to c) above if the convened Assembly of Debenture Holders authorizes such by unanimity of debentures in circulation. Regarding line d), approval by a majority of debentures in circulation is sufficient.

4. Additional Obligations of the ISSUER

The ISSUER is additionally obligated to:

4.1. Furnish to the FIDUCIARY AGENT:

4.1.1. copies of its financial statements within a maximum of 60 days after the close of a fiscal half-year;

4.1.2. complete financial statements within 90 days of the close of the fiscal year;

4.1.3. any available information solicited, immediately;

4.1.4. information requested by CVM instruction No. 60/87 and No. 73/87, with the same delivery schedule as to the CVM itself.

4.2. submit, as legally required, its financial statements and accounts for audit by an independent auditing firm registered with the CVM.

4.3. always keeps its registry as an open corporation current with the CVM and furnish the debenture holders the financial statements demanded by article 176 of Law No. 6.404/76.

4.4. maintain in appropriate status an office of service to debenture holders with the goal of securing efficient treatment of holders of record or to contract authorized financial institutions to provide this service.

4.5. not pay dividends, except those outlined in article 202 of Law No. 6.404/76, or any other share of profits if it is more than 30 (thirty) days behind in payment of adjusted par value, interest, or premium (if any) with respect to the debentures which are the subject of this indenture, with such prohibition voided as soon as the delay in payment is rectified.

5. Distribution

A differentiated procedure will be adopted for the distribution of debentures, referenced in article 33 of Instruction CVM No. 13/80, such that the participating Institutions of the present issue will effect the placement of their respective lots according to the demands of their clients, preferentially and without demanding reservation deposits, or minimum or maximum lots.

6. Pertaining to Jurisdiction

The jurisdiction of the City of Porto Alegre, State of Rio Grande do Sul, has been chosen as the jurisdiction, with exclusion to all others, regardless of privilege, to decide questions of interpretation resulting from this Indenture. And to transform the present Private Instrument of Indenture for Issue of Debentures as the characteristics approved by the Special General Meeting held on 10/18/93, it has been signed in quintuplicate in the presence of two witnesses.

Porto Alegre, October 19, 1993

Signature of Chairman of

TRAFO EQUIPAMENTOS ELÉTRICOS

Signature of Representative of

OLIVEIRA BASTOS D.T.V.M. LTDA.
WITNESSES

1. Signature of Witness

2. Signature of Witness

REGISTRATION: Registry of Real Estate of the 4th Zone-Comarca de Porto Alegre-RS. I certify that the issue of debentures of this Private Instrument of Indenture for the Issue of Simple Debentures was registered under No. 3878-Book No. 3-Auxiliary Register on 11/24/93-authorizing clerk: Antonio Augustus Greca.

Appendix C.

The premium remuneration clause of Sharp’s 7/1/90 debenture issue

The first annual coupon for Sharp’s 7/1/90 issue is calculated as follows:

\[
CP_1 = \text{MAX}(P_0 \times \text{BTN}_1 \times I, P_0 \times (F - 1)),
\]

where

\( CP_1 \) = first annual coupon payment,
\( P_0 \) = par value of bond at date of issue,
\( \text{BTN}_1 \) = cumulative variation in the official government inflation index used for treasury bonds (bônus do tesouro nacional) over the first year of the bond’s life
\( I \) = real interest rate of 12%, effective for first year of bond’s life,
\( F \) = premium factor adjustment, where \( F = \text{MAX}(F_1, F_2, F_3) \), where

\[
F_1 = \prod \left[ 1 + \frac{1}{\prod (1 + R_{\text{cd},t,t})} \right],
\]

\( R_{\text{cd},t,t} \) = average rate on interbank certificates of deposit on day \( t \) of month \( t = 1, \ldots, 12 \) of the first year of the bond’s life.

\[
F_2 = \prod \left[ 1 + 1.5\% + \text{IGP-M}_t \right],
\]

\( \text{IGP-M}_t \) = inflation in month \( t \), measured by the Index of General Market Prices,

\[
F_3 = \prod \left[ 3\% + \text{MAX}(R_1, R_2) \right],
\]

\( R_1 \) = \( \prod (1 + R_{\text{fixed},t}) \), where
\( R_{\text{fixed},t} \) = ex ante fixed rate on bank time deposits in month \( t \), and

\( R_2 \) = \( \prod (1 + R_{\text{float},t}) \), where
\( R_{\text{float},t} \) = ex post floating rate on bank time deposits in month \( t \).

The indenture’s actual description of the premium calculation is considerably less parsimonious than this presentation.
References


Myers, S., Majluf, N., 1984. Corporate financing and investment decisions when firms have information that investors do not have. Journal of Financial Economics 13, 187–221.


